Tetra Tech EM Inc.

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

February 29, 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

Subject: **Submittal of Final Summary Reports for Additional Site Characterization Work Conducted at 2301 East 12th Street, 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 final additional site characterization summary 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 additional site characterization work at your request for J.W. Silveira Company.

Thank you for your assistance. Please call me at (415) 222-8316 with any questions.

Sincerely,

for Hal Dawson

Hal Dawson
Project Manager/Geologist

REGISTERED GEOLOGIST
JEFF G. WERTER
NO. 1479
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

Jeff Werter
California Certified Engineering Geologist No. 1479

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

ADDITIONAL SITE CHARACTERIZATION REPORT
744 EAST 12th STREET, OAKLAND

Introduction: The site is located at the northeast corner of the intersection of East 12th Street and 8th Avenue in Oakland, California (Figure 1). This report discusses the additional site characterization, which included installation of three groundwater monitoring wells, two hydropunch borings, and collection of soil and groundwater samples at the site. The additional site characterization was conducted to determine the extent of petroleum contamination at the site.

STID 2957

Site History: 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 was over-excavated and transported off site for disposal. 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.

Monitoring Well Installation: Three monitoring wells, identified on Figure 2 as MW-1, MW-2, and MW-3, were installed at the site during the 1999 additional site characterization. The monitoring well completion forms are presented in Appendix A. The location of MW-3 was moved northeast (closer to the former location of the UST) from the proposed location in the Work Plan. The change in the location of MW-3 was due to the presence of underground and overhead utility lines in the vicinity of the proposed location for MW-3. The monitoring wells were advanced with a drill rig using continuous-flight, hollow-stem augers (HSA). One soil sample was collected from each of the monitoring well borings at depths ranging from 10.5 to 12.5 feet bgs.

Soil cores were collected with a continuous core sampling tool for lithologic logging and analytical sampling purposes. The soil samples selected for chemical analysis were collected from within the vadose zone of each monitoring well boring. The soil samples selected for chemical analysis were analyzed for BTEX, methyl tertiary-butyl ether (MTBE), and TPH-g.

The three monitoring wells were constructed of 2-inch-diameter, flush-joint, threaded, schedule 40 polyvinyl chloride (PVC) casing installed through the hollow stem auger. The bottom 10 feet of each

monitoring well consists of 0.010-inch (10 slot), machine-slotted well screen, the bottom of which is capped with a threaded PVC end cap. The casing joints form water-tight unions, and no chemical cements, glues, oils, or solvents were used during the drilling activities or during construction of the wells.

The annular space between the screened well casing and the sidewalls of the boring for each well was backfilled with clean, well-rounded, number 2\12 Monterey kiln-dried sand (filter pack material). The filter pack was emplaced to extend above the screened portion of the well casing for a distance of 1 foot in each of the wells. An approximately 1-foot-thick seal (the annular seal) consisting of 3/8-inch bentonite chips was emplaced on top of the filter pack in each well boring. Distilled water was added to the annular seal and hydrated for a minimum of 30 minutes prior to completion of each well. From the top of the bentonite seal to the ground surface, the annular space was filled with a cement-bentonite slurry (grout seal) consisting of neat cement grout mixed with approximately seven percent powdered bentonite.

The monitoring wells were completed with waterproof, traffic-rated, flush-mount protective boxes (Christy boxes). Each well head was equipped with an expandable, locking well cap.

Monitoring Well Development: The monitoring wells were developed by mechanically surging and pumping the groundwater within them. Mechanical surging equipment consisted of a vented surge block attached to drill rod, which was used to raise and lower the surge block in each well. The initial surging action was relatively gentle to prevent blockage of the well screen. As water began to move easily both into and out of the screen, the surge block was lowered incrementally to the bottom of the well. The surge block was then gently raised and lowered inside the well casing below the groundwater surface for a minimum of 10 minutes for each well. Periodically during surging, a pump was used to remove dislodged sediment and/or well sand (filter pack material) that had accumulated at the bottom of the well during the surging process. The pH, temperature, electrical conductivity, and turbidity of the development water were monitored to assess the physical properties of the groundwater; development was complete when the physical properties of the groundwater had stabilized.

Hydropunch Sampling: As part of the 1999 additional site characterization, two hydropunch borings, shown as SB-1 and SB-2 on Figure 2, were advanced at the site. An underground cable and pipe locator was used to find the metallic pipeline that exited the UST excavation. This pipeline was used to transport gasoline from the former UST to a former gas pump within the building that is adjacent to the former UST; the pipeline was not removed during the UST removal activities. The pipeline runs approximately 40 feet into the building from the location of the former UST, then turns 90 degrees toward the southwestern wall of the building. The 90 degree corner of the pipeline is located approximately 17 feet away from the southwestern wall of the building. SB-1 was completed near the 90 degree corner of the pipeline. The Work Plan called for the location of SB-2 to be located in the area of the former gas pump. SB-2 was relocated (to the location shown on Figure 2) in order to determine the extent of soil and groundwater contamination southwest of the former UST location because the soil cuttings from MW-3 showed signs of contamination.

A macro-core soil sampler, a 2-inch outside-diameter by 48-inch long continuous sampling tool, was used to collect soil from the hydropunch borings for lithologic logging and analytical sampling

purposes. Soil samples were collected in a 1.5-inch-diameter clear acetate sleeve. One soil sample was collected from the vadose zone in each boring and analyzed for BTEX, MTBE, and TPH-g.

Each hydropunch boring was advanced at least 5 feet into the saturated groundwater zone. A grab groundwater sample was collected from each boring and analyzed for BTEX, MTBE, and TPH-g. The Work Plan called for only one groundwater sample to be collected from the hydropunch location near the underground pipeline (SB-1). However, a grab groundwater sample was also collected from SB-2 in order to determine the extent of groundwater contamination southwest of MW-3.

Site Lithology and Depth to Groundwater: Boring logs for the additional site characterization monitoring wells and hydropunch borings show that the soil underlying the site consists primarily of low plasticity clay from the surface to depths ranging from about 9 to 14 feet bgs. The clay overlies a sand and gravel zone. Hydrocarbon staining on the soil was detected in the boring for MW-3 at 8 to 11 feet bgs, and in SB-2 at 4 to 7 feet bgs. Groundwater was typically encountered in the sand and gravel zone at the site. Groundwater was first encountered in the borings at depths from about 12 to 18 feet bgs. The groundwater appears to be slightly confined by the upper clay zone. After installation of the monitoring wells, the static water level was measured at depths ranging from 4.8 to 6.7 feet bgs. The boring logs are presented in Appendix B.

Groundwater Flow Direction and Gradient: Groundwater elevations were measured in the groundwater monitoring wells on June 7, 1999 during the additional site characterization sampling activities. The depth to groundwater from the top of casing at each well, the top of casing elevations for each well, and the groundwater elevations measured at the site are shown in Table 1. The groundwater flow direction and gradient were calculated using these data. The groundwater flow direction is south 70 degrees west (S70W), as shown on Figure 3; this flow direction follows the site topography. MW-3 is downgradient from the location of the former UST, and MW-1 and MW-2 are slightly upgradient to the north and southeast (respectively) of the former UST location. The groundwater gradient was calculated to be 0.005 feet/foot (ft/ft).

Laboratory Analytical Program: For the 1999 additional site characterization, the soil and groundwater samples were sent to Curtis & Tompkins Analytical Laboratories (C&T), in Berkeley, California for analysis. C&T is a California state-certified laboratory. Analyses for BTEX and MTBE were conducted using U.S. Environmental Protection Agency (US EPA) Method 8021B. Analyses for TPH-g were conducted using US EPA Method 8015M.

Groundwater Sample Analytical Results: Benzene was only detected in the groundwater sample collected from MW-3 at a concentration of 14 micrograms per liter (ug/L). Toluene and xylene compounds were only detected in the grab groundwater sample collected from SB-2 at concentrations of 0.63 and 2.2 ug/L, respectively. Ethylbenzene and TPH-g were not detected in the groundwater samples collected from the site. MTBE was detected in four of the five groundwater samples at concentrations ranging from 3 to 250 ug/L; MTBE was not detected in the groundwater sample collected from SB-1. Table 2 presents the analytical results of the groundwater samples. Figure 4 shows the concentrations of MTBE detected in groundwater at the site. The highest concentration of MTBE (250 ug/L) was detected in the groundwater sample collected from MW-3. The complete laboratory analytical package for the 1999 additional site characterization is provided in Appendix C.

Soil Sample Analytical Results: BTEX and TPH-g were not detected in the soil samples collected during the 1999 additional site characterization. MTBE is the only chemical compound that was detected in the soil samples. MTBE was detected in the soil samples collected from SB-2 and MW-3 at concentrations of 32 and 950 micrograms per kilogram (ug/Kg), respectively; MTBE was not detected in the remaining soil samples. Table 3 presents the analytical results of the additional site characterization soil samples. The complete laboratory analytical package for the 1999 additional site characterization is provided in Appendix C.

Conclusions and Recommendations: The analytical results of the 1999 additional site characterization samples and visual observation of the soil conditions during drilling activities show that some contamination is present at the site. Most of the contamination in the soil and groundwater is localized around MW-3. No mobile or potentially mobile free product appears to be present at the site.

TtEMI commenced quarterly sampling at the site in February 2000. Based on discussions with the Alameda County Health Care Services Agency, if four quarters of analytical groundwater data show that the contaminant concentrations are at acceptable concentrations and/or are decreasing over time, site closure will be attainable. Thus, TtEMI recommends completion of four quarters of groundwater monitoring at this site.

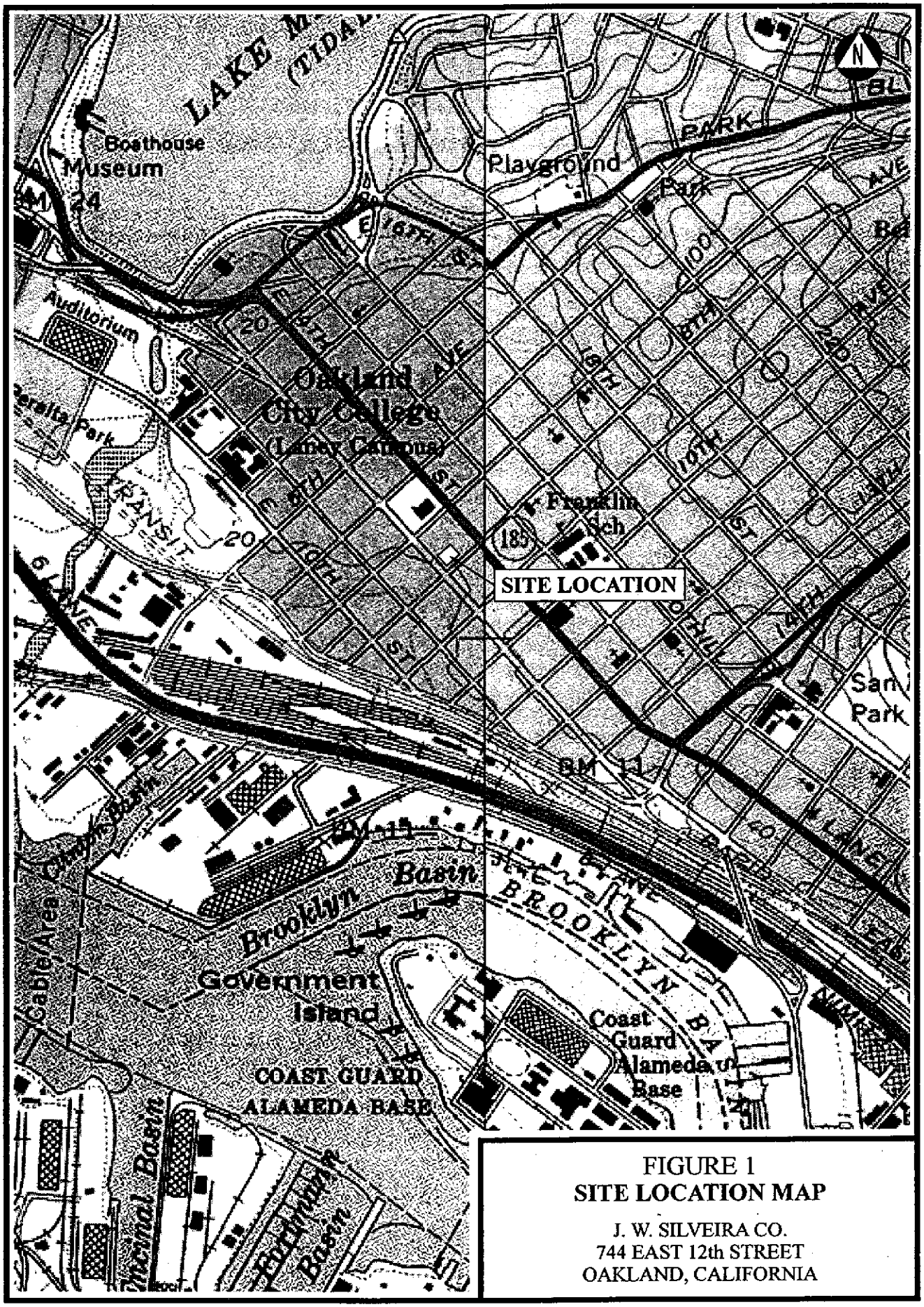
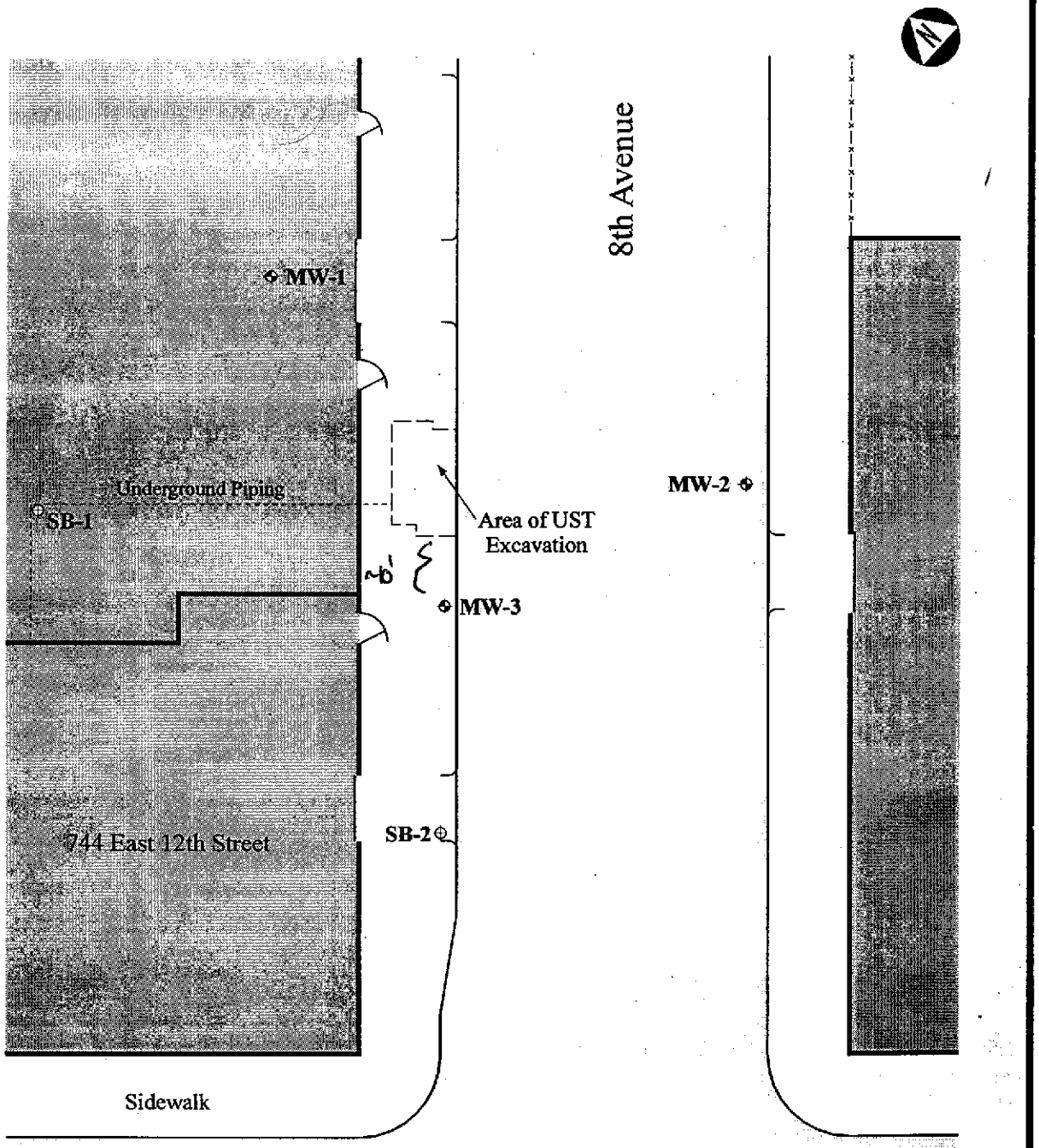


FIGURE 1
SITE LOCATION MAP

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



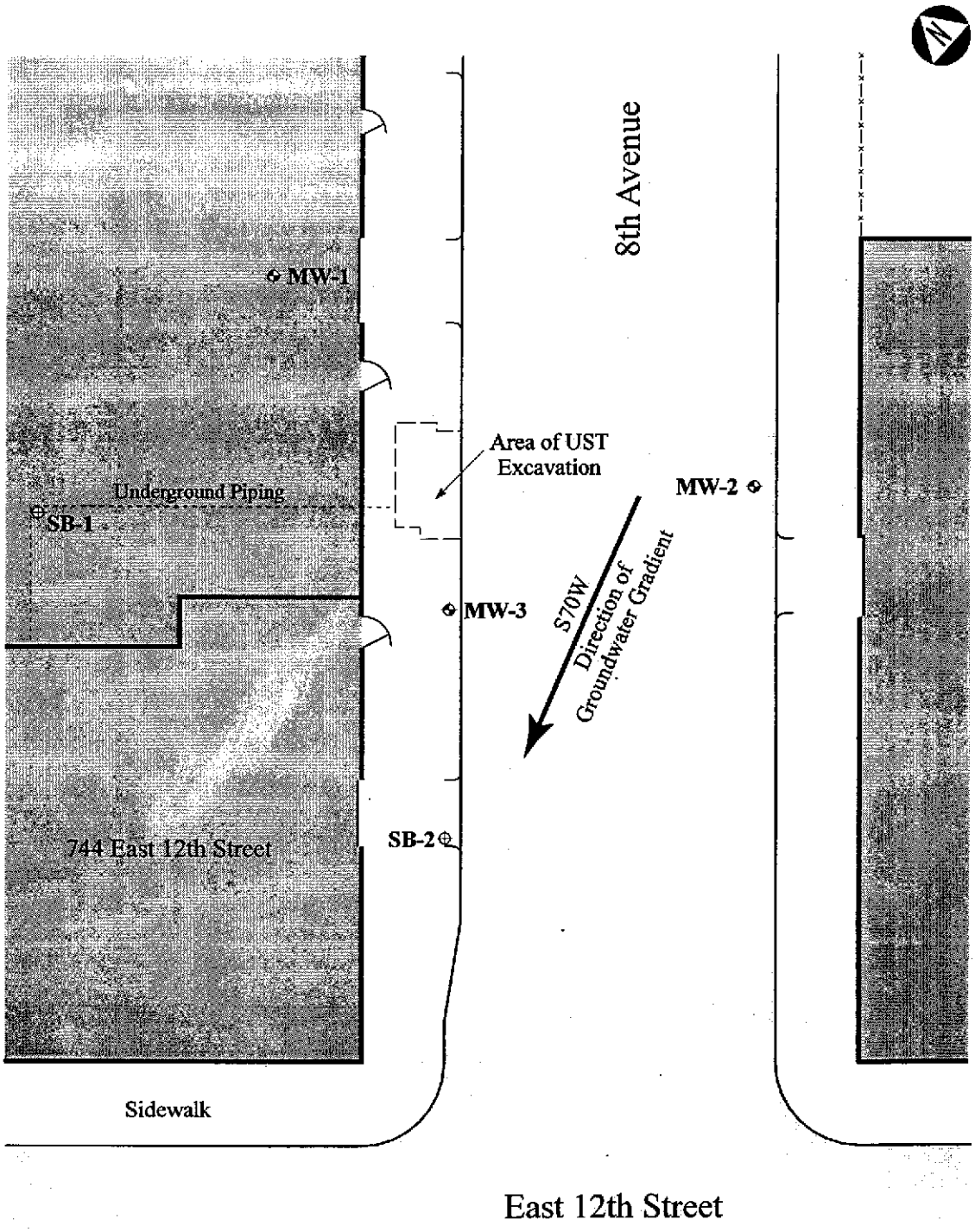
Notes:

- ◈ 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.
744 EAST 12th STREET
OAKLAND, CALIFORNIA



Notes:

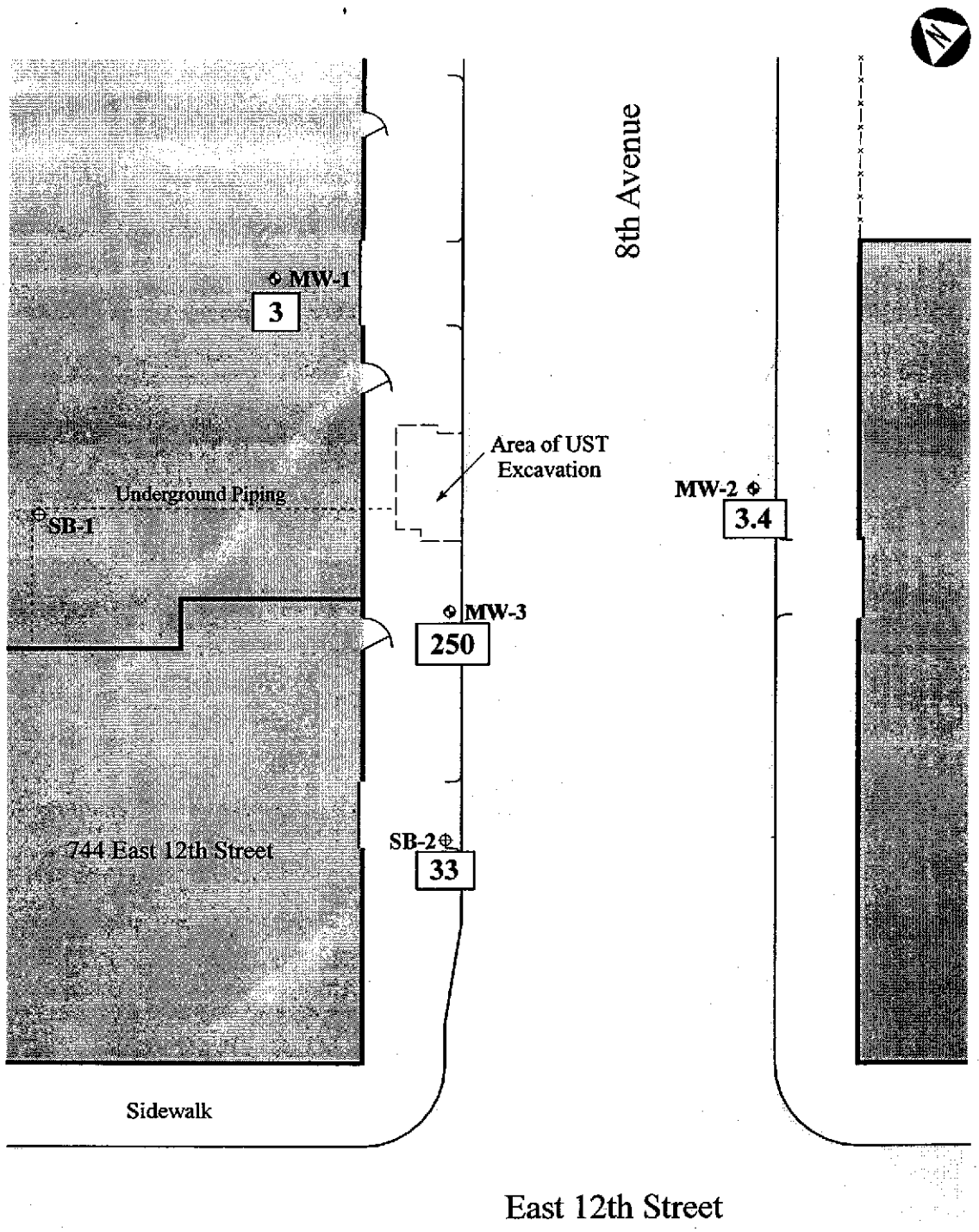
- Monitoring Well (MW)
- Soil Boring (SB)

Scale: 1 inch = 20 feet

0 10 20 30 40

FIGURE 3
GROUNDWATER GRADIENT

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



Notes:

- Monitoring Well (MW)
- Soil Boring (SB)
- [32] MTBE Concentrations in micrograms per Liter

Scale: 1 inch = 20 feet

0 10 20 30 40

FIGURE 4
MTBE IN GROUNDWATER

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

TABLE 1
GROUNDWATER ELEVATIONS
744 EAST 12TH STREET

Date	Groundwater Elevations from TOC		
	MW-1	MW-2	MW-3
6/7/99	8.52	8.51	8.37

Notes:

ft feet

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

TABLE 2
VOC AND TPH COMPOUNDS IN GROUNDWATER FROM MONITORING WELLS AND SOIL BORINGS, 1999
744 EAST 12TH STREET

Analyte	Monitoring Well			Soil Boring	
VOC (µg/L)	MW-1 Sample JW3-09	MW-2 Sample JW3-10	MW-3 Sample JW3-11	SB-1 Sample JW3-05	SB-2 Sample JW3-07
Benzene	*ND*	*ND*	14	*ND*	*ND*
Ethylbenzene	*ND*	*ND*	*ND*	*ND*	*ND*
Toluene	*ND*	*ND*	*ND*	*ND*	0.63
m,p-Xylenes	*ND*	*ND*	*ND*	*ND*	2.2
o-Xylene	*ND*	*ND*	*ND*	*ND*	0.74
MTBE	3	3.4	250	*ND*	33
TPH (µg/L)	MW-1 Sample JW3-09	MW-2 Sample JW3-10	MW-3 Sample JW3-11	SB-1 Sample JW3-05	SB-2 Sample JW3-07
Gasoline	*ND*	*ND*	*ND*	*ND*	*ND*

Notes:

µg/L	micrograms per Liter
ND	Not Detected
TPH	Total Petroleum Hydrocarbons
VOC	Volitile Organic Compound

TABLE 3
VOC AND TPH COMPOUNDS IN SOIL
FROM MONITORING WELLS AND SOIL BORINGS, 1999
744 EAST 12TH STREET

Analyte	Location and Depth				
VOC (µg/Kg)	**MW-1** JW3-02 12.5-13 ft bgs	**MW-2** JW3-01 10.5-11 ft bgs	**MW-3** JW3-03 10.5-11 ft bgs	**SB-1** JW3-04 10.5-11 ft bgs	**SB-2** JW3-06 9.5-10 ft bgs
Benzene	*ND*	*ND*	*ND*	*ND*	*ND*
Ethylbenzene	*ND*	*ND*	*ND*	*ND*	*ND*
Toluene	*ND*	*ND*	*ND*	*ND*	*ND*
m,p-Xylenes	*ND*	*ND*	*ND*	*ND*	*ND*
o-Xylene	*ND*	*ND*	*ND*	*ND*	*ND*
MTBE	*ND*	*ND*	950	*ND*	32
TPH (mg/Kg)	**MW-1** JW3-02 12.5-13 ft bgs	**MW-2** JW3-01 10.5-11 ft bgs	**MW-3** JW3-03 10.5-11 ft bgs	**SB-1** JW3-04 10.5-11 ft bgs	**SB-2** JW3-06 9.5-10 ft bgs
Gasoline	*ND*	*ND*	*ND*	*ND*	*ND*

Notes:

bgs	below ground surface
ft	feet
µg/Kg	micrograms per Kilogram
mg/Kg	milligrams per Kilogram
ND	Not Detected
TPH	Total Petroleum Hydrocarbons
VOC	Volitile Organic Compound

APPENDIX A

MONITORING WELL COMPLETION RECORD

MONITORING WELL COMPLETION RECORD

DRILLING INFORMATION

DRILLING BEGAN:
DATE 6-2-99 TIME 1100
WELL INSTALLATION BEGAN:
DATE 6-2-99 TIME 1230
WELL COMPLETION FINISHED:
DATE 6-2-99 TIME 1800
DRILLING CO. FAST-TEK
DRILLER Tom Fortner
LICENSE 589008
DRILL RIG CME-25
DRILLING METHOD:
☒ HOLLOW STEM AUGER
☐ AIR ROTARY
☐ _____
DIAMETER OF AUGERS:
ID 8 1/4 OD 3 3/4"

BENTONITE SEAL

AMOUNT CALCULATED 2.6 gal
AMOUNT USED 3 gal
☐ PELLETS, SIZE _____
☒ CHIPS, SIZE 3/8"
☐ _____
PRODUCT Hole Plug
MFG. BY Baroid Inc.
METHOD INSTALLED:
☒ POURED ☐ TREMIE
AMOUNT OF WATER USED 2 gal

FILTER PACK

AMOUNT CALCULATED 31 gal
AMOUNT USED 30 gal
☒ SAND, SIZE #2/12
☐ FORMATION COLLAPSE:
FROM _____ TO _____
PRODUCT Monterey Kiln Dried Sand
MFG. BY RMC Lonestar
METHOD INSTALLED:
☒ POURED ☐ TREMIE

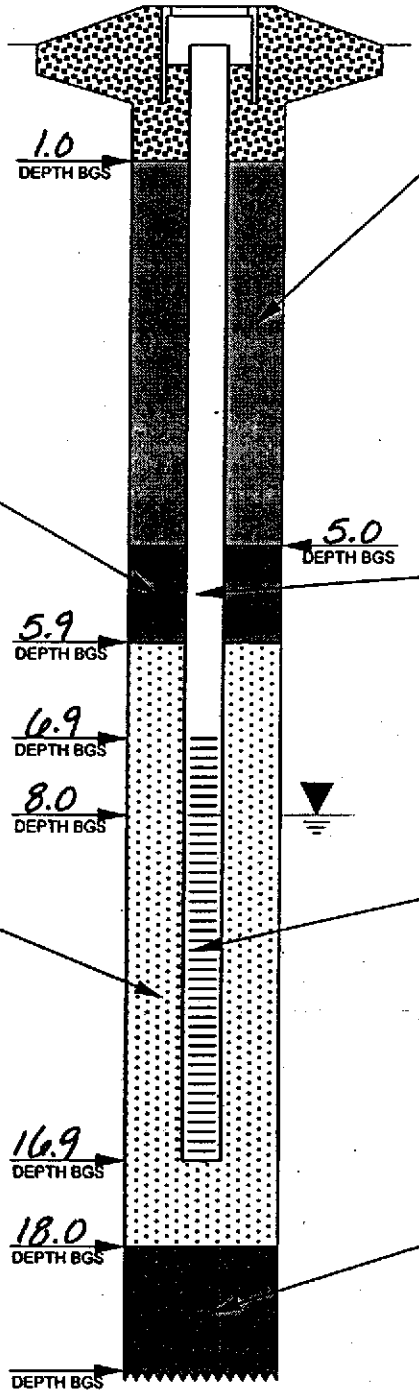
SURVEY INFORMATION

TOC ELEVATION 18.17
GROUND ELEVATION _____
NORTHING CORD. _____
EASTING CORD. _____
DATE SURVEYED 7-12-99
SURVEY CO. TTEMI

TETRA TECH EM INC.
• SAN FRANCISCO •

SURFACE COMPLETION

☒ FLUSH MOUNT
☐ ABOVE GROUND W/BUMPER POST
☒ CONCRETE ☐ ASPHALT



CENTRALIZERS

☐ DEPTHS _____, _____
☒ NO CENTRALIZERS USED

MONITORING WELL

MONITORING WELL NO. MW1
PROJECT Silveira - Oakland
SITE 3-744 East 12th St.
BOREHOLE NO. _____
WELL PERMIT NO. X9900416
TOC TO BOTTOM OF WELL 16.9

ANNULAR SEAL

AMOUNT CALCULATED 10 gal
AMOUNT USED 10 gal
☒ GROUT FORMULA
PORTLAND CEMENT 63%
BENTONITE 7%
WATER 30%
☐ PREPARED MIX
PRODUCT _____
MFG. BY _____
METHOD INSTALLED:
☒ POURED ☐ TREMIE

CASING

☒ SCHEDULE 40 PVC
☐ _____
PRODUCT _____
MFG. BY Temco Inc.
CASING DIAMETER:
ID 2.0 OD 2.4"
LENGTH OF CASING 7'

WELL SCREEN

☒ SCHEDULE 40 PVC
☐ _____
PRODUCT _____
MFG. BY Temco Inc.
CASING DIAMETER:
ID 2.0 OD 2.4"
SLOT SIZE .010 inch
LENGTH OF SCREEN 10'

BOREHOLE BACKFILL

AMOUNT CALCULATED _____
AMOUNT USED _____
☐ BENTONITE CHIPS, SIZE _____
☐ BENTONITE PELLETS, SIZE _____
☐ SLURRY _____
☐ FORMATION COLLAPSE _____
PRODUCT _____
MFG. BY _____
METHOD INSTALLED:
☐ POURED ☐ TREMIE

8/20/98

MONITORING WELL COMPLETION RECORD

DRILLING INFORMATION

DRILLING BEGAN:
DATE 6-2-99 TIME 0800
WELL INSTALLATION BEGAN:
DATE 6-2-99 TIME 0930
WELL COMPLETION FINISHED:
DATE 6-2-99 TIME 1800
DRILLING CO. FAST-TEK
DRILLER TOM FORTNER
LICENSE 589008
DRILL RIG CME-25
DRILLING METHOD:
☒ HOLLOW STEM AUGER
☐ AIR ROTARY
☐ _____
DIAMETER OF AUGERS:
ID 8 1/4" OD 3 3/4"

BENTONITE SEAL

AMOUNT CALCULATED 2.7 gal
AMOUNT USED 2.7 gal
☐ PELLETS, SIZE _____
☒ CHIPS, SIZE 3/8"
☐ _____
PRODUCT HOLE PLUG-WYOMING
MFG. BY BARIOD INC.
METHOD INSTALLED:
☒ POURED ☐ TREMIE
AMOUNT OF WATER USED 1.5 gal

FILTER PACK

AMOUNT CALCULATED 30 gal
AMOUNT USED 30 gal
☒ SAND, SIZE #2/12
☐ FORMATION COLLAPSE:
FROM _____ TO _____
PRODUCT MONTEREY KILN DRIED SAND
MFG. BY RMC LONESTAR
METHOD INSTALLED:
☐ POURED ☐ TREMIE

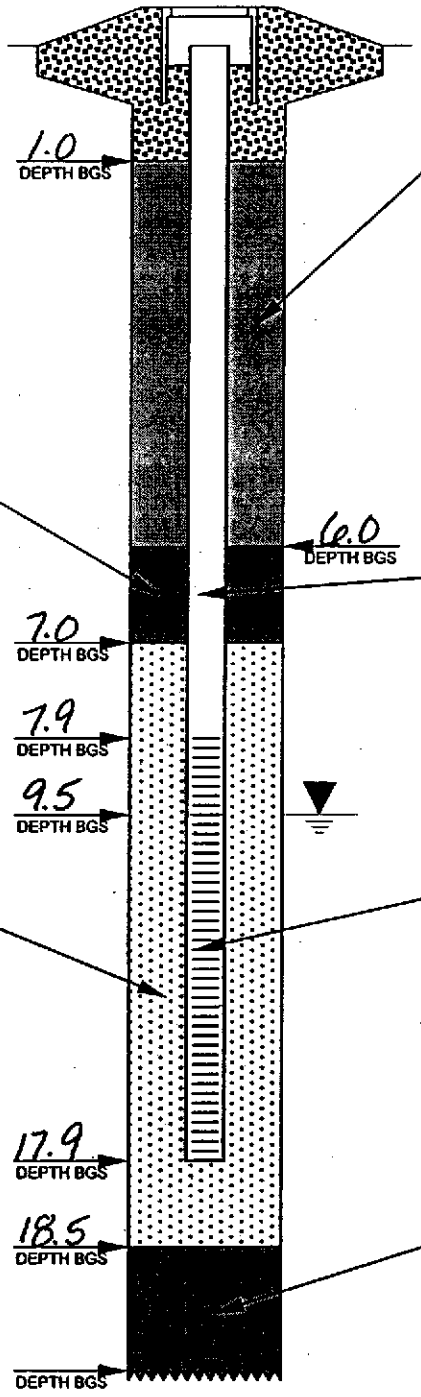
SURVEY INFORMATION

TOC ELEVATION 16.71
GROUND ELEVATION _____
NORTHING CORD. _____
EASTING CORD. _____
DATE SURVEYED TT EMI
SURVEY CO. 7-12-99

TETRA TECH EM INC.
• SAN FRANCISCO •

SURFACE COMPLETION

☒ FLUSH MOUNT
☐ ABOVE GROUND W/BUMPER POST
☐ CONCRETE ☒ ASPHALT



CENTRALIZERS

☐ DEPTHS _____, _____
☒ NO CENTRALIZERS USED

MONITORING WELL

MONITORING WELL NO. MW 2
PROJECT SILVEIRA-OAKLAND
SITE 3 - 744 EAST 12TH ST.
BOREHOLE NO. _____
WELL PERMIT NO. X9900416
TOC TO BOTTOM OF WELL 17.9'

ANNULAR SEAL

AMOUNT CALCULATED 13 gal
AMOUNT USED 12 gal
☒ GROUT FORMULA
PORTLAND CEMENT 63%
BENTONITE 7%
WATER 30%
☐ PREPARED MIX
PRODUCT _____
MFG. BY _____
METHOD INSTALLED:
☒ POURED ☐ TREMIE

CASING

☒ SCHEDULE 40 PVC
☐ _____
PRODUCT _____
MFG. BY TEMCO INC.
CASING DIAMETER:
ID 2.0 OD 2.4
LENGTH OF CASING 8.0'

WELL SCREEN

☒ SCHEDULE 40 PVC
☐ _____
PRODUCT _____
MFG. BY TEMCO INC.
CASING DIAMETER:
ID 2.0 OD 2.4
SLOT SIZE .010"
LENGTH OF SCREEN 10'

BOREHOLE BACKFILL

AMOUNT CALCULATED _____
AMOUNT USED _____
☐ BENTONITE CHIPS, SIZE _____
☐ BENTONITE PELLETS, SIZE _____
☐ SLURRY _____
☐ FORMATION COLLAPSE _____
PRODUCT _____
MFG. BY _____
METHOD INSTALLED:
☐ POURED ☐ TREMIE

8/20/98

MONITORING WELL COMPLETION RECORD

DRILLING INFORMATION

DRILLING BEGAN:
DATE 6-2-99 TIME 1400
WELL INSTALLATION BEGAN:
DATE 6-2-99 TIME 1530
WELL COMPLETION FINISHED:
DATE 6-2-99 TIME 1800
DRILLING CO. FAST-TEK
DRILLER Tom Forgnen
LICENSE 589008
DRILL RIG CME-25
DRILLING METHOD:
☒ HOLLOW STEM AUGER
☐ AIR ROTARY
☐ _____
DIAMETER OF AUGERS:
ID 8 1/4" OD 3 3/4"

BENTONITE SEAL

AMOUNT CALCULATED 2.7 gal
AMOUNT USED 2.5 gal
☐ PELLETS, SIZE _____
☒ CHIPS, SIZE 3/8"
☐ _____
PRODUCT Hole Plug Wyoming
MFG. BY Baroid Inc.
METHOD INSTALLED:
☒ POURED ☐ TREMIE
AMOUNT OF WATER USED 1.5 gal

FILTER PACK

AMOUNT CALCULATED 30 gal
AMOUNT USED 30 gal
☒ SAND, SIZE # 2/12
☐ FORMATION COLLAPSE:
FROM _____ TO _____
PRODUCT Monterey Kiln Dried Sand
MFG. BY RMC Lonestar
METHOD INSTALLED:
☒ POURED ☐ TREMIE

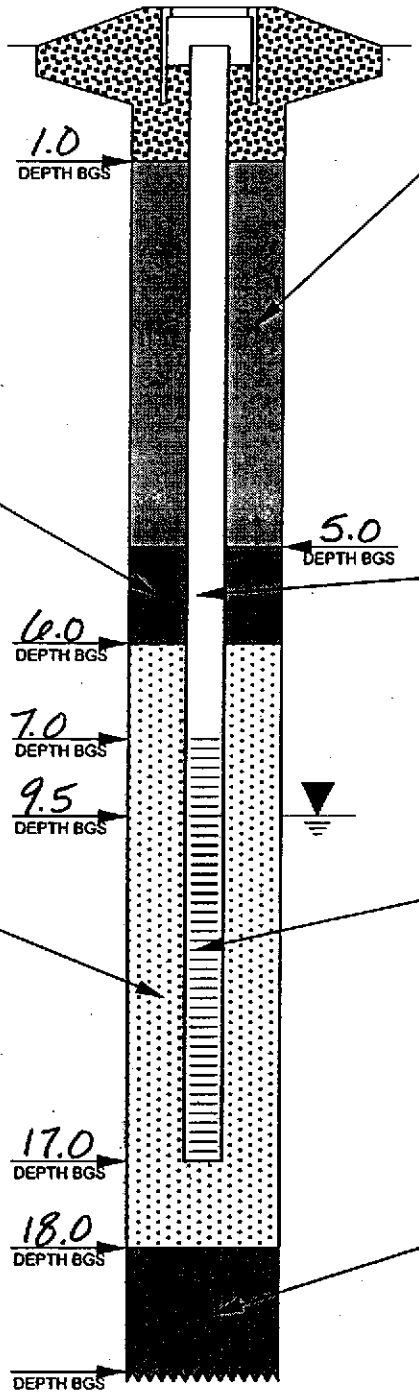
SURVEY INFORMATION

TOC ELEVATION 16.35
GROUND ELEVATION _____
NORTHING CORD. _____
EASTING CORD. _____
DATE SURVEYED 7-12-99
SURVEY CO. Ft EMI

TETRA TECH EM INC.
• SAN FRANCISCO •

SURFACE COMPLETION

☐ FLUSH MOUNT
☐ ABOVE GROUND W/BUMPER POST
☐ CONCRETE ☐ ASPHALT



CENTRALIZERS

☐ DEPTHS _____, _____
☒ NO CENTRALIZERS USED

MONITORING WELL

MONITORING WELL NO. MW 3
PROJECT Silveira - Oakland
SITE 3, 744 East 12th St
BOREHOLE NO. _____
WELL PERMIT NO. X9900416
TOC TO BOTTOM OF WELL 18.0

ANNULAR SEAL

AMOUNT CALCULATED 10 gal
AMOUNT USED 10 gal
☒ GROUT FORMULA
PORTLAND CEMENT 63%
BENTONITE 7%
WATER 30%
☐ PREPARED MIX
PRODUCT _____
MFG. BY _____
METHOD INSTALLED:
☒ POURED ☐ TREMIE

CASING

☒ SCHEDULE 40 PVC
☐ _____
PRODUCT _____
MFG. BY Temco
CASING DIAMETER:
ID 2.0 OD 2.4
LENGTH OF CASING 7'

WELL SCREEN

☒ SCHEDULE 40 PVC
☐ _____
PRODUCT Temco Inc.
MFG. BY _____
CASING DIAMETER:
ID 2.0 OD 2.4
SLOT SIZE .010 IN
LENGTH OF SCREEN 10 ft

BOREHOLE BACKFILL

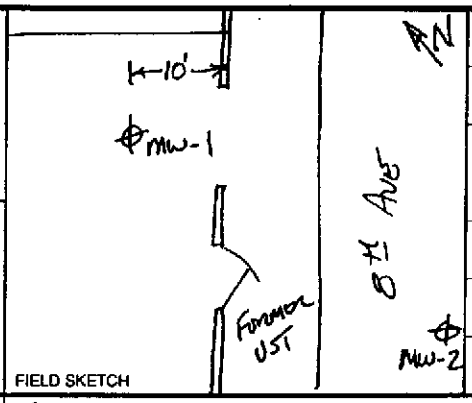
AMOUNT CALCULATED _____
AMOUNT USED _____
☐ BENTONITE CHIPS, SIZE _____
☐ BENTONITE PELLETS, SIZE _____
☐ SLURRY _____
☐ FORMATION COLLAPSE _____
PRODUCT _____
MFG. BY _____
METHOD INSTALLED:
☐ POURED ☐ TREMIE

8/20/98

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

BORING ID: MW-1
SITE: 744 E 12th ST.
PROJECT: SILVEIRA - OAKLAND
PROJECT NO.: P1106
DATE: 6-2-99
LOGGED BY: ROY GLENN

FIELD SKETCH



SAMPLE ID	SAMPLE TIME	SAMPLE DEPTH	PID READING	DRIVE INTERVAL / INCHES RECOVERED / INCHES DRIVEN	DEPTH (ft bgs)	MW SCREEND INT.	USCS SOIL TYPE	
				42/48	0-4		CL	CONCRETE 6" CLAY, LIGHT BROWNISH GRAY (2.5 Y 6/2), LOW PLASTICITY, DAMP, STIFF.
					4-7		CL	CLAY, LIGHT BROWNISH GRAY (2.5 Y 6/2) W/ MOTTLED BLACK & REDDISH IRON STAINING 10%, LOW PLASTICITY, DAMP, STIFF
				48/48	7-8		CL	W/ 5% FINE GRAVEL 4-8 MM
					8-9		CL	W/ 10% WHITE BROKEN SHELLS 2-8 MM
					9-10		CL	W/ 25% WHITE BROKEN SHELLS 2-10 MM
				42/48	10-12		CL	NO SHELLS PRESENT AT 9.5' bgs. SANDY-CLAY, LIGHT YELLOWISH BROWN (10YR 6/4), LOW PLASTICITY, MOIST, MEDIUM STIFF, W/ 15% FINE GRAVEL.
					12-13		CL	W/ 40% FINE GRAVEL 4-16 MM
JW3-2	1200			33/36	13-15		SW	GRAVELY-SAND, BROWN (10YR 5/3), COARSE, SUB-ANGULAR, WELL GRADED SAND, WET, LOOSE, W/ 15% GRAVEL - FINE 2-8 MM
				32/36	15-17		SW	SATURATED
					18			TD = 18.0 ft bgs
					19-20			

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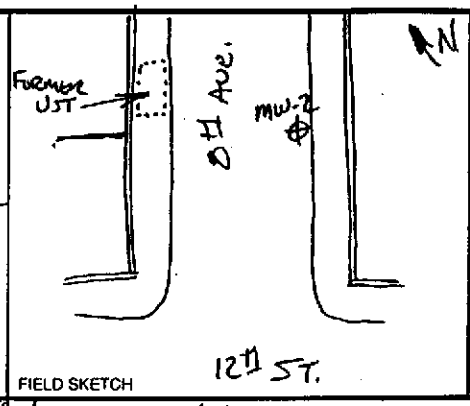

FIELD SKETCH

BORING ID: MW-2
SITE: 744 E 12th St.
PROJECT: SILVEIRA - OAKLAND
PROJECT NO.: P1106
DATE: 6-2-99
LOGGED BY: Roy GLENN

SAMPLE ID	SAMPLE TIME	SAMPLE DEPTH	PID READING	DRIVE INTERVAL	INCHES RECOVERED / INCHES DRIVEN	DEPTH (ft bgs)	MW SCREEN	USCS SOIL TYPE	
					44/48	1			ASPHALT 2½"
						2			CLAY, GREENISH-GRAY (5GY 6/1), LOW PLASTICITY, DAMP, STIFF, w/5% VERY COARSE SAND.
						3			
						4		CL	
					40/48	5			LIGHT BROWNISH GRAY (2.5 Y 6/2)
						6			
						7			w/5% BLACK STAINING - OXIDE
						8			
					32/36	9		CL	CLAY, MOTTLED LIGHT BROWN (7.5 YR 6/3) w/ BLACK & REDDISH IRON OXIDE STAINING-30%, LOW PLASTICITY, MOIST, MEDIUM STIFF,
						10			
JW3-01	1030					11		CL	SANDEY-CLAY, LIGHT YELLOWISH BROWN (10 YR 6/4), LOW PLASTICITY, WET, SOFT.
					30/36	12			
						13		SM	SILTY-SAND, BROWN (10 YR 5/3), MEDIUM SAND, WELL ROUNDED, WELL GRADED, SATURATED, LOOSE
						14			
						15			
					43/48	16		GM	SILTY-GRAVEL, BROWN (10 YR 5/3), FINE, SUB ROUNDED, POORLY GRADED GRAVEL, SATURATED, LOOSE, w/10% COARSE SAND.
						17			
						18			TD = 18 ft bgs.
						19			
						20			

Tetra Tech EM Inc.

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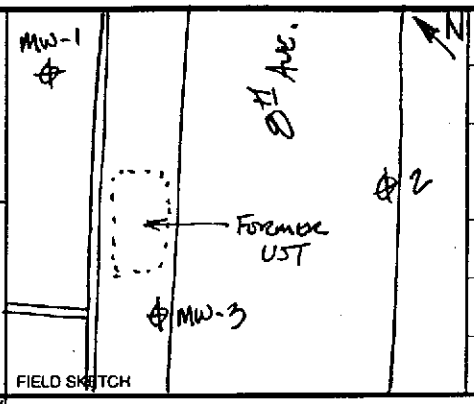
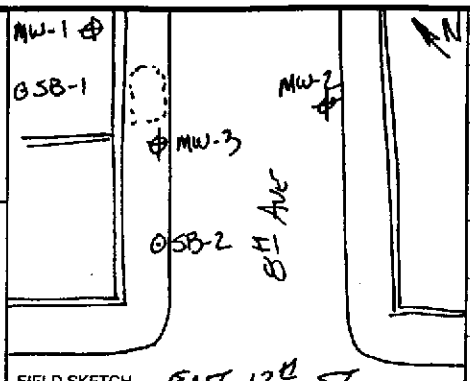


BORING ID: MW-3
SITE: 744 EAST 12th STREET
PROJECT: SILVEIRA - OAKLAND
PROJECT NO.: P1106
DATE: 6-2-99
LOGGED BY: Roy GLENN

SAMPLE ID	SAMPLE TIME	SAMPLE DEPTH	PID READING	DRIVE INTERVAL	INCHES RECOVERED / INCHES DRIVEN	DEPTH (ft bgs)	NW SCREEN	USCS SOIL TYPE	
					42/42	1			CONCRETE 4½" SILT, DARK BROWN (10YR 3/3), DAMP, SOFT
						2		ML	
						3			CLAY, LIGHT BROWNISH GRAY (2.5Y 6/2), LOW PLASTICITY, DAMP, STIFF, w/ BLACK & IRON OXIDE STAINING 5%.
					48/48	4		CL	
						5			w/5% FINE GRAVEL 4-6 mm
						6			
						7			
					42/48	8			GRAVELY-CLAY, STAINED GRAYISH-GREEN (5GY 6/1), LOW PLASTICITY, DAMP, MEDIUM STIFF, w/35% FINE TO COARSE GRAVEL (4mm - 25mm, HYDROCARBON ODOR PRESENT.
						9		CL	
						10			
JW3-03	1330					11			MOIST
						12			SILTY-SAND, BROWN (10YR 5/3), MEDIUM SAND, SUB-ROUNDED, WELL GRADED, SATURATED, LOOSE
					30/36	13			
						14			
						15		SM	w/10% COARSE SAND & VERY FINE GRAVEL
					29/36	16			
						17			
						18			TD = 18 ft bgs.
						19			
						20			

Tetra Tech EM Inc.

135 MAIN STREET, SUITE 1800
SAN FRANCISCO, CA 94105
415-543-4880

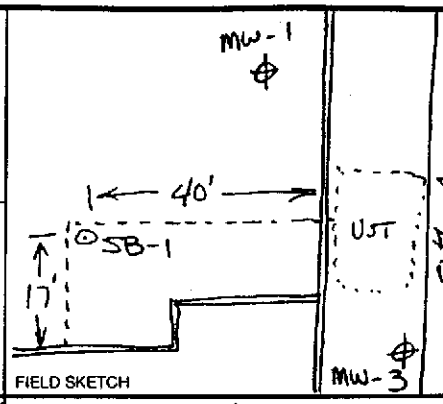


BORING ID: SB-2
SITE: 744 EAST 12TH ST.
PROJECT: SILVEIRA - OAKLAND
PROJECT NO.: P1106
DATE: 6-2-99
LOGGED BY: ROY GLENN

SAMPLE ID	SAMPLE TIME	SAMPLE DEPTH	PID READING	DRIVE INTERVAL / INCHES RECOVERED / INCHES DRIVEN	DEPTH (ft bgs)	USCS SOIL TYPE	
				44/45	1–4	CL	CONCRETE 3" CLAY, LIGHT BROWNISH GRAY (2.5Y 6/2), LOW PLASTICITY, DAMP, STIFF. W/ BLACK & REDDISH IRON OXIDE STAINING 10%
				47/48	4–8	CL	CLAY, STAINED GRAYISH-GREEN (5GY 6/1), LOW PLASTICITY, DAMP, MEDIUM STIFF W/15% FINE GRAVEL 5-8MM, HYDROCARBON ODOR PRESENT.
					7		SANDY-CLAY, LIGHT YELLOWISH BROWN (10YR 6/4), LOW PLASTICITY, MOIST, MEDIUM STIFF.
JW3-06	1545			40/48	8–10	CL	MOIST
					11		WET GRAVELY-CLAY, BROWN (10YR 5/3), LOW PLASTICITY, DAMP, STIFF, W/20% FINE GRAVEL.
				31/36	12–14	CL	
				28/36	15–17	SM	SILTY-SAND, BROWN (10YR 5/3), MEDIUM SAND, SUB-ROUNDED, WELL GRADED SAND, SATURATED, LOOSE
					18		TD = 18 Ft bgs.
					19–20		

Tetra Tech EM Inc.

135 MAIN STREET, SUITE 1800
SAN FRANCISCO, CA 94105
415-543-4880



BORING ID: SB-1
SITE: 744 East 12th St.
PROJECT: Silveira - Oakland
PROJECT NO.: P1106
DATE: 6-2-99
LOGGED BY: Roy Glenn

SAMPLE ID	SAMPLE TIME	SAMPLE DEPTH	PID READING	DRIVE INTERVAL / INCHES RECOVERED / INCHES DRIVEN	DEPTH (ft bgs)	USCS SOIL TYPE	
				1	1		Concrete 6"
				42/42	1	CL	Clay, Light Brownish Gray (2.5 Y 6/2), Low Plasticity, Damp, Stiff
					2		
					3		
					4		
				47/48	5	CL	Clay, Mottled Light Brownish Gray (2.5 Y 6/2) w/ Black & Reddish Iron Oxide Staining 1.5%, Low Plasticity, Damp, Stiff, w/ 10% Fine Gravel
					6		
					7		
					8		w/ 5% White Broken Shells 2-8 mm
				46/48	9	CL	Sandy-Clay, Light Yellowish Brown (10 YR 6/4), Low Plasticity, Moist, Medium Stiff, w/ 5% Fine Gravel
					10		
JW3-4	1450				11		Wet
					12		
				28/36	13		w/ 30% Fine Gravel 4-8 mm
					14		
					15	SW	Gravely-Sand, Brown (10 YR 5/3), Coarse, Sub-Angular, Well Graded Sand, Wet, Loose, w/ 20% Fine Gravel
				33/36	16		
					17		
					18		Saturated
							TD = 18 ft bgs
					19		
					20		

APPENDIX C
ANALYTICAL DATA PACKAGE

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

RECEIVED
JUN 28 1999
TETRA TECH EM INC.

Laboratory Number 139755

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

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

Sample ID	Lab ID
JW3-01 MW-2 11'	139755-001
JW3-02 MW-1 13'	139755-002
JW3-03 MW-3 11'	139755-003
JW3-04 SB-1 11'	139755-004
JW3-05 SB-1 GW	139755-005
JW3-06 SB-2 10'	139755-006
JW3-07 SB-2 GW	139755-007
JW3-08 QC TRIP BLANK (TB)	139755-008

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

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

Signature: _____ Date: 6-21-99
Title: Operations Manager

Signature: Paul Worthman Date: 6/21/99
Title: Project Manager

Curtis & Tompkins, Ltd.

Laboratory Number: 139755 **Receipt Date:** 06/03/99
Client: Tetra Tech EMI
Location: JW Silveria UST, Oakland
Project#: P1106.05

CASE NARRATIVE

This hardcopy data package contains sample and QC results for five soil samples and three water samples that were received on June 3, 1999. Soil results were reported on a dry-weight basis.

TPH Purgeables/BTXE: No analytical problems were encountered.

1210

13475

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

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

Sample ID	Sample Description/Notes	Date	Time	Matrix	No./Container Types: 40 ml VOA	1 Liter Amber	1 Liter Poly	Brass Tube	Glass Jar	Acetate	Preservative Added: HNO3	HCl	H2SO4	Analysis Required: CLP VOA	CLP SVOA	CLP Pest/PCBs	CLP Metals	TPH Purgeables	TPH Extractables	BTEX	MTBE
JW3-01	MW-2 1 11'	6-2-99	1030	SOIL						1								X	X	X	X
JW3-02	MW-1 2 13'		1200	SOIL						1								X	X	X	X
JW3-03	MW-3 3 11'		1330	SOIL						1								X	X	X	X
JW3-04	SB-1 4 11'		1450	SOIL						1								X	X	X	X
JW3-05	SB-1 5 GW		1505	WATER	4													X	X	X	X
JW3-06	SB-2 6 10'		1545	SOIL						1								X	X	X	X
JW3-07	SB-2 7 GW		1600	WATER	4													X	X	X	X
JW3-08	QC TRIP BLANK		1705	WATER	1													X	X	X	
																			EDB		

	Name (print)	Company Name	Date	Time
Relinquished by: Roy D. Glenn	Roy D. Glenn	TETRA TECH EM, INC.	6-3-99	
Received by: Tracy Bchar	Tracy Bchar	C&T	6-3-99	2:20
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				

Turnaround time/remarks:

W

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

Project name: JW3 STEVENS ST OAKLAND	PO#:	Lab: CET	
Project number: P1066.05	TtEMI technical contact: JACKIE LUTA	Field samplers: ROY GLENN	
	TtEMI project manager: HAL DAWSON	Field samplers' signatures: Roy D. Glenn	

Preservative Added: HNO3 | HCl | H2O

No./Container Types: 40 ml VOA | 1 Liter Amber | 1 Liter Poly | Brass Tube | Glass Jar | Acetate

Analysis Required: CLP VOA | CLP SVOA | CLP Pest/PCBs | CLP Metals | TPH Purgeables | TPH Extractables | BTEX | MTBE

Sample ID	Sample Description/Notes	Date	Time	Matrix	40 ml VOA	1 Liter Amber	1 Liter Poly	Brass Tube	Glass Jar	Acetate	CLP VOA	CLP SVOA	CLP Pest/PCBs	CLP Metals	TPH Purgeables	TPH Extractables	BTEX	MTBE
JW3-01	MW2 10.5-11.0 ft bgs	6-2-99	1030	SOIL						1					X	X	X	X
JW3-02	MW1 12.5-13 ~~12.5-13.0~~ ft bgs		1200	SOIL						1					X	X	X	X
JW3-03	MW3 10.5-11.0 ft bgs		1330	SOIL						1					X	X	X	X
JW3-04	SB1 10.5-11.0 ft bgs		1450	SOIL						1					X	X	X	X
JW3-05	SB1 GRAB GROUNDWATER		1505	WATER	4										X	X	X	X
JW3-06	SB2 9.5-10.0		1545	SOIL						1					X	X	X	X
JW3-07	SB2 GRAB GW		1600	WATER	4										X	X	X	X
JW3-08	TRIP BLANK		1705	WATER	1										X	X	X	
																2K		

	Name (print)	Company Name	Date	Time
Relinquished by: Roy D. Glenn	ROY D. GLENN	TETRA TECH EM, INC.	6-3-99	
Received by: Tracy Bchia	TRACY BCHIA	CET	6-3-99	2:20
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				

Turnaround time/remarks:

WHITE–Laboratory Copy YELLOW–Project Office Copy

JW Silvia not out

Curtis & Tompkins, Ltd.

COOLER RECEIPT CHECKLIST

Login#: 139755 Date Received: 6/3 Number of Coolers: 1

Client: TTEMI Project: PILOT05

A. Preliminary Examination Phase

Date Opened: 6/3 By (print): J Williams (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? 1 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? YES NO
   Type of ice: Blue/wet Temperature: 4°C

B. Login Phase

Date Logged In: 6/3 By (print): J Williams (sign) [signature]

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

Additional Comments:

Filename: F:\qc\forms\cooler.wpd Rev. 1 4/95

Percent Moisture Summary Report

Date: 11-JUN-99
Batch: 48586
Analyst: MR

Sample	Method	Date	Tare(g)	Wet(g)	Dry(g)	Percent Solids	Percent Moisture
139707-001	CLP SOW 390	11-JUN-99	15.2086	22.613	21.2519	82	18
139755-001	CLP SOW 390	11-JUN-99	15.1006	22.1986	20.8668	81	19
139755-002	CLP SOW 390	11-JUN-99	15.9738	22.6529	21.7696	87	13
139755-003	CLP SOW 390	11-JUN-99	15.8485	22.223	21.2678	85	15
139755-004	CLP SOW 390	11-JUN-99	15.7932	23.4552	21.9956	81	19
139755-006	CLP SOW 390	11-JUN-99	15.3093	22.4025	21.3129	85	15
139767-002	CLP SOW 390	11-JUN-99	15.4967	22.9024	22.5271	95	5
139767-003	CLP SOW 390	11-JUN-99	15.2178	22.4455	21.8175	91	9
139767-004	CLP SOW 390	11-JUN-99	15.3789	22.26	21.9676	96	4
139767-005	CLP SOW 390	11-JUN-99	15.4881	23.4615	23.1166	96	4
139767-006	CLP SOW 390	11-JUN-99	14.6335	23.0883	22.6368	95	5
139767-007	CLP SOW 390	11-JUN-99	15.0383	23.8915	23.5369	96	4
139767-008	CLP SOW 390	11-JUN-99	15.9407	23.7889	23.4341	95	5
139767-009	CLP SOW 390	11-JUN-99	15.6188	23.1136	22.7085	95	5
139767-010	CLP SOW 390	11-JUN-99	15.4913	23.5108	23.058	94	6
139767-011	CLP SOW 390	11-JUN-99	15.6317	22.8891	22.4816	94	6
139767-012	CLP SOW 390	11-JUN-99	14.9898	23.7064	23.3221	96	4
139767-014	CLP SOW 390	11-JUN-99	15.2987	22.7277	22.2814	94	6
139767-015	CLP SOW 390	11-JUN-99	15.9725	23.8646	23.5281	96	4
139767-016	CLP SOW 390	11-JUN-99	14.996	22.7799	22.4097	95	5
QC99685	CLP SOW 390	11-JUN-99	14.9885	22.8706	21.6653	85	15
of 139755-006					RPD:	0.1%	0.5%

TVH-Total Volatile Hydrocarbons

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

Analysis Method: EPA 8015M
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
139755-001	JW3-01	48621	06/02/99	06/13/99	06/13/99	19%
139755-002	JW3-02	48621	06/02/99	06/13/99	06/13/99	13%
139755-003	JW3-03	48608	06/02/99	06/12/99	06/12/99	15%
139755-004	JW3-04	48621	06/02/99	06/13/99	06/13/99	19%

Matrix: Soil

Analyte	Units	139755-001 JW3-01 MW-2 (11')	139755-002 JW3-02 MW-1 (13')	139755-003 JW3-03 MW-3 (11')	139755-004 JW3-04 SB-1 (11')
Diln Fac:		1	1	1	1
Gasoline C7-C12	mg/Kg	<1.2	<1.1	<1.2	<1.2
Surrogate					
Trifluorotoluene	%REC	93	94	96	95
Bromofluorobenzene	%REC	88	92	93	91

BTXE

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

Analysis Method: EPA 8021B
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
139755-001	JW3-01	48621	06/02/99	06/13/99	06/13/99	19%
139755-002	JW3-02	48621	06/02/99	06/13/99	06/13/99	13%
139755-003	JW3-03	48621	06/02/99	06/13/99	06/13/99	15%
139755-004	JW3-04	48621	06/02/99	06/13/99	06/13/99	19%

Matrix: Soil

Analyte	Units	139755-001 JW3-01 MW-2 (11')	139755-002 JW3-02 MW-1 (13')	139755-003 JW3-03 MW-3 (11')	139755-004 JW3-04 SB-1 (11')
Diln Fac:		1	1	2	1
MTBE	ug/Kg	<25	<23	950	<25
Benzene	ug/Kg	<6.2	<5.7	<12	<6.2
Toluene	ug/Kg	<6.2	<5.7	<12	<6.2
Ethylbenzene	ug/Kg	<6.2	<5.7	<12	<6.2
m,p-Xylenes	ug/Kg	<6.2	<5.7	<12	<6.2
o-Xylene	ug/Kg	<6.2	<5.7	<12	<6.2
Surrogate					
Trifluorotoluene	%REC	103	106	102	101
Bromofluorobenzene	%REC	98	101	100	98

TVH-Total Volatile Hydrocarbons

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

Analysis Method: EPA 8015M
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
139755-006	JW3-06	48621	06/02/99	06/13/99	06/13/99	15%

Matrix: Soil

JW3-06
SB-2 (10')

Analyte	Units	139755-006
Diln Fac:		1
Gasoline C7-C12	mg/Kg	<1.2
Surrogate		
Trifluorotoluene	%REC	98
Bromofluorobenzene	%REC	92

BTXE

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

Analysis Method: EPA 8021B
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
139755-006	JW3-06	48621	06/02/99	06/13/99	06/13/99	15%

Matrix: Soil

JW3-06
SB-2 (10')

Analyte	Units	139755-006
Diln Fac:		1
MTBE	ug/Kg	32
Benzene	ug/Kg	<5.9
Toluene	ug/Kg	<5.9
Ethylbenzene	ug/Kg	<5.9
m,p-Xylenes	ug/Kg	<5.9
o-Xylene	ug/Kg	<5.9
Surrogate		
Trifluorotoluene	%REC	104
Bromofluorobenzene	%REC	101

TVH-Total Volatile Hydrocarbons

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

METHOD BLANK

Matrix:	Soil	Prep Date:	06/11/99
Batch#:	48608	Analysis Date:	06/11/99
Units:	mg/Kg		
Diln Fac:	1		

MB Lab ID: QC99776 LAB QC

Analyte	Result
Gasoline C7-C12	<1.0

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	93	62-143
Bromofluorobenzene	87	59-150

TVH-Total Volatile Hydrocarbons

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

METHOD BLANK

Matrix:	Soil	Prep Date:	06/13/99
Batch#:	48621	Analysis Date:	06/13/99
Units:	mg/Kg		
Diln Fac:	1		

MB Lab ID: QC99837 LAB QC

Analyte	Result
Gasoline C7-C12	<1.0

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	93	62-143
Bromofluorobenzene	91	59-150

BTXE

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

METHOD BLANK

Matrix:	Soil	Prep Date:	06/13/99
Batch#:	48621	Analysis Date:	06/13/99
Units:	ug/Kg		
Diln Fac:	1		

MB Lab ID: QC99837 LAB QC

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

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	104	59-134
Bromofluorobenzene	100	38-150

TVH-Total Volatile Hydrocarbons

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

LABORATORY CONTROL SAMPLE

Matrix:	Soil	Prep Date:	06/11/99
Batch#:	48608	Analysis Date:	06/11/99
Units:	mg/Kg		
Diln Fac:	1		

LCS Lab ID: QC99777 LAB QC

Analyte	Result	Spike Added	%Rec #	Limits
Gasoline C7-C12	10.24	10	102	77-122

Surrogate	%Rec	Limits
Trifluorotoluene	94	62-143
Bromofluorobenzene	108	59-150

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

Lab #: 139755 BATCH QC REPORT

Curtis & Tompkins, Ltd.

BTXE

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

LABORATORY CONTROL SAMPLE

Matrix:	Soil	Prep Date:	06/13/99
Batch#:	48621	Analysis Date:	06/13/99
Units:	ug/Kg		
Diln Fac:	1		

LCS Lab ID: QC99838 LAB QC

Analyte	Result	Spike Added	%Rec #	Limits
MTBE	79.18	100	79	59-135
Benzene	84.28	100	84	67-116
Toluene	88.45	100	88	77-122
Ethylbenzene	88.07	100	88	70-124
m,p-Xylenes	185.6	200	93	75-125
o-Xylene	90.56	100	91	75-126

Surrogate	%Rec	Limits
Trifluorotoluene	103	59-134
Bromofluorobenzene	100	38-150

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

BATCH QC REPORT

Curtis & Tompkins, Ltd.

TVH-Total Volatile Hydrocarbons

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

Analysis Method: EPA 8015M
Prep Method: EPA 5030

BLANK SPIKE/BLANK SPIKE DUPLICATE

Matrix: Soil
Batch#: 48621
Units: mg/Kg
Diln Fac: 1

Prep Date: 06/13/99
Analysis Date: 06/13/99

BS Lab ID: QC99839 LAB QC

Analyte	Spike Added	BS	%Rec	#	Limits
Gasoline C7-C12	10	9.26	93		77-122

Surrogate	%Rec	Limits
Trifluorotoluene	93	62-143
Bromofluorobenzene	105	59-150

BSD Lab ID: QC99840

Analyte	Spike Added	BSD	%Rec	#	Limits	RPD	#	Limit
Gasoline C7-C12	10	8.83	88		77-122	5		11

Surrogate	%Rec	Limits
Trifluorotoluene	94	62-143
Bromofluorobenzene	111	59-150

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

Lab #: 139755 BATCH QC REPORT Curtis & Tompkins, Ltd.

TVH-Total Volatile Hydrocarbons

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

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID:	ZZZZZZ	Sample Date:	06/09/99
Lab ID:	139853-002	Received Date:	06/10/99
Matrix:	Soil	Prep Date:	06/12/99
Batch#:	48608	Analysis Date:	06/12/99
Units:	mg/Kg		
Diln Fac:	1		

MS Lab ID: QC99779 LAB QC

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Gasoline C7-C12	10	<1	9.7	97	55-134

Surrogate	%Rec	Limits
Trifluorotoluene	95	62-143
Bromofluorobenzene	117	59-150

MSD Lab ID: QC99780

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Gasoline C7-C12	10	8.96	90	55-134	8	30

Surrogate	%Rec	Limits
Trifluorotoluene	94	62-143
Bromofluorobenzene	107	59-150

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

BTXE

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

Analysis Method: EPA 8021B
Prep Method: EPA 5030

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID: ZZZZZZ
Lab ID: 139871-002
Matrix: Soil
Batch#: 48621
Units: ug/Kg
Diln Fac: 1

Sample Date: 06/05/99
Received Date: 06/11/99
Prep Date: 06/13/99
Analysis Date: 06/13/99

MS Lab ID: QC99841 LAB QC

Analyte	Spike Added	Sample	MS	%Rec #	Limits
MTBE	100	<20	79.02	79	51-145
Benzene	100	<5	78.43	78	57-125
Toluene	100	<5	74.41	74	64-124
Ethylbenzene	100	<5	73.03	73	41-131
m,p-Xylenes	200	<5	151.2	76	50-128
o-Xylene	100	<5	79.21	79	44-138

Surrogate	%Rec	Limits
Trifluorotoluene	104	59-134
Bromofluorobenzene	102	38-150

MSD Lab ID: QC99842

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
MTBE	100	80.38	80	51-145	2	13
Benzene	100	73.47	73	57-125	7	10
Toluene	100	66.39	66	64-124	11	12
Ethylbenzene	100	65.84	66	41-131	10	13
m,p-Xylenes	200	148.1	74	50-128	2	13
o-Xylene	100	78.84	79	44-138	0	13

Surrogate	%Rec	Limits
Trifluorotoluene	107	59-134
Bromofluorobenzene	104	38-150

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

Curtis & Tompkins, Ltd.

TVH-Total Volatile Hydrocarbons

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

Analysis Method: EPA 8015M
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
139755-005	JW3-05	48701	06/02/99	06/16/99	06/16/99	
139755-007	JW3-07	48632	06/02/99	06/16/99	06/16/99	
139755-008	JW3-08	48701	06/02/99	06/16/99	06/16/99	

Matrix: Water

JW3-05 SB-1 GW | JW3-07 SB-2 GW | JW3-08 QC TripBlank

Analyte	Units	139755-005	139755-007	139755-008
Diln Fac:		1	1	1
Gasoline C7-C12	ug/L	<50	<50	<50
Surrogate				
Trifluorotoluene	%REC	105	111	110
Bromofluorobenzene	%REC	106	114	115

Curtis & Tompkins, Ltd.

BTXE

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

Analysis Method: EPA 8021B
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
139755-005	JW3-05	48701	06/02/99	06/16/99	06/16/99	
139755-007	JW3-07	48632	06/02/99	06/16/99	06/16/99	
139755-008	JW3-08	48701	06/02/99	06/16/99	06/16/99	

Matrix: Water

JW3-05 SB-1 GW | JW3-07 SB-2 GW | JW3-08 QC Trip Blank

Analyte	Units	139755-005	139755-007	139755-008
Diln Fac:		1	1	1
MTBE	ug/L	<2	33	<2
Benzene	ug/L	<0.5	<0.5	<0.5
Toluene	ug/L	<0.5	<0.5	<0.5
Ethylbenzene	ug/L	<0.5	0.63	<0.5
m,p-Xylenes	ug/L	<0.5	2.2	<0.5
o-Xylene	ug/L	<0.5	0.74	<0.5
Surrogate				
Trifluorotoluene	%REC	109	113	116
Bromofluorobenzene	%REC	110	116	119

Lab #: 139755

BATCH QC REPORT

Curtis & Tompkins, Ltd.

TVH-Total Volatile Hydrocarbons

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

METHOD BLANK

Matrix:	Water	Prep Date:	06/16/99
Batch#:	48701	Analysis Date:	06/16/99
Units:	ug/L		
Diln Fac:	1		

MB Lab ID: QC00163 LAB QC

Analyte	Result
Gasoline C7-C12	<50

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	98	53-150
Bromofluorobenzene	97	53-149

Lab #: 139755

BATCH QC REPORT

Curtis & Tompkins, Ltd.

BTXE

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

METHOD BLANK

Matrix:	Water	Prep Date:	06/16/99
Batch#:	48701	Analysis Date:	06/16/99
Units:	ug/L		
Diln Fac:	1		

MB Lab ID: QC00163 LAB QC

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

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	103	51-143
Bromofluorobenzene	102	37-146

Lab #: 139755

BATCH QC REPORT

Curtis & Tompkins, Ltd.

TVH-Total Volatile Hydrocarbons

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

METHOD BLANK

Matrix:	Water	Prep Date:	06/15/99
Batch#:	48632	Analysis Date:	06/15/99
Units:	ug/L		
Diln Fac:	1		

MB Lab ID: QC99886 LAB QC

Analyte	Result
Gasoline C7-C12	<50

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	93	53-150
Bromofluorobenzene	94	53-149

Lab #: 139755

BATCH QC REPORT

Curtis & Tompkins, Ltd.

BTXE

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

Analysis Method: EPA 8021B
Prep Method: EPA 5030

METHOD BLANK

Matrix: Water
Batch#: 48632
Units: ug/L
Diln Fac: 1

Prep Date: 06/15/99
Analysis Date: 06/15/99

MB Lab ID: QC99886 LAB QC

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

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	90	51-143
Bromofluorobenzene	92	37-146

Lab #: 139755

BATCH QC REPORT

Curtis & Tompkins, Ltd.

TVH-Total Volatile Hydrocarbons

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

LABORATORY CONTROL SAMPLE

Matrix:	Water	Prep Date:	06/16/99
Batch#:	48701	Analysis Date:	06/16/99
Units:	ug/L		
Diln Fac:	1		

LCS Lab ID: QC00162 LAB QC

Analyte	Result	Spike Added	%Rec #	Limits
Gasoline C7-C12	1868	2000	93	77-117

Surrogate	%Rec	Limits
Trifluorotoluene	107	53-150
Bromofluorobenzene	120	53-149

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

Lab #: 139755 BATCH QC REPORT Curtis & Tompkins, Ltd. Page 1 of 1

BTXE

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

Analysis Method: EPA 8021B
Prep Method: EPA 5030

BLANK SPIKE/BLANK SPIKE DUPLICATE

Matrix: Water
Batch#: 48701
Units: ug/L
Diln Fac: 1

Prep Date: 06/16/99
Analysis Date: 06/16/99

BS Lab ID: QC00164 LAB QC

Analyte	Spike Added	BS	%Rec #	Limits
MTBE	20	15.86	79	66-126
Benzene	20	18.1	91	65-111
Toluene	20	19.05	95	76-117
Ethylbenzene	20	19.47	97	71-121
m,p-Xylenes	40	38.98	97	80-123
o-Xylene	20	19.08	95	75-127

Surrogate	%Rec	Limits
Trifluorotoluene	112	51-143
Bromofluorobenzene	112	37-146

BSD Lab ID: QC00165

Analyte	Spike Added	BSD	%Rec #	Limits	RPD #	Limit
MTBE	20	15.95	80	66-126	1	12
Benzene	20	18.26	91	65-111	1	10
Toluene	20	18.7	94	76-117	2	10
Ethylbenzene	20	19.77	99	71-121	2	11
m,p-Xylenes	40	38.67	97	80-123	1	10
o-Xylene	20	18.92	95	75-127	1	11

Surrogate	%Rec	Limits
Trifluorotoluene	108	51-143
Bromofluorobenzene	107	37-146

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

Lab #: 139755

BATCH QC REPORT

Curtis & Tompkins, Ltd.

BTXE

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

Analysis Method: EPA 8021B
Prep Method: EPA 5030

BLANK SPIKE/BLANK SPIKE DUPLICATE

Matrix: Water
Batch#: 48632
Units: ug/L
Dilu Fac: 1

Prep Date: 06/15/99
Analysis Date: 06/15/99

BS Lab ID: QC99887 LAB QC

Analyte	Spike Added	BS	%Rec #	Limits
MTBE	20	14.66	73	66-126
Benzene	20	15.66	78	65-111
Toluene	20	16.87	84	76-117
Ethylbenzene	20	16.8	84	71-121
m,p-Xylenes	40	33.87	85	80-123
o-Xylene	20	16.72	84	75-127

Surrogate	%Rec	Limits
Trifluorotoluene	98	51-143
Bromofluorobenzene	102	37-146

BSD Lab ID: QC99888

Analyte	Spike Added	BSD	%Rec #	Limits	RPD #	Limit
MTBE	20	14.68	73	66-126	0	12
Benzene	20	15.78	79	65-111	1	10
Toluene	20	16.9	85	76-117	0	10
Ethylbenzene	20	17.03	85	71-121	1	11
m,p-Xylenes	40	34.25	86	80-123	1	10
o-Xylene	20	16.91	85	75-127	1	11

Surrogate	%Rec	Limits
Trifluorotoluene	94	51-143
Bromofluorobenzene	98	37-146

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

Lab #: 139755 BATCH QC REPORT

Curtis & Tompkins, Ltd.

TVH-Total Volatile Hydrocarbons

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

Analysis Method: EPA 8015M
Prep Method: EPA 5030

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID: ZZZZZZ
Lab ID: 139898-008
Matrix: Water
Batch#: 48701
Units: ug/L
Diln Fac: 1

Sample Date: 06/10/99
Received Date: 06/11/99
Prep Date: 06/16/99
Analysis Date: 06/16/99

MS Lab ID: QC00166 LAB QC

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Gasoline C7-C12	2000	<50	1798	90	69-131

Surrogate	%Rec	Limits
Trifluorotoluene	119	53-150
Bromofluorobenzene	137	53-149

MSD Lab ID: QC00167

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Gasoline C7-C12	2000	1783	89	69-131	1	13

Surrogate	%Rec	Limits
Trifluorotoluene	120	53-150
Bromofluorobenzene	137	53-149

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

Lab #: 139755 BATCH QC REPORT

Curtis & Tompkins, Ltd.

TVH-Total Volatile Hydrocarbons

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

Analysis Method: EPA 8015M
Prep Method: EPA 5030

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID: ZZZZZZ
Lab ID: 139856-002
Matrix: Water
Batch#: 48632
Units: ug/L
Diln Fac: 1

Sample Date: 06/10/99
Received Date: 06/11/99
Prep Date: 06/15/99
Analysis Date: 06/15/99

MS Lab ID: QC99889 LAB QC

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Gasoline C7-C12	2000	<50	2060	103	69-131

Surrogate	%Rec	Limits
Trifluorotoluene	115	53-150
Bromofluorobenzene	132	53-149

MSD Lab ID: QC99890

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Gasoline C7-C12	2000	2042	102	69-131	1	13

Surrogate	%Rec	Limits
Trifluorotoluene	120	53-150
Bromofluorobenzene	138	53-149

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

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

RECEIVED
JUN 28 1999
TETRA TECH EM INC.

Laboratory Number 139796

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

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

Sample ID	Lab ID
JW3-09 MW-2 GW	139796-001
JW3-10 MW-1 GW	139796-002
JW3-11 MW-3 GW	139796-003

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

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

Signature: _____ Date: 6-21-99
Title: Operations Manager

Signature: Carol Wrotham Date: 6/21/99
Title: Project Manager

Curtis & Tompkins, Ltd.

Laboratory Number: 139796 **Receipt Date:** 06/08/99
Client: Tetra Tech EMI
Location: JW Silveria UST, Oakland
Project#: P1106.05

CASE NARRATIVE

This hardcopy data package contains sample and QC results for three water samples that were received on June 3, 1999.

TPH Purgeables/BTXE: No analytical problems were encountered.

[redacted] San [redacted] isco [redacted] e

13446

Chain of Custody Record

Page 1 of 1

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

PO#:

Lab: C&T

Project name: JW SILVEIRA UST OAKLAND

TtEMI technical contact: JACKIE LUTA

Field samplers: ROY GLENN

Project number: P1106.05

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								Analysis Required: CLP VOA	CLP SVOA	CLP Pest/PCBs	CLP Metals	TPH Purgeables	TPH Extractables	MTBE	BTEX
JW3-09	MW2-GW	6-7-99	1003	WATER	3																				X	X	X	
JW3-10	MW 1-GW	↓	1243	"	3																				X	X	X	
JW3-11	MW 3-GW	↓	1305	"	3																				X	X	X	

	Name (print)	Company Name	Date	Time
Relinquished by:	Roy D. Glenn	TTEMI	6-8	1600
Received by:	Steven Stanley	Curtis & Tompkins	6-8	1600
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				

Turnaround time/remarks:

3

WHITE-Laboratory Copy YELLOW-Project Office Copy

TVH-Total Volatile Hydrocarbons

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

Analysis Method: EPA 8015M
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
139796-001	JW3-09	48632	06/07/99	06/15/99	06/15/99	
139796-002	JW3-10	48632	06/07/99	06/15/99	06/15/99	
139796-003	JW3-11	48566	06/07/99	06/10/99	06/10/99	

Matrix: Water

Analyte	Units	139796-001 JW3-09 MW-2 GW	139796-002 JW3-10 MW-1 GW	139796-003 JW3-11 MW-3 GW
Diln Fac:		1	1	1
Gasoline C7-C12	ug/L	<50	<50	<50
Surrogate				
Trifluorotoluene	%REC	103	110	94
Bromofluorobenzene	%REC	102	113	98

BTXE

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

Analysis Method: EPA 8021B
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
139796-001	JW3-09	48632	06/07/99	06/15/99	06/15/99	
139796-002	JW3-10	48632	06/07/99	06/15/99	06/15/99	
139796-003	JW3-11	48632	06/07/99	06/16/99	06/16/99	

Matrix: Water

JW3-09 MW-2 GW | JW3-10 MW-1 GW | JW3-11 MW-3 GW

Analyte	Units	139796-001	139796-002	139796-003
Diln Fac:		1	1	5
MTBE	ug/L	3.4	3 C	250
Benzene	ug/L	<0.5	<0.5	14
Toluene	ug/L	<0.5	<0.5	<2.5
Ethylbenzene	ug/L	<0.5	<0.5	<2.5
m,p-Xylenes	ug/L	<0.5	<0.5	<2.5
o-Xylene	ug/L	<0.5	<0.5	<2.5
Surrogate				
Trifluorotoluene	%REC	102	109	106
Bromofluorobenzene	%REC	104	114	109

C: Presence of this compound confirmed by second column, however, the confirmation concentration differed from the reported result by more than a factor of two

Curtis & Tompkins, Ltd.

Lab #: 139796 BATCH QC REPORT

TVH-Total Volatile Hydrocarbons

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

METHOD BLANK

Matrix:	Water	Prep Date:	06/10/99
Batch#:	48566	Analysis Date:	06/10/99
Units:	ug/L		
Diln Fac:	1		

MB Lab ID: QC99611 LAB QC

Analyte	Result
Gasoline C7-C12	<50

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	100	53-150
Bromofluorobenzene	100	53-149

TVH-Total Volatile Hydrocarbons

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

Analysis Method: EPA 8015M
Prep Method: EPA 5030

METHOD BLANK

Matrix: Water
Batch#: 48632
Units: ug/L
Diln Fac: 1

Prep Date: 06/15/99
Analysis Date: 06/15/99

MB Lab ID: QC99886 LAB QC

Analyte	Result
Gasoline C7-C12	<50

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	93	53-150
Bromofluorobenzene	94	53-149

BTXE

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

METHOD BLANK

Matrix:	Water	Prep Date:	06/15/99
Batch#:	48632	Analysis Date:	06/15/99
Units:	ug/L		
Diln Fac:	1		

MB Lab ID: QC99886 LAB QC

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

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	90	51-143
Bromofluorobenzene	92	37-146

TVH-Total Volatile Hydrocarbons

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

LABORATORY CONTROL SAMPLE

Matrix:	Water	Prep Date:	06/10/99
Batch#:	48566	Analysis Date:	06/10/99
Units:	ug/L		
Diln Fac:	1		

LCS Lab ID: QC99609 LAB QC

Analyte	Result	Spike Added	%Rec #	Limits
Gasoline C7-C12	1836	2000	92	77-117

Surrogate	%Rec	Limits
Trifluorotoluene	104	53-150
Bromofluorobenzene	118	53-149

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

TVH-Total Volatile Hydrocarbons

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

Analysis Method: EPA 8015M
Prep Method: EPA 5030

LABORATORY CONTROL SAMPLE

Matrix: Water
Batch#: 48632
Units: ug/L
Diln Fac: 1

Prep Date: 06/15/99
Analysis Date: 06/15/99

LCS Lab ID: QC99885 LAB QC

Analyte	Result	Spike Added	%Rec #	Limits
Gasoline C7-C12	1849	2000	92	77-117

Surrogate	%Rec	Limits
Trifluorotoluene	108	53-150
Bromofluorobenzene	121	53-149

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

BTXE

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

Analysis Method: EPA 8021B
Prep Method: EPA 5030

BLANK SPIKE/BLANK SPIKE DUPLICATE

Matrix: Water
Batch#: 48632
Units: ug/L
Diln Fac: 1

Prep Date: 06/15/99
Analysis Date: 06/15/99

BS Lab ID: QC99887 LAB QC

Analyte	Spike Added	BS	%Rec #	Limits
MTBE	20	14.66	73	66-126
Benzene	20	15.66	78	65-111
Toluene	20	16.87	84	76-117
Ethylbenzene	20	16.8	84	71-121
m,p-Xylenes	40	33.87	85	80-123
o-Xylene	20	16.72	84	75-127

Surrogate	%Rec	Limits
Trifluorotoluene	98	51-143
Bromofluorobenzene	102	37-146

BSD Lab ID: QC99888 LAB QC

Analyte	Spike Added	BSD	%Rec #	Limits	RPD #	Limit
MTBE	20	14.68	73	66-126	0	12
Benzene	20	15.78	79	65-111	1	10
Toluene	20	16.9	85	76-117	0	10
Ethylbenzene	20	17.03	85	71-121	1	11
m,p-Xylenes	40	34.25	86	80-123	1	10
o-Xylene	20	16.91	85	75-127	1	11

Surrogate	%Rec	Limits
Trifluorotoluene	94	51-143
Bromofluorobenzene	98	37-146

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

0 12

Curtis & Tompkins, Ltd.

Lab #: 139796 BATCH QC REPORT

TVH-Total Volatile Hydrocarbons

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

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID:	ZZZZZZ	Sample Date:	06/09/99
Lab ID:	139822-002	Received Date:	06/09/99
Matrix:	Water	Prep Date:	06/10/99
Batch#:	48566	Analysis Date:	06/10/99
Units:	ug/L		
Diln Fac:	1		

MS Lab ID: QC99612 LAB QC

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Gasoline C7-C12	2000	<50	2100	105	69-131

Surrogate	%Rec	Limits
Trifluorotoluene	118	53-150
Bromofluorobenzene	136	53-149

MSD Lab ID: QC99613 LAB QC

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Gasoline C7-C12	2000	2079	104	69-131	1	13

Surrogate	%Rec	Limits
Trifluorotoluene	108	53-150
Bromofluorobenzene	124	53-149

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

TVH-Total Volatile Hydrocarbons

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

Analysis Method: EPA 8015M
Prep Method: EPA 5030

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID: ZZZZZZ
Lab ID: 139856-002
Matrix: Water
Batch#: 48632
Units: ug/L
Diln Fac: 1

Sample Date: 06/10/99
Received Date: 06/11/99
Prep Date: 06/15/99
Analysis Date: 06/15/99

MS Lab ID: QC99889 LAB QC

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Gasoline C7-C12	2000	<50	2060	103	69-131

Surrogate	%Rec	Limits
Trifluorotoluene	115	53-150
Bromofluorobenzene	132	53-149

MSD Lab ID: QC99890 LAB QC

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Gasoline C7-C12	2000	2042	102	69-131	1	13

Surrogate	%Rec	Limits
Trifluorotoluene	120	53-150
Bromofluorobenzene	138	53-149

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