Tetra Tech EM Inc.

135 Main Street, Suite 1800 ♦ San Francisco, CA 94105 ♦ (415) 543-4880 ♦ FAX (415) 543-5480

November 7, 2000

Barney Chan
Hazardous Materials Specialist
Alameda County Health Care Services Agency
Environmental Health Services
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

00 NOV 13 AM 9:35

Subject: **Submittal of May 2000 Quarterly Monitoring Reports for 2301 East 12th Street, and Revised Reports for 1200 20th Avenue and 744 East 12th Street in Oakland, California for J. W. Silveira Company**

Dear Mr.Chan:

Enclosed please find one copy each of the May 2000 quarterly groundwater monitoring reports for the sites at 2301 East 12th Street, 1200 20th Avenue, and 744 East 12th Street in Oakland, California. Tetra Tech EM Inc. (TtEMI) conducted the quarterly sampling activities on May 22nd and 23rd, 2000.

We have revised the previous quarterly groundwater sampling report for the sites located at 1200 20th Avenue and 744 East 12th Street. These reports include the groundwater sampling data sheets that were not included in the reports dated October 16, 2000.

Thank you for your assistance. Please feel free to call me at (415) 222-8316 with any questions or comments concerning these reports.

Sincerely,

for Hal Dawson
Project Manager/Geologist

cc: J.W. Silveira Company
Shapiro Buchman Provine & Patton LLP
File

#4868

Tetra Tech EM Inc.

135 Main Street, Suite 1800 ◆ San Francisco, CA 94105 ◆ (415) 543-4880 ◆ FAX (415) 543-5480

November 7, 2000

J. W. Silveira Company
499 Embarcadero
Oakland, California 94606

Subject: May 2000, Second Quarterly Monitoring Report for the Site Located at 1200 20th Avenue, Oakland

INTRODUCTION

The purpose of this report is to provide the results of the quarterly groundwater monitoring conducted in the second quarter of 2000. Groundwater samples were collected from 3 monitoring wells located at the site on May 23, 2000. The site is located at the east corner of the intersection of 20th Avenue and Solano Way in Oakland, California (Figure 1).

SITE BACKGROUND

Two underground storage tanks (USTs) were previously located at the site. The two 600-gallon USTs, 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 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 UST removal action activities, three groundwater monitoring wells were installed at the site (Figure 2). This report discusses the May 2000 quarterly groundwater sampling of the three monitoring wells at the site.

GROUNDWATER SAMPLING ACTIVITIES

For the second quarterly sampling event in the year 2000, the three monitoring wells at the site were sampled on May 23, 2000. The depth of groundwater was measured at each well with an electronic depth probe. The depth to the monitoring well caps were removed from the tops of the well and the groundwater was allowed to equilibrate before the depth to groundwater was measured. Each well was purged and sampled with a dedicated disposable bailer. During the purging of the monitoring well a Horiba U10 water quality checker was used to measure the following physical parameters of the groundwater: pH, temperature, electrical conductivity, dissolved oxygen, and turbidity. Copies of the groundwater field sampling sheets are provided in Appendix A. These physical parameters were monitored to determine when the groundwater in the well casing was representative of the groundwater outside of the monitoring well. After the physical parameters of the groundwater had stabilized groundwater samples were collected from the well. The samples were placed in the appropriate sample containers provided by the laboratory. After each sample was labeled the sample was stored in a cooler of ice under a chain-of-custody control. The groundwater samples were sent to Curtis & Tompkins Analytical Laboratories (C&T), in Berkeley, California. C&T is a California state-certified laboratory. The groundwater samples were analyzed for BTEX, methyl tertiary-butyl ether (MTBE), and TPH-g.

GROUNDWATER GRADIENT

The groundwater elevations were calculated for each of the monitoring wells from the measured depth to groundwater at the site. The depth to groundwater is measured from the top of casing at each well, and the groundwater elevations measured at the site are presented in Table 1. The groundwater flow direction and gradient at the site were calculated using these data. The groundwater flow direction is north 21 degrees east (N21E), as shown on Figure 3. MW-3 is down gradient from the location of the former UST, and MW-1 and MW-2 are slightly up gradient to the north and southeast, respectively, of the former UST location. The direction of groundwater flow is nearly opposite to the direction of the ground surface slope at the site. Although MW-2 is located at a higher elevation than

the location of the former UST, this well is down gradient (with respect to groundwater flow) from the location of the former UST. The groundwater gradient was calculated to be 0.04 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 at the site.

GROUNDWATER ANALYTICAL RESULTS

BTEX and TPH-g were detected in the groundwater sample collected from MW-1 (sample number JW2-15); MBTE was not detected in this groundwater sample. BTEX, MTBE, and TPH-g were not detected in the groundwater samples collected from MW-2 and MW-3. Table 2 presents the analytical results for the May 2000 quarterly sampling event at the site. The detected concentrations of benzene, toluene, ethylbenzene, and total xylenes in the groundwater sample from MW-1 are 3,700, 430, 770, and 2,440 micrograms per liter (ug/L) respectively. The concentration of TPH-g detected in groundwater at MW-1 is 18,000 ug/L. The complete laboratory data package and chain-of-custody is attached as Appendix B at the end of this report.

CONCLUSIONS AND RECOMMENDATIONS

This report presents the analytical results of the May 2000 quarterly groundwater monitoring event for the three wells located at the site. No groundwater contaminants are detected in the monitoring wells MW-2 and MW-3. Monitoring well MW-1 still has elevated levels of TPH-g and BTEX compounds.

In previous discussions with the Alameda County Health Care Services Agency (ACHCSA), it was recommended that the groundwater contamination in MW-1 be addressed through some form of remediation so that site closure can be attained. After the April 1999 sampling event, TtEMI discussed inserting an oxygen-releasing compound (ORC) sock into MW-1 with ACHSCA. After the February 2000 quarterly groundwater sampling event the contaminant concentrations in groundwater from MW-1 decreased significantly without the presence of an ORC sock in the well. Tables 3, 4, and 5 show the analytical history of groundwater samples collected from the 3 monitoring wells since February of 1995. At that time TtEMI recommended reviewing the analytical results of the May 2000 quarterly sampling prior to installing an ORC sock into the well. If contaminant concentrations in groundwater from MW-1 continued to decrease over time, this would show that

natural attenuation is occurring and the site should be suitable for closure without requiring use of an ORC sock. This current, May 2000, quarterly groundwater contaminant concentrations did not continue to decrease in groundwater from MW-1. The contaminant concentrations returned to the same approximate levels as found in the April 1999 sampling event. TtEMI recommends installation of an ORC sock into the well for remediation purposes.

Should you have any questions, please feel free to contact the undersigned project manager, Hal Dawson, at (415) 222-8316.

Sincerely,

Hal Dawson
TtEMI Project Manager

Jerry Wickham
Registered Geologist #3766

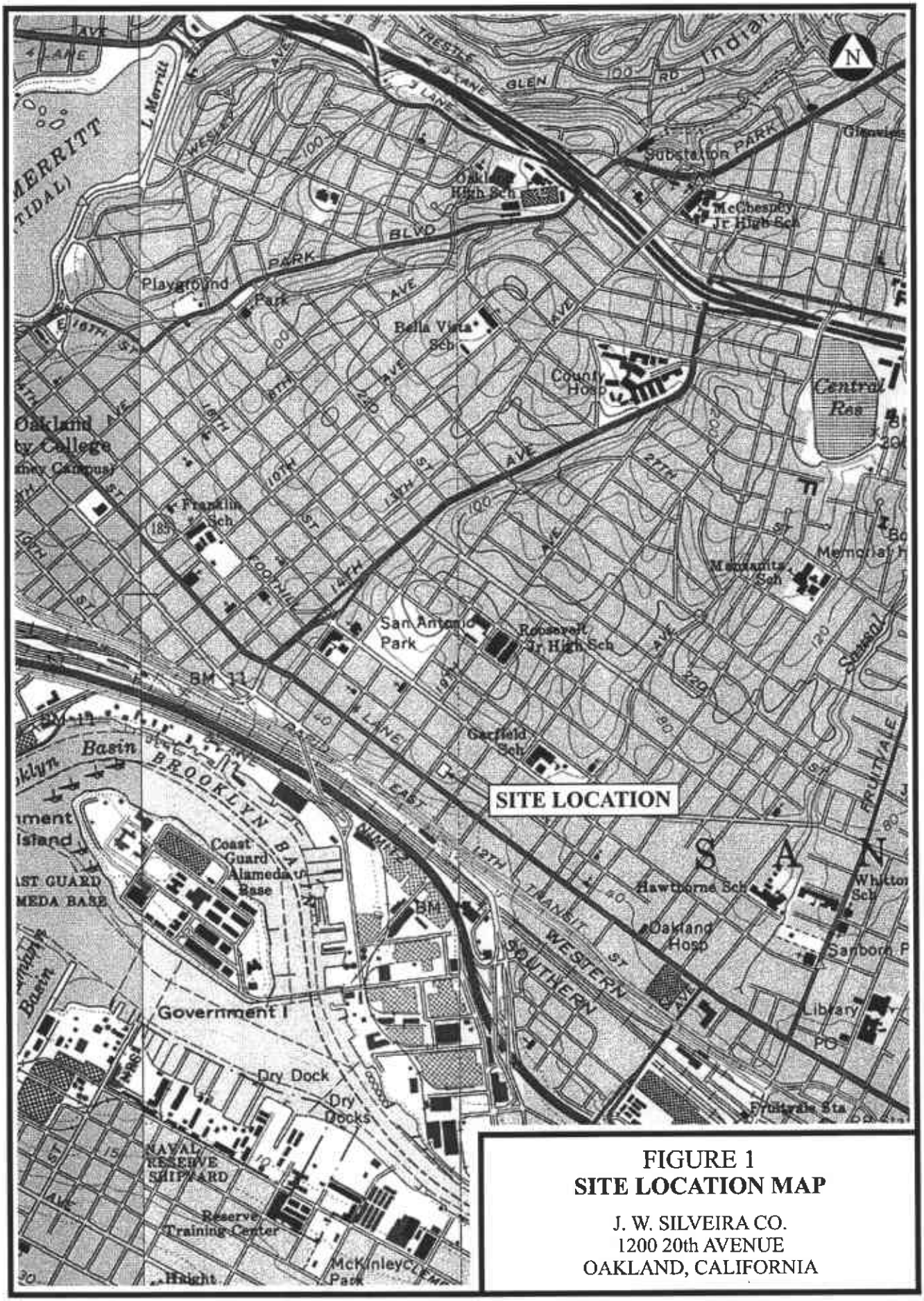
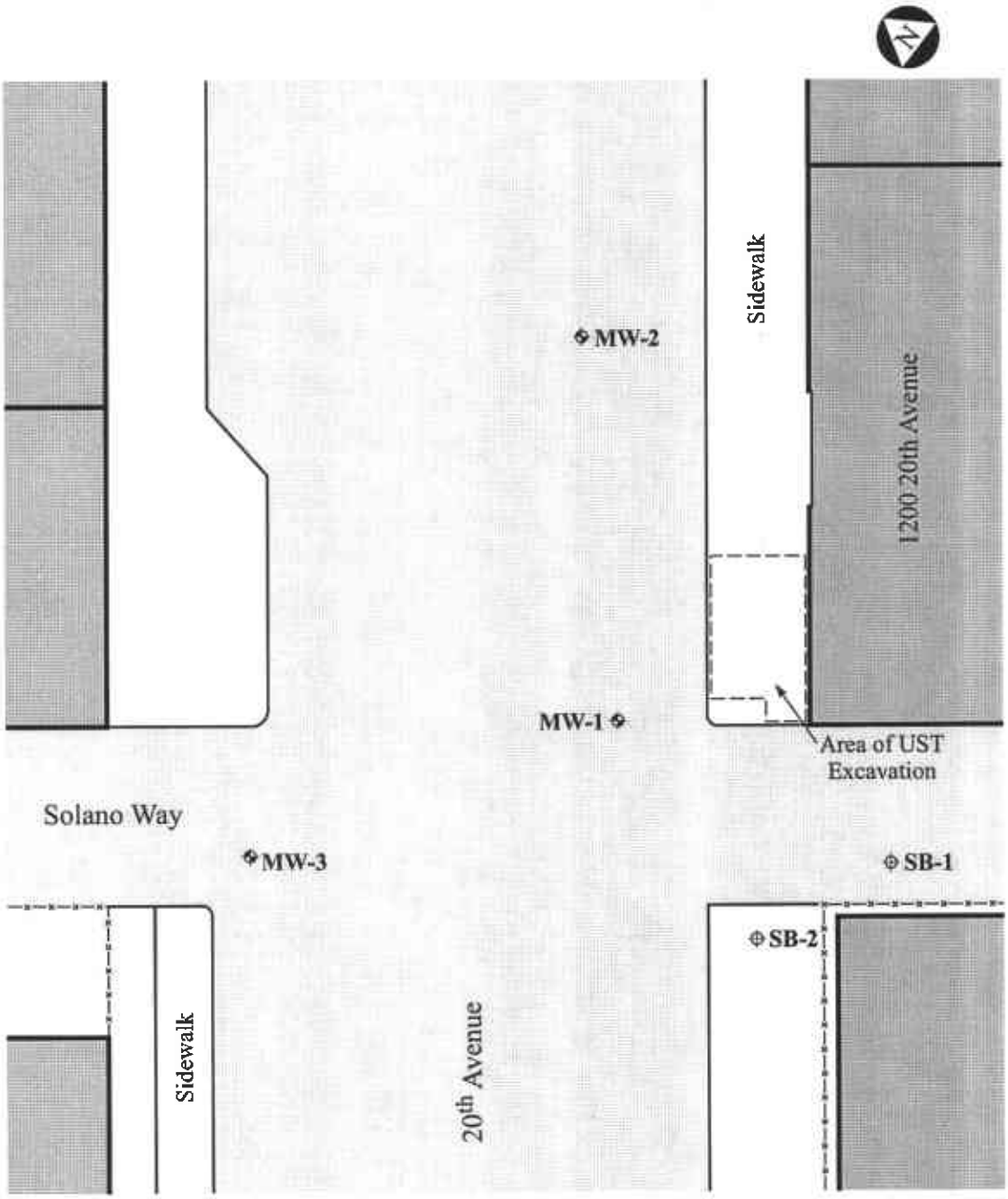


FIGURE 1
SITE LOCATION MAP

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



Notes:

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

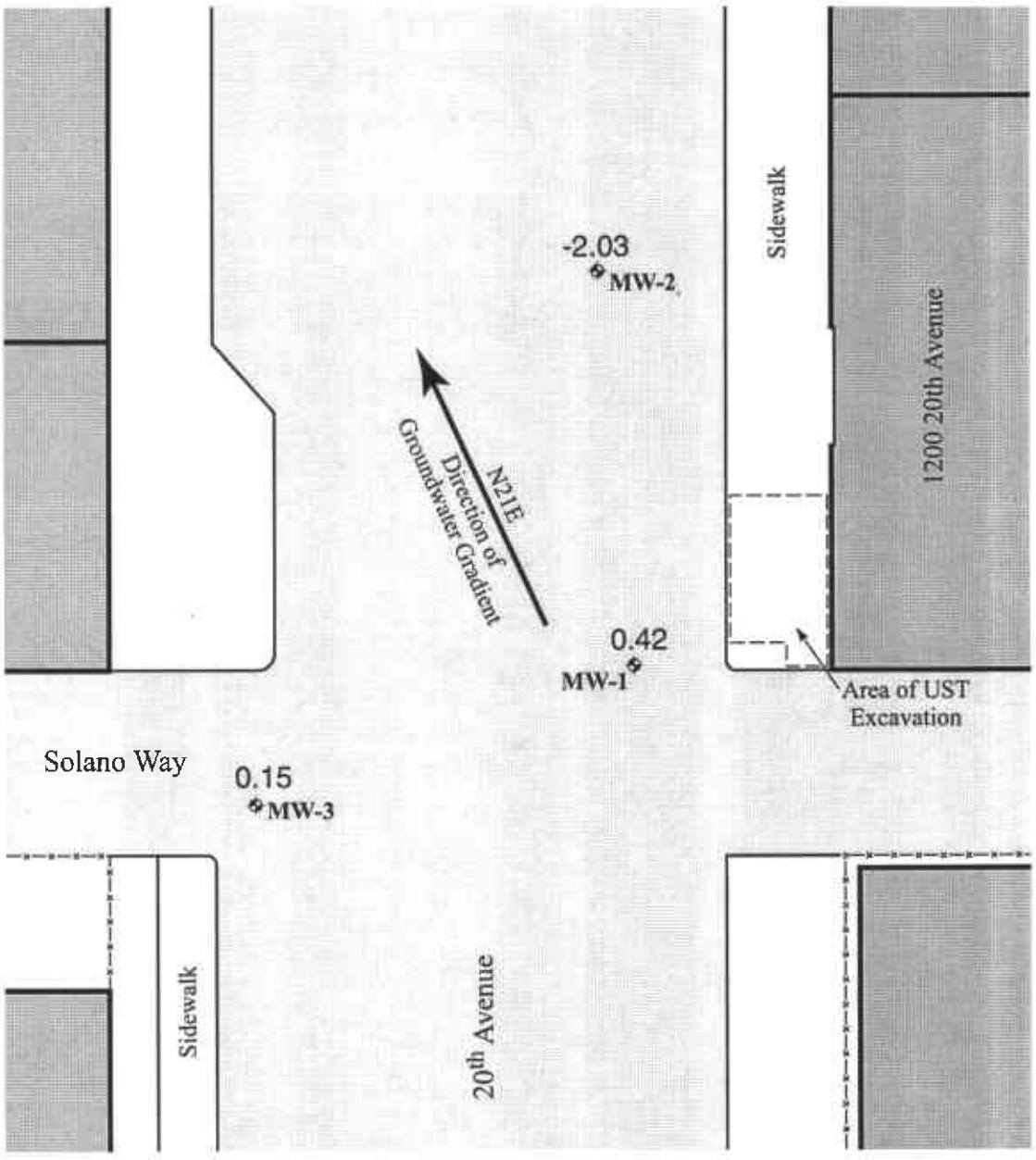
Scale: 1 inch = 20 feet

0 10 20 30 40

FIGURE 2
MONITORING WELL AND SOIL BORING LOCATIONS

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

Tetra Tech EM Inc.



Notes:

◆ Monitoring Well (MW)

0.15 Groundwater elevation in feet above mean sea level

Scale: 1 inch = 20 feet

0 10 20 30 40

FIGURE 3
GROUNDWATER GRADIENT

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
5/23/00	0.42	-2.03	0.15

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
SECOND QUARTER GROUNDWATER RESULTS
VOC AND TPH COMPOUNDS
1200 20TH AVENUE

Analyte	Monitoring Well		
VOC (µg/L)	**MW-1**	**MW-2**	**MW-3**
Benzene	3,700	*ND*	*ND*
Ethylbenzene	430	*ND*	*ND*
Toluene	770	*ND*	*ND*
m,p-Xylenes	2,000	*ND*	*ND*
o-Xylene	440	*ND*	*ND*
MTBE	*ND*	*ND*	*ND*
TPH (µg/L)	**MW-1**	**MW-2**	**MW-3**
Gasoline	18,000	*ND*	*ND*

Notes:

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

MW-1 is water sample JW2-15
MW-2 is water sample JW2-16
MW-3 is water sample JW2-17

TABLE 3
VOC AND TPH COMPOUNDS IN GROUNDWATER
MW-1 FROM FEBRUARY 1995 TO MAY 2000
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
Feb-00	3,000	280	17	92	118
May-00	18,000	3,700	430	770	2,440

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 MAY 2000
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*
Feb-00	*ND*	*ND*	*ND*	*ND*	*ND*
May-00	*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*
Feb-00	*ND*	*ND*	*ND*	*ND*	*ND*
May-00	*ND*	*ND*	*ND*	*ND*	*ND*

Notes:

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

APPENDIX A
GROUNDWATER SAMPLING DATA SHEETS

GROUNDWATER SAMPLING RECORD

DATE 5/23/09 PAGE 1 OF 2

MONITORING WELL NO. 1

PROJECT JW Silveira

SITE 2 - 1200 20th Ave.

PROJECT NO. P110604

TOTAL GALLONS TO BE PURGED

PURGING METHOD

SAMPLING METHOD

Time	Volume of Water Removed (gallons)	Discharge Rate (gal/min)	Field Parameters Measured: pH	Specific Conductivity (ms/cm)	Turbidity (ntu)	Dissolved Oxygen (mg/L)	Temp. (°C)			Water Level (feet)	Comments
1405	Initial		6.75	1.15	89	0.09	21.1°				
1411	3 gal		6.77	1.17	151	0.43	20.3°				
1417	6 gal		6.75	1.15	118	0.16	20.2°				
1421	9 gal		6.75	1.19	350	0.61	19.9°				
1425	12 gal		6.75	1.18	599	0.69	20.0				
1432	15 gal		6.74	1.18	506	0.75	20.0				Parameters Stable Sample Well @ 1435 (COC + Labels Say 1300 because they were pre-made).

FIELD EQUIPMENT	SERIAL NUMBER	RENTAL COMPANY

SAMPLE ID: JW2-15

ANALYSIS:

COC NUMBER:

SAMPLING PERSONNEL:

TETRA TECH EM INC.
• SAN FRANCISCO •

GROUNDWATER SAMPLING RECORD

DATE 5/23/00 PAGE 2 OF 2

MONITORING WELL NO 1

PROJECT JW Silveira

SITE 2 -1200 20th Ave

PROJECT NO P110604

CASING DIAMETER 2 inches

BOREHOLE DIAMETER 8.25 inches

TOP OF CASING ELEVATION 17.15 feet

WATER LEVEL 16.73 feet bgs @ _____

WATER LEVEL ELEVATION 0.42 feet msl

STANDING WATER COLUMN 12.09 feet

WELL VOLUMES TO BE PURGED _____

MINUMUM PURGE VOLUME _____ gallons

ACTUAL VOLUME PURGED _____ gallons

VOLUME CALCULATED BY:

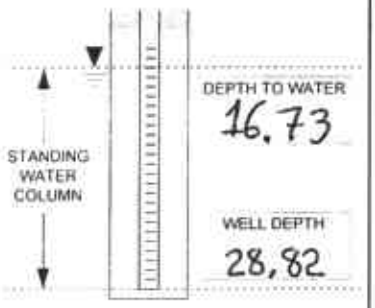
HWD

PURGE VOLUME CALCULATION

One Well Volume = Casing Volume + Annulus Volume

One Well Volume = 2.06 gal + 9.47 gal

One Well Volume = 11.53 gallons



Casing Volume = Standing Water Column (ft) x Pipe Volume (gal/linear ft)[a]

Casing Volume = 12.09 ft x 0.17 gal/linear ft

Casing Volume = 2.06 gallons

NOTE
a Refer to Table 1
b Refer to Table 2
c Assuming Sand Pack Porosity of 30%

Annulus Volume = [(Standing Water Column (ft) x Borehole Volume (gal/linear ft)[b]) - Casing Volume] x 0.3[c]

Annulus Volume = [(12.09 ft x 2.78 gal/linear ft) - 2.06 gal] x 0.3

Annulus Volume = 9.47 gallons

Table 1
Pipe Volume of Schedule 40 PVC Casing

Diameter (inches)	OD (inches)	ID (inches)	Volume (gal/linear ft)	Diameter (inches)	OD (inches)	ID (inches)	Volume (gal/linear ft)
1.25	1.660	1.380	0.08	4	4.500	4.026	0.66
2	2.375	2.067	0.17	6	6.625	6.065	1.50
3	3.500	3.068	0.38	8	8.625	7.981	2.60

Table 2
Volume of Borehole

Diameter (inches)	Volume (gal/linear ft)	Diameter (inches)	Volume (gal/linear ft)	Diameter (inches)	Volume (gal/linear ft)
7.25	2.14	8.25	2.78	9.25	3.52
7.75	2.45	8.75	3.12	10.25	4.29

GROUNDWATER SAMPLING RECORD

DATE 5/23/00 PAGE 1 OF 2

MONITORING WELL NO. 2

PROJECT JW Silveira

SITE 2 - 1200 20th Ave.

PROJECT NO. P1106Ø4

TOTAL GALLONS TO BE PURGED _____

PURGING METHOD _____

SAMPLING METHOD _____

Time	Volume of Water Removed (gallons)	Discharge Rate (gal/min)	Field Parameters Measured: pH	Specific Conductivity (ms/cm)	Turbidity (ntu)	Dissolved Oxygen (mg/L)	Temp. (°C)			Water Level (feet)	Comments
1455	Initial		6.65	Ø.749	18	4.62	2Ø.3°				
1507	4 gal		6.69	Ø.764	113	4.85	19.8°				
1509	6 gal		6.7Ø	Ø.768	323	4.82	19.6°				
1513	9 gal		6.65	Ø.76Ø	158	4.75	19.5°				
1522	12 gal		6.67	Ø.761	275	4.79	19.5°				Parameters Stable Sample @ 1425 (COC + labels say 1400 because labels were pre-prepared).

FIELD EQUIPMENT	SERIAL NUMBER	RENTAL COMPANY

SAMPLE ID: JW2-16

ANALYSIS: _____

COC NUMBER: _____

SAMPLING PERSONNEL:

TETRA TECH EM INC.
• SAN FRANCISCO •

GROUNDWATER SAMPLING RECORD

DATE 5/23/00 PAGE 2 OF 2

MONITORING WELL NO. 2

PROJECT JW Silveira

SITE 2 - 1200 20th Ave

PROJECT NO. P1106.04

CASING DIAMETER 2 inches

BOREHOLE DIAMETER 8.25 inches

TOP OF CASING ELEVATION 20.11 feet

WATER LEVEL 22.14 feet bgs @ _____

WATER LEVEL ELEVATION -2.03 feet msl

STANDING WATER COLUMN 9.06 feet

WELL VOLUMES TO BE PURGED _____

MINUMUM PURGE VOLUME _____ gallons

ACTUAL VOLUME PURGED _____ gallons

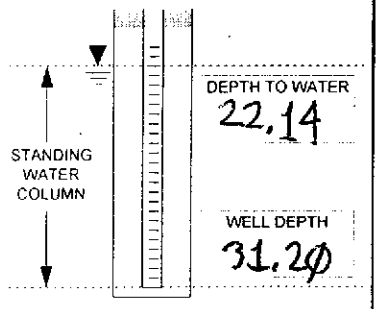
VOLUME CALCULATED BY: HWD

PURGE VOLUME CALCULATION

One Well Volume = Casing Volume + Annulus Volume

One Well Volume = 1.54 gal + 7.09 gal

One Well Volume = 8.63 gallons



Casing Volume = Standing Water Column (ft) x Pipe Volume (gal/linear ft)[a]

Casing Volume = 9.06 ft x 0.17 gal/linear ft

Casing Volume = 1.54 gallons

NOTE
a Refer to Table 1
b Refer to Table 2
c Assuming Sand Pack Porosity of 30%

Annulus Volume = [(Standing Water Column (ft) x Borehole Volume (gal/linear ft)[b]) - Casing Volume] x 0.3[c]

Annulus Volume = [(9.06 ft x 2.78 gal/linear ft) - 1.54 gal] x 0.3

Annulus Volume = 7.09 gallons

Table 1
Pipe Volume of Schedule 40 PVC Casing

Diameter (inches)	OD (inches)	ID (inches)	Volume (gal/linear ft)	Diameter (inches)	OD (inches)	ID (inches)	Volume (gal/linear ft)
1.25	1.660	1.380	0.08	4	4.500	4.026	0.66
2	2.375	2.067	0.17	6	6.625	6.065	1.50
3	3.500	3.068	0.38	8	8.625	7.981	2.60

Table 2
Volume of Borehole

Diameter (inches)	Volume (gal/linear ft)	Diameter (inches)	Volume (gal/linear ft)	Diameter (inches)	Volume (gal/linear ft)
7.25	2.14	8.25	2.78	9.25	3.52
7.75	2.45	8.75	3.12	10.25	4.29

GROUNDWATER SAMPLING RECORD

DATE 5/23/00 PAGE 1 OF 2

MONITORING WELL NO. 3

PROJECT JW Silveira

SITE 2 – 1200 20th Ave

PROJECT NO. P110604

TOTAL GALLONS TO BE PURGED _____

PURGING METHOD _____

SAMPLING METHOD _____

Time	Volume of Water Removed (gallons)	Discharge Rate (gal/min)	Field Parameters Measured: pH	Specific Conductivity (ms/cm)	Turbidity (ntu)	Dissolved Oxygen (mg/L)	Temp. (°C)			Water Level (feet)	Comments
1542	Initial		6.82	1.41	779	6.51	19.8°				
1548	3 gal		6.90	1.45	983	6.33	19.6°				
1553	6 gal		6.91	1.42	999	6.31	19.5°				
1558	9 gal		6.92	1.41	999	6.28	19.4°				
1604	12 gal		6.96	1.35	990	6.23	19.3				
1609	15 gal		6.94	1.36	999	6.30	19.4				Parameters Stable
											Sample @ 1612
											(COC + Labels say
											1600 because labels
											were pre-made).

FIELD EQUIPMENT	SERIAL NUMBER	RENTAL COMPANY

SAMPLE ID: JW2-17

ANALYSIS: _____

COC NUMBER: _____

SAMPLING PERSONNEL: _____

TETRA TECH EM INC.
• SAN FRANCISCO •

GROUNDWATER SAMPLING RECORD

DATE 5/23/00 PAGE 2 OF 2

MONITORING WELL NO. 3

PROJECT JW Silveira

SITE 2 -1200 20th Ave

PROJECT NO. P110604

CASING DIAMETER 2 inches

BOREHOLE DIAMETER 8.25 inches

TOP OF CASING ELEVATION 16.06 feet

WATER LEVEL 15.91 feet bgs @ _____

WATER LEVEL ELEVATION 0.15 feet msl

STANDING WATER COLUMN 13.24 feet

WELL VOLUMES TO BE PURGED _____

MINUMUM PURGE VOLUME _____ gallons

ACTUAL VOLUME PURGED _____ gallons

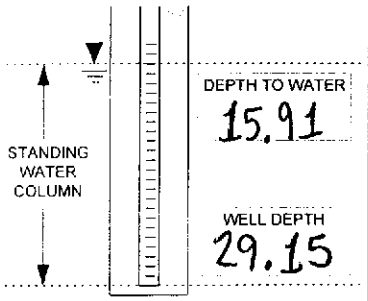
VOLUME CALCULATED BY:

PURGE VOLUME CALCULATION

One Well Volume = Casing Volume + Annulus Volume

One Well Volume = 2.25 gal + 8.50 gal

One Well Volume = 10.75 gallons



Casing Volume = Standing Water Column (ft) x Pipe Volume (gal/linear ft)[a]

Casing Volume = 13.24 ft x 0.17 gal/linear ft

Casing Volume = 2.25 gallons

NOTE:
a Refer to Table 1
b Refer to Table 2
c Assuming Sand Pack Porosity of 30%

Annulus Volume = [(Standing Water Column (ft) x Borehole Volume (gal/linear ft)[b]) - Casing Volume] x 0.3[c]

Annulus Volume = [(~~13.24~~ 11 ft x 2.78 gal/linear ft) - 2.25 gal] x 0.3

Annulus Volume = 8.50 gallons

Table 1
Pipe Volume of Schedule 40 PVC Casing

Diameter (inches)	OD (inches)	ID (inches)	Volume (gal/linear ft)	Diameter (inches)	OD (inches)	ID (inches)	Volume (gal/linear ft)
1.25	1.660	1.380	0.08	4	4.500	4.026	0.66
2	2.375	2.067	0.17	6	6.625	6.065	1.50
3	3.500	3.068	0.38	8	8.625	7.981	2.60

Table 2
Volume of Borehole

Diameter (inches)	Volume (gal/linear ft)	Diameter (inches)	Volume (gal/linear ft)	Diameter (inches)	Volume (gal/linear ft)
7.25	2.14	8.25	2.78	9.25	3.52
7.75	2.45	8.75	3.12	10.25	4.29

APPENDIX B
ANALYTICAL DATA PACKAGE

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

RECEIVED

Laboratory Number 145790

TETRA TECH EM INC.

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

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

Sample ID	Lab ID
JW2-15	145790-001
JW2-16	145790-002
JW2-17	145790-003

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signatures. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis.

Signature: _____ Date: 6/23/00
Operations Manager

Signature: Carol Wortham Date: 6/23/00
Project Manager

CA ELAP # 1459

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Curtis & Tompkins, Ltd.

Laboratory Number: 145790 **Receipt Date:** 05/24/00
Client: Tetra Tech EMI
Location: JW Silveria UST,Oak.
Project#: P1106.05

TPH-PURGEABLE HYDROCARBONS AND BTXE CASE NARRATIVE

This hardcopy data package contains sample and QC results for three water samples that were received on May 24, 2000.

Sample JW2-15 (CT#145790-001) was originally analyzed within the EPA recommended hold time of fourteen days but the results were greater than the linear range of the instrument. The reported results were analyzed less than two days beyond the recommended hold time.

The surrogate recoveries in the gasoline and BTXE continuing calibration verifications were flagged but the recoveries were within the laboratory's statistically derived limits.

No other analytical problems were encountered.

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	145790	Location:	JW Silveria UST,Oak.
Client:	Tetra Tech EMI	Prep:	EPA 5030
Project#:	P1106.05	Analysis:	EPA 8015M
Field ID:	JW2-15	Batch#:	56336
Lab ID:	145790-001	Sampled:	05/23/00
Matrix:	Water	Received:	05/24/00
Units:	ug/L	Analyzed:	06/07/00
Diln Fac:	20.00		

Analyte	Result	RL
Gasoline C7-C12	18,000 G	1,000

Surrogate	%REC	Limits
Trifluorotoluene (FID)	114	59-135
Bromofluorobenzene (FID)	125	60-140

G = Pattern resembles gasoline
RL = Reporting Limit

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Curtis & Tompkins, Ltd.

Benzene, Toluene, Ethylbenzene, Xylenes

Lab #:	145790	Location:	JW Silveria UST,Oak.
Client:	Tetra Tech EMI	Prep:	EPA 5030
Project#:	P1106.05	Analysis:	EPA 8021B
Field ID:	JW2-15	Batch#:	56394
Lab ID:	145790-001	Sampled:	05/23/00
Matrix:	Water	Received:	05/24/00
Units:	ug/L	Analyzed:	06/08/00
Diln Fac:	20.00		

Analyte	Result	RL
MTBE	ND	40
Benzene	3,700	10
Toluene	430	10
Ethylbenzene	770	10
m,p-Xylenes	2,000	10
o-Xylene	440	10

Surrogate	%REC	Limits
Trifluorotoluene (PID)	121	56-142
Bromofluorobenzene (PID)	131	55-149

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	145790	Location:	JW Silveria UST,Oak.
Client:	Tetra Tech EMI	Prep:	EPA 5030
Project#:	P1106.05	Analysis:	EPA 8015M
Field ID:	JW2-16	Batch#:	56307
Lab ID:	145790-002	Sampled:	05/23/00
Matrix:	Water	Received:	05/24/00
Units:	ug/L	Analyzed:	06/06/00
Diln Fac:	1.000		

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	109	59-135
Bromofluorobenzene (FID)	108	60-140

ND = Not Detected
RL = Reporting Limit

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Curtis & Tompkins, Ltd.

Benzene, Toluene, Ethylbenzene, Xylenes

Lab #:	145790	Location:	JW Silveria UST,Oak.
Client:	Tetra Tech EMI	Prep:	EPA 5030
Project#:	P1106.05	Analysis:	EPA 8021B
Field ID:	JW2-16	Batch#:	56307
Lab ID:	145790-002	Sampled:	05/23/00
Matrix:	Water	Received:	05/24/00
Units:	ug/L	Analyzed:	06/06/00
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	ND	2.0
Benzene	ND	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	ND	0.50

Surrogate	%REC	Limits
Trifluorotoluene (PID)	96	56-142
Bromofluorobenzene (PID)	94	55-149

ND = Not Detected
RL = Reporting Limit

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Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	145790	Location:	JW Silveria UST,Oak.
Client:	Tetra Tech EMI	Prep:	EPA 5030
Project#:	P1106.05	Analysis:	EPA 8015M
Field ID:	JW2-17	Batch#:	56307
Lab ID:	145790-003	Sampled:	05/23/00
Matrix:	Water	Received:	05/24/00
Units:	ug/L	Analyzed:	06/06/00
Diln Fac:	1.000		

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	109	59-135
Bromofluorobenzene (FID)	107	60-140

ND = Not Detected
RL = Reporting Limit

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Curtis & Tompkins, Ltd.

Benzene, Toluene, Ethylbenzene, Xylenes

Lab #:	145790	Location:	JW Silveria UST,Oak.
Client:	Tetra Tech EMI	Prep:	EPA 5030
Project#:	P1106.05	Analysis:	EPA 8021B
Field ID:	JW2-17	Batch#:	56307
Lab ID:	145790-003	Sampled:	05/23/00
Matrix:	Water	Received:	05/24/00
Units:	ug/L	Analyzed:	06/06/00
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	ND	2.0
Benzene	ND	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	ND	0.50

Surrogate	%REC	Limits
Trifluorotoluene (PID)	96	56-142
Bromofluorobenzene (PID)	96	55-149

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	145790	Location:	JW Silveria UST,Oak.
Client:	Tetra Tech EMI	Prep:	EPA 5030
Project#:	P1106.05	Analysis:	EPA 8015M
Field ID:	ZZZZZZZZZZ	Batch#:	56307
MSS Lab ID:	145802-003	Sampled:	05/24/00
Matrix:	Water	Received:	05/24/00
Units:	ug/L	Analyzed:	06/06/00
Diln Fac:	1.000		

Type: MS Lab ID: QC117469

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	43.89	2,000	2,006	98	65-131

Surrogate	%REC	Limits
Trifluorotoluene (FID)	121	59-135
Bromofluorobenzene (FID)	121	60-140

Type: MSD Lab ID: QC117470

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	1,977	97	65-131	1	20

Surrogate	%REC	Limits
Trifluorotoluene (FID)	122	59-135
Bromofluorobenzene (FID)	123	60-140

RPD= Relative Percent Difference

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Gasoline by GC/FID CA LUFT

Lab #:	145790	Location:	JW Silveria UST,Oak.
Client:	Tetra Tech EMI	Prep:	EPA 5030
Project#:	P1106.05	Analysis:	EPA 8015M
Field ID:	ZZZZZZZZZZ	Batch#:	56336
MSS Lab ID:	145814-004	Sampled:	05/25/00
Matrix:	Water	Received:	05/25/00
Units:	ug/L	Analyzed:	06/07/00
Diln Fac:	1.000		

Type: MS Lab ID: QC117562

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	43.46	2,000	1,989	97	65-131

Surrogate	%REC	Limits
Trifluorotoluene (FID)	122	59-135
Bromofluorobenzene (FID)	127	60-140

Type: MSD Lab ID: QC117563

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	2,023	99	65-131	2	20

Surrogate	%REC	Limits
Trifluorotoluene (FID)	122	59-135
Bromofluorobenzene (FID)	128	60-140

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Benzene, Toluene, Ethylbenzene, Xylenes

Lab #:	145790	Location:	JW Silveria UST,Oak.
Client:	Tetra Tech EMI	Prep:	EPA 5030
Project#:	P1106.05	Analysis:	EPA 8021B
Field ID:	ZZZZZZZZZZ	Batch#:	56394
MSS Lab ID:	145994-005	Sampled:	06/07/00
Matrix:	Water	Received:	06/07/00
Units:	ug/L	Analyzed:	06/09/00
Diln Fac:	1.000		

Type: MS Lab ID: QC117776

Analyte	MSS Result	Spiked	Result	%REC	Limits
MTBE	73.03	20.00	95.28	111	49-136
Benzene	ND	20.00	21.93	110	65-123
Toluene	ND	20.00	20.96	105	73-122
Ethylbenzene	ND	20.00	20.33	102	59-137
m,p-Xylenes	ND	40.00	42.51	106	68-132
o-Xylene	ND	20.00	20.42	102	61-140

Surrogate	%REC	Limits
Trifluorotoluene (PID)	125	56-142
Bromofluorobenzene (PID)	132	55-149

Type: MSD Lab ID: QC117777

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	20.00	93.92	104	49-136	1	11
Benzene	20.00	19.35	97	65-123	12	20
Toluene	20.00	18.50	92	73-122	12	20
Ethylbenzene	20.00	17.98	90	59-137	12	20
m,p-Xylenes	40.00	37.71	94	68-132	12	20
o-Xylene	20.00	18.13	91	61-140	12	20

Surrogate	%REC	Limits
Trifluorotoluene (PID)	122	56-142
Bromofluorobenzene (PID)	127	55-149

ND = Not Detected
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	145790	Location:	JW Silveria UST,Oak.
Client:	Tetra Tech EMI	Prep:	EPA 5030
Project#:	P1106.05	Analysis:	EPA 8015M
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC117466	Batch#:	56307
Matrix:	Water	Analyzed:	06/05/00
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	2,000	1,951	98	73-121

Surrogate	%REC	Limits
Trifluorotoluene (FID)	124	59-135
Bromofluorobenzene (FID)	123	60-140

Curtis & Tompkins, Ltd.

Benzene, Toluene, Ethylbenzene, Xylenes

Lab #:	145790	Location:	JW Silveria UST,Oak.
Client:	Tetra Tech EMI	Prep:	EPA 5030
Project#:	P1106.05	Analysis:	EPA 8021B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC117467	Batch#:	56307
Matrix:	Water	Analyzed:	06/05/00
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
MTBE	20.00	18.94	95	66-126
Benzene	20.00	18.09	90	67-117
Toluene	20.00	18.89	94	69-117
Ethylbenzene	20.00	19.47	97	68-124
m,p-Xylenes	40.00	40.22	101	70-125
o-Xylene	20.00	19.21	96	65-129

Surrogate	%REC	Limits
Trifluorotoluene (PID)	95	56-142
Bromofluorobenzene (PID)	92	55-149

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Gasoline by GC/FID CA LUFT

Lab #:	145790	Location:	JW Silveria UST,Oak.
Client:	Tetra Tech EMI	Prep:	EPA 5030
Project#:	P1106.05	Analysis:	EPA 8015M
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC117559	Batch#:	56336
Matrix:	Water	Analyzed:	06/07/00
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	2,000	1,806	90	73-121

Surrogate	%REC	Limits
Trifluorotoluene (FID)	116	59-135
Bromofluorobenzene (FID)	124	60-140

Curtis & Tompkins, Ltd.

Benzene, Toluene, Ethylbenzene, Xylenes

Lab #:	145790	Location:	JW Silveria UST,Oak.
Client:	Tetra Tech EMI	Prep:	EPA 5030
Project#:	P1106.05	Analysis:	EPA 8021B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC117774	Batch#:	56394
Matrix:	Water	Analyzed:	06/08/00
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
MTBE	20.00	21.72	109	66-126
Benzene	20.00	20.75	104	67-117
Toluene	20.00	20.38	102	69-117
Ethylbenzene	20.00	20.00	100	68-124
m,p-Xylenes	40.00	42.41	106	70-125
o-Xylene	20.00	19.80	99	65-129

Surrogate	%REC	Limits
Trifluorotoluene (PID)	107	56-142
Bromofluorobenzene (PID)	113	55-149

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	145790	Location:	JW Silveria UST,Oak.
Client:	Tetra Tech EMI	Prep:	EPA 5030
Project#:	P1106.05	Analysis:	EPA 8015M
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC117468	Batch#:	56307
Matrix:	Water	Analyzed:	06/05/00
Units:	ug/L		

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	109	59-135
Bromofluorobenzene (FID)	109	60-140

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Benzene, Toluene, Ethylbenzene, Xylenes

Lab #:	145790	Location:	JW Silveria UST,Oak.
Client:	Tetra Tech EMI	Prep:	EPA 5030
Project#:	P1106.05	Analysis:	EPA 8021B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC117468	Batch#:	56307
Matrix:	Water	Analyzed:	06/05/00
Units:	ug/L		

Analyte	Result	RL
MTBE	ND	2.0
Benzene	ND	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	ND	0.50

Surrogate	%REC	Limits
Trifluorotoluene (PID)	97	56-142
Bromofluorobenzene (PID)	93	55-149

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	145790	Location:	JW Silveria UST,Oak.
Client:	Tetra Tech EMI	Prep:	EPA 5030
Project#:	P1106.05	Analysis:	EPA 8015M
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC117561	Batch#:	56336
Matrix:	Water	Analyzed:	06/07/00
Units:	ug/L		

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	98	59-135
Bromofluorobenzene (FID)	98	60-140

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Benzene, Toluene, Ethylbenzene, Xylenes

Lab #:	145790	Location:	JW Silveria UST,Oak.
Client:	Tetra Tech EMI	Prep:	EPA 5030
Project#:	P1106.05	Analysis:	EPA 8021B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC117775	Batch#:	56394
Matrix:	Water	Analyzed:	06/08/00
Units:	ug/L		

Analyte	Result	RL
MTBE	ND	2.0
Benzene	ND	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	ND	0.50

Surrogate	%REC	Limits
Trifluorotoluene (PID)	103	56-142
Bromofluorobenzene (PID)	108	55-149

ND = Not Detected
RL = Reporting Limit