RO 382

SITE CLOSURE REPORT

744 EAST 12th STREET
OAKLAND, CALIFORNIA

December 2003

Prepared for:
J.W. Silveira Company
499 Embarcadero Street
Oakland, California 94606

TETRA TECH EM Inc.
135 Main Street, Suite 1800
San Francisco, California 94105

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FIGURES

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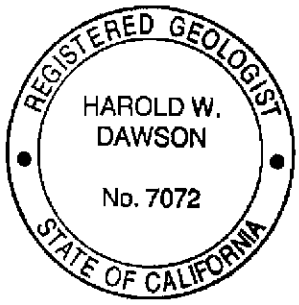
1.0 APPROVAL PAGE

This Site Closure Report for the underground storage tank (UST) site located at 744 East 12th Street, in Oakland, California, was prepared for J.W. Silveira Company, the owner of the site. Should you have any questions regarding this report, please feel free to contact me at (775) 333-8466.

Sincerely,



Harold W. Dawson

Harold W. Dawson
TtEMI Project Manager
California Registered Geologist #7072

2.0 INTRODUCTION

The purpose of this report is to recommend closure for the J. W. Silveira Company underground storage tank (UST) site at 744 East 12th Street in Oakland, California. Tetra Tech EM Inc. (TtEMI) conducted quarterly groundwater monitoring at the site in the year 2000. The sampling dates each quarter of the year 2000 were February 9, May 23, September 27, and December 18, 2000, respectively. The analytical data for the year 2000 quarterly groundwater monitoring, and all other associated environmental sampling conducted at the site are summarized in this closure report.

3.0 SITE BACKGROUND

The location of the UST site is shown on Figure 1. One 500-gallon underground storage tank (UST) was previously located at the site. The UST reportedly contained gasoline and was removed in April 1996. Based on drawings provided in the Tank Closure Report, the approximate size of the former tank was 5 feet long by 4 feet in diameter. The UST had not been in use for 10 years prior to being removed and was reportedly empty at the time of the removal. During removal of the UST, it was noted that the single-walled steel tank had rusted through and had leaked. The approximate surface area of the removal excavation was 11 feet by 6 feet and the UST was located in the southwestern portion of the excavation. Approximately 20 cubic yards of soil were over-excavated and transported off site for disposal as the removal excavation showed visible signs of contamination. The bottom of the excavation was approximately 8 to 12 feet below the ground surface (bgs). The exact depth to the bottom of the UST was not recorded during the removal activities; the estimated depth to the bottom of the former UST is 6 feet bgs.

During the UST removal activities, five soil samples were collected from the sidewalls and 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), and total lead. The highest concentrations of BTEX and TPH-g were detected in the southwestern end of the excavation. Lead concentrations in soil samples from the removal excavation were not elevated. Groundwater was not encountered during removal of the UST.

During additional site characterization field activities in 1999, three monitoring wells, identified on Figure 2 as monitoring well numbers 1, 2, and 3 (MW-1, MW-2, and MW-3), respectively, were installed at the site. Additionally, two soil borings (denoted as SB-1 and SB-2) were completed at the site. Grab groundwater and soil samples were collected from the monitoring well and soil borings for additional site characterization purposes. The analytical results for the

soil and groundwater samples collected during the additional site characterization are described below. TPH-g and BTEX compounds were not detected in any of the soil samples collected from the monitoring well borings or the soil borings. Methyl tertiary butyl ether (MTBE) is the only compound that was detected in soil at the site; this compound was detected in two soil samples. The soil sample collected from SB-2 at 9.5 to 10 feet bgs contained MTBE at a concentration of 32 milligrams per kilogram (mg/kg). The soil sample collected from 10.5 to 11 feet bgs in the boring for MW-3 contained MTBE at a concentration of 950 mg/kg. MTBE was not detected in the soil samples collected from the borings for MW-1, MW-2, or in the soil samples collected from SB-1. Figure 4 provides soil concentration data for the site. Toluene, ethylbenzene, xylenes, and TPH-g were not detected in any of the grab groundwater samples collected from the monitoring well and soil borings at the site. Benzene was detected in one grab groundwater sample; the grab groundwater sample collected from the boring for MW-3 contained benzene at a concentration of 14 micrograms per liter (ug/L). MTBE was detected in the three grab groundwater samples from the borings for MW-1, MW-2, and MW-3; these samples contained MTBE at 3, 3.4, and 250 ug/L respectively. MTBE was not detected in the two grab groundwater samples collected from SB-1 and SB-2.

The additional site characterization report recommended that four quarters of groundwater sampling be conducted at the site. Although no mobile or potentially mobile free product was discovered during the additional site characterization drilling activities, both the analytical sampling results and visual observation of soil staining during the drilling activities indicated that minimal contamination was present at the site. In general, the limited soil and groundwater contamination was found to be present around MW-3, with the exception of one soil sample at MW-2, which contained MTBE. Presently, groundwater at the site is not used for any domestic or industrial purposes. For this reason, groundwater is assumed to be nonpotable.

4.0 QUARTERLY GROUNDWATER MONITORING ACTIVITIES

For the quarterly groundwater monitoring at the site, the three monitoring wells were sampled on February 9, May 23, September 27, and December 18, 2000. The following text describes the quarterly groundwater monitoring activities. Each quarter, the depth to groundwater was measured at each well with an electronic depth probe. The monitoring well cap was removed from the top of each well, and the groundwater table 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 each monitoring well, a Horiba U10 water quality meter was used to measure the following physical parameters of the groundwater: pH, temperature, electrical conductivity, dissolved oxygen, and turbidity. These physical parameters were monitored to determine when the groundwater within the well casing of each well was

representative of the groundwater surrounding the monitoring well. Copies of the groundwater field sampling sheets are provided in Appendix A. After the physical parameters of the groundwater had stabilized, groundwater samples were collected from each well. The samples were placed in appropriate sample containers provided by the laboratory. After each sample was labeled, the sample was stored in a cooler of ice under chain-of-custody control. The groundwater samples were analyzed by Curtis & Tompkins Analytical Laboratories (C&T), in Berkeley, California. C&T is a California state-certified laboratory. The quarterly samples from each of the three wells were analyzed for BTEX, MTBE, and TPH-g.

4.1 GROUNDWATER GRADIENT

Groundwater elevations were calculated quarterly for each of the three monitoring wells at the site using the measured depth to groundwater and the top of casing elevation of each well. The depth to groundwater was measured from the top of casing of each monitoring well. The quarterly groundwater elevation measurements at the site are presented in Table 1. The groundwater flow direction and gradient at the site were calculated quarterly using these data. The flow direction at the site was consistently southwest, ranging from south 40 degrees west (S40W) in September 2000 to south 70 degrees west (S70W) in February 2000. The calculated groundwater gradient at the site was found to range from the lowest (0.0041 feet/foot [ft/ft]) in September 2000 to the highest (0.0067 ft/ft) in May 2000.

Figure 3 is a potentiometric map and graphically presents the December 2000 groundwater flow direction (south 56 degrees west [S56W]) and gradient (0.0053 ft/ft) at the site. These are the latest collected data from the site and show the typical average groundwater flow direction and gradient. The direction of groundwater flow and the groundwater gradient for the year 2000 are consistent with those calculated using 1999 water-level measurements from the three wells at the site.

4.2 QUARTERTLY GROUNDWATER MONITORING ANALYTICAL RESULTS

For the four quarters of groundwater sampling at the site during the year 2000, only the samples from MW-3 contained detectable concentrations of benzene and MTBE. Tables 2, 3, and 4 show the groundwater results for MW-1, MW-2, and MW-3, respectively, for the four quarters of the year 2000. Benzene and MTBE were detected in groundwater samples collected from MW-3 at concentrations ranging from 0.59 to 2.4 ug/L (for benzene), and 1.8 to 29 ug/L (for MTBE). During the year 2000 quarterly monitoring, toluene, ethylbenzene, xylenes, and TPH–g were not detected in any of the groundwater samples collected from the three monitoring wells, and benzene and MTBE were not detected in the groundwater samples

collected from MW-1 and MW-2. Figure 4 provides groundwater concentration data for the site. The complete laboratory data packages and chains-of-custody for the year 2000 quarterly sampling events are provided in Appendix B.

5.0 CONCLUSIONS AND RECOMMENDATIONS

This closure report presents the analytical data for the year 2000 quarterly groundwater monitoring, and all other associated environmental sampling conducted at the UST site located at 744 East 12th Street in Oakland, California. Although low levels of soil contamination were discovered at the site during the UST removal and installation of the monitoring wells for the additional site characterization, no mobile or potentially mobile free product has been observed at the site. During the quarterly groundwater monitoring events at the site, no groundwater contaminants were detected in the samples collected from wells MW-1 and MW-2. Monitoring well MW-3 contained MTBE at low levels, and benzene was detected in the samples from this well in February and May 2000, but not in September or December 2000. Toluene, ethylbenzene, xylenes, and TPH-g were not detected in the groundwater at the site. The soil and grab groundwater sample data from the additional site characterization show similar low-level contamination.

Based on the analytical data accumulated for the site (from the UST removal excavation, the additional site characterization, and the year 2000 quarterly sampling), TtEMI recommends that the site be closed. The low-level concentrations of MTBE in soil and groundwater samples collected from MW-2 and MW-3 appear to have diminished to non-detectable ranges and do not pose a risk to human health or the environment. It appears that the overexcavation of soil during the UST removal eliminated any future source of groundwater contamination, and there is no evidence of a contamination plume at the site. Groundwater is assumed to be nonpotable at the site. The three monitoring wells should be abandoned after approval of site closure.

FIGURES

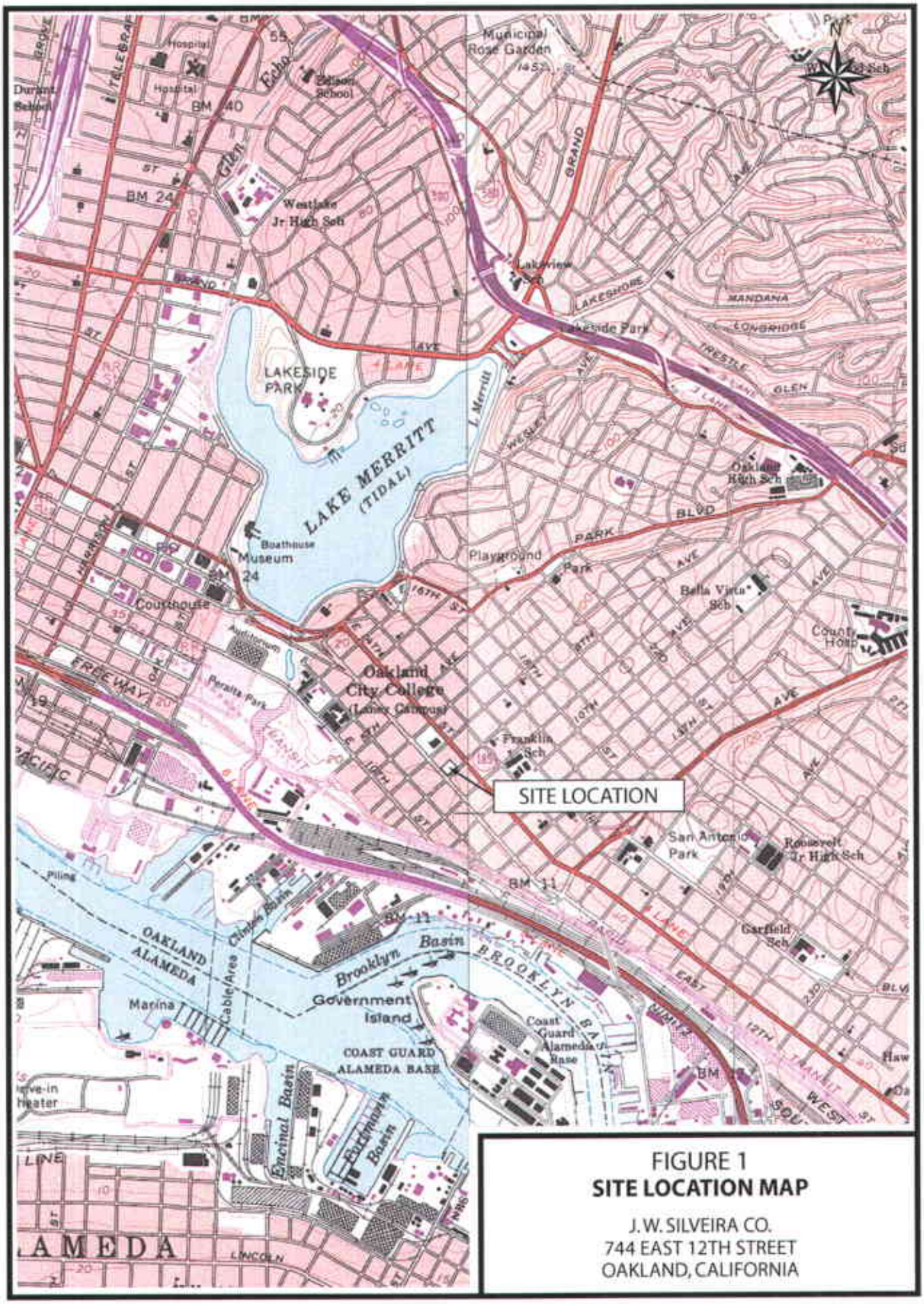


FIGURE 1
SITE LOCATION MAP

J.W. SILVEIRA CO.
744 EAST 12TH STREET
OAKLAND, CALIFORNIA

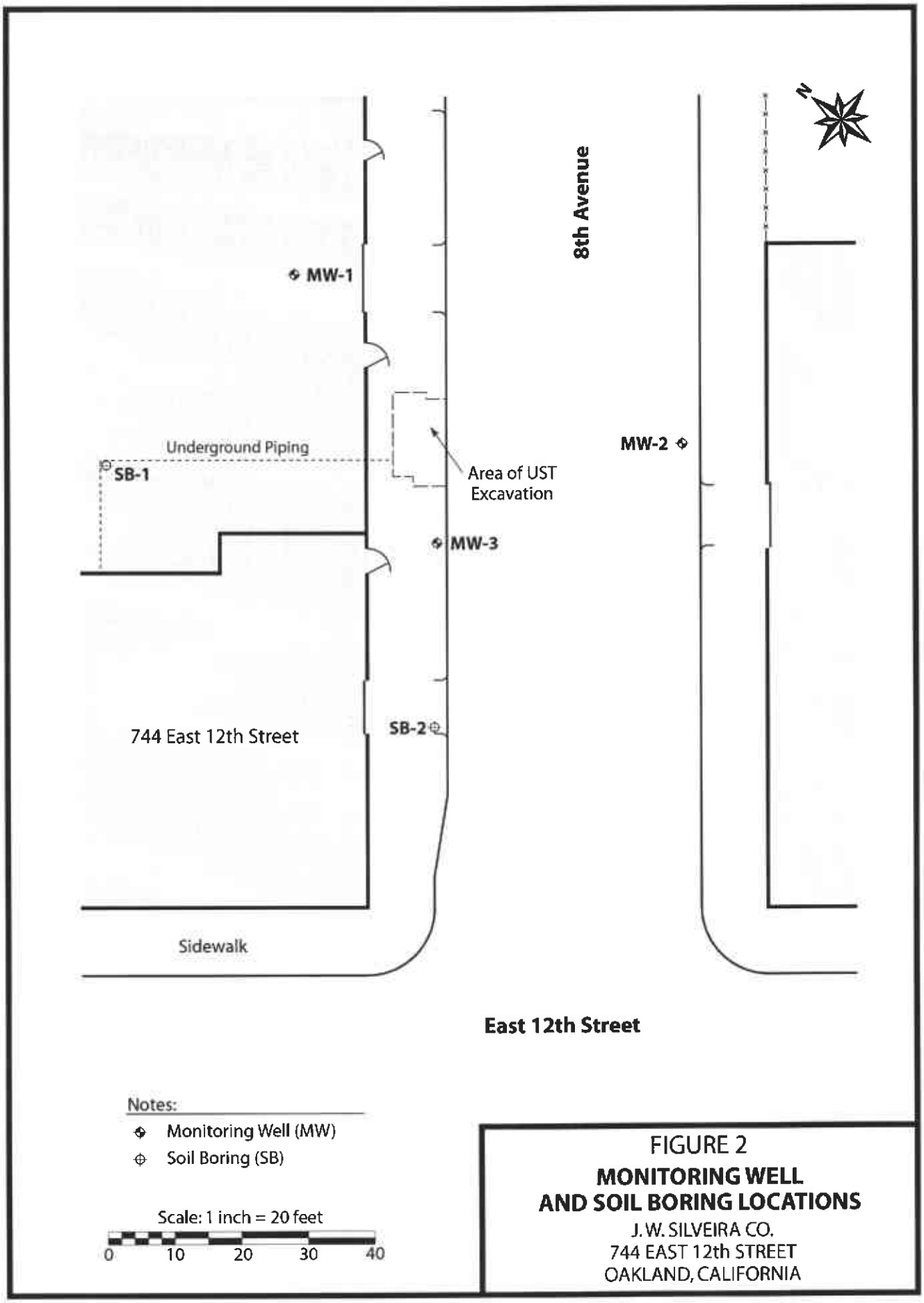
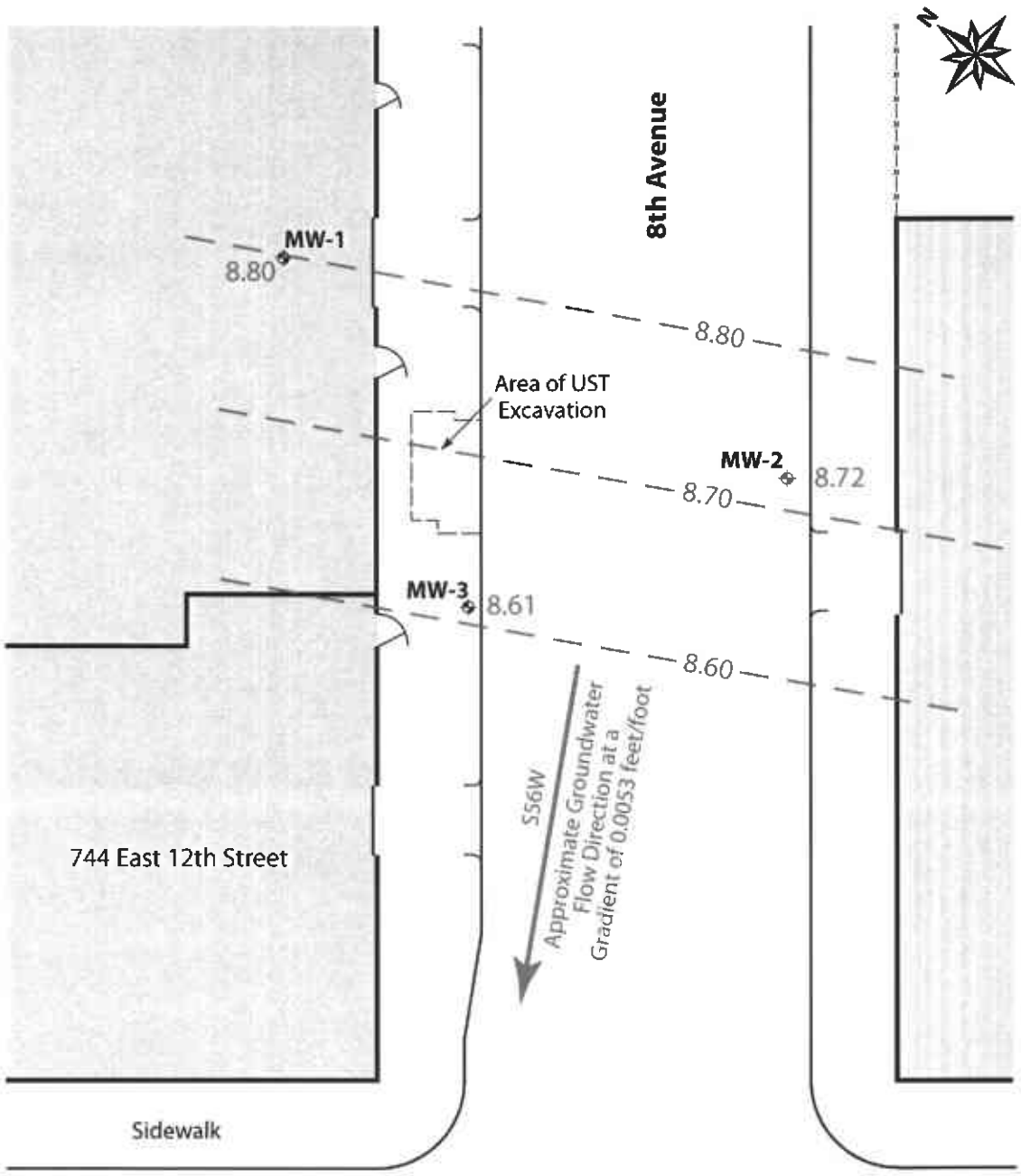


FIGURE 2

MONITORING WELL AND SOIL BORING LOCATIONS

J.W. SILVEIRA CO.
744 EAST 12th STREET
OAKLAND, CALIFORNIA

Tetra Tech EM Inc.



Scale: 1 inch = 20 feet

0 10 20 30 40

Notes:

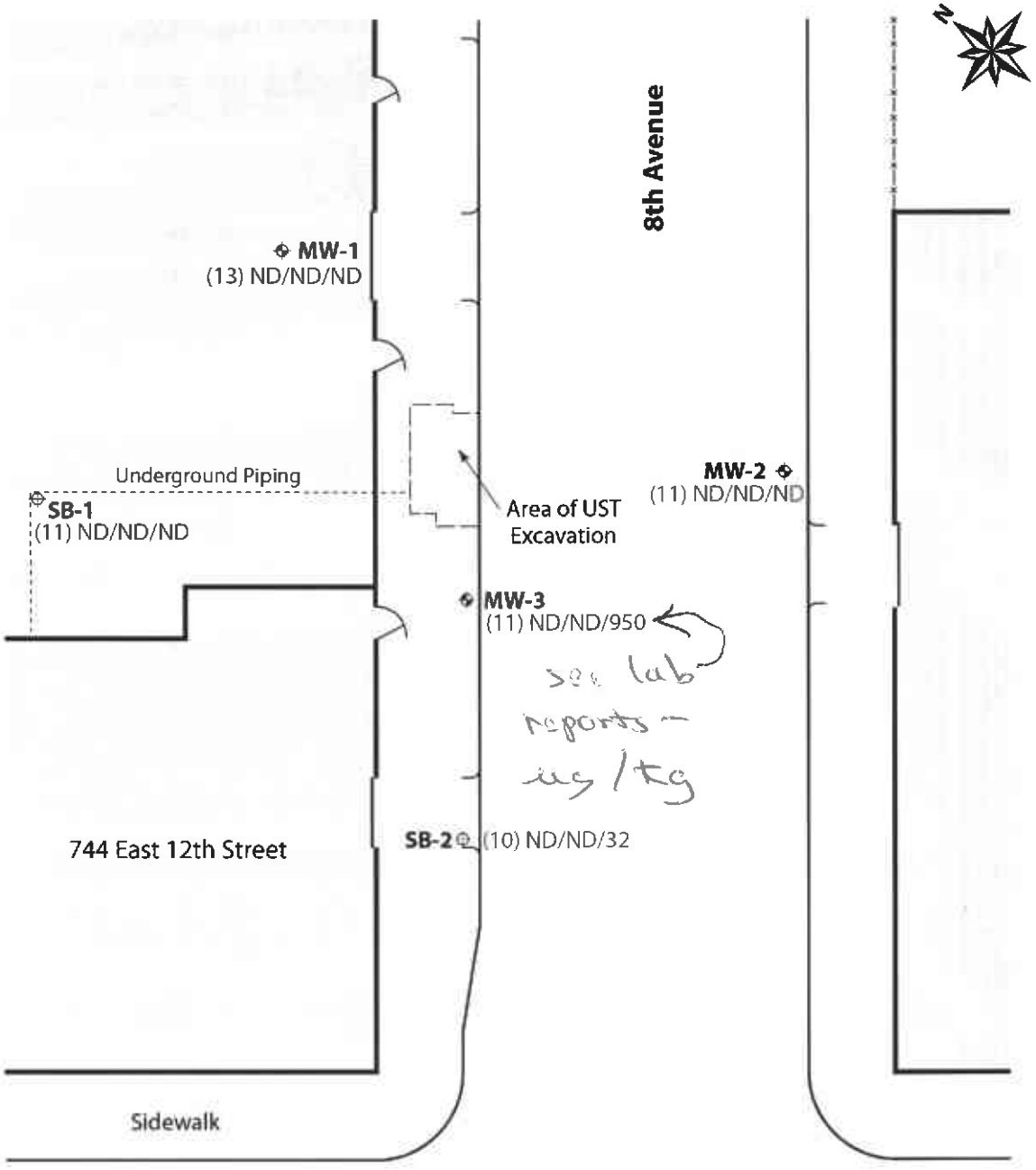
◆	Monitoring Well (MW)
8.61	Groundwater elevation in feet above mean sea level
8.70	Groundwater elevation contour in feet above mean sea level

Sampling Date: December 18, 2000

FIGURE 3

POTENTIOMETRIC MAP

J. W. SILVEIRA CO.
744 EAST 12TH STREET
OAKLAND, CALIFORNIA



Notes:

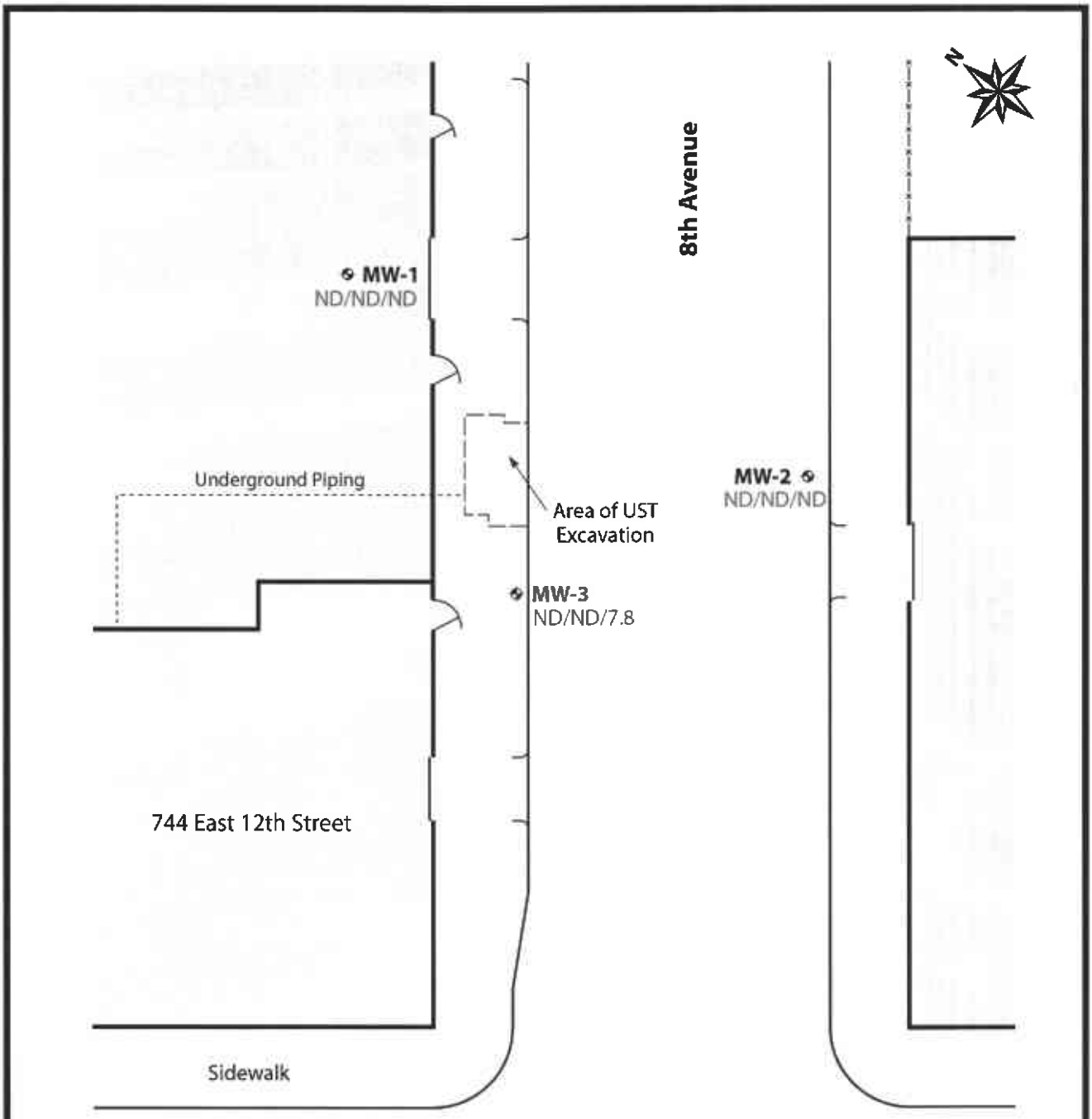
- ◆ Monitoring Well (MW)
- ⊕ Soil Boring (SB)
- (x) A/B/C (depth in feet) TPH-gas/Benzene/MTBE in milligrams per kilogram
- ND Non Detected

FIGURE 4

SOIL CONCENTRATION MAP

J.W. SILVEIRA CO.
744 EAST 12th STREET
OAKLAND, CALIFORNIA

Tetra Tech EM Inc.



Notes:

◆	Monitoring Well (MW)
A/B/C	TPH-gas/Benzene/MTBE in micrograms per liter
ND	Non Detected

Sampling Date: June 7, 1999

Scale: 1 inch = 20 feet

0 10 20 30 40

FIGURE 5

GROUNDWATER CONCENTRATION MAP

J.W. SILVEIRA CO.
744 EAST 12th STREET
OAKLAND, CALIFORNIA

Tetra Tech EM Inc.

TABLES

TABLE 1
YEAR 2000 GROUNDWATER ELEVATIONS
744 EAST 12TH STREET, OAKLAND

Date	Groundwater Elevations (msl)		
	MW-1	MW-2	MW-3
2/9/00	9.13	9.07	8.90
5/23/00	8.98	8.90	8.74
9/27/00	8.48	8.44	8.32
12/18/00	8.80	8.72	8.61

Notes:

MW-1 TOC Elevation: 18.17 ft
MW-2 TOC Elevation: 16.71 ft
MW-3 TOC Elevation: 16.35 ft
TOC top of casing
msl mean sea level

TABLE 2
MONITORING WELL MW-1
VOC AND TPH COMPOUNDS IN GROUNDWATER
2000 GROUNDWATER RESULTS
744 EAST 12TH STREET, OAKLAND

Date	TPH (ug/L)	VOC (ug/L)				
	Gasoline	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
Feb-00	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*
May-00	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*
Sep-00	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*
Dec-00	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*

Notes:

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

TABLE 3
MONITORING WELL MW-2
VOC AND TPH COMPOUNDS IN GROUNDWATER
2000 GROUNDWATER RESULTS
744 EAST 12TH STREET, OAKLAND

Date	TPH (ug/L)	VOC (ug/L)				
	Gasoline	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
Feb-00	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*
May-00	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*
Sep-00	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*
Dec-00	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*

Notes:

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

TABLE 4
MONITORING WELL MW-3
VOC AND TPH COMPOUNDS IN GROUNDWATER
2000 GROUNDWATER RESULTS
744 EAST 12TH STREET, OAKLAND

Date	TPH (ug/L)	VOC (ug/L)				
	Gasoline	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
Feb-00	*ND*	2.4	*ND*	*ND*	*ND*	29
May-00	*ND*	0.59	*ND*	*ND*	*ND*	4.7
Sep-00	*ND*	*ND*	*ND*	*ND*	*ND*	1.8
Dec-00	*ND*	*ND*	*ND*	*ND*	*ND*	7.8

Notes:

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

APPENDIX A

GROUNDWATER SAMPLING SHEETS

GROUNDWATER SAMPLING RECORD

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MONITORING WELL NO. MW1
PROJECT JW SILVEIRA
SITE # 3, 744 E 12th ST.
PROJECT NO. P1106

TOTAL GALLONS TO BE PURGED ~15-20gal
PURGING METHOD Bailer
SAMPLING METHOD Bailer

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
			9.28	.81							
1610	Initial 40	—	6.53	Ø.545	343	1.38	18.7°				
1614	←	2.5	6.51	Ø.55Ø	999	Ø.8Ø	18.9°				
1616	←	5 gal	6.52	Ø.553	999	1.Ø9	18.9°				
1619	←	7.5gal	6.52	Ø.552	999	1.Ø1	18.9°				
1622	1Øgal	J	6.52	Ø.553	999	1.Ø3	18.9°				
1626	12.5gal		6.53	Ø.548	999	1.Ø5	18.9°				
1628	15gal		6.53	Ø.549	999	1.1Ø	18.9°				
1632	17.5gal		6.52	Ø.553	999	1.13	19.Ø°				
1635	2Øgal		6.53	Ø.553	999	1.16	19.Ø°				

FIELD EQUIPMENT	SERIAL NUMBER	RENTAL COMPANY
HORIBA U10		EQUIP CO.

SAMPLE ID: JW3-Ø7
ANALYSIS: TPH-g, MTBE, BTEX
COC NUMBER:

SAMPLING PERSONNEL:

TETRA TECH EM INC.
• SAN FRANCISCO •

GROUNDWATER SAMPLING RECORD

DATE 2-9-00 PAGE 2 OF 2

MONITORING WELL NO. MW 1

PROJECT JW SILVEIRA

SITE #3, 744 E 12th ST.

PROJECT NO. P1106

CASING DIAMETER 2 inches

BOREHOLE DIAMETER 8.25 inches

TOP OF CASING ELEVATION 18.17 feet

WATER LEVEL 9.04 feet btoc @

WATER LEVEL ELEVATION 9.13 feet msl

STANDING WATER COLUMN 8.09 feet

WELL VOLUMES TO BE PURGED

MINUMUM PURGE VOLUME gallons

ACTUAL VOLUME PURGED gallons

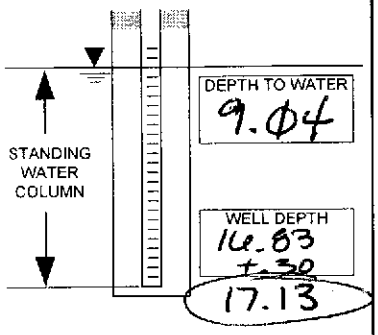
VOLUME CALCULATED BY:

PURGE VOLUME CALCULATION

One Well Volume = Casing Volume + Annulus Volume

One Well Volume = 1.38 gal + 6.33 gal

One Well Volume = 7.71 gallons



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

Casing Volume = 8.09 ft x 0.17 gal/linear ft

Casing Volume = 1.38 gallons

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

Annulus Volume = [(8.09 ft x 2.78 gal/linear ft) - 1.38 gal] x 0.3

Annulus Volume = 6.33 gallons

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

Table 1
Pipe Volume of Schedule 40 PVC Pipe

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

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MONITORING WELL NO. MW2

PROJECT JW SILVEIRA

SITE #3, 744 E 12th ST.

PROJECT NO. P1106

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
			7.45	.95							
1415	Initial 42	—	6.43	Ø.522	868	Ø.1Ø	18.Ø°				
1420	2.5 gal	~1 gal/10 min	6.56	Ø.529	999	Ø.22	18.1°				
1423	5 gal	~Gal/10 min	6.56	Ø.53Ø	999	Ø.12	18.1°				
1428	7.5 gal	" "	6.6Ø	Ø.529	999	Ø.25	18.1°				
1432	1Ø gal	" "	6.57	Ø.528	999	Ø.17	18.Ø°				
1436	12.5 gal	" "	6.58	Ø.525	999	Ø.27	18.Ø°				
1439	15 gal	" "	6.58	Ø.525	999	Ø.31	18.Ø°				
1443	17.5 gal	" "	6.58	Ø.526	999	Ø.4Ø	18.1°				
1446		" "	6.57	Ø.522	999	Ø.35	18.Ø°				

FIELD EQUIPMENT	SERIAL NUMBER	RENTAL COMPANY
HORIBA U10		EQUIP Co.

• SAMPLE ID: JW3-Ø8

ANALYSIS: TPH-g, MTBE, BTEX

COC NUMBER: _____

SAMPLING PERSONNEL:

_____

_____

_____

TETRA TECH EM INC.
• SAN FRANCISCO •

GROUNDWATER SAMPLING RECORD

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MONITORING WELL NO. MW2

PROJECT JW SILVEIRA

SITE #3, 744 E 12th ST.

PROJECT NO. P1106

CASING DIAMETER 2 inches

BOREHOLE DIAMETER 8.25 inches

TOP OF CASING ELEVATION 16.71 feet

WATER LEVEL 7.64 feet btoc @

WATER LEVEL ELEVATION feet msl

STANDING WATER COLUMN 10.31 feet

WELL VOLUMES TO BE PURGED 2-3 Volumes

MINUMUM PURGE VOLUME ~16.5 gallons

ACTUAL VOLUME PURGED gallons

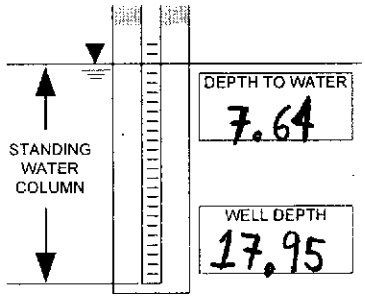
VOLUME CALCULATED BY:

PURGE VOLUME CALCULATION

One Well Volume = Casing Volume + Annulus Volume

One Well Volume = gal + gal

One Well Volume = gallons



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

Casing Volume = 10.31 ft x 0.17 gal/linear ft

Casing Volume = 1.75 gallons

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

Annulus Volume = [(10.31 ft x 2.78 gal/linear ft) - 1.75 gal] x 0.3

Annulus Volume = 8.1 gallons

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

Table 1
Pipe Volume of Schedule 40 PVC Pipe

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

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MONITORING WELL NO. MW3

PROJECT JW SILVEIRA

SITE #3, 744 E 12th ST.

PROJECT NO. P1106

TOTAL GALLONS TO BE PURGED _____

PURGING METHOD _____

SAMPLING METHOD _____

Time	Volume of Water Removed (gallons) 44	Discharge Rate (gal/min)	Field Parameters Measured: pH 7.52	Specific Conductivity (ms/cm)	Turbidity (ntu)	Dissolved Oxygen (mg/L)	Temp. (°C)			Water Level (feet)	Comments
1511	0		6.55	.564	999	1.62	19.0				
1515	2.5		6.53	.563	"	1.73	19.2				
1520	5.0		6.53	.562	"	1.86	19.2				
1526	7.5		6.53	Ø.558	999	1.62	19.3				
1529	10 gal		6.54	Ø.557	999	1.76	19.3°				
1533	12.5 gal		6.55	Ø.557	999	1.91	19.2°				
1536	15 gal		6.55	Ø.555	999	1.81	19.1°				
1540	17.5 gal		6.56	Ø.564	999	1.65	19.3°				
15	20 gal		6.55	Ø.557	999	1.87	19.3°				

FIELD EQUIPMENT	SERIAL NUMBER	RENTAL COMPANY
HORIBA U10		EQUIP Co.

SAMPLE ID: JW3-Ø9

ANALYSIS: BTEX, TPH-g, MTBE

COC NUMBER: _____

SAMPLING PERSONNEL:

_____

_____

_____

TETRA TECH EM INC.
• SAN FRANCISCO •

GROUNDWATER SAMPLING RECORD

DATE 2-9-00 PAGE 2 OF 2

MONITORING WELL NO. MW3

PROJECT JW SILVEIRA

SITE #3, 744 E 12th St.

PROJECT NO. P1106

CASING DIAMETER 2 inches

BOREHOLE DIAMETER 8.25 inches

TOP OF CASING ELEVATION 16.35 feet

WATER LEVEL 7.45 feet btoc @

WATER LEVEL ELEVATION feet msl

STANDING WATER COLUMN feet

WELL VOLUMES TO BE PURGED 2-3

MINUMUM PURGE VOLUME ~19 gallons

ACTUAL VOLUME PURGED gallons

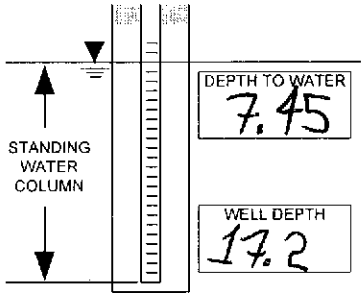
VOLUME CALCULATED BY:

PURGE VOLUME CALCULATION

One Well Volume = Casing Volume + Annulus Volume

One Well Volume = 1.7 gal + 7.62 gal

One Well Volume = 9.32 gallons



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

Casing Volume = 9.75 ft x 0.17 gal/linear ft

Casing Volume = 1.7 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 = [(9.75 ft x 2.78 gal/linear ft) - 1.7 gal] x 0.3

Annulus Volume = 7.62 gallons

Table 1
Pipe Volume of Schedule 40 PVC Pipe

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

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MONITORING WELL NO. 1

PROJECT JW Silveira

SITE 3-744 E. 12th St.

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
1015	Initial		6.51	0.580	999	1.33	19.1°				
1024	3 gal		6.48	0.583	999	1.16	18.8°				
1028	6 gal		6.50	0.582	999	1.70	18.8°				
1036	9 gal		6.48	0.582	999	1.47	18.8°				
1044	12 gal		6.50	0.582	999	1.86	18.8°				
1047	15 gal		6.49	0.582	999	1.96	18.8°				Parameters Stable
											Sample @ 1100

FIELD EQUIPMENT	SERIAL NUMBER	RENTAL COMPANY

SAMPLE ID: JW3-17 @1100

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 3- 744 E. 12th St.

PROJECT NO. P1106Ø4

CASING DIAMETER 2 inches

BOREHOLE DIAMETER 8.25 inches

TOP OF CASING ELEVATION 18.17 feet

WATER LEVEL 9.21 feet bgs @ _____

WATER LEVEL ELEVATION 8.96 feet msl

STANDING WATER COLUMN 7.92 feet

WELL VOLUMES TO BE PURGED _____

MINUMUM PURGE VOLUME _____ gallons

ACTUAL VOLUME PURGED _____ gallons

VOLUME CALCULATED BY:
HWD

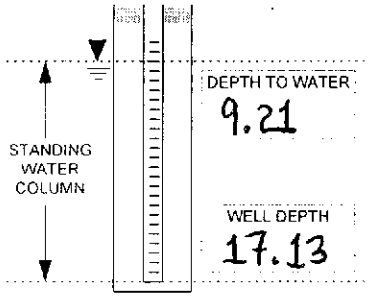
JW3-17 e 1100

PURGE VOLUME CALCULATION

One Well Volume = Casing Volume + Annulus Volume

One Well Volume = 1.35 gal + 6.2 gal

One Well Volume = 7.55 gallons



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

Casing Volume = 7.92 ft x Ø.17 gal/linear ft

Casing Volume = 1.35 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 = [(7.92 ft x 2.78 gal/linear ft) - 1.35 gal] x 0.3

Annulus Volume = 6.2 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 3 - 744 E 12th St.

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								Comments
			pH	Specific Conductivity (ms/cm)	Turbidity (ntu)	Dissolved Oxygen (mg/L)	Temp. (°C)			Water Level (feet)	
0835	Initial		6.34	0.549	646	0.42	19.1°				
0840	3 gal		6.51	0.554	999	0.52	18.5°				
0844	6 gal		6.55	0.559	999	0.64	18.4°				
0849	9 gal		6.54	0.560	983	0.66	18.3°				
0854	12 gal		6.57	0.564	999	0.86	18.3°				
0859	15 gal		6.55	0.563	999	0.95	18.2°				
0903	18 gal		6.57	0.566	999	0.99	18.2°				Parameters Stable. Sample @ 0910 a.m. 5/23/00

FIELD EQUIPMENT	SERIAL NUMBER	RENTAL COMPANY

SAMPLE ID: JW3-15 @0910

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 3 - 744 E. 12th

PROJECT NO. P1106Ø4

CASING DIAMETER 2 inches

BOREHOLE DIAMETER 8.25 inches

TOP OF CASING ELEVATION 16.71 feet

WATER LEVEL 7.81 feet bgs @ _____

WATER LEVEL ELEVATION 8.9 feet msl

STANDING WATER COLUMN 1Ø.14 feet

WELL VOLUMES TO BE PURGED _____

MINUMUM PURGE VOLUME _____ gallons

ACTUAL VOLUME PURGED _____ gallons

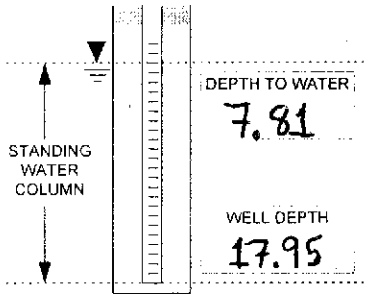
VOLUME CALCULATED BY: HWD

PURGE VOLUME CALCULATION

One Well Volume = Casing Volume + Annulus Volume

One Well Volume = 1.72 gal + 7.94 gal

One Well Volume = 9.66 gallons



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

Casing Volume = 1Ø.11 ft x Ø.17 gal/linear ft

Casing Volume = 1.72 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 = [(1Ø.14 ft x 2.78 gal/linear ft) - 1.72 gal] x 0.3

Annulus Volume = 7.94 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

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MONITORING WELL NO. 3

PROJECT JW Silveira

SITE 3 - 744 E. 12th St.

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
0930	Initial		6.54	0.594	999	2.01	19.5°				
0934	3 gal		6.54	0.596	999	2.35	19.5°				
0939	6 gal		6.49	0.596	999	1.84	19.5°				
0942	9 gal		6.50	0.595	999	1.89	19.5°				
0947	12 gal		6.49	0.595	999	2.03	19.5°				
0951	15 gal		6.49	0.596	777	1.94	19.5°				Parameters Stable Sample @ 1000 on 5/23/00 *Well needs new expandable well cap.

FIELD EQUIPMENT	SERIAL NUMBER	RENTAL COMPANY

SAMPLE ID: JW3-16 e1000

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 3 - 744 E 12th St.

PROJECT NO. P110604

CASING DIAMETER 2 inches

BOREHOLE DIAMETER 8.25 inches

TOP OF CASING ELEVATION 16.35 feet

WATER LEVEL 7.61 feet bgs @ _____

WATER LEVEL ELEVATION 8.74 feet msl

STANDING WATER COLUMN 9.59 feet

WELL VOLUMES TO BE PURGED _____

MINUMUM PURGE VOLUME _____ gallons

ACTUAL VOLUME PURGED _____ gallons

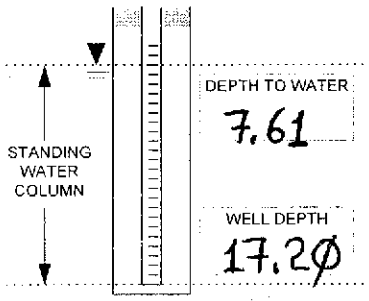
VOLUME CALCULATED BY: HWD

PURGE VOLUME CALCULATION

One Well Volume = Casing Volume + Annulus Volume

One Well Volume = 1.63 gal + 7.51 gal

One Well Volume = 9.14 gallons



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

Casing Volume = 9.59 ft x 0.17 gal/linear ft

Casing Volume = 1.63 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 = [(9.59 ft x 2.78 gal/linear ft) - 1.63 gal] x 0.3

Annulus Volume = 7.51 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 9-28-00 PAGE 1 OF 2

MONITORING WELL NO. MW1

PROJECT JW SILVEIRA

SITE 3, 744 E 12th ST.

PROJECT NO. P1106.04

TOTAL GALLONS TO BE PURGED _____

PURGING METHOD BAILER

SAMPLING METHOD BAILER

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
0951	0		6.14	0.624	999	1.62	19.2°				
0955	2		6.25	0.622	995	1.60	19.4°				
0958	4		6.20	0.622	999	1.53	19.5°				
1002	6		6.21	0.623	999	1.61	19.5°				
1006	8		6.16	0.622	802	1.62	19.5°				
1008	10		6.14	0.622	661	1.70	19.5°				

FIELD EQUIPMENT	SERIAL NUMBER	RENTAL COMPANY

SAMPLE ID: JW3-18 @ 1030

ANALYSIS: BTEX, MTBE, TPH-P

COC NUMBER: 0105

SAMPLING PERSONNEL:

Hal & Roy

TETRA TECH EM INC.
• SAN FRANCISCO •

GROUNDWATER SAMPLING RECORD

DATE 9-28-00 PAGE 2 OF 2

MONITORING WELL NO. MW-1

PROJECT JW SILVEIRA

SITE 3, 744 E 12TH ST.

PROJECT NO. P110604

CASING DIAMETER 2 inches

BOREHOLE DIAMETER 8.25 inches

TOP OF CASING ELEVATION 18.17 feet

WATER LEVEL 9.69 feet btoc 0950 @

WATER LEVEL ELEVATION 8.48 feet msl

STANDING WATER COLUMN 7.44 feet

WELL VOLUMES TO BE PURGED _____

MINUMUM PURGE VOLUME _____ gallons

ACTUAL VOLUME PURGED _____ gallons

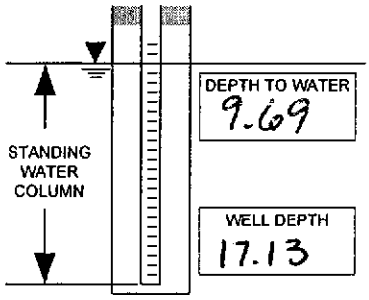
VOLUME CALCULATED BY:

PURGE VOLUME CALCULATION

One Well Volume = Casing Volume + Annulus Volume

One Well Volume = 1.26 gal + 5.87 gal

One Well Volume = 7.13 gallons



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

Casing Volume = 7.44 ft x 0.17 gal/linear ft

Casing Volume = 1.26 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 = [(7.44 ft x 2.78 gal/linear ft) - 1.26 gal] x 0.3

Annulus Volume = 5.87 gallons

Table 1
Pipe Volume of Schedule 40 PVC Pipe

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 9-27-00 PAGE 1 OF 2

MONITORING WELL NO. MW 2

PROJECT JW SILVEIRA

SITE 3, 744 E 12TH ST.

PROJECT NO. P110604

TOTAL GALLONS TO BE PURGED _____

PURGING METHOD BAILER

SAMPLING METHOD BAILER

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
1055	0		5.92	.586	40	.79	20.0				
1042	3		5.25	.599	619	.49	19.7				
1049	6		5.08	.605	575	.99	19.6				
1055	9		5.02	.605	610	.71	19.8				
1103	12		5.13	.606	466	.85	19.8				
1109	15		5.15	.602	305	.91	19.7				

FIELD EQUIPMENT	SERIAL NUMBER	RENTAL COMPANY

SAMPLE ID: JW3-19 @1113

ANALYSIS: BTEX, MTBE, TPH-P

COC NUMBER: ~~JW3-19 @1113~~ 0105

SAMPLING PERSONNEL:

Hal & Roy

TETRA TECH EM INC.
• SAN FRANCISCO •

GROUNDWATER SAMPLING RECORD

DATE 9-27-00 PAGE 2 OF 2

MONITORING WELL NO. MW 2

PROJECT JW SILVEIRA

SITE 3, 744 E 12TH ST.

PROJECT NO. P110604

CASING DIAMETER 2" inches

BOREHOLE DIAMETER 8.25 inches

TOP OF CASING ELEVATION ~~18.17~~ 16.71 feet

WATER LEVEL 8.27 feet btoc 1035 @

WATER LEVEL ELEVATION ~~9.90~~ 8.44 feet msl

STANDING WATER COLUMN ~~8.86~~ 9.68 feet

WELL VOLUMES TO BE PURGED _____

MINUMUM PURGE VOLUME _____ gallons

ACTUAL VOLUME PURGED _____ gallons

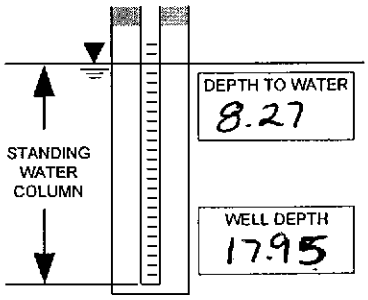
VOLUME CALCULATED BY:

PURGE VOLUME CALCULATION

One Well Volume = Casing Volume + Annulus Volume

One Well Volume = 1.4 gal + 6.48 gal

One Well Volume = 7.88 gallons



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

Casing Volume = 8.27 ft x 0.17 gal/linear ft

Casing Volume = 1.4 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 = [(8.27 ft x 2.78 gal/linear ft) - 1.4 gal] x 0.3

Annulus Volume = 6.48 gallons

Table 1
Pipe Volume of Schedule 40 PVC Pipe

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 9-27-00 PAGE 1 OF 2

MONITORING WELL NO. MW-3

PROJECT JW SILVEIRA

SITE 3, 744 E. 12TH ST.

PROJECT NO. P1Ø6Ø4

TOTAL GALLONS TO BE PURGED _____

PURGING METHOD BAILER

SAMPLING METHOD BAILER

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
1132	0		5.43	.628	690	2.10	21.2				
1137	3		5.45	.635	641	2.29	21.0				
1145	6		5.48	.636	658	2.32	20.9				
1151	9		5.50	.636	614	2.41	20.9				
1157	12		5.55	.636	425	2.35	20.9				
1205	15		5.57	.634	291	2.62	21.0				

FIELD EQUIPMENT	SERIAL NUMBER	RENTAL COMPANY

SAMPLE ID: JW3-2Ø @ 121Ø

ANALYSIS: BTEX, MTBE, TPH-P

COC NUMBER: ~~Ø105~~ Ø105

SAMPLING PERSONNEL: Hal & Roy

TETRA TECH EM INC.
• SAN FRANCISCO •

GROUNDWATER SAMPLING RECORD

DATE 9-27-00 PAGE 2 OF 2

MONITORING WELL NO. MW-3

PROJECT JW SILVEIRA

SITE 3, 744 E 12th ST.

PROJECT NO. P1106Ø4

CASING DIAMETER 2" inches

BOREHOLE DIAMETER 8.25 inches

TOP OF CASING ELEVATION 16.35 feet

WATER LEVEL 8.03 feet btoc @

WATER LEVEL ELEVATION 8.32 feet msl

STANDING WATER COLUMN 9.17 feet

WELL VOLUMES TO BE PURGED

MINUMUM PURGE VOLUME gallons

ACTUAL VOLUME PURGED gallons

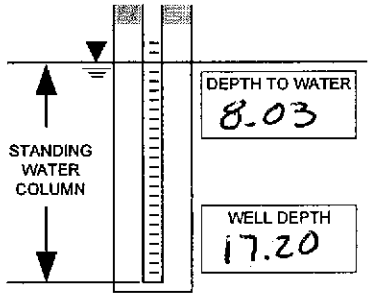
VOLUME CALCULATED BY:

PURGE VOLUME CALCULATION

One Well Volume = Casing Volume + Annulus Volume

One Well Volume = 1.56 gal + 7.18 gal

One Well Volume = 8.74 gallons



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

Casing Volume = 9.17 ft x 0.17 gal/linear ft

Casing Volume = 1.56 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 = [(9.17 ft x 2.78 gal/linear ft) - 1.56 gal] x 0.3

Annulus Volume = 7.18 gallons

Table 1
Pipe Volume of Schedule 40 PVC Pipe

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 12-18-00 PAGE 1 OF 2

MONITORING WELL NO. MW1

PROJECT JW SILVEIRA

SITE 3, 744 EAST 12TH ST.

PROJECT NO. P1106.04

TOTAL GALLONS TO BE PURGED _____

PURGING METHOD BAILER

SAMPLING METHOD BAILER

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
1130			6.48	.636	420	4.80	19.5				
1138	3		6.36	.626	231	4.02	19.7				
1146	6		6.36	.626	150	4.30	19.6				
1153	9		6.35	.625	132	3.96	19.6				
1158	11		6.34	.626	125	3.85	19.6				

FIELD EQUIPMENT	SERIAL NUMBER	RENTAL COMPANY
HORIBA U-10		EQUIPCO
SOLINIST WATER LEVEL		"

SAMPLE ID: JW3-21 @ 1205

ANALYSIS: BTEX, MTBE, TPH-P

COC NUMBER: 5004

SAMPLING PERSONNEL:

H. DAWSON

R. GLENN

TETRA TECH EM INC.
• SAN FRANCISCO •

GROUNDWATER SAMPLING RECORD

DATE 12-18-00 PAGE 2 OF 2

MONITORING WELL NO. MW1

PROJECT JW SILVEIRA

SITE 3,744 EAST 12th ST.

PROJECT NO. P1106.04

CASING DIAMETER 2 inches

BOREHOLE DIAMETER 8.25 inches

TOP OF CASING ELEVATION 18.17 feet

WATER LEVEL 9.37 feet btoc 1125 @

WATER LEVEL ELEVATION 8.80 feet msl

STANDING WATER COLUMN 9.76 feet

WELL VOLUMES TO BE PURGED _____

MINUMUM PURGE VOLUME _____ gallons

ACTUAL VOLUME PURGED _____ gallons

VOLUME CALCULATED BY:

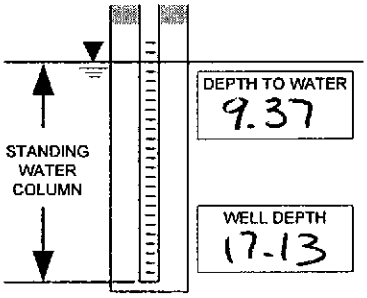
R. GLENN

PURGE VOLUME CALCULATION

One Well Volume = Casing Volume + Annulus Volume

One Well Volume = 1.32 gal + 6.06 gal

One Well Volume = 7.38 gallons



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

Casing Volume = 7.76 ft x 0.17 gal/linear ft

Casing Volume = 1.32 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 = [(7.76 ft x 2.78 gal/linear ft) - 1.32 gal] x 0.3

Annulus Volume = 6.06 gallons

Table 1
Pipe Volume of Schedule 40 PVC Pipe

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 12-18-00 PAGE 1 OF 2

MONITORING WELL NO. MW2

PROJECT JW SILVEIRA

SITE 3, 744 EAST 12TH ST.

PROJECT NO. P1106.04

TOTAL GALLONS TO BE PURGED _____

PURGING METHOD BAILER

SAMPLING METHOD BAILER

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
1257	0		6.37	0.596	284	3.22	19.5°				
1301	3 gal		6.37	0.592	309	3.41	19.3°				
1305	6 gal		6.37	0.594	226	3.32	19.2°				
1308	9 gal		6.37	0.596	182	3.37	19.1°				
1312	12 gal		6.37	0.595	118	3.48	19.1°				

FIELD EQUIPMENT	SERIAL NUMBER	RENTAL COMPANY
HORIBA U-10		

SAMPLE ID: JW3-22 @ 1315

ANALYSIS: BTEX, MTBE, TPH-P

COC NUMBER: 5004

SAMPLING PERSONNEL:
H. DAWSON
R. GLENN

TETRA TECH EM INC.
• SAN FRANCISCO •

GROUNDWATER SAMPLING RECORD

DATE 12-18-00 PAGE 2 OF 2

MONITORING WELL NO. MW2

PROJECT JW SILVEIRA

SITE 3, 744 EAST 12TH ST.

PROJECT NO. P1006.04

CASING DIAMETER 2 inches

BOREHOLE DIAMETER 8-25 inches

TOP OF CASING ELEVATION 16.71 feet

WATER LEVEL 7.99 feet btoc @

WATER LEVEL ELEVATION 8.72 feet msl

STANDING WATER COLUMN 9.96 feet

WELL VOLUMES TO BE PURGED

MINUMUM PURGE VOLUME gallons

ACTUAL VOLUME PURGED gallons

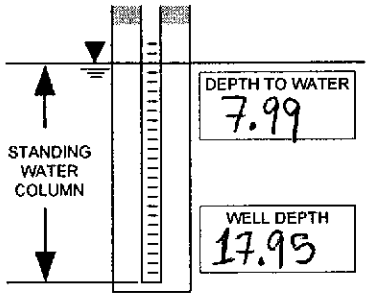
VOLUME CALCULATED BY:
H. DAWSON

PURGE VOLUME CALCULATION

One Well Volume = Casing Volume + Annulus Volume

One Well Volume = 1.69 gal + 7.80 gal

One Well Volume = 9.5 gallons



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

Casing Volume = 9.96 ft x 0.17 gal/linear ft

Casing Volume = 1.69 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 = [(9.96 ft x 2.78 gal/linear ft) - 1.69 gal] x 0.3

Annulus Volume = 7.80 gallons

Table 1
Pipe Volume of Schedule 40 PVC Pipe

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 12-18-00 PAGE 1 OF 2

MONITORING WELL NO. MW3

PROJECT JW SILVEIRA

SITE 3,744 EAST 12TH ST.

PROJECT NO. P1106.04

TOTAL GALLONS TO BE PURGED _____

PURGING METHOD BAILER

SAMPLING METHOD BAILER

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
1220	0		6.33	0.629	160	5.20	20.2°				
1224	3 gal		6.37	0.631	369	5.17	20.4°				
1230	6 gal		6.37	0.630	405	5.14	20.5°				
1234	9 gal		6.38	0.629	161	5.10	20.5				
1237	12 gal		6.38	0.630	344	5.12	20.4°				

FIELD EQUIPMENT	SERIAL NUMBER	RENTAL COMPANY

SAMPLE ID: JW3-23 @1240

ANALYSIS: BTEX, MTBE, TPH-P

COC NUMBER: 5004

SAMPLING PERSONNEL:

H. DAWSON

R. GLENN

TETRA TECH EM INC.
• SAN FRANCISCO •

GROUNDWATER SAMPLING RECORD

DATE 12-18-00 PAGE 2 OF 2

MONITORING WELL NO. MW3

PROJECT JW SILVEIRA

SITE 3,744 EAST 12th ST.

PROJECT NO. P1106.04

CASING DIAMETER 2 inches

BOREHOLE DIAMETER 8.25 inches

TOP OF CASING ELEVATION 16.35 feet

WATER LEVEL 7.74 feet btoc 1215 @

WATER LEVEL ELEVATION 8.61 feet msl

STANDING WATER COLUMN 9.46 feet

WELL VOLUMES TO BE PURGED _____

MINUMUM PURGE VOLUME _____ gallons

ACTUAL VOLUME PURGED _____ gallons

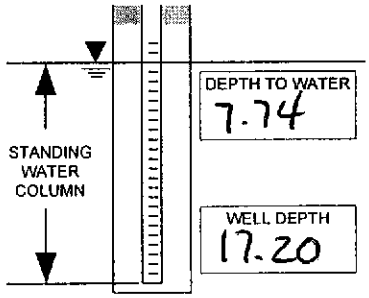
VOLUME CALCULATED BY:
H. DAWSON

PURGE VOLUME CALCULATION

One Well Volume = Casing Volume + Annulus Volume

One Well Volume = 1.61 gal + 7.41 gal

One Well Volume = 9.02 gallons



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

Casing Volume = 9.46 ft x 0.17 gal/linear ft

Casing Volume = 1.61 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 = [(9.46 ft x 2.78 gal/linear ft) - 1.61 gal] x 0.3

Annulus Volume = 7.41 gallons

Table 1
Pipe Volume of Schedule 40 PVC Pipe

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

LABORATORY DATA AND CHAIN-OF-CUSTODY

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

Laboratory Number 143868

Aromatic Volatile Organics by GC/MS
EPA 8260

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

Project#: P110604
Location: JW Silveira Props

Sample ID	Lab ID
JW3-~~07~~ 12	143868-001
JW3-~~08~~ 13	143868-002
JW3-~~09~~ 14	143868-003
TRIP BLANK	143868-004

3/21/00

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: Teresa Morris for DG Date: 3/17/00
Title: Operations Manager

Signature: Carol Wortham Date: 3/17/00
Title: Project Manager

0001

Tetra Tech EM Inc.
San Francisco Office

135 Main St. Suite 1800
San Francisco, CA 94105
415-543-4880
Fax 415-543-5480

Chain of Custody Record

	PO#:	Lab: C&T
Project name: 744 E 12th St. JW SILVEIRA #3	TtEMI technical contact: JACKIE LUTA	Field samplers: HAL DAWSON, ROY GLENN
Project number: P1106.04	TtEMI project manager: HAL DAWSON	Field samplers' signatures: Roy D. Glenn

Preservative Added: HCl

Sample ID	Sample Description/Notes	Date	Time	Matrix	40 ml VOA	1 Liter Amber	1 Liter Poly	Brass Tube	Glass Jar	CLP VOA	CLP SVOA	CLP Pest/PCBs	CLP Metals	TPH Purgeables	TPH Extractables	MTBE	BTEX
JW3-07	MW1 744 E 12th St	2-9-00	1430	WATER	6									X		X	X
JW3-08	MW2 "	"	1500	"	6									X		X	X
JW3-09	MW3 "	"	1530	"	6									X		X	X

	Name (print)	Company Name	Date	Time
Relinquished by: Roy D. Glenn	Roy GLENN	TT EMI	2-10-00	
Received by:				
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				

Turnaround time/remarks:

Curtis & Tompkins, Ltd.

Laboratory Number: 143868
Client: Tetra Tech EMI
Location: Silveira Site 2
Project#: P110604

Receipt Date: 02/10/00

PURGEABLE AROMATICS CASE NARRATIVE

This hardcopy data package contains sample and QC results for four water samples that were received on February 10, 2000.

There was insufficient sample provided to perform a matrix spike and spike duplicate analysis on the samples from this site.

The trip blank was received in the cooler but not documented on the chain of custody. The client was contacted on February 11, 2000 and requested analyses to be performed.

No analytical problems were encountered.

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	143868	Location:	JW Silveira Props
Client:	Tetra Tech EMI	Prep:	EPA 5030
Project#:	P110604	Analysis:	EPA 8260B
Field ID:	JW3-07 12	Batch#:	53818
Lab ID:	143868-001	Sampled:	02/09/00
Matrix:	Water	Received:	02/10/00
Units:	ug/L	Analyzed:	02/16/00
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	ND	0.5
Benzene	ND	0.5
Toluene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	103	78-123
Toluene-d8	100	80-110
Bromofluorobenzene	98	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	143868	Location:	JW Silveira Props
Client:	Tetra Tech EMI	Prep:	EPA 5030
Project#:	P110604	Analysis:	EPA 8260B
Field ID:	JW3-0813	Batch#:	53818
Lab ID:	143868-002	Sampled:	02/09/00
Matrix:	Water	Received:	02/10/00
Units:	ug/L	Analyzed:	02/16/00
Diln Fac:	1.000		

JMS 3/21/00

Analyte	Result	RL
MTBE	ND	0.5
Benzene	ND	0.5
Toluene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	103	78-123
Toluene-d8	99	80-110
Bromofluorobenzene	98	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	143868	Location:	JW Silveira Props
Client:	Tetra Tech EMI	Prep:	EPA 5030
Project#:	P110604	Analysis:	EPA 8260B
Field ID:	JW3-0914	Batch#:	53818
Lab ID:	143868-003	Sampled:	02/09/00
Matrix:	Water	Received:	02/10/00
Units:	ug/L	Analyzed:	02/16/00
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	29	0.5
Benzene	2.4	0.5
Toluene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	103	78-123
Toluene-d8	100	80-110
Bromofluorobenzene	98	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	143868	Location:	JW Silveira Props
Client:	Tetra Tech EMI	Prep:	EPA 5030
Project#:	P110604	Analysis:	EPA 8260B
Field ID:	TRIP BLANK	Batch#:	53792
Lab ID:	143868-004	Sampled:	02/09/00
Matrix:	Water	Received:	02/10/00
Units:	ug/L	Analyzed:	02/15/00
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	ND	0.5
Benzene	ND	0.5
Toluene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	100	78-123
Toluene-d8	100	80-110
Bromofluorobenzene	113	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	143868	Location:	JW Silveira Props
Client:	Tetra Tech EMI	Prep:	EPA 5030
Project#:	P110604	Analysis:	EPA 8260B
Field ID:	ZZZZZZZZZZ	Batch#:	53792
MSS Lab ID:	143869-001	Sampled:	02/09/00
Matrix:	Water	Received:	02/09/00
Units:	ug/L	Analyzed:	02/15/00
Diln Fac:	1.000		

Type: MS Lab ID: QC107987

Analyte	MSS Result	Spiked	Result	%REC	Limits
Benzene	<5.000	50.00	45.50	91	80-114
Toluene	<5.000	50.00	46.05	92	79-121

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	98	78-123
Toluene-d8	97	80-110
Bromofluorobenzene	101	80-115

Type: MSD Lab ID: QC107988

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Benzene	50.00	45.05	90	80-114	1	20
Toluene	50.00	45.61	91	79-121	1	20

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	100	78-123
Toluene-d8	98	80-110
Bromofluorobenzene	102	80-115

RPD= Relative Percent Difference

0011

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	143868	Location:	JW Silveira Props
Client:	Tetra Tech EMI	Prep:	EPA 5030
Project#:	P110604	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	53818
Units:	ug/L	Analyzed:	02/16/00
Diln Fac:	1.000		

Type: BS Lab ID: QC108062

Analyte	Spiked	Result	%REC	Limits
Benzene	50.00	46.09	92	80-116
Toluene	50.00	47.22	94	80-120

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	98	78-123
Toluene-d8	99	80-110
Bromofluorobenzene	99	80-115

Type: BSD Lab ID: QC108063

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Benzene	50.00	44.46	89	80-116	4	20
Toluene	50.00	45.58	91	80-120	4	20

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	95	78-123
Toluene-d8	97	80-110
Bromofluorobenzene	99	80-115

RPD= Relative Percent Difference

0012

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	143868	Location:	JW Silveira Props
Client:	Tetra Tech EMI	Prep:	EPA 5030
Project#:	P110604	Analysis:	EPA 8260B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC107972	Batch#:	53792
Matrix:	Water	Analyzed:	02/15/00
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Benzene	50.00	44.92	90	80-116
Toluene	50.00	47.16	94	80-120

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	97	78-123
Toluene-d8	100	80-110
Bromofluorobenzene	102	80-115

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	143868	Location:	JW Silveira Props
Client:	Tetra Tech EMI	Prep:	EPA 5030
Project#:	P110604	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC107973	Batch#:	53792
Matrix:	Water	Analyzed:	02/15/00
Units:	ug/L		

Analyte	Result	RL
MTBE	ND	0.5
Benzene	ND	0.5
Toluene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	100	78-123
Toluene-d8	99	80-110
Bromofluorobenzene	112	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	143868	Location:	JW Silveira Props
Client:	Tetra Tech EMI	Prep:	EPA 5030
Project#:	P110604	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC108064	Batch#:	53818
Matrix:	Water	Analyzed:	02/16/00
Units:	ug/L		

Analyte	Result	RL
MTBE	ND	0.5
Benzene	ND	0.5
Toluene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	103	78-123
Toluene-d8	100	80-110
Bromofluorobenzene	98	80-115

ND = Not Detected
RL = Reporting Limit

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

Laboratory Number 143868

Total Volatile Hydrocarbons
EPA 8015 (Mod)

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

Project#: P110604
Location: JW Silveira Props

Sample ID	Lab ID
JW3-0712	143868-001
JW3-0813	143868-002
JW3-0914	143868-003

3/21/00

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: Teresa K Morrison for JG Date: 3/17/00
Title: Operations Manager

Signature: Carol Witham Date: 3/17/00
Title: Project Manager

0001

Curtis & Tompkins, Ltd.

Laboratory Number: 143868
Client: Tetra Tech EMI
Location: Silveira Site 2
Project#: P110604

Receipt Date: 02/10/00

TPH-PURGEABLES CASE NARRATIVE

This hardcopy data package contains sample and QC results for three water samples that were received on February 10, 2000.

No analytical problems were encountered.

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	143868	Location:	JW Silveira Props
Client:	Tetra Tech EMI	Prep:	EPA 5030
Project#:	P110604	Analysis:	EPA 8015M
Field ID:	JW3-0712	Batch#:	53760
Lab ID:	143868-001	Sampled:	02/09/00
Matrix:	Water	Received:	02/10/00
Units:	ug/L	Prepared:	02/14/00
Diln Fac:	1.000	Analyzed:	02/15/00

3/24/00

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	103	59-135
Bromofluorobenzene (FID)	108	60-140

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	143868	Location:	JW Silveira Props
Client:	Tetra Tech EMI	Prep:	EPA 5030
Project#:	P110604	Analysis:	EPA 8015M
Field ID:	JW3-0813	Batch#:	53760
Lab ID:	143868-002	Sampled:	02/09/00
Matrix:	Water	Received:	02/10/00
Units:	ug/L	Prepared:	02/14/00
Diln Fac:	1.000	Analyzed:	02/15/00

JWO 3/21/00

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	102	59-135
Bromofluorobenzene (FID)	108	60-140

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	143868	Location:	JW Silveira Props
Client:	Tetra Tech EMI	Prep:	EPA 5030
Project#:	P110604	Analysis:	EPA 8015M
Field ID:	JW3-0914	Batch#:	53760
Lab ID:	143868-003	Sampled:	02/09/00
Matrix:	Water	Received:	02/10/00
Units:	ug/L	Prepared:	02/14/00
Diln Fac:	1.000	Analyzed:	02/15/00

hm 3/21/00

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	101	59-135
Bromofluorobenzene (FID)	109	60-140

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	143868	Location:	JW Silveira Props
Client:	Tetra Tech EMI	Prep:	EPA 5030
Project#:	P110604	Analysis:	EPA 8015M
Field ID:	ZZZZZZZZZZ	Batch#:	53760
MSS Lab ID:	143892-005	Sampled:	02/10/00
Matrix:	Water	Received:	02/10/00
Units:	ug/L	Analyzed:	02/14/00
Diln Fac:	1.000		

Type: MS Lab ID: QC107854

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	<50.00	2,000	2,158	108	65-131

Surrogate	%REC	Limits
Trifluorotoluene (FID)	116	59-135
Bromofluorobenzene (FID)	113	60-140

Type: MSD Lab ID: QC107855

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	1,975	99	65-131	9	20

Surrogate	%REC	Limits
Trifluorotoluene (FID)	113	59-135
Bromofluorobenzene (FID)	112	60-140

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	143868	Location:	JW Silveira Props
Client:	Tetra Tech EMI	Prep:	EPA 5030
Project#:	P110604	Analysis:	EPA 8015M
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC107851	Batch#:	53760
Matrix:	Water	Analyzed:	02/14/00
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	2,000	2,097	105	73-121

Surrogate	%REC	Limits
Trifluorotoluene (FID)	111	59-135
Bromofluorobenzene (FID)	103	60-140

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	143868	Location:	JW Silveira Props
Client:	Tetra Tech EMI	Prep:	EPA 5030
Project#:	P110604	Analysis:	EPA 8015M
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC107853	Batch#:	53760
Matrix:	Water	Analyzed:	02/14/00
Units:	ug/L		

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	97	59-135
Bromofluorobenzene (FID)	99	60-140

ND = Not Detected
RL = Reporting Limit

0011

Curtis & Tompkins, Ltd.

Laboratory Number: 145791 **Receipt Date:** 05/23/00
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 23, 2000.

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

No other analytical problems were encountered.

Tetra Tech EM Inc.
San Francisco Office

135 Main St. Suite 1800
San Francisco, CA 94105
415-543-4880
Fax 415-543-5480

Chain of Custody Record

Project name: 744 East 12th St. JW Silveira #3	**PO#**	**Lab:** Curtis & Tompkins	
Project number: P1106	**TtEMI technical contact:** Jackie Luta	**Field samplers:** Hal Dawson & 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	Preservative Added: H2O	HCl	Analysis Required: CLP VOA	CLP SVOA	CLP Pest/PCBs	CLP Metals	TPH Purgeables	TPH Extractables	BTEX	MTBE
JW3-15	MW-2	5-23-00	0910	WATER	6											X		X	X
JW3-16	MW-3	↓	1000	↓	6											X		X	X
JW3-17	MW-1	↓	1100	↓	6											X		X	X

	Name (print)	Company Name	Date	Time
Relinquished by: Roy D. Glenn	Roy Glenn	TTEMI	5-23-00	
Received by:				
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				

Turnaround time/remarks:

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	145791	Location:	JW Silveria UST,Oak.
Client:	Tetra Tech EMI	Prep:	EPA 5030
Project#:	P1106.05	Analysis:	EPA 8015M
Field ID:	JW3-15	Batch#:	56307
Lab ID:	145791-001	Sampled:	05/23/00
Matrix:	Water	Received:	05/23/00
Units:	ug/L	Analyzed:	06/05/00
Diln Fac:	1.000		

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	106	59-135
Bromofluorobenzene (FID)	104	60-140

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Benzene, Toluene, Ethylbenzene, Xylenes

Lab #:	145791	Location:	JW Silveria UST,Oak.
Client:	Tetra Tech EMI	Prep:	EPA 5030
Project#:	P1106.05	Analysis:	EPA 8021B
Field ID:	JW3-15	Batch#:	56307
Lab ID:	145791-001	Sampled:	05/23/00
Matrix:	Water	Received:	05/23/00
Units:	ug/L	Analyzed:	06/05/00
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)	95	56-142
Bromofluorobenzene (PID)	93	55-149

ND = Not Detected
RL = Reporting Limit

005

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	145791	Location:	JW Silveria UST,Oak.
Client:	Tetra Tech EMI	Prep:	EPA 5030
Project#:	P1106.05	Analysis:	EPA 8015M
Field ID:	JW3-16	Batch#:	56307
Lab ID:	145791-002	Sampled:	05/23/00
Matrix:	Water	Received:	05/23/00
Units:	ug/L	Analyzed:	06/05/00
Diln Fac:	1.000		

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	109	59-135
Bromofluorobenzene (FID)	106	60-140

ND = Not Detected
RL = Reporting Limit

006

Curtis & Tompkins, Ltd.

Benzene, Toluene, Ethylbenzene, Xylenes

Lab #:	145791	Location:	JW Silveria UST,Oak.
Client:	Tetra Tech EMI	Prep:	EPA 5030
Project#:	P1106.05	Analysis:	EPA 8021B
Field ID:	JW3-16	Batch#:	56307
Lab ID:	145791-002	Sampled:	05/23/00
Matrix:	Water	Received:	05/23/00
Units:	ug/L	Analyzed:	06/05/00
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	4.7	2.0
Benzene	0.59	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)	98	56-142
Bromofluorobenzene (PID)	94	55-149

007

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	145791	Location:	JW Silveria UST,Oak.
Client:	Tetra Tech EMI	Prep:	EPA 5030
Project#:	P1106.05	Analysis:	EPA 8015M
Field ID:	JW3-17	Batch#:	56307
Lab ID:	145791-003	Sampled:	05/23/00
Matrix:	Water	Received:	05/23/00
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)	110	60-140

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Benzene, Toluene, Ethylbenzene, Xylenes

Lab #:	145791	Location:	JW Silveria UST,Oak.
Client:	Tetra Tech EMI	Prep:	EPA 5030
Project#:	P1106.05	Analysis:	EPA 8021B
Field ID:	JW3-17	Batch#:	56307
Lab ID:	145791-003	Sampled:	05/23/00
Matrix:	Water	Received:	05/23/00
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)	98	56-142
Bromofluorobenzene (PID)	97	55-149

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	145791	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

010

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	145791	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

011

Curtis & Tompkins, Ltd.

Benzene, Toluene, Ethylbenzene, Xylenes

Lab #:	145791	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

012

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	145791	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 #:	145791	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., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900, Fax (510) 486-0532

Laboratory Number 147763

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

Project#: P110604
Location: JW Silveira Props

Sample ID	Lab ID
JW3-18	147763-001
JW3-19	147763-002
JW3-20	147763-003

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: 10/19/00
Operations Manager

Signature: Carol Whitham Date: 10/19/00
Project Manager

CA ELAP # 1459

000001

Curtis & Tompkins, Ltd.

Laboratory Number: 147763
Client: Tetra Tech EMI
Location: JW Silveira Props
Project#: P110604

Receipt Date: 09/28/00

CASE NARRATIVE

This hardcopy data package contains sample and QC results for three water samples that were received on September 28, 2000. The samples were received intact at 6.5 degrees Celsius.

TPH-Purgeable Hydrocarbons: High surrogate recoveries were observed for trifluorotoluene in the matrix spike and spike duplicate of JW2-18 (CT#147754-001) and the continuing calibration verifications due to coelution with a hydrocarbon peak. The surrogate recoveries for bromofluorobenzene were within criteria. High percent differences were observed in the continuing calibration verifications that were analyzed on September 29 and 30, 2000 causing the spike recoveries in the laboratory control sample and matrix spikes to be flagged. The responses were high, the spike recoveries were within criteria, and gasoline was not detected in any of the samples. No other analytical problems were encountered.

BTXE by EPA8260: Due to an oversight by the project manager, the samples were analyzed by GC/MS instead of by GC as requested. There was insufficient sample provided to perform a matrix spike and spike duplicate analysis on a water sample from this site. No analytical problems were encountered.

Tetra Tech EM Inc.
San Francisco Office

135 Main St. Suite 1800
San Francisco, CA 94105
415-543-4880
Fax 415-543-5480

Chain of Custody Record

Project name: 744 E 12th St. JW Silveira - 3	**PO#**	**Lab:** Curtis & Tompkins	
Project number: P110604	**TtEMI technical contact:** Sara Wooley	**Field samplers:** Hal & Roy	
	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	Preservative Added: HCl	HCl	HCl	Analysis Required: CLP VOA	CLP SVOA	CLP Pest/PCBs	CLP Metals	TPH Purgeables	TPH Extractables	BTEX	MTBE
JW3-18	MW-1	9-28-00	1030	WATER	4												X		X	X
JW3-19	MW-2	9-27-00	1113	"	4												X		X	X
JW3-20	MW-3	"	1210	"	4												X		X	X

	Name (print)	Company Name	Date	Time
Relinquished by: Roy D. Glenn	Roy Glenn	TTEMI	9-28-00	
Received by:				
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				

Turnaround time/remarks:

WHITE–Laboratory Copy YELLOW–Project Office Copy

147763

Tetra Tech EM Inc.
San Francisco Office
135 Main St. Suite 1800
San Francisco, CA 94105
415-543-4880
Fax 415-543-5480

Chain of Custody Record

Page 1 of 1

PO#:

Lab: CURTIS & TOMPKINS

Project name: 744 E 12th ST. JW SILVEIRA-3

TtEMI technical contact: SARA WOOLEY

Field samplers: HAL & ROY

Project number: P11Ø6Ø4

TtEMI project manager: HAL DAWSON

Field samplers' signatures:

Preservative Added: HCl, HCl, HCl (TPH Purgeables, BTEX, MTBE)

Sample ID	Sample Description/Notes	Date	Time	Matrix	40 ml VOA	1 Liter Amber	1 Liter Poly	Brass Tube	Glass Jar	CLP VOA	CLP SVOA	CLP Pest/PCBs	CLP Metals	TPH Purgeables	TPH Extractables	BTEX	MTBE
JW3-18		9-28-00	1Ø3Ø	WATER	4									X		X	X
JW3-19		9-27-00	1113	"	4									X		X	X
JW3-2Ø		"	121Ø	"	4									X		X	X

TEMP. RECEIVED: 6.5°C
RECEIVED BY: JHB

	Signature	Name (print)	Company Name	Date	Time
Relinquished by:	Roy D. Glenn	Roy GLENN	TTEMI	9-28-00	
Received by:					
Relinquished by:	Hal Dawson	HAL DAWSON	TTEMI	9/28/00	1100
Received by:	Lisa Bennett	Bennett	C&T	9/28/00	11:a
Relinquished by:					
Received by:					
Relinquished by:					
Received by:					

Turnaround time/remarks: TripØ 2VOA not on COC - on hold JHB

Received in a cooler on ice ~~cold~~ cold.

LB

Curtis & Tompkins, Ltd.

TPH/Purgeable Data

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	147763	Location:	JW Silveira Props
Client:	Tetra Tech EMI	Prep:	EPA 5030
Project#:	P110604	Analysis:	EPA 8015M
Field ID:	JW3-18	Batch#:	58599
Lab ID:	147763-001	Sampled:	09/28/00
Matrix:	Water	Received:	09/28/00
Units:	ug/L	Analyzed:	09/29/00
Diln Fac:	1.000		

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	116	59-135
Bromofluorobenzene (FID)	118	60-140

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	147763	Location:	JW Silveira Props
Client:	Tetra Tech EMI	Prep:	EPA 5030
Project#:	P110604	Analysis:	EPA 8015M
Field ID:	JW3-19	Batch#:	58599
Lab ID:	147763-002	Sampled:	09/27/00
Matrix:	Water	Received:	09/28/00
Units:	ug/L	Analyzed:	09/29/00
Diln Fac:	1.000		

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	117	59-135
Bromofluorobenzene (FID)	120	60-140

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	147763	Location:	JW Silveira Props
Client:	Tetra Tech EMI	Prep:	EPA 5030
Project#:	P110604	Analysis:	EPA 8015M
Field ID:	JW3-20	Batch#:	58599
Lab ID:	147763-003	Sampled:	09/27/00
Matrix:	Water	Received:	09/28/00
Units:	ug/L	Analyzed:	09/30/00
Diln Fac:	1.000		

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	117	59-135
Bromofluorobenzene (FID)	118	60-140

ND = Not Detected
RL = Reporting Limit

000068

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	147763	Location:	JW Silveira Props
Client:	Tetra Tech EMI	Prep:	EPA 5030
Project#:	P110604	Analysis:	EPA 8015M
Field ID:	JW2-18	Batch#:	58599
MSS Lab ID:	147754-001	Sampled:	09/27/00
Matrix:	Water	Received:	09/28/00
Units:	ug/L	Analyzed:	09/29/00
Diln Fac:	1.000		

Type: MS Lab ID: QC126339

Analyte	MSS Result	Spiked		Result	%REC	Limits
Gasoline C7-C12	6,154	2,000		8,109 b	98	65-131

Surrogate	%REC		Limits
Trifluorotoluene (FID)	326	*	>LR 59-135
Bromofluorobenzene (FID)	128		60-140

Type: MSD Lab ID: QC126340

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	8,048 b	95	65-131	1	20

Surrogate	%REC		Limits
Trifluorotoluene (FID)	325	*	>LR 59-135
Bromofluorobenzene (FID)	128		60-140

* = Value outside of QC limits; see narrative
b = See narrative
>LR= Response exceeds instrument's linear range
RPD= Relative Percent Difference

000009

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	147763	Location:	JW Silveira Props
Client:	Tetra Tech EMI	Prep:	EPA 5030
Project#:	P110604	Analysis:	EPA 8015M
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC126338	Batch#:	58599
Matrix:	Water	Analyzed:	09/29/00
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	2,000	2,324 b	116	73-121

Surrogate	%REC	Limits
Trifluorotoluene (FID)	131	59-135
Bromofluorobenzene (FID)	112	60-140

b = See narrative

000010

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	147763	Location:	JW Silveira Props
Client:	Tetra Tech EMI	Prep:	EPA 5030
Project#:	P110604	Analysis:	EPA 8015M
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC126337	Batch#:	58599
Matrix:	Water	Analyzed:	09/29/00
Units:	ug/L		

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	112	59-135
Bromofluorobenzene (FID)	109	60-140

ND = Not Detected
RL = Reporting Limit

000011

Curtis & Tompkins, Ltd.

BTXE Data

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	147763	Location:	JW Silveira Props
Client:	Tetra Tech EMI	Prep:	EPA 5030
Project#:	P110604	Analysis:	EPA 8260B
Field ID:	JW3-18	Batch#:	58581
Lab ID:	147763-001	Sampled:	09/28/00
Matrix:	Water	Received:	09/28/00
Units:	ug/L	Analyzed:	09/29/00
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	ND	0.5
Benzene	ND	0.5
Toluene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	106	78-123
Toluene-d8	98	80-110
Bromofluorobenzene	104	80-115

ND = Not Detected
RL = Reporting Limit

000087

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	147763	Location:	JW Silveira Props
Client:	Tetra Tech EMI	Prep:	EPA 5030
Project#:	P110604	Analysis:	EPA 8260B
Field ID:	JW3-19	Batch#:	58581
Lab ID:	147763-002	Sampled:	09/27/00
Matrix:	Water	Received:	09/28/00
Units:	ug/L	Analyzed:	09/29/00
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	ND	0.5
Benzene	ND	0.5
Toluene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	107	78-123
Toluene-d8	100	80-110
Bromofluorobenzene	105	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	147763	Location:	JW Silveira Props
Client:	Tetra Tech EMI	Prep:	EPA 5030
Project#:	P110604	Analysis:	EPA 8260B
Field ID:	JW3-20	Batch#:	58581
Lab ID:	147763-003	Sampled:	09/27/00
Matrix:	Water	Received:	09/28/00
Units:	ug/L	Analyzed:	09/30/00
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	1.8	0.5
Benzene	ND	0.5
Toluene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	109	78-123
Toluene-d8	101	80-110
Bromofluorobenzene	104	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	147763	Location:	JW Silveira Props
Client:	Tetra Tech EMI	Prep:	EPA 5030
Project#:	P110604	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	58581
Units:	ug/L	Analyzed:	09/29/00
Diln Fac:	1.000		

Type: BS Lab ID: QC126262

Analyte	Spiked	Result	%REC	Limits
Benzene	50.00	48.19	96	80-116
Toluene	50.00	48.71	97	80-120

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	99	78-123
Toluene-d8	99	80-110
Bromofluorobenzene	99	80-115

Type: BSD Lab ID: QC126263

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Benzene	50.00	47.32	95	80-116	2	20
Toluene	50.00	48.07	96	80-120	1	20

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	99	78-123
Toluene-d8	98	80-110
Bromofluorobenzene	99	80-115

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	147763	Location:	JW Silveira Props
Client:	Tetra Tech EMI	Prep:	EPA 5030
Project#:	P110604	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC126265	Batch#:	58581
Matrix:	Water	Analyzed:	09/29/00
Units:	ug/L		

Analyte	Result	RL
MTBE	ND	0.5
Benzene	ND	0.5
Toluene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	103	78-123
Toluene-d8	101	80-110
Bromofluorobenzene	102	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Laboratory Number: **149311** Receipt Date: **12/19/00**
Client: **Tetra Tech EMI**
Project#: **P1106.04**
Location: **JW SILVEIRA**

CASE NARRATIVE

This hardcopy data package contains sample and QC results for six water samples that were received on December 19, 2000. The samples were received cold and intact.

Total Volatile Hydrocarbons by EPA 8015M: High Trifluorotoluene surrogate recovery was observed in sample **JW2-21** (CT#149311-004). This outlier is due to the hydrocarbon peaks coeluting with the surrogate peak.

No other analytical problems were encountered.

BTXE by EPA 8021B: No analytical problems were encountered.

Tetra Tech EM Inc.
San Francisco Office
135 Main St. Suite 1800
San Francisco, CA 94105
415-543-4880
Fax 415-543-5480

Chain of Custody Record

PO#:

Lab: C&T

Project name: 744 E 12th ST. JW SILVEIRA

TtEMI technical contact: SARA WOOLEY

Field samplers: HAL & ROY

Project number: P1106.04

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	Preservative Added: #1	#2	Analysis Required: CLP VOA	CLP SVOA	CLP Pest/PCBs	CLP Metals	TPH Purgeables	TPH Extractables	BTEX MTBE
JW3-21	MW1	12-18-00	1205	WATER	3											X		X X
JW3-22	MW2	"	1315	"	3											X		X X
JW3-23	MW3	"	1240	"	3											X		X X

	Name (print)	Company Name	Date	Time
Relinquished by: Roy D. Glenn	Roy GLENN	TT EMI	12-19-00 ~~12-18-00~~	
Received by:				
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				

Turnaround time/remarks:

Tetra Tech EM Inc.
San Francisco Office

STd

135 Main St. Suite 1800
San Francisco, CA 94105
415-543-4880
Fax 415-543-5480

Chain of Custody Record

PO#	Lab:
00MW-P0093	C&T

Project name: 744 E 12th St JW SILVEIRA	TtEMI technical contact: SARA WOOLEY	Field samplers: HAL & ROY
Project number: P1106.04	TtEMI project manager: HAL DAWSON	Field samplers' signatures:

Preservative Added: HCl (TPH Purgeables), HCl (BTEX), HCl (MTBE)

Sample ID	Sample Description/Notes	Date	Time	Matrix	40 ml VOA	1 Liter Amber	1 Liter Poly	Brass Tube	Glass Jar	CLP VOA	CLP SVOA	CLP Pest/PCBs	CLP Metals	TPH Purgeables	TPH Extractables	BTEX	MTBE
JW3-21		12-18-00	1205	WATER	3									X		X	X
JW3-22		↓	1315	↓	3									X		X	X
JW3-23		↓	1240	↓	3									X		X	X

Received ☑ Cold ☐ Ambient ☒ On Ice ☒ Intact

	Name (print)	Company Name	Date	Time
Relinquished by: [signature]	Roy Glenn	TT EMI	12-19-00 ~~12-18-00~~	
Received by: [signature]	Pat Fl[illegible]	C&T	12-19-00	10:05
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				

Turnaround time/remarks:

WHITE-Laboratory Copy YELLOW-Project Office Copy

SOP Volume: Client Services
Section 1.1.2
Page: 1 of 1
Effective Date: 10-May-99
Revision: 1 Number 3 of 3
Filename: F:\QC\Forms\QC\Cooler.wpd

Curtis & Tompkins, Ltd.

COOLER RECEIPT CHECKLIST

Login#: 149311 Date Received: 12/19/00 Number of Coolers: 1
Client: Terra Tech Emi Project: JW Silveira

A. Preliminary Examination Phase
Date Opened: 12/19/00 By (print): James Brantley (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
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? Samples should be 2-6 degrees C. ..... (YES) NO
   Type of ice: wet ice Temperature: Chilled

B. Login Phase
Date Logged In: 12/19 By (print): [illegible] (sign) James Brantley

1. Describe type of packing in cooler: foamies
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:

000006

Curtis & Tompkins, Ltd.

Results & QC Summary

Gasoline by GC/FID CA LUFT

Lab #:	149311	Prep:	EPA 5030
Client:	Tetra Tech EMI	Analysis:	EPA 8015M
Project#:	STANDARD		
Field ID:	JW3-21	Batch#:	60491
Lab ID:	149311-001	Sampled:	12/18/00
Matrix:	Water	Received:	12/19/00
Units:	ug/L	Analyzed:	12/28/00
Diln Fac:	1.000		

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	99	59-135
Bromofluorobenzene (FID)	105	60-140

ND= Not Detected
RL= Reporting Limit

Gasoline by GC/FID CA LUFT

Lab #:	149311	Prep:	EPA 5030
Client:	Tetra Tech EMI	Analysis:	EPA 8015M
Project#:	STANDARD		
Field ID:	JW3-22	Batch#:	60491
Lab ID:	149311-002	Sampled:	12/18/00
Matrix:	Water	Received:	12/19/00
Units:	ug/L	Analyzed:	12/28/00
Diln Fac:	1.000		

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	103	59-135
Bromofluorobenzene (FID)	104	60-140

000009

ND= Not Detected
RL= Reporting Limit

Gasoline by GC/FID CA LUFT

Lab #:	149311	Prep:	EPA 5030
Client:	Tetra Tech EMI	Analysis:	EPA 8015M
Project#:	STANDARD		
Field ID:	JW3-23	Batch#:	60491
Lab ID:	149311-003	Sampled:	12/18/00
Matrix:	Water	Received:	12/19/00
Units:	ug/L	Analyzed:	12/28/00
Diln Fac:	1.000		

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	100	59-135
Bromofluorobenzene (FID)	104	60-140

000010

ND= Not Detected
RL= Reporting Limit

Benzene, Toluene, Ethylbenzene, Xylenes

Lab #:	149311	Prep:	EPA 5030
Client:	Tetra Tech EMI	Analysis:	EPA 8021B
Project#:	STANDARD		
Field ID:	JW3-21	Batch#:	60491
Lab ID:	149311-001	Sampled:	12/18/00
Matrix:	Water	Received:	12/19/00
Units:	ug/L	Analyzed:	12/28/00
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)	112	56-142
Bromofluorobenzene (PID)	113	55-149

ND= Not Detected
RL= Reporting Limit

Benzene, Toluene, Ethylbenzene, Xylenes

Lab #:	149311	Prep:	EPA 5030
Client:	Tetra Tech EMI	Analysis:	EPA 8021B
Project#:	STANDARD		
Field ID:	JW3-22	Batch#:	60491
Lab ID:	149311-002	Sampled:	12/18/00
Matrix:	Water	Received:	12/19/00
Units:	ug/L	Analyzed:	12/28/00
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)	113	56-142
Bromofluorobenzene (PID)	115	55-149

ND= Not Detected
RL= Reporting Limit

Benzene, Toluene, Ethylbenzene, Xylenes

Lab #:	149311	Prep:	EPA 5030
Client:	Tetra Tech EMI	Analysis:	EPA 8021B
Project#:	STANDARD		
Field ID:	JW3-23	Batch#:	60491
Lab ID:	149311-003	Sampled:	12/18/00
Matrix:	Water	Received:	12/19/00
Units:	ug/L	Analyzed:	12/28/00
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	7.8	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)	111	56-142
Bromofluorobenzene (PID)	114	55-149

ND= Not Detected
RL= Reporting Limit

Benzene, Toluene, Ethylbenzene, Xylenes

Lab #:	149311	Prep:	EPA 5030
Client:	Tetra Tech EMI	Analysis:	EPA 8021B
Project#:	STANDARD		
Field ID:	JW3-21	Batch#:	60491
MSS Lab ID:	149311-001	Sampled:	12/18/00
Matrix:	Water	Received:	12/19/00
Units:	ug/L	Analyzed:	12/28/00
Diln Fac:	1.000		

Type: MS Lab ID: QC133747

Analyte	MSS Result	Spiked	Result	%REC	Limits
MTBE	ND	20.00	21.35	107	33-131
Benzene	<0.1200	20.00	21.94	110	65-123
Toluene	<0.2500	20.00	22.01	110	73-122
Ethylbenzene	<0.05600	20.00	21.77	109	59-137
m,p-Xylenes	<0.1400	40.00	45.00	112	68-132
o-Xylene	<0.1500	20.00	21.92	110	61-140

Surrogate	%REC	Limits
Trifluorotoluene (PID)	112	56-142
Bromofluorobenzene (PID)	114	55-149

Type: MSD Lab ID: QC133748

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	20.00	22.37	112	33-131	5	20
Benzene	20.00	22.00	110	65-123	0	20
Toluene	20.00	22.72	114	73-122	3	20
Ethylbenzene	20.00	22.03	110	59-137	1	20
m,p-Xylenes	40.00	44.94	112	68-132	0	20
o-Xylene	20.00	22.04	110	61-140	1	20

Surrogate	%REC	Limits
Trifluorotoluene (PID)	114	56-142
Bromofluorobenzene (PID)	116	55-149

000020

ND= Not Detected
PD= Relative Percent Difference