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GROUNDWATER INVESTIGATION WITHIN AND IN THE VICINITY OF THE BAPB AT THE UNIVERSITY OF CALIFORNIA RICHMOND FIELD STATION RICHMOND, CALIFORNIA

Prepared for

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Project Number 0009.002.007

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Acronyms and Abbreviations

µg/L	micrograms per liter
BAPB	Biologically Active Permeable Barrier
Bgs	Below ground surface
CAM 17	California Code of Regulations Title 22 Metals (California Assessment Manual 17)
C&T	Curtis & Tompkins, Ltd.
COC	Chain-of-custody
CPT	Cone Penetrometer Test
DTSC	Department of Toxic Substances Control
MW	Monitoring well prefix
ORP	Oxidation-reduction potential
PCE	Tetrachloroethene
RFS	Richmond Field Station
SB	Soil boring prefix
SSG	Site-Specific Goal
UC	University of California
U.S. EPA	United States Environmental Protection Agency
VOC	Volatile organic compound

Certification

All geologic information, conclusions, and recommendations in this document have been prepared by a California Professional Geologist.

DRAFT December 18, 2012

Andrew Romolo Date

Principal Geologist
California Professional Geologist (8110)

1.0 INTRODUCTION

Terraphase Engineering Inc. (Terraphase) has prepared this investigation report on behalf of Zeneca Inc. (Zeneca), a respondent to the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) Site Investigation and Remediation Orders, Docket Nos. 06/07-004 and 06/07-005 ("DTSC Orders")[1]. This investigation report describes the procedures and methodologies used to conduct additional groundwater investigations at the portion of the biologically active permeable barrier (BAPB) located at the University of California (UC) Richmond Field Station (RFS), in Richmond, California (Figure 1).

This additional investigation was required by the DTSC in a December 2, 2011 letter ("the December 2nd DTSC Letter"). The investigation activities described in this report were completed in accordance with the DTSC-approved February 1, 2012 Work Plan, "Field Sampling Work Plan To Conduct Additional Groundwater Investigations Within And In The Vicinity Of The BAPB AT The University Of California Berkeley Richmond Field Station, Richmond California (the "Work Plan") and the information in the corresponding letter dated March 8, 2012 that was prepared to respond to DTSC comments regarding the Work Plan.

1.1 Background

On November 24, 2010, Arcadis-US submitted a work plan to DTSC entitled, "Revised Work Plan to Evaluate Groundwater in Select Areas at the University of California Richmond Field Station, Richmond, California," ("the BAPB Work Plan"). In accordance with the BAPB Work Plan, Arcadis-US installed five groundwater monitoring wells at the approximate locations illustrated on Figure 2. Groundwater monitoring wells MW-34, MW-35, and MW-36 were installed in a line perpendicular to the BAPB. The Well MW-34 was positioned to be immediately upgradient of the BAPB, well MW-35 was positioned within the BAPB, and well MW-36 was positioned immediately downgradient of the BAPB. In addition, monitoring wells MW-37 and MW-38 were installed within the BAPB, to the west and the east of the well cluster, respectively (Figure 2). Arcadis-US sampled the monitoring wells in January 2011. The groundwater monitoring well construction logs and groundwater sampling results were provided in a March 11, 2011 letter report, "Transmittal of Groundwater Data Collected in Select Areas at the University of California Richmond Field Station, Richmond California" ("the 2011 Data Transmittal").

As provided in the 2011 Data Transmittal, groundwater samples collected from monitoring wells MW-37 and MW-38 contained dissolved concentrations of zinc, nickel

[1] The Regents of the University of California (UC) is also a respondent to the DTSC Orders.

and selenium above the corresponding site-specific goals (SSGs) approved by the DTSC for Campus Bay and in the sample collected from MW-35, selenium was detected at a dissolved concentration above the corresponding Campus Bay SSG. In the three groundwater monitoring wells positioned within the BAPB, zinc concentrations ranged from less than 20 micrograms per liter (µg/l) in well MW-35 to 23,000 µg/l in well MW-37. Nickel ranged from 11 µg/l in well MW-35 to 90 µg/l in well MW-37. Selenium concentrations ranged from 25 µg/l in well MW-37 to 65 µg/l in well MW-35. The corresponding Campus Bay SSG for zinc, nickel and selenium are 410 µg/l, 41 µg/l and 25 µg/l respectively (EKI, April 2008).

On August 10, 2011 Terraphase re-sampled the groundwater monitoring wells positioned within the BAPB to confirm the original analytical data. The analytical data was provided to the DTSC in a November 18, 2011 Technical Memorandum ("The Technical Memorandum").The additional groundwater samples collected from MW-37 and MW-38 contained dissolved concentrations of zinc, nickel and selenium above the corresponding Campus Bay SSGs. The additional sample collected from MW-35 contained selenium at a dissolved concentration above the corresponding Campus Bay SSG.

Based on the information provided in the 2011 Data Transmittal and the Technical Memorandum, the DTSC issued the December 2nd DTSC Letter requiring that a work plan be prepared to describe additional investigation activities within and in the vicinity of the portion of the BAPB located at the RFS. Therefore, Terraphase prepared the Work Plan for DTSC review and revised it in a March 8, 2012 letter responding to DTSC comments regarding the Work Plan. The DTSC approved the Work Plan in a March 20, 2012 letter and the field activities were completed from May through June 2012.

1.2 Investigation Objectives

In accordance with the December 2nd DTSC Letter, the Work Plan was prepared to describe investigation activities that will address the following objectives:

- To verify that the existing monitoring wells were located within the lateral and vertical extent of the BAPB.
- To further assess the effectiveness of the BAPB segment located at the UCRFS.
- To collect grab groundwater samples from locations upgradient, downgradient, and to the west of the BAPB for further assessment of the distribution of dissolved metals and volatile organic compounds (VOCs) found in groundwater.

2.0 INVESTIGATION ACTIVITIES OBSERVATIONS AND ANALYTICAL RESULTS

The "Health and Safety Plan, 1390 South 49th Street, Campus Bay, Richmond, California" (HASP; Terraphase 2011) was updated to account for the investigation activities described in the Work Plan. Prior to implementing field activities, Underground Service Alert was notified. In addition, a private utility locator was also retained to identify underground utilities at each soil boring location. Terraphase coordinated with RFS representatives to review the soil boring locations relative to site construction as-built drawings to support the effort in identifying subsurface utilities in the area of work. Terraphase also obtained the applicable county permits required for the work.

2.1 Cone Penetrometer Testing

2.1.1 Cone Penetrometer Testing Procedures

As described in the Work Plan, grab groundwater samples were collected from seven locations in the vicinity of the RFS portion of the BAPB. The grab groundwater sampling activities were completed between May 2nd and May 5, 2012. The approximate locations of the grab groundwater samples are illustrated in Figure 2.

The Work Plan specified for the grab groundwater samples to be collected from soil borings advanced using direct push technology. To collect additional lithological information, sampling procedures deviated from the work plan to account for a track mounted direct push rig equipped with cone penetrometer test (CPT) sensing equipment. The CPT procedures were completed in accordance with the DTSC approved document, "Revised Quarterly Monitoring, Well Installation/Repair, and Lot 1/Lot 2 Field Sampling and Analysis Plan, Campus Bay Site, Former Zeneca, Inc., Richmond Facility, Richmond, California" prepared by LFR Inc. and dated September 19, 2005 ("Lots 1 and 2 FSAP"). At the seven grab groundwater sampling locations, CPT borings were advanced to depths ranging between 40 feet below ground surface (bgs) and 60 feet bgs. The final depth of each CPT was dependent upon the lithology being recorded and the availability of water bearing zones suitable for grab groundwater sampling.

The lithologic logs generated by the CPT were reviewed by a California Professional Geologist to identify water bearing zones suitable for grab groundwater sample collection. The CPT logs have been provided in Appendix A for reference. The grab groundwater samples were collected in accordance with the procedures described in the Work Plan and the Lots 1 and 2 FSAP. A separate soil boring was advanced at each location using direct push technology. Each soil boring was advanced to a predetermined depth, as identified by assessing the lithology provided in the

corresponding CPT log. Up to three discrete depth grab groundwater samples (dependent upon the number of water bearing zones identified) were collected from each soil boring and submitted to Curtis & Tompkins, Ltd. (C&T), a state-certified analytical laboratory located in Berkeley California, for the following analyses:

- California Code of Regulations Title 22 Metals (California Assessment Manual 17 [CAM 17]): antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, mercury, molybdenum, nickel, selenium, silver, thallium, vanadium, and zinc, using Environmental Protection Agency (EPA) Method 6010
- VOCs using EPA Method 8260

Samples collected for CAM 17 Metals analysis were filtered in the field using a .45 micron filter.

As originally discussed in the Work Plan, a monitoring well was to be installed at SB-39 and constructed with a screen interval within the BAPB. However, when advancing SB-39 it was observed that at this location, the BAPB extended to approximately 6 feet bgs, approximately 6-8 feet shallower than at the other locations along the BAPB where monitoring wells were to be constructed with screen intervals within the BAPB. Therefore, due to the logistical issues of constructing a sufficient surface seal for a prepacked monitoring well with a 5 foot screen interval set entirely in the BAPB material, a monitoring well was not installed at this location. The soil boring advanced at this location was labeled SB-39 and the lithologic log is provided in Appendix A.

In a letter dated May 11, 2012, the DTSC required that grab groundwater samples be collected from the SB-39 location in lieu of a monitoring well. Therefore, a direct push rig was mobilized to the Site for the collection of grab groundwater samples at SB-39 from within the BAPB and below the BAPB. The lithology for SB-39 was reviewed to identify water bearing zones and the vertical extent of the BAPB. Two grab groundwater sample intervals were identified, at approximately 5 feet bgs and 7.5 feet bgs.

Grab groundwater samples were identified as RFS-BAPB-GGW-X-Y where" X" represents the sample location and "Y" represents the approximate sample depth. To remain consistent with the sample labeling for the grab groundwater sampling activities, the sample collected from SB-39 was labeled RFS-BAPB-GGW-8-"Y" where "Y" represents the sample depth.

2.1.2 Grab Groundwater Sampling Analytical Results

Analytical results for the grab groundwater samples are discussed in this section. Analytical results for VOCs and metals are summarized in Tables 1 and 2 and the Laboratory Analytical Data Reports are included in Appendix B.

For the purpose of this investigation, the SSGs developed for Lot 3 at Campus Bay were used to screen the analytical data. The applicable Campus Bay SSG is dependent upon sample depth. Therefore, to screen the data against the applicable Campus Bay SSGs, the data set was split between upper horizon groundwater (samples collected from a depth shallower than approximately 20 feet bgs) and lower horizon groundwater (samples collected from a depth interval completely below 20 foot bgs). For example, at RFS-BAPB-GGW-4, a sample was collected from an approximate depth interval of 17 feet bgs to 22 feet bgs (RFS-BAPB-GGW-4-22). Since this sample was collected from a depth interval that extends shallower than 20 feet bgs, the analytical data for this sample is screened against the applicable Campus Bay upper horizon SSGs.

2.1.2.1 Grab Groundwater Samples Collected From Upper Horizon Groundwater

Ten grab groundwater samples were collected from upper horizon groundwater. The VOCs detected in upper horizon grab groundwater samples at concentrations exceeding the applicable Campus Bay SSGs are discussed below.

- Tetrachloroethylene (PCE): Detected in sample RFS-BAPB-GGW-5-10 at a concentration of 83 µg/l, which exceeds the Campus Bay groundskeeper/maintenance worker SSG of 22 µg/l. PCE concentrations exceeding the 5x aquatic criterion of 440 µg/l were detected in samples RFS-BAPB-GGW-4-22 and RFS-BAPB-GGW-7-16 at 1,400 µg/l and 1,300 µg/l, respectively.

- Naphthalene: Detected in sample RFS-GGW-4-12 at a concentration of 440 µg/l., which exceeds the groundskeeper/maintenance worker SSG of 90 µg/l.

All other upper horizon grab groundwater sampling results for VOCs were below the laboratory reporting limit or below the applicable screening criteria.

The following metals were detected in the grab groundwater samples at concentrations that exceeded the applicable upper horizon Campus Bay SSGs:

- Arsenic: Detected at a concentration above the Groundskeeper/Maintenance Worker criterion of 110 µg/l and the 5x aquatic criterion of 180 µg/l in one of the ten upper horizon grab groundwater samples collected (RFS-BAPB-GGW-4-12).

- Cadmium: Detected above the 5x aquatic criterion of 47 µg/l in two of the ten grab groundwater samples collected (RFS-BAPB-GGW-4-12 and RFS-BAPB-GGW-4-22).

- Copper was detected above the 5x aquatic criterion of 16 µg/l in four of the ten upper horizon grab groundwater samples collected (RFS-BAPB-GGW-2-9, RFS-BAPB-GGW-3-12, RFS-BAPB-GGW-4-12, and RFS-BAPB-GGW-4-22).

- Lead was detected above the 5x aquatic criterion of 41 µg/l in two of the ten upper horizon grab groundwater samples collected (RFS-BAPB-GGW-3-12 and RFS-BAPB-GGW-4-12).

- Mercury was detected above the 5x aquatic criterion of 11 µg/l in two of the ten upper horizon grab groundwater samples collected (RFS-BAPB-GGW-3-12 and RFS-BAPB-GGW-4-12).

- Nickel was detected above the 5x aquatic criterion of 41 µg/l in five of the ten upper horizon grab groundwater samples collected (RFS-BAPB-GGW-3-12 , RFS-BAPB-GGW-4-12, RFS-BAPB-GGW-4-22, RFS-BAPB-GGW-5-10, and RFS-BAPB-GGW-7-16).

- Silver was detected above the 5x aquatic criterion of 9.5 µg/l in one of the ten upper horizon grab groundwater samples collected (RFS-BAPB-GGW-4-22).

- Zinc was detected above the 5x aquatic criterion of 410 µg/l in five of the ten upper horizon grab groundwater samples collected (RFS-BAPB-GGW-3-12 , RFS-BAPB-GGW-4-12, RFS-BAPB-GGW-4-22, RFS-BAPB-GGW-5-10, and RFS-BAPB-GGW-7-16).

2.1.2.2 Grab Groundwater Samples Collected From Lower Horizon Groundwater

During this investigation, eight lower horizon grab groundwater samples were collected. The lower horizon grab groundwater sampling analytical results for VOCs and metals were below the laboratory reporting limit or below the corresponding Campus Bay SSG in all eight lower horizon grab groundwater samples.

2.2 Installation Procedures For BAPB Monitoring Wells

The BAPB Monitoring well installation activities took place on May 10 through May 11 2012. In accordance with the procedures discussed in the Work Plan, prior to installing the BAPB wells, the lateral and vertical extent of the BAPB was re-assessed at each location. Soil borings were advanced adjacent to the existing BAPB wells. The soil borings were advanced using a hand auger and the soil cuttings were assessed to identify the BAPB. Additional auger borings were advanced to the north and south to identify the lateral extent of the BAPB material. Visual observation was used to identify the BAPB material. The BAPB material is a dark greenish to black high organic clayey sand with some leafy compost.

After assessing the lateral extent of the BAPB, a direct-push soil boring was advanced through the BAPB to assess the vertical extent at each location. A continuous soil core was collected from each soil boring and lithology was recorded onto soil boring logs. The soil boring logs are included in Appendix A for reference. After assessing the vertical and lateral extent of the BAPB at each location, monitoring wells MW-40 and MW-41 were installed at the approximate locations illustrated in Figure 2.

The monitoring wells were installed as prepacked wells and consist of a 5-foot-long Schedule 40 polyvinyl chloride (PVC) 0.010-inch slotted well screen with Schedule 40 PVC casing. To install the monitoring wells, direct-push rods were advanced to a pre-determined depth (based on the vertical extent of the BAPB material at the corresponding location). The well assembly was lowered through the rods. The rods were then retracted to a point above the screen interval. An approximately 2 foot thick layer of bentonite chips was placed above the sand pack of the screen interval and hydrated to form a coherent seal. The remainder of the annular space was filled with cement grout. At the ground surface, the wells were completed with a riser pipe extended approximately 3 feet above grade. The monitoring well construction details are included in the soil boring logs provided in Appendix A. The monitoring wells were developed on May 21, 2012 in accordance with the procedures prescribed by the Work Plan. The monitoring well development stabilization parameters were recorded onto the water quality logs that have been provided in Appendix C.

2.2.1 Observations During BAPB Monitoring Well Installation

As observed in the soil samples collected from within the BAPB, the leafy compost has generally been degraded to a clayey sand with a dark greenish to black color. An odor typical of decaying organics was noted. The less saturated shallower portion of the BAPB material generally displayed less decomposition of the leafy compost. It was also observed that groundwater samples collected from SB-39 reacted strongly with hydrochloric acid (fizzing). The reaction is likely indicative of the high organic content of the grab groundwater sample and/or the calcium carbonate mixed with the compost at the time of construction of the BAPB. Photographs of the soil cores collected from within the BAPB are available upon request.

Field observations confirmed that the portion of the BAPB at the RFS was generally in the location illustrated in the figures provided in the Work Plan. The vertical extent of the BAPB can be described as follows:

- MW-40: The BAPB was observed to extend from approximately 5 feet below ground surface (bgs) to approximately 17 feet bgs.

  - This generally corresponds with the information provided in the 2011 Data Transmittal, which estimates that the BAPB extended between 5 feet bgs and 16 feet bgs at MW-35, located approximately 10 feet to the west of MW-40.

- MW-41: The BAPB extends from approximately 4 feet bgs to approximately 18.5 feet bgs.
  - This generally corresponds with the information provided in the 2011 Data Transmittal, which estimates that at MW-38, the BAPB extends from approximately 3 feet bgs to 19 feet bgs.

- SB-39: The BAPB was observed to extend from approximately 2.5 feet bgs to approximately 7 feet bgs.
  - This generally corresponds with the information provided in the 2011 Data Transmittal, which estimates that at MW-37, located approximately 10 feet to the west of SB-39, the BAPB material extended from approximately 2 feet bgs to 10 feet bgs.
  - This observation indicates that the screening interval of monitoring well MW-37 extends below the BAPB.

Based on the lithologic information collected during this investigation and the previous investigation that was summarized in the 2011 Data Transmittal, in the area of SB-39 the BAPB extends to approximately 6 feet bgs and extends approximately 6-8 feet shallower than at MW-40 and MW-41. As discussed in Section 2.1.1 of this report, due to the logistical issues of constructing a sufficient surface seal for a prepacked monitoring well with a 5 foot screen interval set entirely in the BAPB material, a monitoring well was not installed at this location.

2.3 BAPB Monitoring Well Sampling And Analytical Results

2.3.1 Well sampling Procedures and Chemical Analysis

On June 5, 2012, field measurements and groundwater samples were collected from the groundwater monitoring wells installed in accordance with the Work Plan. Groundwater samples were collected using low-flow purging techniques with a peristaltic pump. Copies of the water-quality sampling logs completed during sampling are included in Appendix D.

Groundwater samples were collected in sample containers provided by the analytical laboratory and temporarily stored in an ice-chilled cooler for transport to the laboratory. Sample containers were labeled with the collector's initials, sample

identification number (well identification), time of sample collection, date, location, sample type, analytical method, and preservative used. Complete chain-of-custody (COC) forms accompanied the samples to C&T.

During low-flow purging from groundwater monitoring wells, the following field parameters were measured prior to sample collection using an YSI 556 Multiparameter Water-Quality Meter equipped with a flow-through cell:

- Dissolved oxygen
- Oxidation-reduction potential (ORP)
- pH
- Specific conductivity
- Temperature
- Turbidity

Groundwater samples collected from the BAPB wells were submitted to C&T for the following analyses:

- CAM 17 Metals using EPA Method 6010.
- VOCs using EPA Method 8260

Samples collected for CAM 17 Metals analysis were field filtered using a 0.45 micron filter. As a deviation from the work plan, the initial groundwater samples collected from the newly installed BAPB wells were not analyzed for the following:

- Ferrous iron by Standard Method 3500 FeB
- Dissolved sulfide by Standard Method 4500S2-D
- Alkalinity by Standard Method 2320B
- Chloride and sulfate by EPA Method 300.0
- Total dissolved solids and total suspended solids by Standard Method 2540D
- Total organic carbon by Standard Method 5310C

This data was collected previously and reported in the 2011 Data transmittal.

2.3.2 BAPB Monitoring Well Groundwater Sample Analytical Results

Analytical results for the two BAPB Monitoring Wells installed in accordance with the Work Plan are discussed in this section. Analytical results for VOCs and metals are summarized in Tables 1 and 2 and Analytical Data Reports are included in Appendix B.

PCE was detected in the sample collected from MW-41 at a concentration of 300 µg/l, which exceeds the groundskeeper/maintenance worker SSG of 22 µg/l. All other BAPB monitoring well sampling results for VOCs were below the laboratory reporting limit or below the applicable screening criteria.

In the sample collected from MW-41, nickel was detected at a concentration of 100 µg/l and zinc was detected at a concentration of 820 µg/l. These values exceed the nickel and zinc 5x aquatic screening criteria of 41 µg/l and 410 µg/l, respectively. All other BAPB monitoring well sampling results for metals were below the laboratory reporting limit or below the applicable screening criteria.

3.0 SUMMARY AND CONCLUSIONS

3.1 Summary

- Of the ten locations where upper horizon grab groundwater samples were collected and analyzed for dissolved metals, seven of the locations yielded an upper horizon grab groundwater sample that contained dissolved metals at concentrations that exceed the corresponding upper horizon Campus Bay SSGs of 5X the aquatic criteria.

- In the nine upper horizon grab groundwater samples collected for VOC analysis, PCE and Napthalene were the only VOCs detected at a concentration greater than an applicable Campus Bay SSG.

    - Of the nine locations where upper horizon grab groundwater samples were collected and analyzed for VOCs , three of the locations yielded a sample that contained PCE at a concentration greater than the groundskeeper maintenance worker SSG for Campus Bay (22 µg/l).

    - Of the three upper horizon grab groundwater samples that contained PCE greater than the groundskeeper maintenance worker SSG, two contained PCE at a concentration greater than the corresponding upper horizon Campus Bay SSG of 5X the aquatic criteria (440 µg/l).

    - Of the nine locations where upper horizon grab groundwater samples were collected and analyzed for VOCs , one of the locations yielded a sample that contained naphthalene at a concentration greater than the groundskeeper maintenance worker SSG for Campus Bay (90 µg/l).

- The grab groundwater analytical data for samples representative of lower horizon groundwater do not contain dissolved metals or VOCs at concentrations greater than the applicable corresponding Campus Bay SSGs.

- The groundwater sample collected from MW-40 confirmed that metal and VOC concentrations are below the corresponding Campus Bay SSGs within the BAPB at this location. Further assessment of the previous and current data collected at this location is provided below:

    - Previous groundwater samples collected from MW-35, located approximately 10 feet to the west of MW-40, contained low concentrations of dissolved metals. The detected concentrations were below corresponding Campus Bay SSGs, with the exception of selenium

which was detected at concentrations greater than the Campus Bay 5X aquatic criteria of 25 µg/l.

- The groundwater sample collected from MW-40 did not contain dissolved metals at concentrations greater than the laboratory reporting limit.
- MW-34, MW-35 and MW-36 is a cluster well constructed to represent groundwater conditions upgradient, within and downgradient of the BAPB. The cluster is located approximately 10 feet to the west of MW-40. Review of the general mineral data previously collected at M-34, MW-35 and MW-36 indicates:
  - alkalinity in groundwater within the BAPB (MW-35) is higher than alkalinity in groundwater upgradient and down gradient of the BAPB,
  - dissolved sulfate concentrations are lower within the BAPB than upgradient and downgradient
  - pH within the BAPB is higher than the pH measured in groundwater samples collected upgradient and downgradient of the BAPB.

3.2 Conclusions

- For reference, the 2011 Data Transmittal data tables that provide the general mineral data previously collected from monitoring wells MW-34, MW-35 and MW-36 has been provided in Appendix E. Based on the data collected from the MW-34-35-36 monitoring well cluster and the additional data collected from MW-40, located in the BAPB approximately 10 feet to the east of MW-35, the BAPB is functioning as intended at this location. The low concentrations of dissolved metals detected from groundwater samples collected from MW-35 may be the result of the screen interval being placed at the measured bottom of the BAPB material. This construction may allow formation water with little or no residence time with the BAPB material to enter the screen interval of the well during sampling. Therefore it is recommended that future assessment of the BAPB at this location be completed by sampling at MW-40 instead of MW-35.
- The groundwater sample collected from MW-41 confirmed that concentrations of PCE, nickel and zinc in groundwater at this location exceed the applicable Campus Bay upper horizon groundwater SSGs. The general mineral data for groundwater collected at MW-38, located approximately 10 feet to the west of

MW-41, indicate that alkalinity within MW-38 is higher and dissolved sulfate is lower when compared to the upgradient and downgradient conditions represented by the MW-34, MW-35, and MW-36 well cluster. In addition, the ORP measured during sampling at MW-41 was negative. The ORP measured during sampling at MW-38 ranged from slightly negative in August 2011 to slightly positive in January 2011. The geochemical data indicates that the BAPB is functioning as intended at this location.

- Based on the construction details for MW-37 provided in the 2011 Data Transmittal and the vertical extent of the BAPB recorded at SB-39, groundwater samples collected from MW-37 are not representative of conditions within the BAPB. The monitoring well construction log for MW-37 has been provided for reference in Appendix E. Based on the grab groundwater data collected at SB-39, the BAPB is functioning as intended at this location.

  Representatives of the respondents to The Order would like to arrange a meeting with the DTSC to discuss the data provided in this report.

4.0 REFERENCES

Arcadis US, Inc. (Arcadis). 2010. Completion Report, Time Critical Removal Action, Lot 2, Soil Stockpile SP-8, Campus Bay Site, Richmond, California. June 21.

———. 2011a. Transmittal of Groundwtaer Data Collected in Select Areas at the University of California Richmond Field Station, Richmond, California. March 11.

Erler & Kalinowski, Inc. (EKI). 2008a. Revised Human Health Risk Assessment and Calculation of Site-Specific Goals for Lots 1, 2, and 3, Campus Bay Site, Richmond, California. April 30.

Terraphase Engineering, Inc. (Terraphase).2012. Field Sampling Work Plan to conduct additional groundwater investigations within and in the vicinity of the BAPB at the University of California Berkeley Richmond Field Station, Richmond, California.

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TABLES

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DRAFT Table 1
Groundwater Analytical Results - Volatile Organic Compounds
UC BAPB Investigation
Richmond, California
concentrations in micrograms/liter (µg/L)

Sample Location	Sample Identification	Groundwater Horizon	Sample Date	Vinyl Chloride	1,1-Dichloroethene	Carbon Disulfide	trans-1,2-Dichloroethene	cis-1,2-Dichloroethene	Chloroform	Carbon Tetrachloride	1,2-Dichloroethane	Benzene	Trichloroethene	Toluene	Tetrachloroethene	Chlorobenzene	Ethylbenzene	m,p-Xylenes	o-Xylene	1,3,5-Trimethylbenzene	1,2,4-Trimethylbenzene	Napthalene
RFS-BABP-GGW-1	RFS-BAPB-GGW-1-12	Upper	5/3/2012	<0.5	0.5	2.8	0.7	<0.5	<0.5	<0.5	10.0	<0.5	53.0	<0.5	3.6	12.0	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0
	RFS-BAPB-GGW-1-35	Lower	5/3/2012	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0
RFS-BABP-GGW-2	RFS-BAPB-GGW-2-9	Upper	5/3/2012	<0.5	<0.5	3.3	<0.5	5.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0
	RFS-BAPB-GGW-2-16	Upper	5/3/2012	<0.5	0.5	2.5	0.5	26.0	<0.5	<0.5	14.0	<0.5	55.0	<0.5	5.7	11.0	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0
	RFS-BAPB-GGW-2-28	Lower	5/3/2012	<0.5	<0.5	<0.5	<0.5	1.3	1.9	<0.5	3.2	<0.5	54.0	<0.5	7.3	25.0	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0
RFS-BABP-GGW-3	RFS-BAPB-GGW-3-12	Upper	5/2/2012	<0.5	<0.5	4.8	<0.5	9.6	<0.5	<0.5	<0.5	<0.5	1.4	<0.5	0.7	1.5	<0.5	<0.5	<0.5	<0.5	<0.5	2.0
	RFS-BAPB-GGW-3-23	Lower	5/2/2012	<17.0	<17.0	<17.0	<17.0	<17.0	49.0	<17.0	26.0	<17.0	120	<17.0	360	2,800	<17.0	<17.0	<17.0	<17.0	<17.0	<67.0
RFS-BABP-GGW-4	RFS-BAPB-GGW-4-12	Upper	5/2/2012	<2.5	<2.5	<2.5	<2.5	23.0	<2.5	<2.5	<2.5	<2.5	8.9	<2.5	9.2	6.4	3.6	3.9	2.6	3.6	6.1	***440***
	RFS-BAPB-GGW-4-22	Upper	5/2/2012	<20.0	<20.0	<20.0	<20.0	<20.0	77.0	<20.0	48.0	<20.0	250	<20.0	**1,400**	3,500	<20.0	<20.0	<20.0	<20.0	<20.0	<80.0
	RFS-BAPB-GGW-4-39	Lower	5/2/2012	<6.3	<6.3	<6.3	<6.3	<6.3	41.0	<6.3	21.0	7.0	99.0	<6.3	300	2,700	<6.3	<6.3	<6.3	<6.3	<6.3	<25
RFS-BABP-GGW-5	RFS-BAPB-GGW-5-10	Upper	5/3/2012	<0.5	0.7	<0.5	1.3	20.0	<0.5	<0.5	1.2	<0.5	48.0	<0.5	***83.0***	7.6	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0
	RFS-BAPB-GGW-5-28	Lower	5/3/2012	<0.5	<0.5	<0.5	<0.5	<0.5	5.6	0.7	<0.5	<0.5	<0.5	<0.5	<0.5	1.1	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0
	RFS-BAPB-GGW-5-47	Lower	5/3/2012	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0
RFS-BABP-GGW-6	RFS-BAPB-GGW-6-31	Lower	5/4/2012	<0.5 / <0.5	<0.5 / <0.5	<0.5 / <0.5	<0.5 / <0.5	<0.5 / 0.5	7.8 / 9.3	<0.5 / <0.5	4.2 / 4.7	1.7 / 1.6	4.0 / 5.1	<0.5 / <0.5	0.8 / 1.1	54.0 / 61.0	<0.5 / <0.5	<0.5 / <0.5	<0.5 / <0.5	<0.5 / <0.5	<0.5 / <0.5	<2.0 / <2.0
	RFS-BAPB-GGW-6-47	Lower	5/4/2012	<0.5 / <0.5	<0.5 / <0.5	<0.5 / <0.5	<0.5 / <0.5	<0.5 / 0.5	<0.5 / <0.5	<0.5 / <0.5	<0.5 / <0.5	<0.5 / <0.5	<0.5 / <0.5	<0.5 / <0.5	<0.5 / <0.5	<0.5 / <0.5	<0.5 / <0.5	<0.5 / <0.5	<0.5 / <0.5	<0.5 / <0.5	<0.5 / <0.5	<2.0 / <2.0
RFS-BABP-GGW-7	RFS-BAPB-GGW-7-16	Upper	5/4/2012	<13.0	<13.0	<13.0	<13.0	33.0	15.0	<13.0	42.0	<13.0	270	<13.0	**1,300**	1,500	<13.0	<13.0	<13.0	<13.0	<13.0	<50.0
SB-39	RFS-BAPB-GGW-8-7.5	Upper	5/25/2012	0.9	<0.5	0.8	0.9	4.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	3.2	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0
MW-40	MW-40	Upper	6/5/2012	<0.5 / <0.5	<0.5 / <0.5	25.0 / 12.0	<0.5 / <0.5	<0.5 / <0.5	<0.5 / <0.5	<0.5 / <0.5	<0.5 / <0.5	1.0 / 1.0	<0.5 / <0.5	<0.5 / <0.5	<0.5 / <0.5	8.1 / 8.3	<0.5 / <0.5	<0.5 / <0.5	<0.5 / <0.5	<0.5 / <0.5	<0.5 / <0.5	<2.0 / <2.0
MW-41	MW-41	Upper	6/5/2012	<2.5	<2.5	<2.5	<2.5	42.0	<2.5	<2.5	15.0	<2.5	130	<2.5	***300***	270	<2.5	<2.5	<2.5	<2.5	<2.5	<10.0
Human Health Risk-Based SSGs [1]																						
SSG for On-site Groundskeeper/Maintenance Worker (µg/L)				3.0E+02	6.3E+05	1.3E+06	5.1E+05	2.7E+05	2.5E+03	1.6E+02	2.9E+03	4.4E+02	2.7E+03	5.7E+05	2.2E+01	1.4E+05	4.2E+05	7.8E+05	7.8E+05	-	1.6E+05	9.0E+01
Aquatic Criteria [2]																						
Lot 3 (Upper Horizon, near BAPB)																						
5x Aquatic Criteria [3] (µg/L)				2.6E+04	1.6E+02	-	7.0E+06	-	2.4E+04	2.2E+02	5.0E+03	3.6E+03	4.1E+03	1.0E+07	4.4E+02	1.1E+06	1.5E+06	-	-	-	-	-
Lot 3 (Lower Horizon)																						
160x Aquatic Criteria [3] (µg/L)				8.4E+05	5.1E+03	-	2.2E+08	-	7.5E+05	7.0E+03	1.6E+05	1.1E+05	1.3E+05	3.2E+08	1.4E+04	3.4E+07	4.6E+07	-	-	-	-	-

Notes:

1 Groundwater SSGs are developed in Appendix G of the Revised HHRA (EKI 2008a) for chemicals retained as COPCs in groundwater and volatile COPCs in soil. The formulas used to calculate SSGs are presented in Appendix H of the Revised HHRA. Please note that groundwater SSGs have not been compared to the solubility in water; therefore some SSGs may exceed the COPC's solubility in water. Additionally, the Human Consumption of Aquatic Organisms criteria, Salt Water Aquatic Criteria, and Freshwater Aquatic Criteria are used to select screening criteria for Lot 3 groundwater.

2 The aquatic criteria are the more stringent of the 10x Human Consumption of Aquatic Organisms value and the Salt Water Aquatic Criteria value.

3 The dilution factors of 5, 40, and 160 for Lot 3 groundwater are developed and presented in Appendix I of the Draft Feasibility Study and Remedial Action Plan for Lots 1, 2, and 3 (EKI 2008b)

4 The storm-water criteria are the more stringent of the Human Consumption of Aquatic Organisms value (without the 10x factor), the Salt Water Aquatic Criteria value, and Freshwater Aquatic Criteria value.

Italic Font Indicates a detection in upper horizon groundwater above the groundskeeper/maintenance worker SSG

Blue Font Indicates a detection in upper horizon groundwater above 5x the aquatic criterion

Red Font Indicates a detection in lower horizon groundwater above 160x the aquatic criterion

DRAFT Table 2
Groundwater Analytical Results - Metals
UC BAPB Investigation
Richmond, CA
concentrations in micrograms per liter (µg/L)

Sample Location	Sample Identification	Groundwater Horizon	Sample Date	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
RFS-BAPB-GGW-1	RFS-BAPB-GGW-1-12	Upper	5/3/2012	<10	16	20	<2.0	<5.0	<5.0	15	<5.0	<5.0	<0.20	<5.0	17	<10	<5.0	<10	<5.0	**480**
	RFS-BAPB-GGW-1-35	Lower	5/3/2012	<10	<5.0	510	<2.0	<5.0	<5.0	<5.0	<5.0	<5.0	<0.20	6.2	<5.0	<10	<5.0	<10	<5.0	<20
RFS-BAPB-GGW-2	RFS-BAPB-GGW-2-9	Upper	5/3/2012	<10	19	130	<2.0	<5.0	34	9.1	**29**	11	<0.20	18	27	<10	<5.0	<10	74	250
	RFS-BAPB-GGW-2-16	Upper	5/3/2012	<10	25	24	<2.0	<5.0	<5.0	30	<5.0	<5.0	<0.20	7.1	41	<10	<5.0	<10	<5.0	400
	RFS-BAPB-GGW-2-28	Lower	5/3/2012	<10	<5.0	23	<2.0	<5.0	<5.0	8.1	<5.0	<5.0	<0.20	<5.0	14	<10	<5.0	<10	<5.0	270
RFS-BAPB-GGW-3	RFS-BAPB-GGW-3-12	Upper	5/2/2012	<10	48	58	<2.0	35	46	66	**61**	**130**	**12**	<5.0	**120**	<10	<5.0	<10	80	**12,000**
	RFS-BAPB-GGW-3-23	Lower	5/2/2012	<10	<5.0	39	<2.0	<5.0	<5.0	<5.0	<5.0	<5.0	0.57	<5.0	49	<10	<5.0	<10	<5.0	21
RFS-BAPB-GGW-4	RFS-BAPB-GGW-4-12	Upper	5/2/2012	<10	***340***	95	3.3	**71**	130	250	**2,000**	**250**	**38**	<5.0	**400**	<10	<5.0	<5.0	200	**33,000**
	RFS-BAPB-GGW-4-22	Upper	5/2/2012	<10	<5.0	35	<2.0	**72**	13	120	**280**	8.1	0.22	<5.0	**1,900**	12	**15**	<10	<5.0	**18,000**
	RFS-BAPB-GGW-4-39	Lower	5/2/2012	<10	<5.0	36	<2.0	12	<5.0	7.3	<5.0	<5.0	0.31	5.9	450	<10	8.0	<10	<5.0	2,000
RFS-BAPB-GGW-5	RFS-BAPB-GGW-5-10	Upper	5/3/2012	<10	<5.0	20	<2.0	<5.0	<5.0	75	<5.0	<5.0	<0.20	<5.0	**270**	<10	<5.0	<10	<5.0	**490**
	RFS-BAPB-GGW-5-28	Lower	5/3/2012	<10	<5.0	310	<2.0	<5.0	<5.0	<5.0	<5.0	<5.0	<0.20	7.3	<5.0	<10	<5.0	<10	<5.0	<20
	RFS-BAPB-GGW-5-47	Lower	5/3/2012	<10	<5.0	240	<2.0	<5.0	<5.0	<5.0	<5.0	<5.0	<0.20	8.3	<5.0	<10	<5.0	<10	<5.0	<20
RFS-BAPB-GGW-6	RFS-BAPB-GGW-6-31	Lower	5/4/2012	<10 / <10	<5.0 / <5.0	130 / 210	<2.0 / <2.0	<5.0 / <5.0	<5.0 / <5.0	<5.0 / <5.0	<5.0 / <5.0	<5.0 / <5.0	<0.20 / <0.20	14 / 12	6.0 / 8.7	<10 / <10	<5.0 / <5.0	<10 / <10	<5.0 / <5.0	<20 / <20
	RFS-BAPB-GGW-6-47	Lower	5/4/2012	<10 / <10	<5.0 / <5.0	210 / 200	<2.0 / <2.0	<5.0 / <5.0	<5.0 / <5.0	<5.0 / <5.0	<5.0 / <5.0	<5.0 / <5.0	<0.20 / <0.20	9.1 / 10	<5.0 / <5.0	<10 / <10	<5.0 / <5.0	<10 / <10	<5.0 / <5.0	<20 / <20
RFS-BAPB-GGW-7	RFS-BAPB-GGW-7-16	Upper	5/4/2012	<10	6.7	31	<2.0	29	14	8.3	<5.0	<5.0	<0.20	<5.0	**520**	23	6.1	<10	<5.0	**4,300**
SB-39	RFS-BAPB-GGW-8-5	Upper	5/25/2012	<10	<5.0	140	<2.0	<5.0	<5.0	22	<5.0	<5.0	<0.20	57	22	<10	6.7	<10	<5.0	<20
	RFS-BAPB-GGW-8-7.5	Upper	5/25/2012	<10	<5.0	200	<2.0	<5.0	<5.0	<5.0	<5.0	<5.0	<0.20	28	5.2	<10	<5.0	<10	7.6	<20
MW-40	MW-40	Upper	6/5/2012	<10 / <10	<5.0 / <5.0	120 / 120	<2.0 / <2.0	<5.0 / <5.0	<5.0 / <5.0	<5.0 / <5.0	<5.0 / <5.0	<5.0 / <5.0	<0.20 / <0.20	<5.0 / <5.0	<5.0 / <5.0	<10 / <10	<5.0 / <5.0	<10 / <10	<5.0 / <5.0	<20 / <20
MW-41	MW-41	Upper	6/5/2012	<10	63	61	<2.0	<5.0	6.9	26	<5.0	<5.0	<0.20	<5.0	**100**	12	<5.0	<10	<5.0	**820**
Human Health Risk-Based SSGs [1]																				
SSG for On-site Groundskeeper/Maintenance Worker (µg/L)				1.5E+05	1.1E+02	7.5E+07	-	1.9E+05	5.6E+08	-	1.5E+07	-	1.1E+05	-	9.3E+07	1.9E+06	3.1E+06	2.5E+04	3.7E+05	1.9E+08
Aquatic Criteria [2]																				
Lot 3 (Upper Horizon, near BAPB)																				
5x Aquatic Criteria [3] (µg/L)				2.2E+05	1.8E+02	-	-	4.7E+01	-	-	1.6E+01	4.1E+01	1.1E+01	-	4.1E+01	2.5E+01	9.5E+00	3.2E+02	-	4.1E+02
Lot 3 (Lower Horizon)																				
160x Aquatic Criteria [3] (µg/L)				6.9E+06	5.8E+03	-	-	1.5E+03	-	-	5.0E+02	1.3E+03	3.4E+02	-	1.3E+03	8.0E+02	3.0E+02	1.0E+04	-	1.3E+04

Notes:

1 Groundwater SSGs are developed in Appendix G of the Revised HHRA (EKI 2008a) for chemicals retained as COPCs in groundwater and volatile COPCs in soil. The formulas used to calculate SSGs are presented in Appendix H of the Revised HHRA. Please note that groundwater SSGs have not been compared to the solubility in water; therefore some SSGs may exceed the COPC's solubility in water. Additionally, the Human Consumption of Aquatic Organisms criteria, Salt Water Aquatic Criteria, and Freshwater Aquatic Criteria are used to select screening criteria for Lot 3 groundwater.

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Italic Font Indicates a detection in upper horizon groundwater above the groundskeeper/maintenance worker SSG

Blue Font Indicates a detection in upper horizon groundwater above 5x the aquatic criterion

FIGURES

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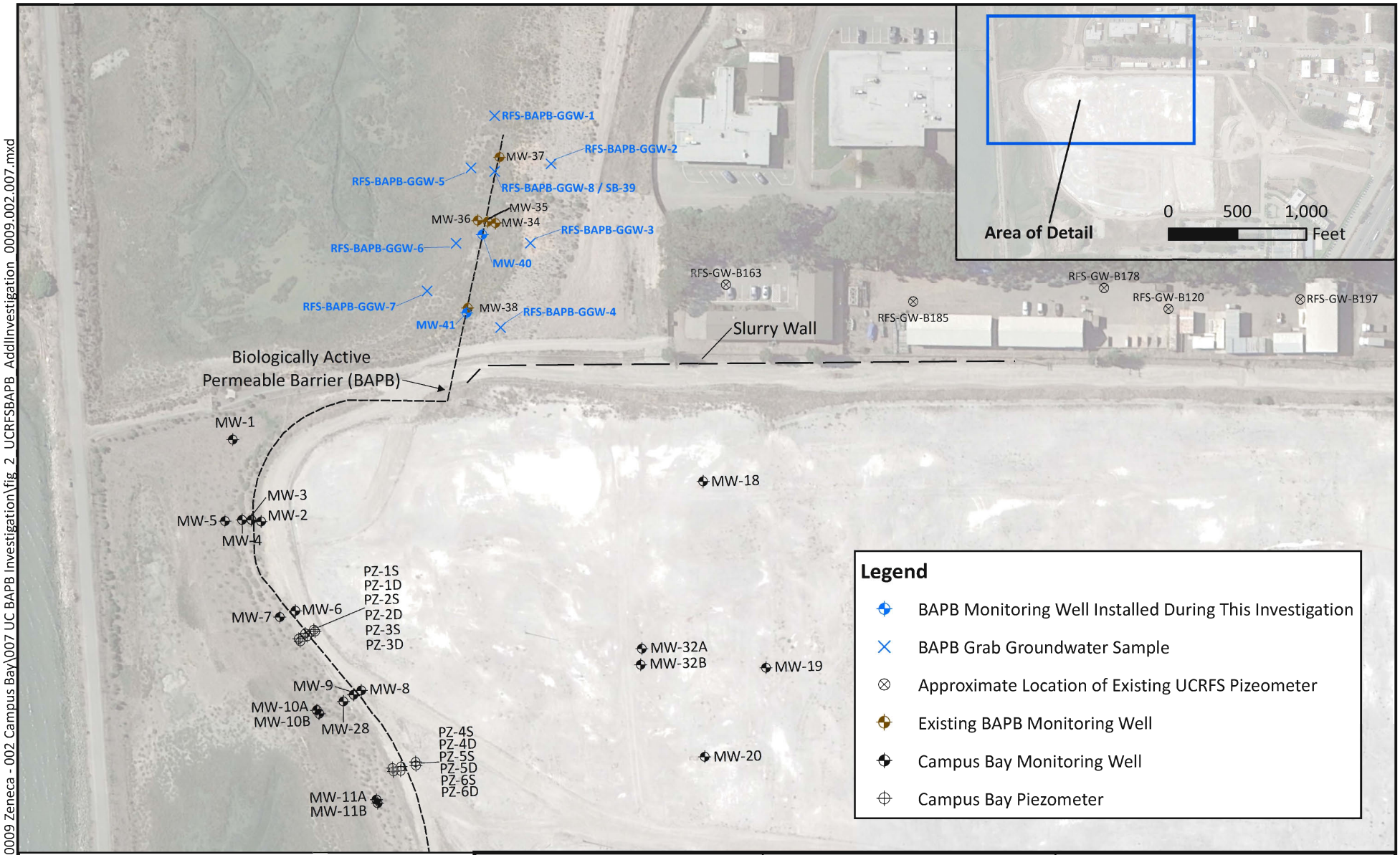

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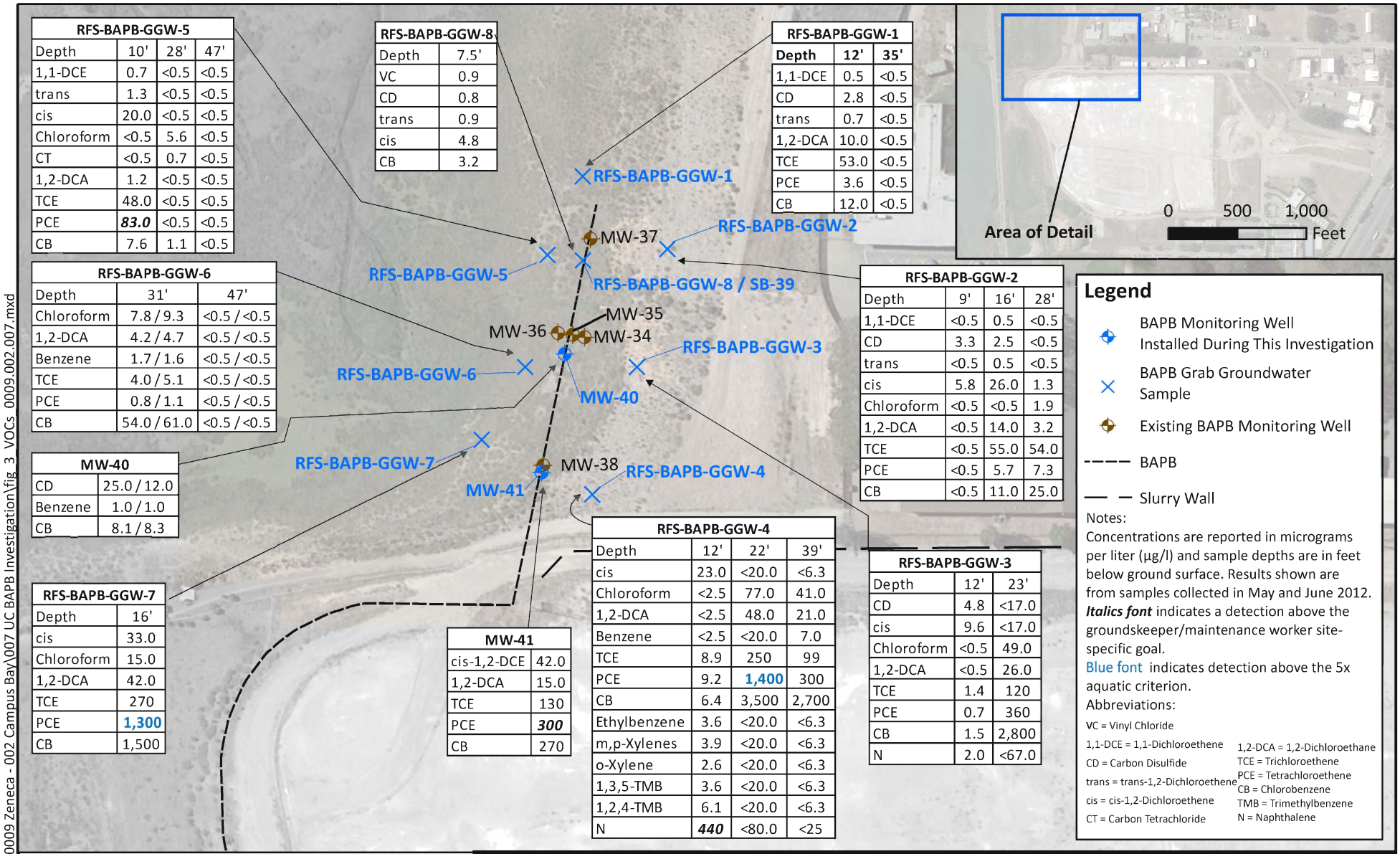
SAFETY FIRST

terraphase engineering

CLIENT:	Zeneca, Inc.
PROJECT:	Campus Bay Richmond, CA
PROJECT NUMBER:	0009.002.007

BAPB Investigation Monitoring Well and Grab Groundwater Sample Locations
DRAFT

FIGURE 2



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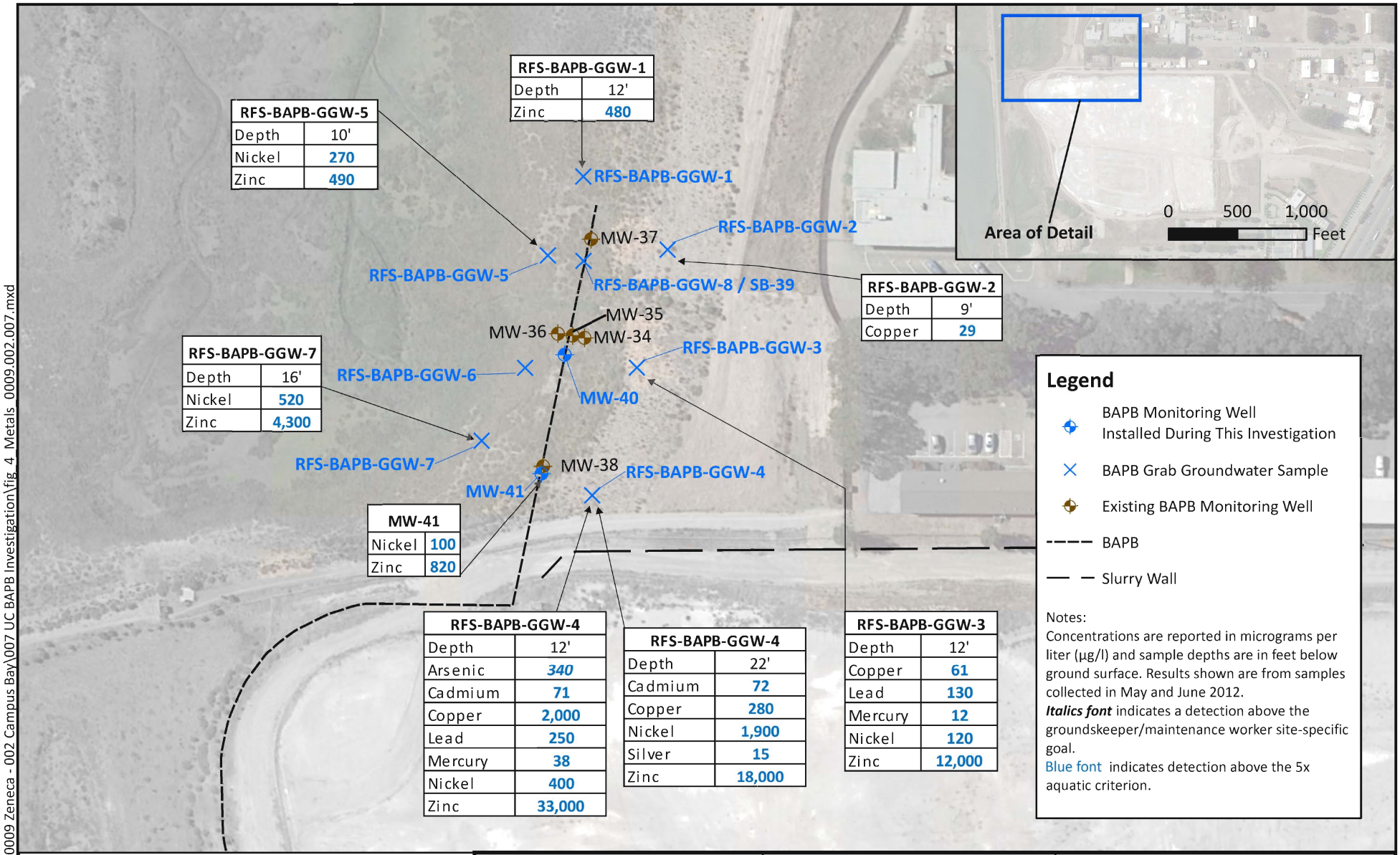
SAFETY FIRST

terraphase engineering

CLIENT:	Zeneca, Inc.
PROJECT:	Campus Bay Richmond, CA
PROJECT NUMBER:	0009.002.007

VOC Concentrations in Groundwater near the Biologically Active Permeable Barrier
DRAFT

FIGURE 3



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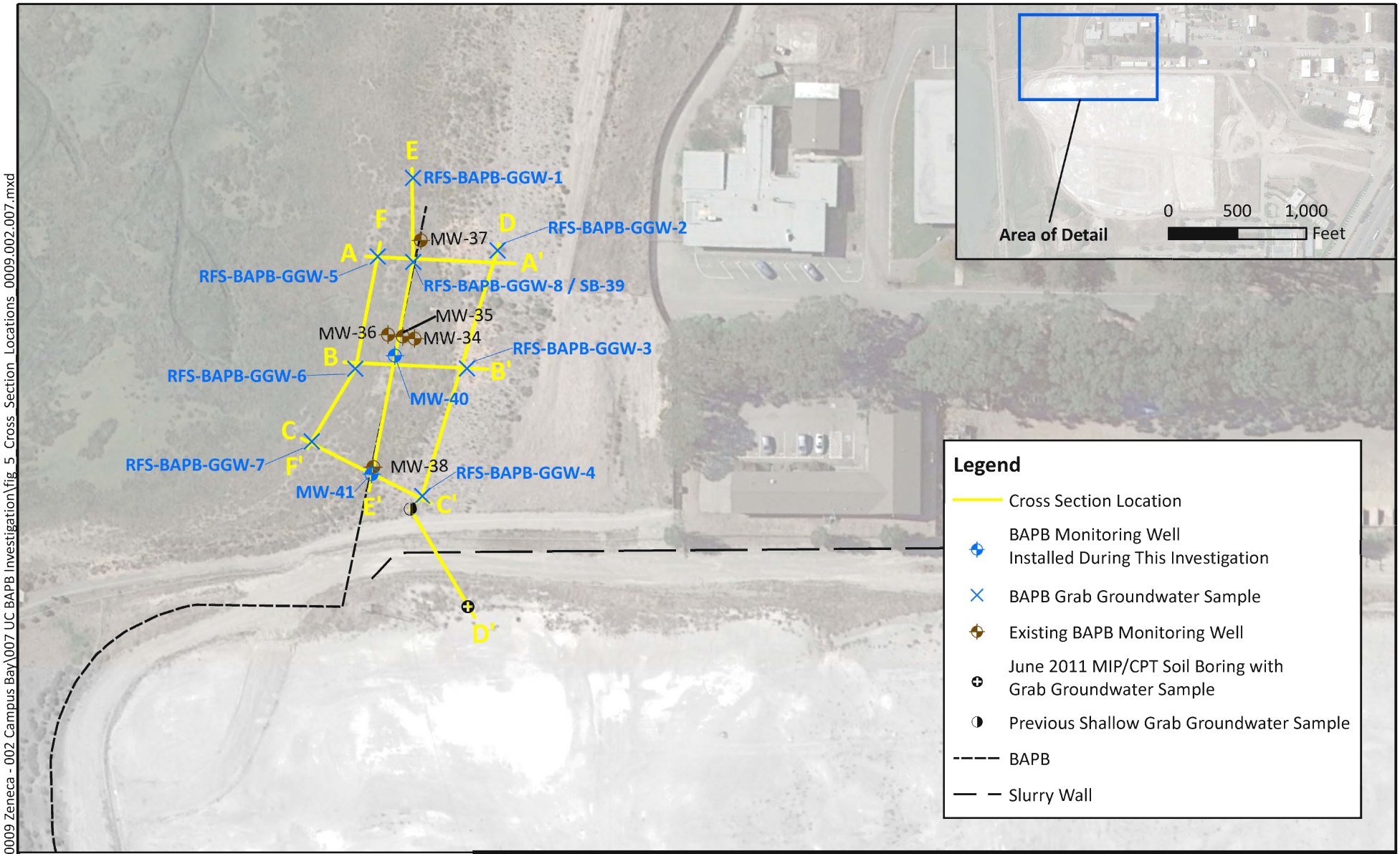
terraphase engineering

CLIENT:	Zeneca, Inc.
PROJECT:	Campus Bay Richmond, CA
PROJECT NUMBER:	0009.002.007

Metal Concentrations in Groundwater near the Biologically Active Permeable Barrier
DRAFT

FIGURE 4



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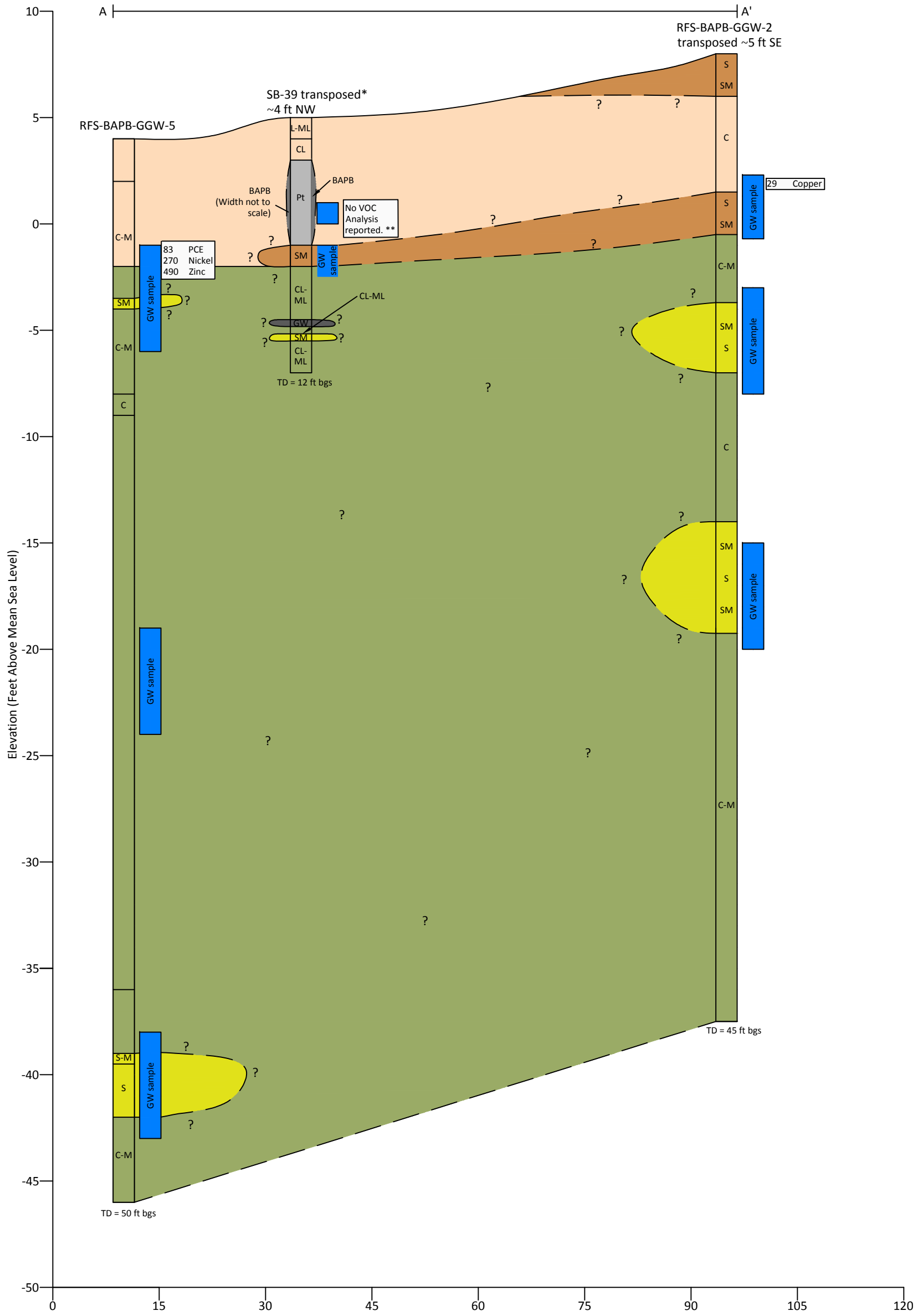
SAFETY FIRST	CLIENT: Zeneca, Inc.	Cross Section Locations DRAFT
terraphase engineering	PROJECT: Campus Bay Richmond, CA	
	PROJECT NUMBER: 0009.002.007	FIGURE 5



Legend

- Sandy fill material
- Silty fill material
- Sand, silty sand
- Silt/Silty clay/Clay
- Gravels
- Organic-rich sand with peat
- Grab groundwater sample interval
- ? Extents are approximate

Concentrations in µg/L

83 PCE
270 Nickel
490 Zinc

Analyte above applicable site specific screening

Acronyms

BAPB	biological active permeable barrier
bgs	below ground surface
ft	feet
GW	groundwater
HCl	hydrochloric acid
NW	northwest
PCE	tetrachloroethylene
SE	southeast
TD	total depth
VOC	volatile organic compound

Notes

1. SB-39 geology displayed grab groundwater sample from RFS-BAPB-GGW-8, an adjacent borehole.

2. Approximate intervals of fill materials based on excavation and BAPB construction information provided in the "Implementation Report for Upland Remediation Subunit 1 and Subunit 2A" (LFR 2003) and the "Implementation Report, Phase 2-Subunit 2A & 2B" (URS 2004).

* Lithology from SB-39. Grab groundwater sample from RFS-BAPB-GGW-8.

** VOC sample discarded due to fizzing when contacted with HCl.

0' 7.5' 15' 30'
Approximate Horizontal Scale in Feet

0' 2.5' 5' 10'
Approximate Vertical Scale in Feet

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CLIENT: Zeneca Inc.

PROJECT: UC BAPB Investigation

PROJECT NUMBER: 0009.002.007

Draft
Cross Section A-A'

Figure 6

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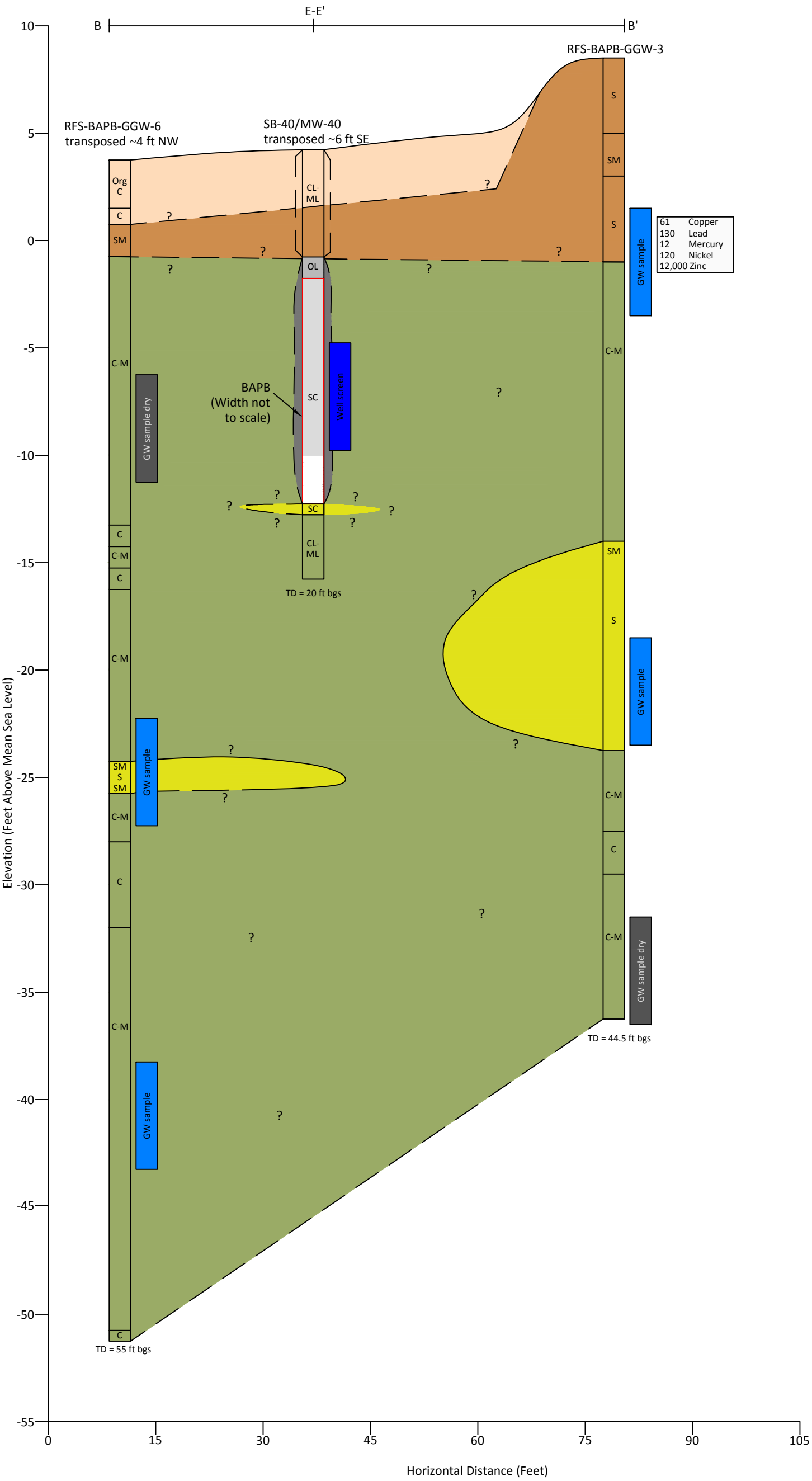

Legend

- Sandy fill material
- Silty fill material
- Sand, silty sand
- Silt/Silty clay/Clay
- Gravels
- Peat and/or organic-rich clay
- Organic-rich sand with peat
- Grab groundwater sample interval
- Well screen interval
- Grab groundwater sample interval that was dry and therefore not sampled
- ? Extents are approximate

Concentrations in µg/L

61	Copper
130	Lead
12	Mercury
120	Nickel
12,000	Zinc

Analyte above applicable site specific screening

Acronyms

BAPB	biological active permeable barrier
bgs	below ground surface
ft	feet
GW	groundwater
NW	northwest
PCE	tetrachloroethylene
SE	southeast
TCE	trichloroethylene
TD	total depth
VOC	volatile organic compound

Notes

1. Approximate intervals of fill materials based on excavation and BAPB construction information provided in the "Implementation Report for Upland Remediation Subunit 1 and Subunit 2A" (LFR 2003) and the "Implementation Report, Phase 2-Subunit 2A & 2B" (URS 2004).

0' 7.5' 15' 30'
Approximate Horizontal Scale in Feet

0' 2.5' 5' 10'
Approximate Vertical Scale in Feet

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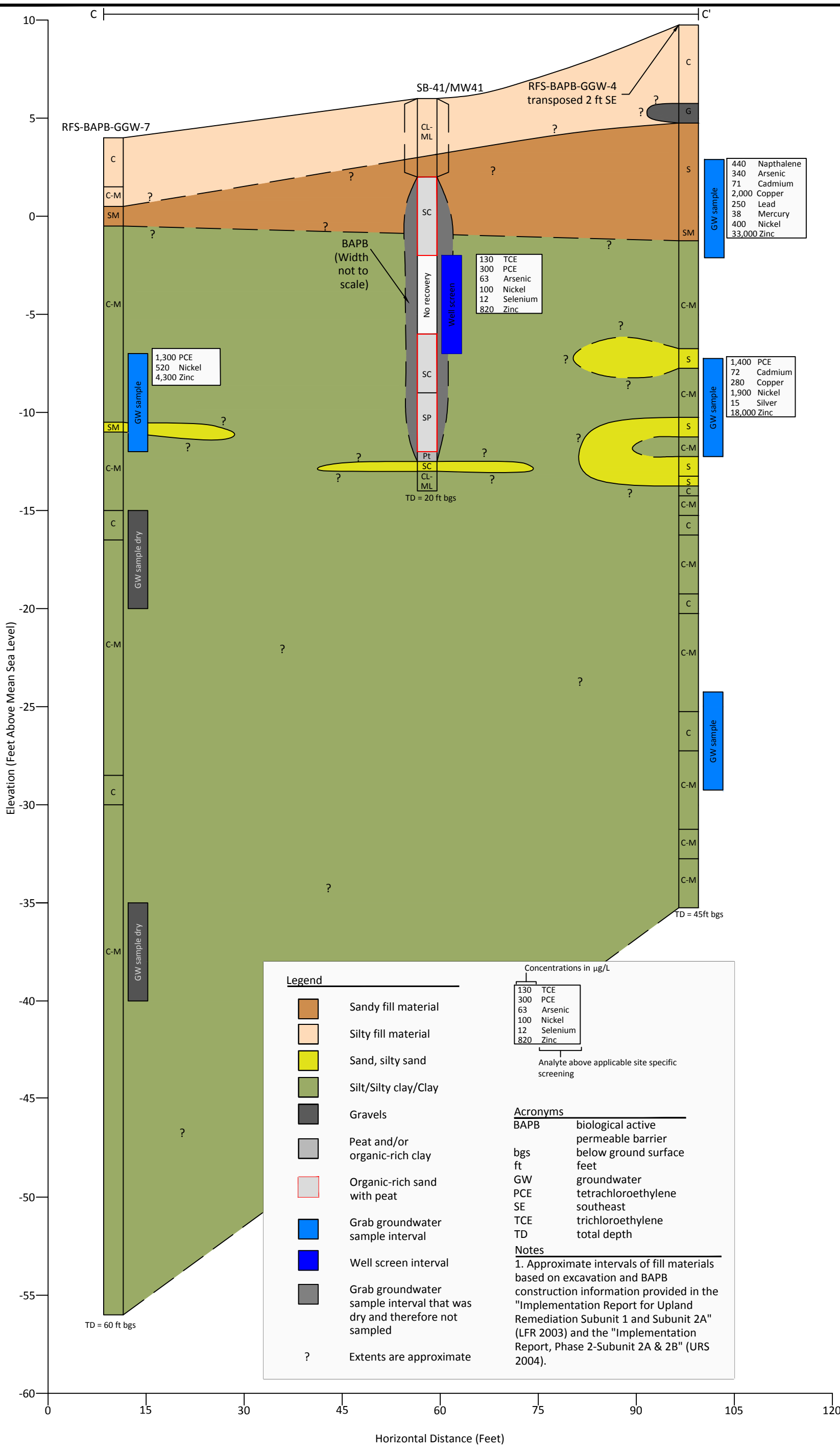
SAFETY FIRST	CLIENT: Zeneca Inc.	Draft Cross Section B-B'
terraphase engineering	PROJECT: UC BAPB Investigation	
	PROJECT NUMBER: 0009.002.007	Figure 7



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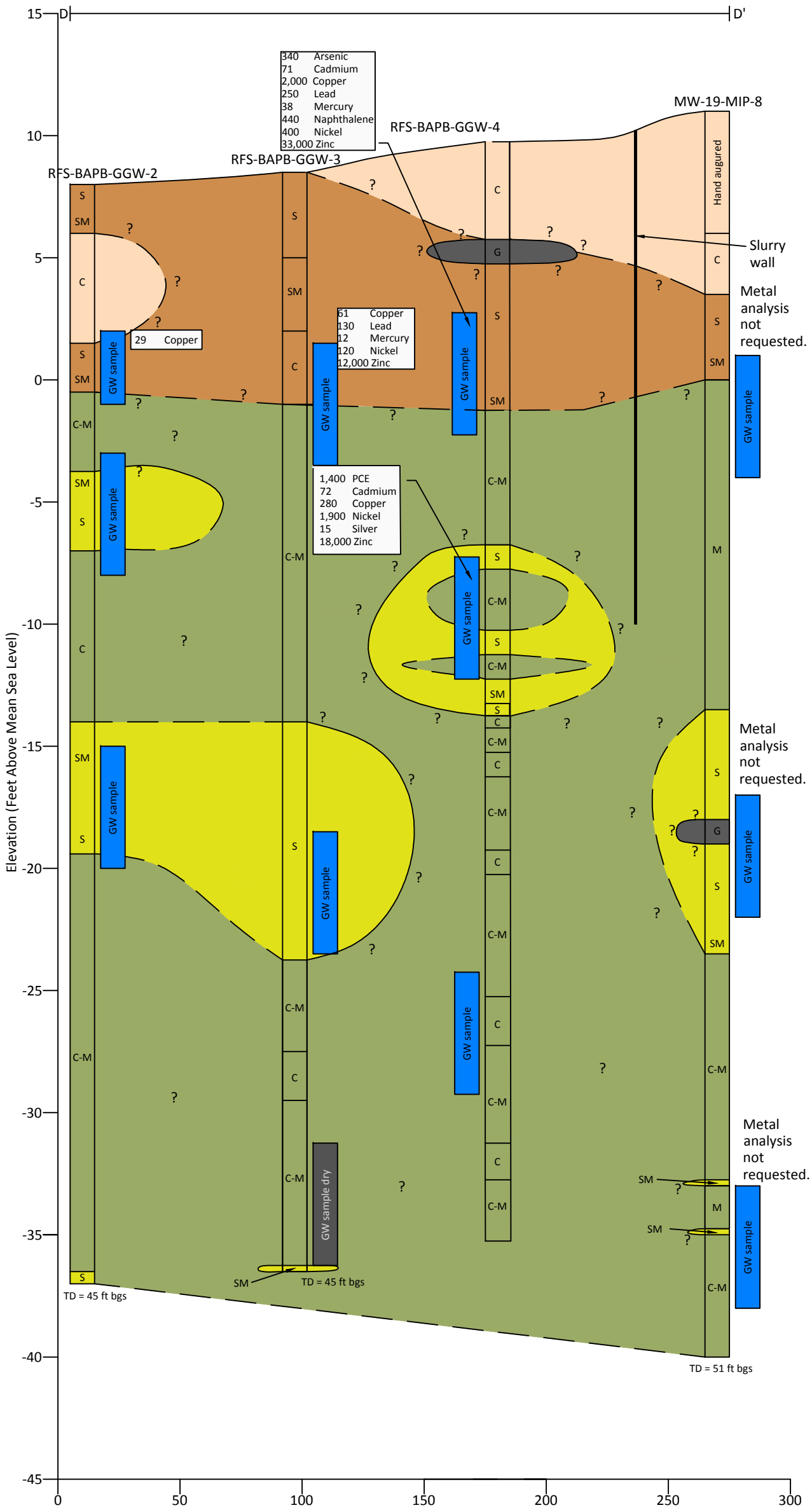
SAFETY FIRST	CLIENT: Zeneca Inc.	Draft Cross Section C-C'
terraphase engineering	PROJECT: UC BAPB Investigation	
	PROJECT NUMBER: 0009.002.007	Figure 8



Legend

- Sandy fill material
- Silty fill material
- Sand, silty sand
- Silt/Silty clay/Clay
- Gravels
- Grab groundwater sample interval
- Grab groundwater sample interval that was dry and therefore not sampled
- ? Extents are approximate

Concentrations in µg/L

41 Nickel
400 Zinc

Analyte above applicable site specific screening

Acronyms

BAPB	Biological active permeable barrier
bgs	below ground surface
ft	feet
GW	groundwater
NW	northwest
PCE	tetrachloroethylene
TCE	trichloroethylene
TD	total depth

Notes

1. Approximate intervals of fill materials based on excavation and BAPB construction information provided in the "Implementation Report for Upland Remediation Subunit 1 and Subunit 2A" (LFR 2003) and the "Implementation Report, Phase 2-Subunit 2A & 2B" (URS 2004).

0' 25' 50' 100'
Approximate Horizontal Scale in Feet

0' 2.5' 5' 10'
Approximate Vertical Scale in Feet

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SAFETY FIRST

terraphase engineering

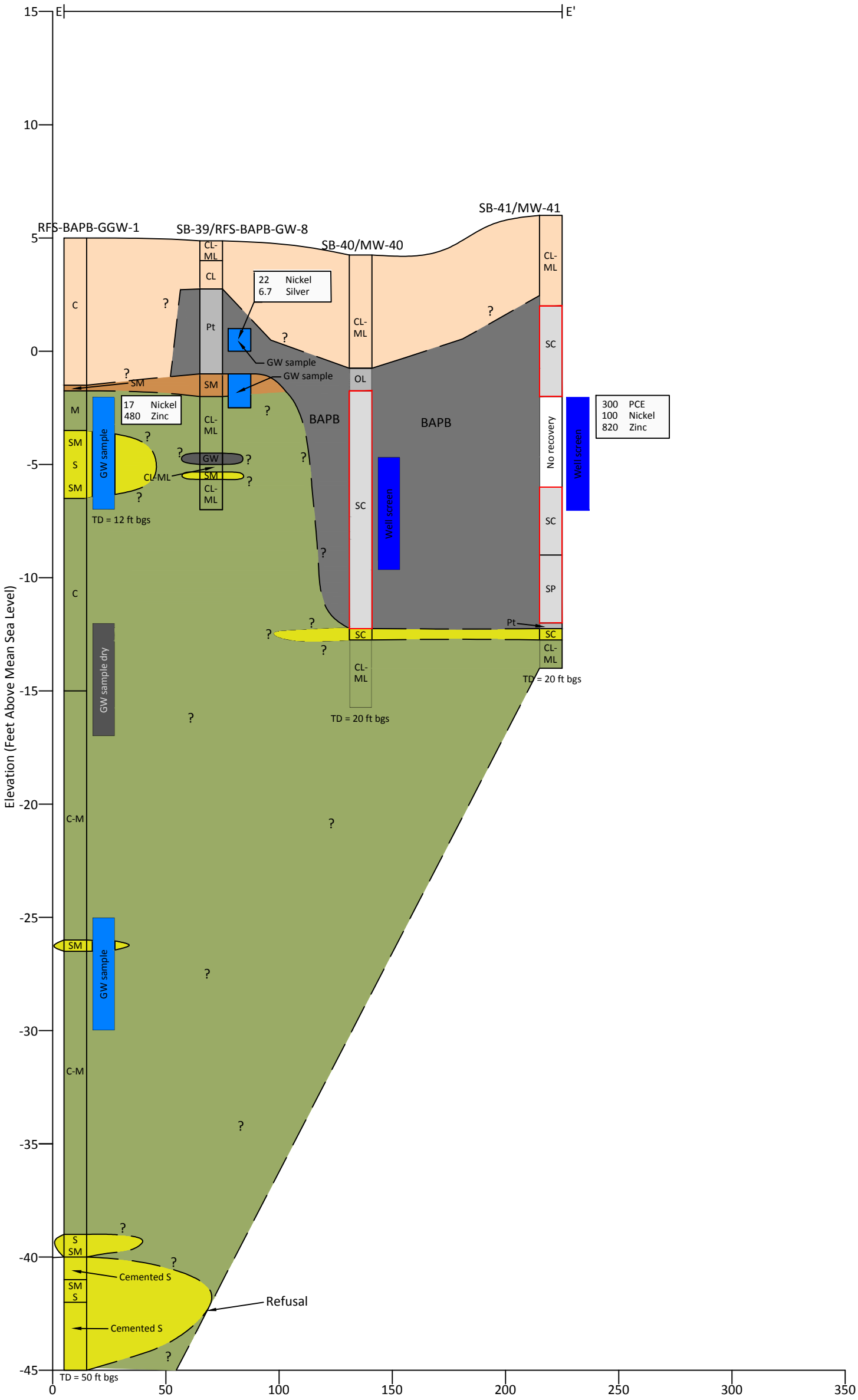
CLIENT: Zeneca Inc.

PROJECT: UC BAPB Investigation

PROJECT NUMBER: 0009.002.007

Draft
Cross Section D-D'

Figure 9



Legend

- Sandy fill material
- Silty fill material
- Sand, silty sand
- Silt/Silty clay/Clay
- Gravels
- Peat and/or organic-rich clay
- ? Extents are approximate
- Organic-rich sand with peat
- Grab groundwater sample interval
- Well screen interval
- Grab groundwater sample interval that was dry and therefore not sampled

Concentrations in µg/L

17 Nickel
480 Zinc

Analyte above applicable site specific screening

Notes

1. Approximate intervals of fill materials based on excavation and BAPB construction information provided in the "Implementation Report for Upland Remediation Subunit 1 and Subunit 2A" (LFR 2003) and the "Implementation Report, Phase 2-Subunit 2A & 2B" (URS 2004).

Acronyms

BAPB	biological active permeable barrier
bgs	below ground surface
ft	feet
GW	groundwater
PCE	tetrachloroethylene
SW	southwest
TCE	trichloroethylene
TD	total depth
VOC	volatile organic compound

0' 25' 50' 100'
Approximate Horizontal Scale in Feet

0' 2.5' 5' 10'
Approximate Vertical Scale in Feet

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CLIENT: Zeneca Inc.

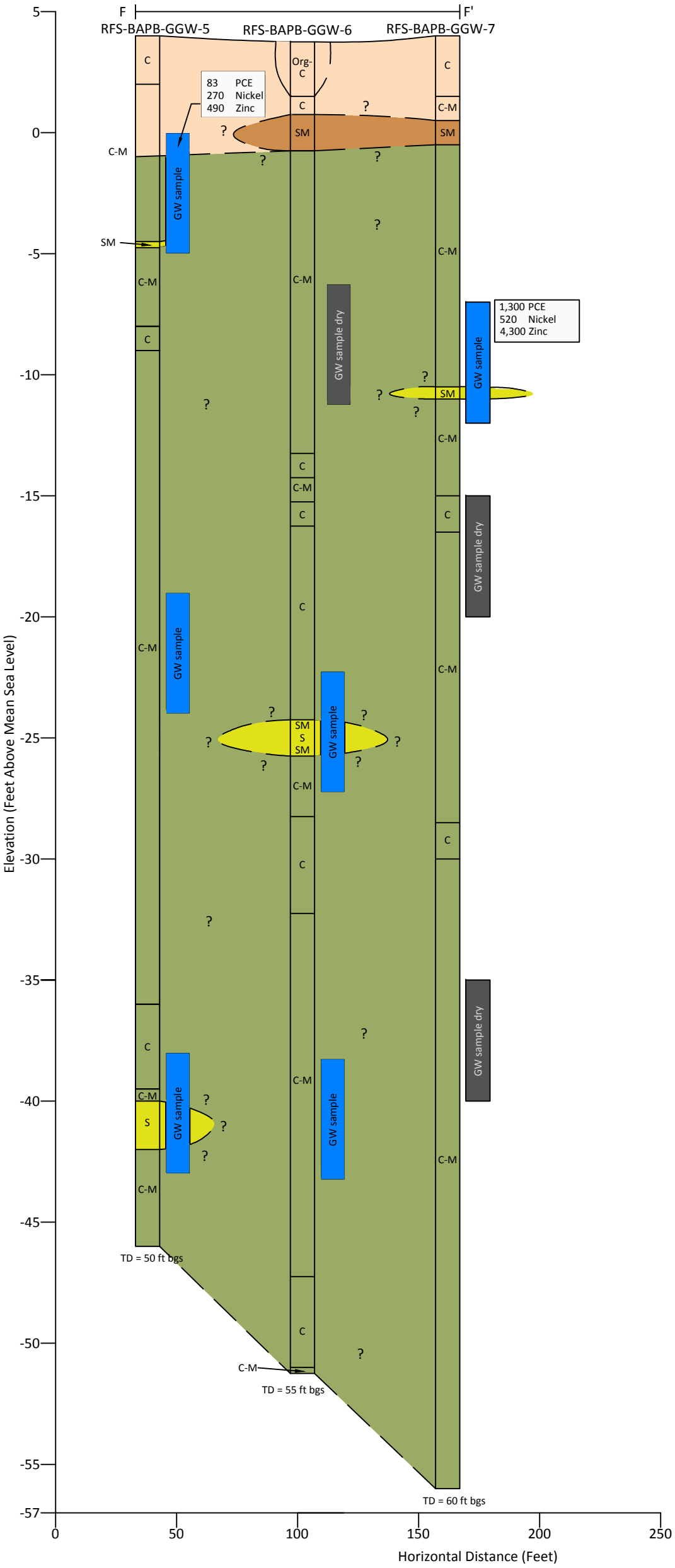
PROJECT: UC BAPB Investigation

PROJECT NUMBER: 0009.002.007

Draft
Cross Section E-E'

Figure 10

J:\CADD FILES\0009 Zeneca\BABP Investigation\Cross Sections\Cross Sections.dwg Drawn by:__KW__; Checked by:_AMR_



Legend

- Sandy fill material
- Silty fill material
- Sand, silty sand
- Silt/Silty clay/Clay
- Gravels
- Peat and/or organic-rich clay
- Grab groundwater sample interval
- Grab groundwater sample interval that was dry and therefore not sampled
- ? Extents are approximate

Concentrations in µg/L

83 PCE
270 Nickel
490 Zinc

Analyte above applicable site specific screening

Acronyms

bgs	below ground surface
ft	feet
GW	groundwater
PCE	tetrachloroethylene
SW	southwest
TCE	trichloroethylene
TD	total depth
VOC	volatile organic compound

Notes

1. Approximate intervals of fill materials based on excavation and BAPB construction information provided in the "Implementation Report for Upland Remediation Subunit 1 and Subunit 2A" (LFR 2003) and the "Implementation Report, Phase 2-Subunit 2A & 2B" (URS 2004).

0' 25' 50' 100'
Approximate Horizontal Scale in Feet

0' 2.5' 5' 10'
Approximate Vertical Scale in Feet

SAFETY FIRST

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CLIENT: Zeneca Inc.

PROJECT: UC BAPB Investigation

PROJECT NUMBER: 0009.002.007

Draft
Cross Section F-F'

Figure 11

J:\CADD FILES\0009 Zeneca\BABP Investigation\Cross Sections\Cross Sections.dwg Drawn by: KW ; Checked by: AMR

APPENDIX A

CONE PENETROMETER TESTING

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Project: UC BAPB Investigation
Project Location: UC Richmond Field Station, Richmond, CA
Project Number: 0009.002.007

Log of Boring SB-41
Sheet 1 of 1

Date(s) Drilled **05/10/2012**	Logged By **Kara Quan-Montgomery**	Checked By **Andrew Romolo**
Drilling Method **Direct Push**	Drill Bit Size/Type **2-inch**	Total Depth of Borehole **20 feet bgs**
Drill Rig Type **Rhino - Marl M5T**	Drilling Contractor **Gregg Drilling**	Approximate Surface Elevation
Groundwater Level and Date Measured **3.68 feet BTOC at MW-38 at 1046**	Sampling Method(s) **2-inch acetate liners**	Hammer Data **N/A**
Borehole Backfill **cement grout**	Location **Adjacent to MW-38, in the BAPB**	

Depth (feet)	Sample Type	Recovered (in) / Total (in)	PID Reading (ppm)	USCS Symbol	Graphic Log	Munsell Soil-Color	MATERIAL DESCRIPTION
0				CL-ML		2.5Y-3/2	Silty clay, very dark grayish brown, moist, firm to hard, low to medium plasticity
		26/48	0				
			0				Silty clay with sand, soft at 3 feet
				SC		5Y-2.5/1	Clayey sand with peat and gravel, black, moist to wet, medium-coarse, poorly-graded sand, low plasticity, well-graded gravel
5			0				
		7/48	0				
			0				
							No recovery from 8 to 12 feet
10		0/48					
				SC		GLEY 1-4/5 GLEY 1-3/N	Clayey sand, dark greenish gray, wet, soft, medium dense, poorly-graded, fine to medium coarse sand, subangular, low plasticity
			0				Saturated at 12.5 feet, very dark gray
		27/48	0				
15			0	SP		GLEY 1-3/N	Sand, very dark gray, wet, medium dense, poorly-graded, subangular, fine to medium grained
							Saturated at 16 feet
			0				
		48/48	0				Wet and dense at 17.75 feet
				Pt		GLEY 1-4/10Y 10YR-4/4	Gravelly peat, wet, well-graded gravel, gravel up to 2 inches, organic odor
				SC			Clayey sand, dark greenish gray, wet, medium dense, fine to medium grained
			0	CL-ML		10YR-4/6	Dark yellowish brown at 18.5 feet
20							Silty clay with sand, light yellowish brown, moist, hard, low plasticity

Well Log

REMARKS AND OTHER TESTS

- Well constructed in separate borehole.
- Cement grout (0 to 4 feet)
- Bentonite chips (4 to 6 feet)
- 2/12 sand (6 to 13 feet)
- 1.5-inch PVC screen (8 to 13 feet)

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Project: UC BAPB Investigation
Project Location: UC Richmond Field Station, Richmond, CA
Project Number: 0009.002.007

Key to Log of Boring

Sheet 1 of 1

Depth (feet)	Sample Type	Recovered (in) / Total (in)	PID Reading (ppm)	USCS Symbol	Graphic Log	Munsell Soil-Color	MATERIAL DESCRIPTION	Well Log	REMARKS AND OTHER TESTS
1	2	3	4	5	6	7	8	9	10

COLUMN DESCRIPTIONS

1. Depth (feet): Depth in feet below the ground surface.
2. Sample Type: Type of soil sample collected at the depth interval shown.
3. Recovered (in) / Total (in): Inches of recovery / total inches of boring tubing.
4. PID Reading (ppm): The reading from a photo-ionization detector, in parts per million. CB denotes sample reading was taken in a closed (sealed) Ziplock(TM) bag. NB denotes the reading of the sample was taken with no bag, in the opening in coring sleeve. This semi-closed space has minor influences from ambient air. OH indicates a reading taken from the open hole.
5. USCS Symbol: USCS symbol of the subsurface material.
6. Graphic Log: Graphic depiction of the subsurface material encountered.
7. Munsell Soil-Color: Color of subsurface material according to Munsell soil-color charts.
8. MATERIAL DESCRIPTION: Description of material encountered. May include consistency, moisture, color, and other descriptive text.
9. Well Log: Graphical representation of well installed upon completion of drilling and sampling.
10. REMARKS AND OTHER TESTS: Comments and observations regarding drilling or sampling made by driller or field personnel.

FIELD AND LABORATORY TEST ABBREVIATIONS

CHEM: Chemical tests to assess corrosivity
COMP: Compaction test
CONS: One-dimensional consolidation test
LL: Liquid Limit, percent
PI: Plasticity Index, percent
SA: Sieve analysis (percent passing No. 200 Sieve)
UC: Unconfined compressive strength test, Qu, in ksf
WA: Wash sieve (percent passing No. 200 Sieve)

MATERIAL GRAPHIC SYMBOLS

- Bentonite chips
- SILTY CLAY (CL-ML)
- Grout
- PEAT and other highly organic soils
- Clayey SAND (SC)
- Poorly graded SAND (SP)

TYPICAL SAMPLER GRAPHIC SYMBOLS

- Shelby Tube (Thin-walled, fixed head)
- Direct push acetate liner
- Auger sampler
- Bulk Sample
- 3-inch-OD California w/ brass rings
- CME Sampler
- Grab Sample
- 2.5-inch-OD Modified California w/ brass liners
- Pitcher Sample
- Soil Sample for Lab Analysis
- 2-inch-OD unlined split spoon (SPT)
- Shelby Tube (Thin-walled, fixed head)

OTHER GRAPHIC SYMBOLS

- Water level (at time of drilling, ATD)
- Water level (after waiting)
- Minor change in material properties within a stratum
- Inferred/gradational contact between strata
- Queried contact between strata

GENERAL NOTES

1: Soil classifications are based on the Unified Soil Classification System. Descriptions and stratum lines are interpretive, and actual lithologic changes may be gradual. Field descriptions may have been modified to reflect results of lab tests.
2: Descriptions on these logs apply only at the specific boring locations and at the time the borings were advanced. They are not warranted to be representative of subsurface conditions at other locations or times.

C:\Users\Karal\Documents\Zeneca\UC - BAPB\Boring Logs\UC BAPB Boring Logs_SB-39-41.bg4[terraphase well log recovery & pid no sample.tpl]

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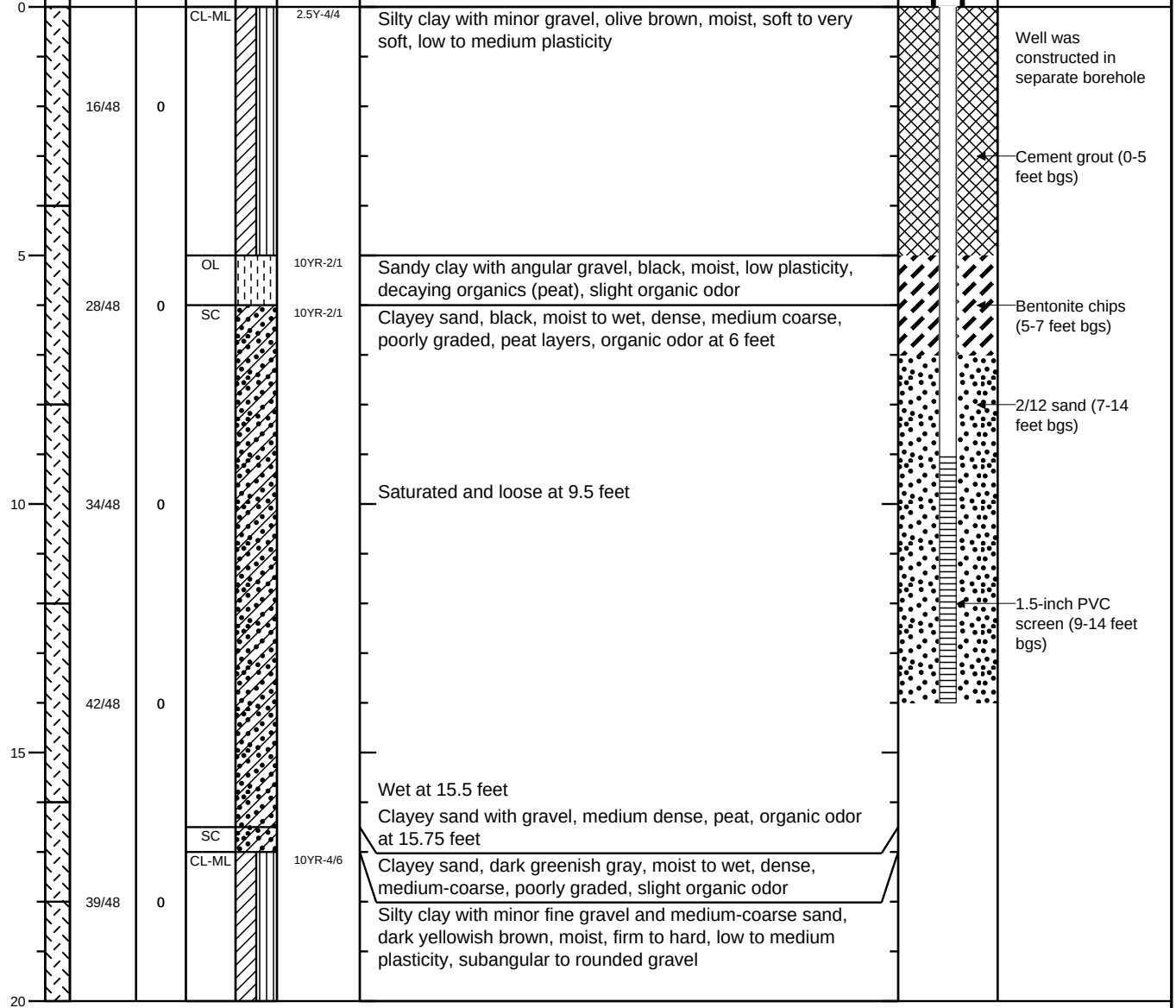
Figure B-1

Project: UC BAPB Investigation
Project Location: UC Richmond Field Station, Richmond, CA
Project Number: 0009.002.007

Log of Boring SB-40
Sheet 1 of 1

Date(s) Drilled **05/10/2012**	Logged By **Kara Quan-Montgomery**	Checked By **Andrew Romolo**
Drilling Method **Direct Push**	Drill Bit Size/Type **2-inch**	Total Depth of Borehole **20 feet bgs**
Drill Rig Type **Rhino - Marl M5T**	Drilling Contractor **Gregg Drilling**	Approximate Surface Elevation
Groundwater Level and Date Measured **3.60 feet below top of casing measured at**	Sampling Method(s) **2-inch acetate liners**	Hammer Data **N/A**
Borehole Backfill **cement grout**	Location **Adjacent to MW-35, in the BAPB**	



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Project: UC BAPB Investigation
Project Location: UC Richmond Field Station, Richmond, CA
Project Number: 0009.002.007

Key to Log of Boring

Sheet 1 of 1

Depth (feet)	Sample Type	Recovered (in) / Total (in)	PID Reading (ppm)	USCS Symbol	Graphic Log	Munsell Soil-Color	MATERIAL DESCRIPTION	Well Log	REMARKS AND OTHER TESTS
1	2	3	4	5	6	7	8	9	10

COLUMN DESCRIPTIONS

1. Depth (feet): Depth in feet below the ground surface.
2. Sample Type: Type of soil sample collected at the depth interval shown.
3. Recovered (in) / Total (in): Inches of recovery / total inches of boring tubing.
4. PID Reading (ppm): The reading from a photo-ionization detector, in parts per million. CB denotes sample reading was taken in a closed (sealed) Ziplock(TM) bag. NB denotes the reading of the sample was taken with no bag, in the opening in coring sleeve. This semi-closed space has minor influences from ambient air. OH indicates a reading taken from the open hole.
5. USCS Symbol: USCS symbol of the subsurface material.
6. Graphic Log: Graphic depiction of the subsurface material encountered.
7. Munsell Soil-Color: Color of subsurface material according to Munsell soil-color charts.
8. MATERIAL DESCRIPTION: Description of material encountered. May include consistency, moisture, color, and other descriptive text.
9. Well Log: Graphical representation of well installed upon completion of drilling and sampling.
10. REMARKS AND OTHER TESTS: Comments and observations regarding drilling or sampling made by driller or field personnel.

FIELD AND LABORATORY TEST ABBREVIATIONS

CHEM: Chemical tests to assess corrosivity
COMP: Compaction test
CONS: One-dimensional consolidation test
LL: Liquid Limit, percent
PI: Plasticity Index, percent
SA: Sieve analysis (percent passing No. 200 Sieve)
UC: Unconfined compressive strength test, Qu, in ksf
WA: Wash sieve (percent passing No. 200 Sieve)

MATERIAL GRAPHIC SYMBOLS

- Bentonite chips
- SILTY CLAY (CL-ML)
- Grout
- Organic silts and silt-clays of low plasticity
- Clayey SAND (SC)
- Poorly graded SAND (SP)

TYPICAL SAMPLER GRAPHIC SYMBOLS

- Shelby Tube (Thin-walled, fixed head)
- Direct push acetate liner
- Auger sampler
- Bulk Sample
- 3-inch-OD California w/ brass rings
- CME Sampler
- Grab Sample
- 2.5-inch-OD Modified California w/ brass liners
- Pitcher Sample
- Soil Sample for Lab Analysis
- 2-inch-OD unlined split spoon (SPT)
- Shelby Tube (Thin-walled, fixed head)

OTHER GRAPHIC SYMBOLS

- Water level (at time of drilling, ATD)
- Water level (after waiting)
- Minor change in material properties within a stratum
- Inferred/gradational contact between strata
- Queried contact between strata

GENERAL NOTES

1: Soil classifications are based on the Unified Soil Classification System. Descriptions and stratum lines are interpretive, and actual lithologic changes may be gradual. Field descriptions may have been modified to reflect results of lab tests.
2: Descriptions on these logs apply only at the specific boring locations and at the time the borings were advanced. They are not warranted to be representative of subsurface conditions at other locations or times.

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Figure B-1

Project: **UC BAPB Investigation**

Project Location: **UC Richmond Field Station, Richmond, CA**

Project Number: **0009.002.007**

Log of Boring SB-39

Sheet 1 of 1

Date(s) Drilled **05/10/2012**	Logged By **Kara Quan-Montgomery**	Checked By **Andrew Romolo**
Drilling Method **Direct Push**	Drill Bit Size/Type **2-inch**	Total Depth of Borehole **12 feet bgs**
Drill Rig Type **Rhino - Marl M5T**	Drilling Contractor **Gregg Drilling**	Approximate Surface Elevation
Groundwater Level and Date Measured **3.66 feet below top of casing measured at MW-37 at 0850**	Sampling Method(s) **2-inch acetate liners**	Hammer Data **N/A**
Borehole Backfill **cement grout**	Location **Adjacent to MW-37, in the BAPB**	

Depth (feet)	Sample Type	Recovered (in) / Total (in)	PID Reading (ppm)	USCS Symbol	Graphic Log	Munsell Soil-Color	MATERIAL DESCRIPTION	Well Log	REMARKS AND OTHER TESTS
0			0	CL-ML		2.5Y-4/2	Silty clay, dark grayish brown, moist, soft, low plasticity, roots		
				CL		2.5Y-4/2	Sandy clay with fine gravel, dark grayish brown, moist, soft to firm, low plasticity, some reddish brown gravel		
		27/48	0	Pt		10YR-2/1	Peat and silty sand with coarse angular gravel, black, moist to wet, organic odor, increasing clay content with depth		
			0						
			0						
5			0						
							Saturated at 5.5 ft		
		32/48	0	SM		GLEY 1-3/10GY	Silty sand, very dark greenish gray, wet to moist, medium dense, coarse, poorly-graded		Well was not installed at location due to shallow depth of BAPB and potential shallow annular seal conditions for new well.
			0	CL-ML		10YR-4/4	Silty clay with gravel and sand, dark yellowish brown, moist, low plasticity, slightly mottled with some olive coloring, fine gravel		
			0	CL-ML			8 to 9 feet appears to be sluff: At 8 feet, peat from above. At 8.5 feet, grayish green sand from above. At 9 feet, silty clay from above		
			0	GW					
10		48/48	0	CL-ML		5Y-4/2	Fine gravel with coarse sand, moist, moderately well-graded from 9.5 to 9.75 feet		
			0	SM		10YR-4/4			
			0	CL-ML			Silty sand, olive gray, moist, dense, poorly graded, medium coarse, subangular from 10.25 to 10.5 feet		
			0				Silty clay with gravel and sand, dark yellowish brown, moist, low plasticity		
15									
20									

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terraphase engineering

Project: **UC BAPB Investigation**
Project Location: **UC Richmond Field Station, Richmond, CA**
Project Number: **0009.002.007**

Key to Log of Boring

Sheet 1 of 1

Depth (feet)	Sample Type	Recovered (in) / Total (in)	PID Reading (ppm)	USCS Symbol	Graphic Log	Munsell Soil-Color	MATERIAL DESCRIPTION	Well Log	REMARKS AND OTHER TESTS
1	2	3	4	5	6	7	8	9	10

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CONS: One-dimensional consolidation test
LL: Liquid Limit, percent
PI: Plasticity Index, percent
SA: Sieve analysis (percent passing No. 200 Sieve)
UC: Unconfined compressive strength test, Qu, in ksf
WA: Wash sieve (percent passing No. 200 Sieve)

MATERIAL GRAPHIC SYMBOLS

- Lean CLAY, CLAY w/SAND, SANDY CLAY (CL)
- SILTY CLAY (CL-ML)
- Well graded GRAVEL (GW)
- PEAT and other highly organic soils
- Silty SAND (SM)

TYPICAL SAMPLER GRAPHIC SYMBOLS

- Shelby Tube (Thin-walled, fixed head)
- Direct push acetate liner
- Auger sampler
- Bulk Sample
- 3-inch-OD California w/ brass rings
- CME Sampler
- Grab Sample
- 2.5-inch-OD Modified California w/ brass liners
- Pitcher Sample
- Soil Sample for Lab Analysis
- 2-inch-OD unlined split spoon (SPT)
- Shelby Tube (Thin-walled, fixed head)

OTHER GRAPHIC SYMBOLS

- Water level (at time of drilling, ATD)
- Water level (after waiting)
- Minor change in material properties within a stratum
- Inferred/gradational contact between strata
- Queried contact between strata

GENERAL NOTES

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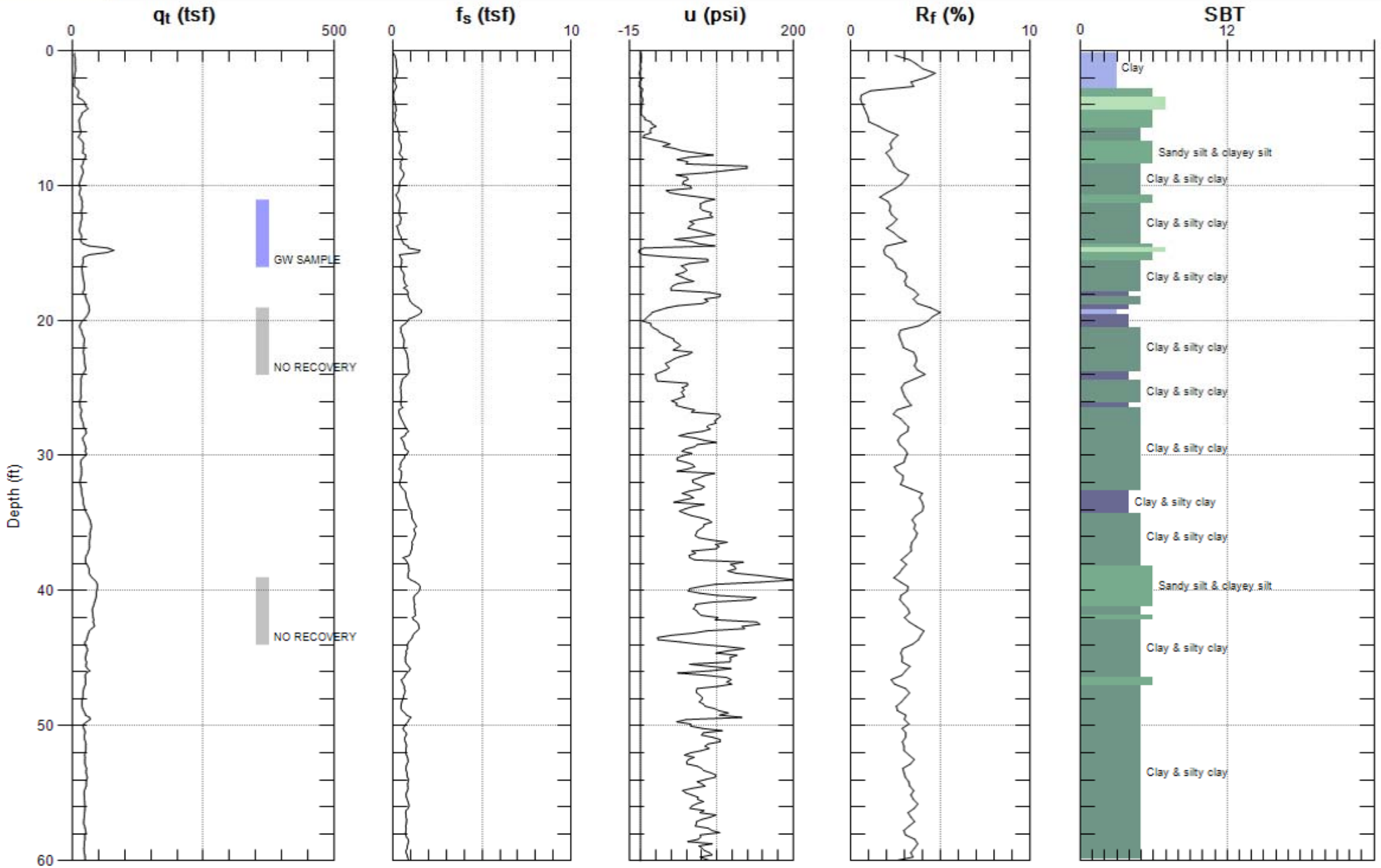
terraphase engineering

Figure B-1

TERRAPHASE

Site: UCRFS
Sounding: RFS-BAPB-GGW-7
Engineer: A.ROMOLO
Date: 5/4/2012 01:01



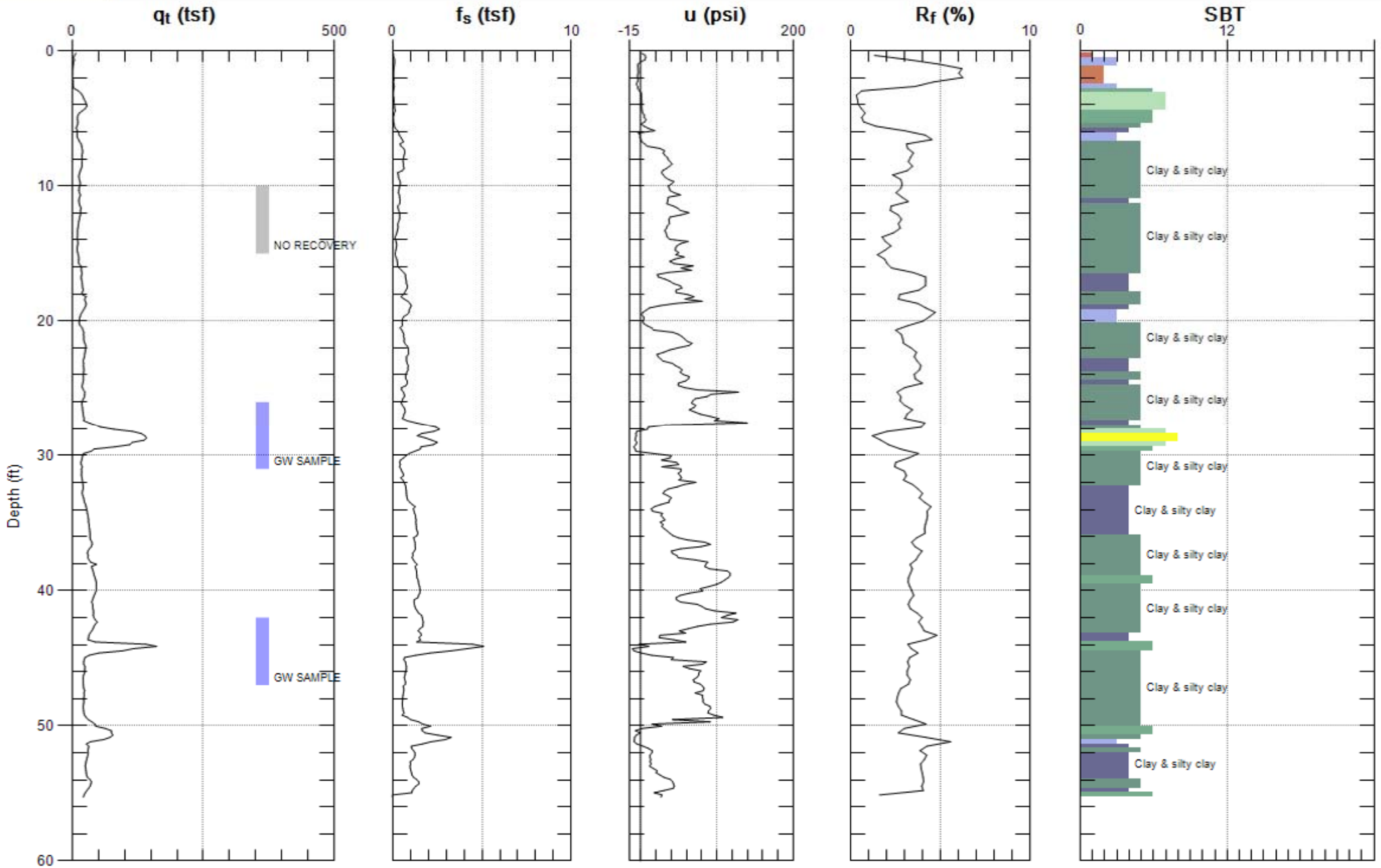
Max. Depth: 60.367 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

GREGG

TERRAPHASE

Site: UCRFS
Engineer: A.ROMOLO
Sounding: RFS-BAPB-GGW-6
Date: 5/4/2012 08:10

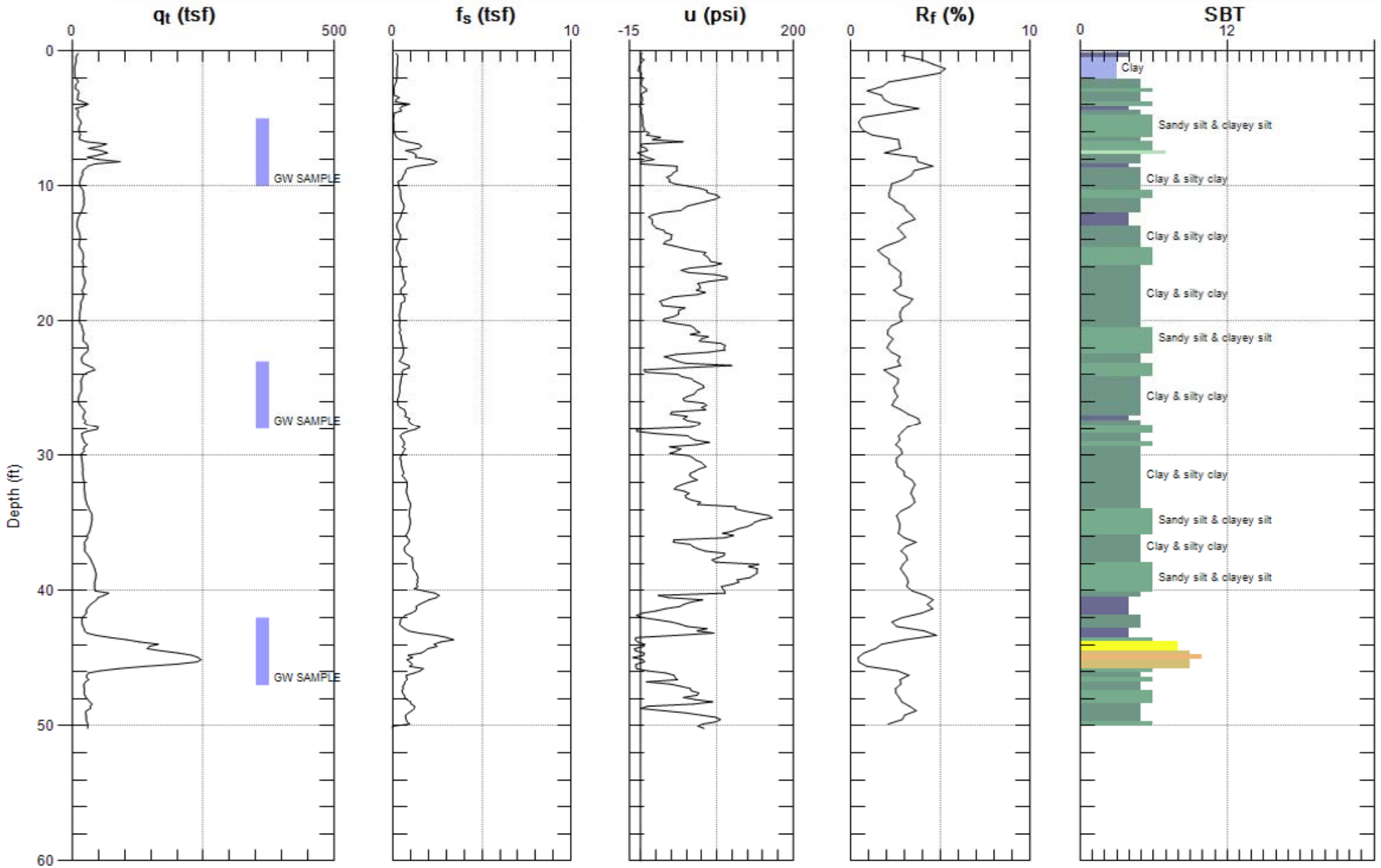


Max. Depth: 55.282 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

TERRAPHASE

Site: UCRFS
Sounding: RFS-BAPB-GGW-5
Engineer: A.ROMOLO
Date: 5/3/2012 11:25



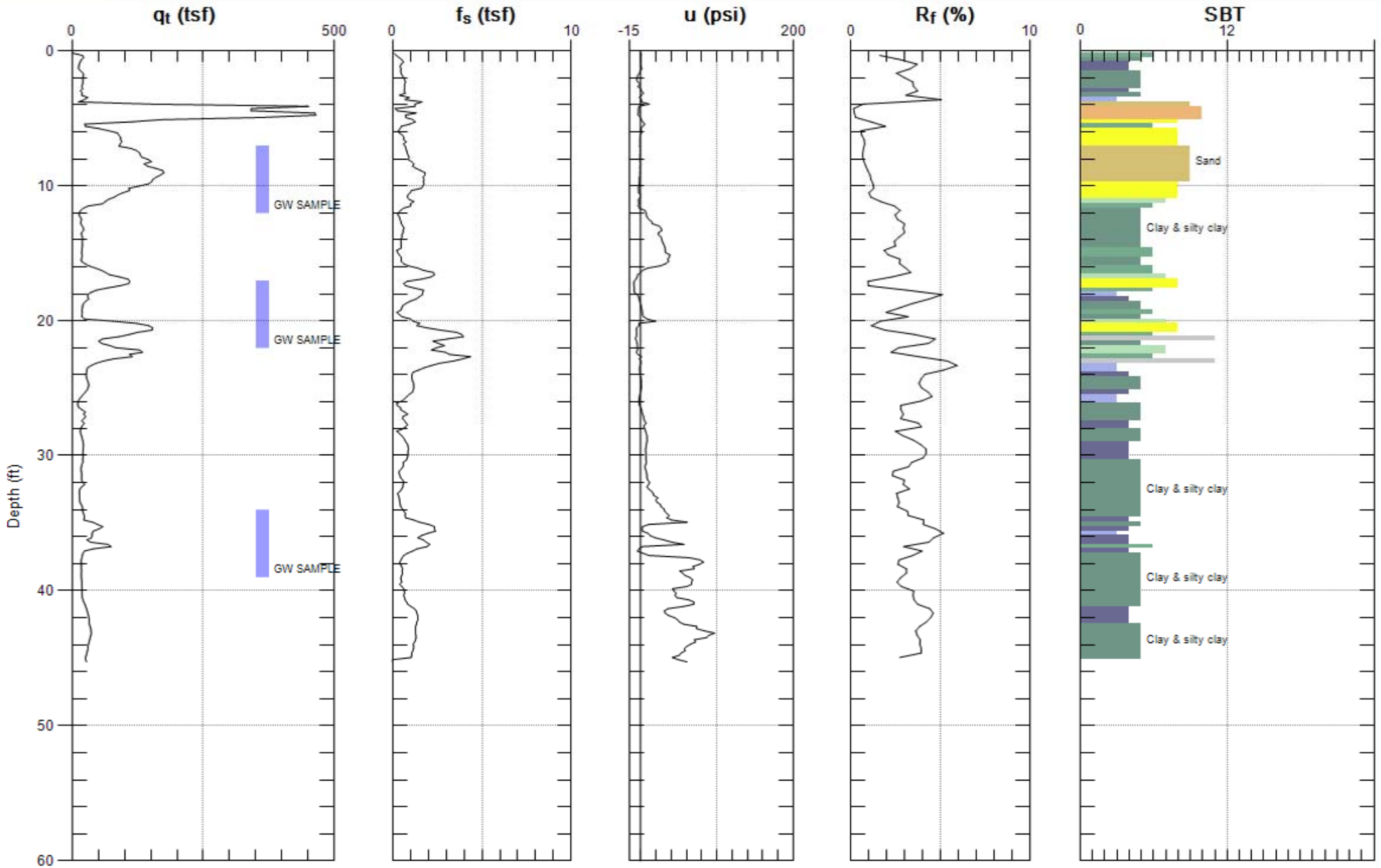
Max. Depth: 50.197 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

GREGG

TERRAPHASE

Site: UCRFS
Engineer: A.ROMOLO
Sounding: RFS-BAPB-GGW-4
Date: 5/2/2012 09:27



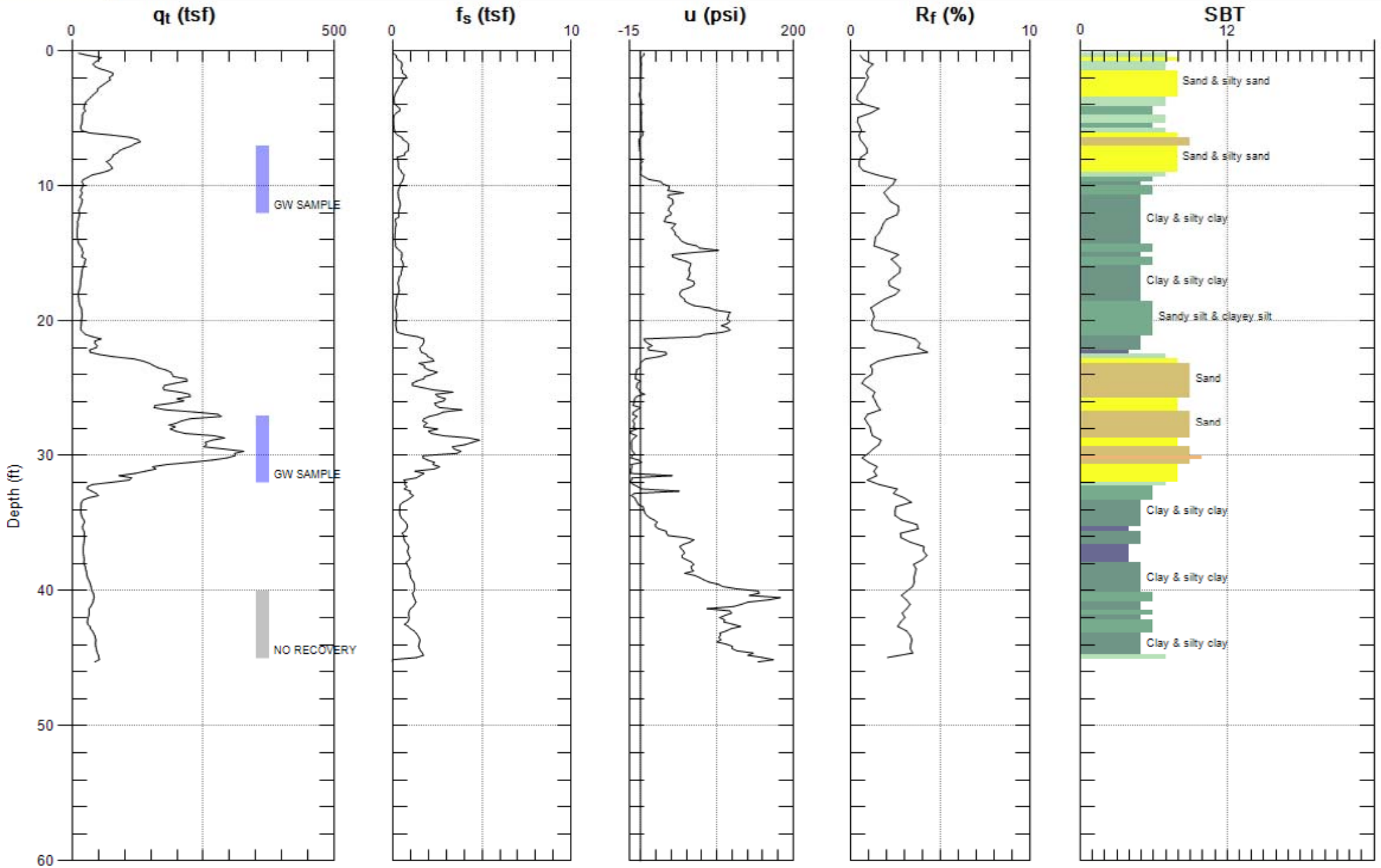
Max. Depth: 45.276 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

GREGG

TERRAPHASE

Site: UCRFS
Sounding: RFS-BAPB-GGW-3
Engineer: A.ROMOLO
Date: 5/2/2012 02:42

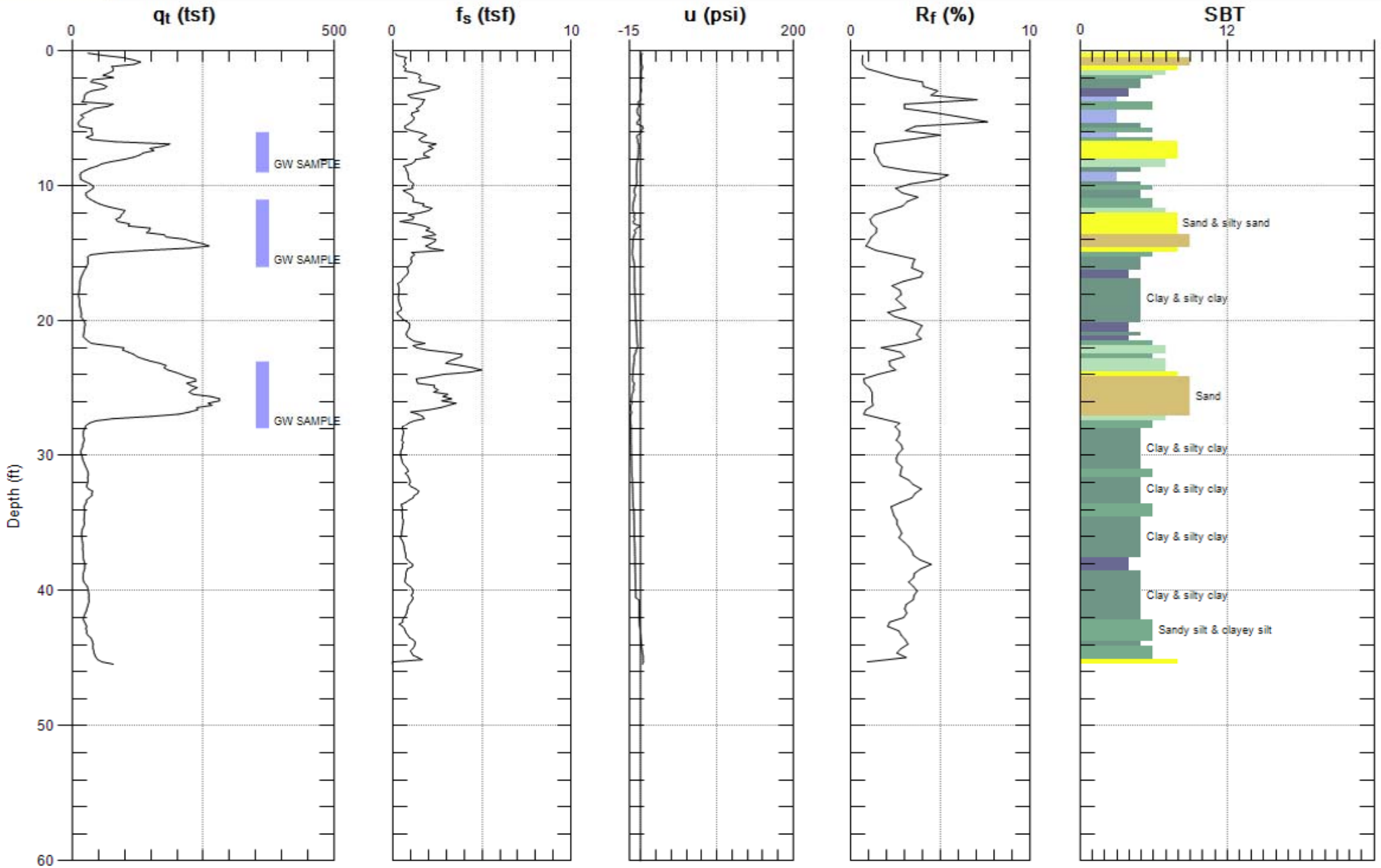


Max. Depth: 45.276 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

TERRAPHASE

Site: UCRFS
Sounding: RFS-BAPB-GGW-2
Engineer: A.ROMOLO
Date: 5/3/2012 08:04



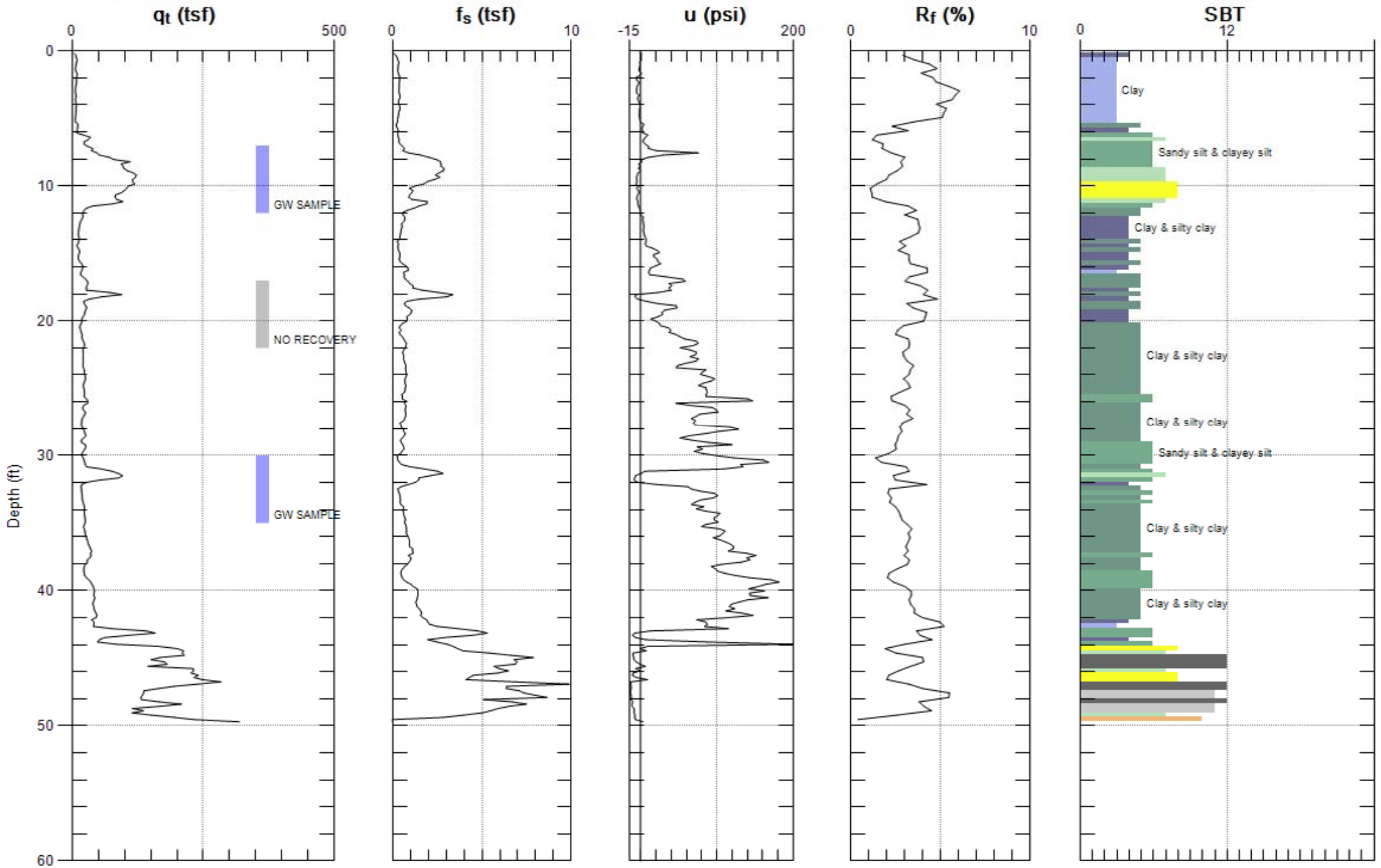
Max. Depth: 45.440 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

GREGG

TERRAPHASE

Site: UCRFS
Sounding: RFS-BAPB-GGW-1
Engineer: A.ROMOLO
Date: 5/3/2012 03:49



Max. Depth: 49.705 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

APPENDIX B

ANALYTICAL DATA REPORTS

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Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

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

Laboratory Job Number 236970
ANALYTICAL REPORT

Terraphase Engineering	Project : 0009.002.007
1404 Franklin Street	Location : UC BAPB Investigation
Oakland, CA 94612	Level : II

Sample ID	Lab ID
UC-BAPB-DRUM	236970-001

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 signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: _____ Date: 06/19/2012
Project Manager

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**236970**
Client:	**Terraphase Engineering**
Project:	**0009.002.007**
Location:	**UC BAPB Investigation**
Request Date:	**06/11/12**
Samples Received:	**06/05/12**

This data package contains sample and QC results for one soil sample, requested for the above referenced project on 06/11/12. The sample was received cold and intact.

Volatile Organics by GC/MS (EPA 8260B):
No analytical problems were encountered.

Metals (EPA 6010B and EPA 7471A):
Copper was detected above the RL in the method blank for batch 187482; this analyte was detected in the sample at a level at least 10 times that of the blank. No other analytical problems were encountered.

CT# 236970

Subject: FW: 0009.002.007 - C&T Login Summary (236813)
From: Andrew Romolo <andrew.romolo@terraphase.com>
Date: Fri, 8 Jun 2012 19:35:13 -0400
To: "Tracy Babjar (tracy.babjar@ctberk.com)" <tracy.babjar@ctberk.com>
CC: Kara Quan-Montgomery <kara.quan-montgomery@terraphase.com>

For sample 006, can we run:

- VOCs 8260
- Metals 6010

From: Kara Quan-Montgomery
Sent: Friday, June 08, 2012 4:34 PM
To: Andrew Romolo
Subject: FW: 0009.002.007 - C&T Login Summary (236813)

Kara Quan-Montgomery | Staff II Geologist
Terraphase Engineering Inc. | 1404 Franklin Street, Suite 600, Oakland, California 94612
kara.quan-montgomery@terraphase.com | Mobile: (510) 301-2093

From: Tracy Babjar [mailto:tracy.babjar@ctberk.com]
Sent: Tuesday, June 05, 2012 4:13 PM
To: Andrew Romolo; Emily Mosen; Kara Quan-Montgomery
Subject: 0009.002.007 - C&T Login Summary (236813)

C&T Login Summary for 236813

Project: 0009.002.007 **Site:** UC BAPB Investigation **Lab Login #:** 236813 **Report Level:** II **Report Due:** 06/12/12 **PO#:** **C&T Proj Mgr:** Tracy Babjar	**Report To:** Terraphase Engineering 1404 Franklin Street Suite 600 Oakland, CA 94612 ATTN: Andrew Romolo (510) 645-1850	**Bill To:** Terraphase Engineering 1404 Franklin Street Suite 600 Oakland, CA 94612 ATTN: Andrew Romolo (510) 645-1850

Client ID	Lab ID	Sampled	Received	Matrix	Analyses	COC #	Comments
MW-41	001	06/05	06/05				
				Water	8260		
				Water	T22 MET		
MW-40	002	06/05	06/05				
				Water	8260		1 of 3 VOAs rec'd w/ bubble
				Water	T22 MET		pH was above 2. added HNO3 (L02030) on 6/5/12 @ 1500
MW-40-D	003	06/05	06/05				
				Water	8260		1 of 3 VOAs rec'd w/ bubble
				Water	T22 MET		pH was above 2. added HNO3 (L02030) on 6/5/12 @ 1500
EB-06-05-12	004	06/05	06/05				
				Water	8260		
				Water	T22 MET		
TRIPBLANK-06-05-12	005	06/05	06/05				
				Water	8260		rec'd 1 VOA
UC-BAPB-DRUM	006	06/05	06/05				
				Soil	HOLD		

Email compiled and sent 06/05/12 04:12 PM.

CHAIN OF CUSTODY

Curtis & Tompkins Laboratories
ENVIRONMENTAL ANALYTICAL TESTING LABORATORY
In Business Since 1878

2323 Fifth Street
Berkeley, CA 94710

Phone (510) 486-0900
Fax (510) 486-0532

C&T LOGIN # 236813

Chain of Custody # _____

Project No: 0009.002.007
Project Name: UC BAPB Investigation
Project P. O. No:
EDD Format: Report Level ☑ II ☐ III ☐ IV
Turnaround Time: ☐ RUSH ☑ Standard

Sampler: Kara Quan-Montgomery
Report To: Andrew Romolo
Company: Terraphase
Telephone: 510-645-1850
Email: andrew.romolo@terraphase.com

Lab No.	Sample ID.	SAMPLING		MATRIX				# of Containers	CHEMICAL PRESERVATIVE					ANALYTICAL REQUEST
		Date Collected	Time Collected	Water	Solid				HCl	H2SO4	HNO3	NaOH	None	VOCs by 8260 / CAM 17 Metals
1	MW-41	6/5/12	1020	X				4	X		X			X X
2	MW-40	6/5/12	1210	X				4	X		X			X X
3	MW-40-D	6/5/12	1220	X				4	X		X			X X
4	EB-06-05-12	6/5/12	1305	X				4	X		X			X X
5	Trip Blank-06-05-12	6/5/12	1430	X				1	X					X
6	UC-BAPB-Drum	6/5/12	1415		X			2					X	HOLD

Notes:

SAMPLE RECEIPT
☐ Intact
☐ Cold
☑ On Ice
☐ Ambient

RELINQUISHED BY:
Kara Quan-Montgomery DATE: 6/5/12 TIME: 1640
DATE: TIME:
DATE: TIME:

RECEIVED BY:
Pat Hamby DATE: 6/5/12 TIME: 1640
DATE: TIME:
DATE: TIME:

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 230813 Date Received 6/5/12 Number of coolers 1
Client Terraphase Project 0009.002.007

Date Opened 6/5/12 By (print) ICHOY (sign) [signature]
Date Logged in ↓ By (print) ↓ (sign) ↓

1. Did cooler come with a shipping slip (airbill, etc) ____ YES (NO)
   Shipping info ____

2A. Were custody seals present? .... ☐ YES (circle) on cooler on samples ☒ NO
   How many ____ Name ____ Date ____
2B. Were custody seals intact upon arrival? ____ YES NO (N/A)
3. Were custody papers dry and intact when received? ____ (YES) NO
4. Were custody papers filled out properly (ink, signed, etc)? ____ (YES) NO
5. Is the project identifiable from custody papers? (If so fill out top of form) ____ (YES) NO
6. Indicate the packing in cooler: (if other, describe) ____

☐ Bubble Wrap ☒ Foam blocks ☐ Bags ☐ None
☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation: * Notify PM if temperature exceeds 6°C

Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C) 9.4° C

☐ Samples Received on ice & cold without a temperature blank; temp. taken with IR gun

☒ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? ____ YES (NO)
   If YES, what time were they transferred to freezer? ____
9. Did all bottles arrive unbroken/unopened? ____ (YES) NO
10. Are there any missing / extra samples? ____ YES (NO)
11. Are samples in the appropriate containers for indicated tests? ____ (YES) NO
12. Are sample labels present, in good condition and complete? ____ (YES) NO
13. Do the sample labels agree with custody papers? ____ (YES) NO
14. Was sufficient amount of sample sent for tests requested? ____ (YES) NO
15. Are the samples appropriately preserved? ____ YES (NO) N/A
16. Did you check preservatives for all bottles for each sample? ____ (YES) NO N/A
17. Did you document your preservative check? ____ (YES) NO N/A
18. Did you change the hold time in LIMS for unpreserved VOAs? ____ YES NO (N/A)
19. Did you change the hold time in LIMS for preserved terracores? ____ YES NO (N/A)
20. Are bubbles > 6mm absent in VOA samples? ____ YES (NO) N/A
21. Was the client contacted concerning this sample delivery? ____ YES (NO)
   If YES, Who was called? ____ By ____ Date: ____

COMMENTS

15) -002 [MW-4D]: pH was above 2 added HNO3 (L02030) on 6/5/12 @ 1500 [signature]
-005 [MW-4D-D]: pH was above 2. added HNO3 (L02030) on 6/5/12 @ 1500 [signature]

20) -002 [MW-4D]: 1 of 3 vials rec'd w/ bubble
-003 [MW-4D-D]: 1 of 3 vials rec'd w/ bubble

Rev 10, 11/11

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	236970	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	UC-BAPB-DRUM	Diln Fac:	0.9766
Lab ID:	236970-001	Batch#:	187490
Matrix:	Soil	Sampled:	06/05/12
Units:	ug/Kg	Received:	06/05/12
Basis:	as received	Analyzed:	06/12/12

Analyte	Result	RL
Freon 12	ND	9.8
Chloromethane	ND	9.8
Vinyl Chloride	ND	9.8
Bromomethane	ND	9.8
Chloroethane	ND	9.8
Trichlorofluoromethane	ND	4.9
Acetone	ND	20
Freon 113	ND	4.9
1,1-Dichloroethene	ND	4.9
Methylene Chloride	ND	20
Carbon Disulfide	ND	4.9
MTBE	ND	4.9
trans-1,2-Dichloroethene	ND	4.9
Vinyl Acetate	ND	49
1,1-Dichloroethane	ND	4.9
2-Butanone	ND	9.8
cis-1,2-Dichloroethene	ND	4.9
2,2-Dichloropropane	ND	4.9
Chloroform	ND	4.9
Bromochloromethane	ND	4.9
1,1,1-Trichloroethane	ND	4.9
1,1-Dichloropropene	ND	4.9
Carbon Tetrachloride	ND	4.9
1,2-Dichloroethane	ND	4.9
Benzene	ND	4.9
Trichloroethene	ND	4.9
1,2-Dichloropropane	ND	4.9
Bromodichloromethane	ND	4.9
Dibromomethane	ND	4.9
4-Methyl-2-Pentanone	ND	9.8
cis-1,3-Dichloropropene	ND	4.9
Toluene	ND	4.9
trans-1,3-Dichloropropene	ND	4.9
1,1,2-Trichloroethane	ND	4.9
2-Hexanone	ND	9.8
1,3-Dichloropropane	ND	4.9
Tetrachloroethene	ND	4.9

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	236970	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	UC-BAPB-DRUM	Diln Fac:	0.9766
Lab ID:	236970-001	Batch#:	187490
Matrix:	Soil	Sampled:	06/05/12
Units:	ug/Kg	Received:	06/05/12
Basis:	as received	Analyzed:	06/12/12

Analyte	Result	RL
Dibromochloromethane	ND	4.9
1,2-Dibromoethane	ND	4.9
Chlorobenzene	ND	4.9
1,1,1,2-Tetrachloroethane	ND	4.9
Ethylbenzene	ND	4.9
m,p-Xylenes	ND	4.9
o-Xylene	ND	4.9
Styrene	ND	4.9
Bromoform	ND	4.9
Isopropylbenzene	ND	4.9
1,1,2,2-Tetrachloroethane	ND	4.9
1,2,3-Trichloropropane	ND	4.9
Propylbenzene	ND	4.9
Bromobenzene	ND	4.9
1,3,5-Trimethylbenzene	ND	4.9
2-Chlorotoluene	ND	4.9
4-Chlorotoluene	ND	4.9
tert-Butylbenzene	ND	4.9
1,2,4-Trimethylbenzene	ND	4.9
sec-Butylbenzene	ND	4.9
para-Isopropyl Toluene	ND	4.9
1,3-Dichlorobenzene	ND	4.9
1,4-Dichlorobenzene	ND	4.9
n-Butylbenzene	ND	4.9
1,2-Dichlorobenzene	ND	4.9
1,2-Dibromo-3-Chloropropane	ND	4.9
1,2,4-Trichlorobenzene	ND	4.9
Hexachlorobutadiene	ND	4.9
Naphthalene	ND	4.9
1,2,3-Trichlorobenzene	ND	4.9

Surrogate	%REC	Limits
Dibromofluoromethane	101	74-133
1,2-Dichloroethane-d4	107	74-136
Toluene-d8	100	80-120
Bromofluorobenzene	98	77-130

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	236970	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC643669	Batch#:	187490
Matrix:	Soil	Analyzed:	06/12/12
Units:	ug/Kg		

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	25.00	23.98	96	71-125
Benzene	25.00	26.27	105	78-125
Trichloroethene	25.00	24.68	99	77-121
Toluene	25.00	25.27	101	79-120
Chlorobenzene	25.00	24.24	97	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	111	74-133
1,2-Dichloroethane-d4	110	74-136
Toluene-d8	101	80-120
Bromofluorobenzene	100	77-130

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	236970	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC643670	Batch#:	187490
Matrix:	Soil	Analyzed:	06/12/12
Units:	ug/Kg		

Analyte	Result	RL
Freon 12	ND	10
Chloromethane	ND	10
Vinyl Chloride	ND	10
Bromomethane	ND	10
Chloroethane	ND	10
Trichlorofluoromethane	ND	5.0
Acetone	ND	20
Freon 113	ND	5.0
1,1-Dichloroethene	ND	5.0
Methylene Chloride	ND	20
Carbon Disulfide	ND	5.0
MTBE	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
Vinyl Acetate	ND	50
1,1-Dichloroethane	ND	5.0
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	5.0
2,2-Dichloropropane	ND	5.0
Chloroform	ND	5.0
Bromochloromethane	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1-Dichloropropene	ND	5.0
Carbon Tetrachloride	ND	5.0
1,2-Dichloroethane	ND	5.0
Benzene	ND	5.0
Trichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
Bromodichloromethane	ND	5.0
Dibromomethane	ND	5.0
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	5.0
Toluene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
1,1,2-Trichloroethane	ND	5.0
2-Hexanone	ND	10
1,3-Dichloropropane	ND	5.0
Tetrachloroethene	ND	5.0

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	236970	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC643670	Batch#:	187490
Matrix:	Soil	Analyzed:	06/12/12
Units:	ug/Kg		

Analyte	Result	RL
Dibromochloromethane	ND	5.0
1,2-Dibromoethane	ND	5.0
Chlorobenzene	ND	5.0
1,1,1,2-Tetrachloroethane	ND	5.0
Ethylbenzene	ND	5.0
m,p-Xylenes	ND	5.0
o-Xylene	ND	5.0
Styrene	ND	5.0
Bromoform	ND	5.0
Isopropylbenzene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
1,2,3-Trichloropropane	ND	5.0
Propylbenzene	ND	5.0
Bromobenzene	ND	5.0
1,3,5-Trimethylbenzene	ND	5.0
2-Chlorotoluene	ND	5.0
4-Chlorotoluene	ND	5.0
tert-Butylbenzene	ND	5.0
1,2,4-Trimethylbenzene	ND	5.0
sec-Butylbenzene	ND	5.0
para-Isopropyl Toluene	ND	5.0
1,3-Dichlorobenzene	ND	5.0
1,4-Dichlorobenzene	ND	5.0
n-Butylbenzene	ND	5.0
1,2-Dichlorobenzene	ND	5.0
1,2-Dibromo-3-Chloropropane	ND	5.0
1,2,4-Trichlorobenzene	ND	5.0
Hexachlorobutadiene	ND	5.0
Naphthalene	ND	5.0
1,2,3-Trichlorobenzene	ND	5.0

Surrogate	%REC	Limits
Dibromofluoromethane	101	74-133
1,2-Dichloroethane-d4	104	74-136
Toluene-d8	100	80-120
Bromofluorobenzene	101	77-130

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	236970	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	UC-BAPB-DRUM	Batch#:	187490
MSS Lab ID:	236970-001	Sampled:	06/05/12
Matrix:	Soil	Received:	06/05/12
Units:	ug/Kg	Analyzed:	06/12/12
Basis:	as received		

Type: MS Diln Fac: 0.9488
Lab ID: QC643671

Analyte	MSS Result	Spiked	Result	%REC	Limits
1,1-Dichloroethene	<0.5795	47.44	42.54	90	55-127
Benzene	<0.9442	47.44	40.83	86	58-122
Trichloroethene	<1.102	47.44	39.70	84	45-142
Toluene	<1.274	47.44	38.14	80	54-120
Chlorobenzene	<0.2845	47.44	33.87	71	49-120

Surrogate	%REC	Limits
Dibromofluoromethane	106	74-133
1,2-Dichloroethane-d4	111	74-136
Toluene-d8	100	80-120
Bromofluorobenzene	99	77-130

Type: MSD Diln Fac: 0.9940
Lab ID: QC643742

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	49.70	43.47	87	55-127	3	38
Benzene	49.70	40.14	81	58-122	6	37
Trichloroethene	49.70	37.14	75	45-142	11	41
Toluene	49.70	34.88	70	54-120	14	35
Chlorobenzene	49.70	29.64	60	49-120	18	38

Surrogate	%REC	Limits
Dibromofluoromethane	104	74-133
1,2-Dichloroethane-d4	111	74-136
Toluene-d8	97	80-120
Bromofluorobenzene	97	77-130

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	236970	Project#:	0009.002.007
Client:	Terraphase Engineering	Location:	UC BAPB Investigation
Field ID:	UC-BAPB-DRUM	Diln Fac:	1.000
Lab ID:	236970-001	Sampled:	06/05/12
Matrix:	Soil	Received:	06/05/12
Units:	mg/Kg	Prepared:	06/11/12
Basis:	as received		

Analyte	Result	RL	Batch#	Analyzed	Prep	Analysis
Antimony	ND	0.46	187482	06/12/12	EPA 3050B	EPA 6010B
Arsenic	5.4	0.23	187482	06/12/12	EPA 3050B	EPA 6010B
Barium	150	0.23	187482	06/12/12	EPA 3050B	EPA 6010B
Beryllium	0.37	0.093	187482	06/12/12	EPA 3050B	EPA 6010B
Cadmium	ND	0.23	187482	06/12/12	EPA 3050B	EPA 6010B
Chromium	35	0.23	187482	06/12/12	EPA 3050B	EPA 6010B
Cobalt	12	0.23	187482	06/12/12	EPA 3050B	EPA 6010B
Copper	22	0.24	187482	06/12/12	EPA 3050B	EPA 6010B
Lead	5.6	0.23	187482	06/12/12	EPA 3050B	EPA 6010B
Mercury	0.15	0.017	187457	06/11/12	METHOD	EPA 7471A
Molybdenum	ND	0.23	187482	06/12/12	EPA 3050B	EPA 6010B
Nickel	54	0.23	187482	06/12/12	EPA 3050B	EPA 6010B
Selenium	ND	0.46	187482	06/12/12	EPA 3050B	EPA 6010B
Silver	ND	0.23	187482	06/12/12	EPA 3050B	EPA 6010B
Thallium	ND	0.46	187482	06/12/12	EPA 3050B	EPA 6010B
Vanadium	38	0.23	187482	06/12/12	EPA 3050B	EPA 6010B
Zinc	48	0.93	187482	06/12/12	EPA 3050B	EPA 6010B

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	236970	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	METHOD
Project#:	0009.002.007	Analysis:	EPA 7471A
Analyte:	Mercury	Diln Fac:	1.000
Type:	BLANK	Batch#:	187457
Lab ID:	QC643544	Prepared:	06/11/12
Matrix:	Soil	Analyzed:	06/11/12
Units:	mg/Kg		

Result	RL
ND	0.017

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	236970	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	METHOD
Project#:	0009.002.007	Analysis:	EPA 7471A
Analyte:	Mercury	Batch#:	187457
Matrix:	Soil	Prepared:	06/11/12
Units:	mg/Kg	Analyzed:	06/11/12
Diln Fac:	1.000		

Type	Lab ID	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC643545	0.2083	0.2208	106	80-121		
BSD	QC643546	0.2083	0.2133	102	80-121	3	31

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	236970	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	METHOD
Project#:	0009.002.007	Analysis:	EPA 7471A
Analyte:	Mercury	Diln Fac:	1.000
Field ID:	ZZZZZZZZZZ	Batch#:	187457
MSS Lab ID:	236955-001	Sampled:	06/08/12
Matrix:	Soil	Received:	06/08/12
Units:	mg/Kg	Prepared:	06/11/12
Basis:	as received	Analyzed:	06/11/12

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
MS	QC643547	0.1403	0.2083	0.3950	122	65-142		
MSD	QC643548		0.2155	0.3698	106	65-142	9	35

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	236970	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 3050B
Project#:	0009.002.007	Analysis:	EPA 6010B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC643646	Batch#:	187482
Matrix:	Soil	Prepared:	06/11/12
Units:	mg/Kg	Analyzed:	06/12/12

Analyte	Result	RL
Antimony	ND	0.50
Arsenic	ND	0.25
Barium	ND	0.25
Beryllium	ND	0.10
Cadmium	ND	0.25
Chromium	ND	0.25
Cobalt	ND	0.25
Copper	0.28 b	0.26
Lead	ND	0.25
Molybdenum	ND	0.25
Nickel	ND	0.25
Selenium	ND	0.50
Silver	ND	0.25
Thallium	ND	0.50
Vanadium	ND	0.25
Zinc	ND	1.0

b= See narrative
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	236970	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 3050B
Project#:	0009.002.007	Analysis:	EPA 6010B
Matrix:	Soil	Batch#:	187482
Units:	mg/Kg	Prepared:	06/11/12
Diln Fac:	1.000	Analyzed:	06/12/12

Type: BS Lab ID: QC643647

Analyte	Spiked	Result	%REC	Limits
Antimony	100.0	99.50	99	80-120
Arsenic	50.00	52.35	105	80-121
Barium	100.0	100.4	100	80-120
Beryllium	2.500	2.561	102	80-120
Cadmium	10.00	10.38	104	80-120
Chromium	100.0	98.87	99	80-120
Cobalt	25.00	24.36	97	80-120
Copper	12.50	12.76	102	80-120
Lead	100.0	96.07	96	80-120
Molybdenum	20.00	20.03	100	80-120
Nickel	25.00	24.63	99	80-120
Selenium	50.00	49.65	99	80-120
Silver	10.00	9.505	95	80-120
Thallium	50.00	47.89	96	80-120
Vanadium	25.00	25.38	102	80-120
Zinc	25.00	25.21	101	80-120

Type: BSD Lab ID: QC643648

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Antimony	100.0	101.1	101	80-120	2	20
Arsenic	50.00	53.16	106	80-121	2	20
Barium	100.0	101.4	101	80-120	1	20
Beryllium	2.500	2.592	104	80-120	1	20
Cadmium	10.00	10.61	106	80-120	2	20
Chromium	100.0	100.3	100	80-120	1	20
Cobalt	25.00	24.74	99	80-120	2	20
Copper	12.50	12.80	102	80-120	0	20
Lead	100.0	96.66	97	80-120	1	20
Molybdenum	20.00	20.01	100	80-120	0	20
Nickel	25.00	25.21	101	80-120	2	20
Selenium	50.00	50.21	100	80-120	1	20
Silver	10.00	9.610	96	80-120	1	20
Thallium	50.00	47.97	96	80-120	0	20
Vanadium	25.00	25.74	103	80-120	1	20
Zinc	25.00	25.83	103	80-120	2	20

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	236970	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 3050B
Project#:	0009.002.007	Analysis:	EPA 6010B
Field ID:	UC-BAPB-DRUM	Batch#:	187482
MSS Lab ID:	236970-001	Sampled:	06/05/12
Matrix:	Soil	Received:	06/05/12
Units:	mg/Kg	Prepared:	06/11/12
Basis:	as received	Analyzed:	06/12/12
Diln Fac:	1.000		

Type: MS Lab ID: QC643649

Analyte	MSS Result	Spiked	Result	%REC	Limits
Antimony	<0.1471	91.74	37.71	41	11-120
Arsenic	5.354	45.87	54.00	106	71-123
Barium	145.4	91.74	249.4	113	48-139
Beryllium	0.3712	2.294	2.757	104	77-120
Cadmium	0.1627	9.174	9.301	100	72-120
Chromium	34.98	91.74	123.8	97	60-125
Cobalt	11.70	22.94	32.01	89	57-124
Copper	21.70	11.47	32.73	96	46-155
Lead	5.609	91.74	90.07	92	57-126
Molybdenum	0.1354	18.35	16.89	91	68-120
Nickel	53.52	22.94	74.21	90	45-139
Selenium	<0.1354	45.87	44.53	97	68-120
Silver	<0.06922	9.174	7.297	80	72-120
Thallium	<0.1510	45.87	39.42	86	66-120
Vanadium	37.70	22.94	61.83	105	51-142
Zinc	47.55	22.94	69.50	96	41-148

Type: MSD Lab ID: QC643650

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Antimony	94.34	39.81	42	11-120	3	36
Arsenic	47.17	54.58	104	71-123	1	38
Barium	94.34	240.0	100	48-139	5	46
Beryllium	2.358	2.767	102	77-120	2	22
Cadmium	9.434	9.506	99	72-120	1	30
Chromium	94.34	125.0	95	60-125	1	34
Cobalt	23.58	33.28	92	57-124	2	36
Copper	11.79	34.01	104	46-155	3	37
Lead	94.34	92.08	92	57-126	0	43
Molybdenum	18.87	17.32	91	68-120	0	24
Nickel	23.58	75.24	92	45-139	1	37
Selenium	47.17	44.76	95	68-120	2	28
Silver	9.434	7.425	79	72-120	1	31
Thallium	47.17	41.15	87	66-120	1	22
Vanadium	23.58	61.09	99	51-142	2	32
Zinc	23.58	69.17	92	41-148	1	38

RPD= Relative Percent Difference


Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

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

Laboratory Job Number 236813
ANALYTICAL REPORT

Terraphase Engineering	Project : 0009.002.007
1404 Franklin Street	Location : UC BAPB Investigation
Oakland, CA 94612	Level : II

Sample ID	Lab ID
MW-41	236813-001
MW-40	236813-002
MW-40-D	236813-003
EB-06-05-12	236813-004
TRIPBLANK-06-05-12	236813-005
UC-BAPB-DRUM	236813-006

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 signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: _____ Date: 06/13/2012
Project Manager

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**236813**
Client:	**Terraphase Engineering**
Project:	**0009.002.007**
Location:	**UC BAPB Investigation**
Request Date:	**06/05/12**
Samples Received:	**06/05/12**

This data package contains sample and QC results for five water samples, requested for the above referenced project on 06/05/12. The samples were received cold and intact.

Volatile Organics by GC/MS (EPA 8260B):
No analytical problems were encountered.

Metals (EPA 6010B and EPA 7470A):
No analytical problems were encountered.

CHAIN OF CUSTODY

Curtis & Tompkins Laboratories
ENVIRONMENTAL ANALYTICAL TESTING LABORATORY
In Business Since 1878

2323 Fifth Street
Berkeley, CA 94710

Phone (510) 486-0900
Fax (510) 486-0532

C&T LOGIN # 236813

Chain of Custody # _____

Project No: 0009.002.007
Project Name: UC BAPB Investigation
Project P. O. No:
EDD Format: Report Level ☑ II ☐ III ☐ IV
Turnaround Time: ☐ RUSH ☑ Standard

Sampler: Kara Quan-Montgomery
Report To: Andrew Romolo
Company: Terraphase
Telephone: 510-645-1850
Email: andrew.romolo@terraphase.com

Lab No.	Sample ID.	SAMPLING		MATRIX				# of Containers	CHEMICAL PRESERVATIVE					ANALYTICAL REQUEST		
		Date Collected	Time Collected	Water	Solid				HCl	H2SO4	HNO3	NaOH	None	VOCs by 8260	CAM 17 Metals	
1	MW-41	6/5/12	1020	X				4	X		X			X	X	
2	MW-40	6/5/12	1210	X				4	X		X			X	X	
3	MW-40-D	6/5/12	1220	X				4	X		X			X	X	
4	EB-06-05-12	6/5/12	1305	X				4	X		X			X	X	
5	Trip Blank-06-05-12	6/5/12	1430	X				1	X					X		
6	UC-BAPB-Drum	6/5/12	1415		X			2					X	HOLD		

Notes:

SAMPLE RECEIPT
☐ Intact
☐ Cold
☑ On Ice
~~☐~~ Ambient

RELINQUISHED BY:
Kara Quan-Montgomery DATE: 6/5/12 TIME: 1640
DATE: TIME:
DATE: TIME:

RECEIVED BY:
Pat Hanly DATE: 6/5/12 TIME: 1640
DATE: TIME:
DATE: TIME:

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 230813 Date Received 6/5/12 Number of coolers 1
Client TetraTech Project 0009.002.007

Date Opened 6/5/12 By (print) ICHOY (sign) [signature]
Date Logged in ↓ By (print) ↓ (sign) ↓

1. Did cooler come with a shipping slip (airbill, etc) _____ YES (NO)
Shipping info _____

2A. Were custody seals present? .... ☐ YES (circle) on cooler on samples ☒ NO
How many _____ Name _____ Date _____
2B. Were custody seals intact upon arrival? _____ YES NO (N/A)
3. Were custody papers dry and intact when received? _____ (YES) NO
4. Were custody papers filled out properly (ink, signed, etc)? _____ (YES) NO
5. Is the project identifiable from custody papers? (If so fill out top of form) ___ (YES) NO
6. Indicate the packing in cooler: (if other, describe) _____

☐ Bubble Wrap ☒ Foam blocks ☐ Bags ☐ None
☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation: * Notify PM if temperature exceeds 6°C

Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C) 9.4° C

☐ Samples Received on ice & cold without a temperature blank; temp. taken with IR gun

☒ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? _____ YES (NO)
If YES, what time were they transferred to freezer? _____
9. Did all bottles arrive unbroken/unopened? _____ (YES) NO
10. Are there any missing / extra samples? _____ YES (NO)
11. Are samples in the appropriate containers for indicated tests? _____ (YES) NO
12. Are sample labels present, in good condition and complete? _____ (YES) NO
13. Do the sample labels agree with custody papers? _____ (YES) NO
14. Was sufficient amount of sample sent for tests requested? _____ (YES) NO
15. Are the samples appropriately preserved? _____ YES (NO) N/A
16. Did you check preservatives for all bottles for each sample? _____ (YES) NO N/A
17. Did you document your preservative check? _____ (YES) NO N/A
18. Did you change the hold time in LIMS for unpreserved VOAs? _____ YES NO (N/A)
19. Did you change the hold time in LIMS for preserved terracores? _____ YES NO (N/A)
20. Are bubbles > 6mm absent in VOA samples? _____ YES (NO) N/A
21. Was the client contacted concerning this sample delivery? _____ YES (NO)
If YES, Who was called? _____ By _____ Date: _____

COMMENTS
15) -002 [MW-40]: pH was above 2. added HNO3 (L02030) on 6/5/12 @ 1500 [signature]
-003 [MW-40-D]: pH was above 2. added HNO3 (L02030) on 6/5/12 @ 1500 [signature]

20) -002 [MW-40]: 1 of 3 VOAs rec'd w/ bubble
-003 [MW-40-D]. 1 of 3 VOAs rec'd w/ bubble

Rev 10, 11/11

Curtis & Tompkins Sample Preservation for 236813

Sample	pH: <2	>9	>12	Other
-001a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[✓]	[ ]	[ ]	_____
-002a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[✓]	[ ]	[ ]	_____
-003a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[✓]	[ ]	[ ]	_____
-004a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[✓]	[ ]	[ ]	_____

Analyst: JC
Date: 6/5/12

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	236813	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	MW-41	Batch#:	187343
Lab ID:	236813-001	Sampled:	06/05/12
Matrix:	Water	Received:	06/05/12
Units:	ug/L	Analyzed:	06/07/12
Diln Fac:	5.000		

Analyte	Result	RL
Freon 12	ND	5.0
Chloromethane	ND	5.0
Vinyl Chloride	ND	2.5
Bromomethane	ND	5.0
Chloroethane	ND	5.0
Trichlorofluoromethane	ND	5.0
Acetone	ND	50
Freon 113	ND	10
1,1-Dichloroethene	ND	2.5
Methylene Chloride	ND	50
Carbon Disulfide	ND	2.5
MTBE	ND	2.5
trans-1,2-Dichloroethene	ND	2.5
Vinyl Acetate	ND	50
1,1-Dichloroethane	ND	2.5
2-Butanone	ND	50
cis-1,2-Dichloroethene	42	2.5
2,2-Dichloropropane	ND	2.5
Chloroform	ND	2.5
Bromochloromethane	ND	2.5
1,1,1-Trichloroethane	ND	2.5
1,1-Dichloropropene	ND	2.5
Carbon Tetrachloride	ND	2.5
1,2-Dichloroethane	15	2.5
Benzene	ND	2.5
Trichloroethene	130	2.5
1,2-Dichloropropane	ND	2.5
Bromodichloromethane	ND	2.5
Dibromomethane	ND	2.5
4-Methyl-2-Pentanone	ND	50
cis-1,3-Dichloropropene	ND	2.5
Toluene	ND	2.5
trans-1,3-Dichloropropene	ND	2.5
1,1,2-Trichloroethane	ND	2.5
2-Hexanone	ND	50
1,3-Dichloropropane	ND	2.5
Tetrachloroethene	300	2.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	236813	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	MW-41	Batch#:	187343
Lab ID:	236813-001	Sampled:	06/05/12
Matrix:	Water	Received:	06/05/12
Units:	ug/L	Analyzed:	06/07/12
Diln Fac:	5.000		

Analyte	Result	RL
Dibromochloromethane	ND	2.5
1,2-Dibromoethane	ND	2.5
Chlorobenzene	270	2.5
1,1,1,2-Tetrachloroethane	ND	2.5
Ethylbenzene	ND	2.5
m,p-Xylenes	ND	2.5
o-Xylene	ND	2.5
Styrene	ND	2.5
Bromoform	ND	5.0
Isopropylbenzene	ND	2.5
1,1,2,2-Tetrachloroethane	ND	2.5
1,2,3-Trichloropropane	ND	2.5
Propylbenzene	ND	2.5
Bromobenzene	ND	2.5
1,3,5-Trimethylbenzene	ND	2.5
2-Chlorotoluene	ND	2.5
4-Chlorotoluene	ND	2.5
tert-Butylbenzene	ND	2.5
1,2,4-Trimethylbenzene	ND	2.5
sec-Butylbenzene	ND	2.5
para-Isopropyl Toluene	ND	2.5
1,3-Dichlorobenzene	ND	2.5
1,4-Dichlorobenzene	ND	2.5
n-Butylbenzene	ND	2.5
1,2-Dichlorobenzene	ND	2.5
1,2-Dibromo-3-Chloropropane	ND	10
1,2,4-Trichlorobenzene	ND	2.5
Hexachlorobutadiene	ND	10
Naphthalene	ND	10
1,2,3-Trichlorobenzene	ND	2.5

Surrogate	%REC	Limits
Dibromofluoromethane	113	80-125
1,2-Dichloroethane-d4	115	69-145
Toluene-d8	97	80-120
Bromofluorobenzene	106	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	236813	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	MW-40	Batch#:	187343
Lab ID:	236813-002	Sampled:	06/05/12
Matrix:	Water	Received:	06/05/12
Units:	ug/L	Analyzed:	06/07/12
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Acetone	ND	10
Freon 113	ND	2.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
Carbon Disulfide	25	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	ND	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	1.0	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	ND	0.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	236813	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	MW-40	Batch#:	187343
Lab ID:	236813-002	Sampled:	06/05/12
Matrix:	Water	Received:	06/05/12
Units:	ug/L	Analyzed:	06/07/12
Diln Fac:	1.000		

Analyte	Result	RL
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	8.1	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	2.0
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	2.0
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	113	80-125
1,2-Dichloroethane-d4	111	69-145
Toluene-d8	96	80-120
Bromofluorobenzene	103	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	236813	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	MW-40-D	Batch#:	187343
Lab ID:	236813-003	Sampled:	06/05/12
Matrix:	Water	Received:	06/05/12
Units:	ug/L	Analyzed:	06/07/12
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Acetone	ND	10
Freon 113	ND	2.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
Carbon Disulfide	12	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	ND	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	1.0	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	ND	0.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	236813	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	MW-40-D	Batch#:	187343
Lab ID:	236813-003	Sampled:	06/05/12
Matrix:	Water	Received:	06/05/12
Units:	ug/L	Analyzed:	06/07/12
Diln Fac:	1.000		

Analyte	Result	RL
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	8.3	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	2.0
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	2.0
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	114	80-125
1,2-Dichloroethane-d4	112	69-145
Toluene-d8	96	80-120
Bromofluorobenzene	100	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	236813	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	EB-06-05-12	Batch#:	187343
Lab ID:	236813-004	Sampled:	06/05/12
Matrix:	Water	Received:	06/05/12
Units:	ug/L	Analyzed:	06/07/12
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Acetone	ND	10
Freon 113	ND	2.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
Carbon Disulfide	ND	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	ND	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	0.5	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	ND	0.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	236813	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	EB-06-05-12	Batch#:	187343
Lab ID:	236813-004	Sampled:	06/05/12
Matrix:	Water	Received:	06/05/12
Units:	ug/L	Analyzed:	06/07/12
Diln Fac:	1.000		

Analyte	Result	RL
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	ND	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	2.0
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	2.0
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	112	80-125
1,2-Dichloroethane-d4	112	69-145
Toluene-d8	97	80-120
Bromofluorobenzene	105	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	236813	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	TRIPBLANK-06-05-12	Batch#:	187343
Lab ID:	236813-005	Sampled:	06/05/12
Matrix:	Water	Received:	06/05/12
Units:	ug/L	Analyzed:	06/07/12
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Acetone	ND	10
Freon 113	ND	2.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
Carbon Disulfide	ND	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	ND	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	ND	0.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	236813	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	TRIPBLANK-06-05-12	Batch#:	187343
Lab ID:	236813-005	Sampled:	06/05/12
Matrix:	Water	Received:	06/05/12
Units:	ug/L	Analyzed:	06/07/12
Diln Fac:	1.000		

Analyte	Result	RL
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	ND	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	2.0
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	2.0
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	114	80-125
1,2-Dichloroethane-d4	112	69-145
Toluene-d8	98	80-120
Bromofluorobenzene	105	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	236813	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	187343
Units:	ug/L	Analyzed:	06/07/12
Diln Fac:	1.000		

Type: BS Lab ID: QC643024

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	25.00	26.18	105	66-131
Benzene	25.00	24.36	97	80-121
Trichloroethene	25.00	25.03	100	79-120
Toluene	25.00	25.51	102	80-120
Chlorobenzene	25.00	23.54	94	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	104	80-125
1,2-Dichloroethane-d4	107	69-145
Toluene-d8	98	80-120
Bromofluorobenzene	105	80-120

Type: BSD Lab ID: QC643025

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	25.00	27.43	110	66-131	5	20
Benzene	25.00	25.09	100	80-121	3	20
Trichloroethene	25.00	25.98	104	79-120	4	20
Toluene	25.00	25.93	104	80-120	2	20
Chlorobenzene	25.00	24.19	97	80-120	3	20

Surrogate	%REC	Limits
Dibromofluoromethane	104	80-125
1,2-Dichloroethane-d4	107	69-145
Toluene-d8	96	80-120
Bromofluorobenzene	104	80-120

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	236813	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC643026	Batch#:	187343
Matrix:	Water	Analyzed:	06/07/12
Units:	ug/L		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Acetone	ND	10
Freon 113	ND	2.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
Carbon Disulfide	ND	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	ND	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	ND	0.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	236813	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC643026	Batch#:	187343
Matrix:	Water	Analyzed:	06/07/12
Units:	ug/L		

Analyte	Result	RL
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	ND	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	2.0
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	2.0
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	108	80-125
1,2-Dichloroethane-d4	109	69-145
Toluene-d8	96	80-120
Bromofluorobenzene	105	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	236813	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	ZZZZZZZZZZ	Diln Fac:	1.000
MSS Lab ID:	236802-004	Batch#:	187343
Matrix:	Water	Sampled:	06/04/12
Units:	ug/L	Received:	06/05/12

Type: MS Analyzed: 06/07/12
Lab ID: QC643141

Analyte	MSS Result	Spiked	Result	%REC	Limits
1,1-Dichloroethene	<0.1591	25.00	26.50	106	74-123
Benzene	<0.1000	25.00	26.49	106	80-120
Trichloroethene	20.63	25.00	44.01	94	68-122
Toluene	<0.1000	25.00	26.23	105	80-120
Chlorobenzene	<0.1000	25.00	24.27	97	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	108	80-125
1,2-Dichloroethane-d4	113	69-145
Toluene-d8	97	80-120
Bromofluorobenzene	105	80-120

Type: MSD Analyzed: 06/08/12
Lab ID: QC643142

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	25.00	26.59	106	74-123	0	20
Benzene	25.00	25.76	103	80-120	3	20
Trichloroethene	25.00	43.60	92	68-122	1	20
Toluene	25.00	25.85	103	80-120	1	20
Chlorobenzene	25.00	23.97	96	80-120	1	20

Surrogate	%REC	Limits
Dibromofluoromethane	108	80-125
1,2-Dichloroethane-d4	112	69-145
Toluene-d8	97	80-120
Bromofluorobenzene	105	80-120

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	236813	Project#:	0009.002.007
Client:	Terraphase Engineering	Location:	UC BAPB Investigation
Field ID:	MW-41	Diln Fac:	1.000
Lab ID:	236813-001	Sampled:	06/05/12
Matrix:	Water	Received:	06/05/12
Units:	ug/L		

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	10	187270	06/05/12	06/06/12	EPA 3010A	EPA 6010B
Arsenic	63	5.0	187270	06/05/12	06/06/12	EPA 3010A	EPA 6010B
Barium	61	5.0	187270	06/05/12	06/06/12	EPA 3010A	EPA 6010B
Beryllium	ND	2.0	187270	06/05/12	06/06/12	EPA 3010A	EPA 6010B
Cadmium	ND	5.0	187270	06/05/12	06/06/12	EPA 3010A	EPA 6010B
Chromium	6.9	5.0	187270	06/05/12	06/06/12	EPA 3010A	EPA 6010B
Cobalt	26	5.0	187270	06/05/12	06/06/12	EPA 3010A	EPA 6010B
Copper	ND	5.0	187270	06/05/12	06/06/12	EPA 3010A	EPA 6010B
Lead	ND	5.0	187270	06/05/12	06/06/12	EPA 3010A	EPA 6010B
Mercury	ND	0.20	187354	06/07/12	06/07/12	METHOD	EPA 7470A
Molybdenum	ND	5.0	187270	06/05/12	06/06/12	EPA 3010A	EPA 6010B
Nickel	100	5.0	187270	06/05/12	06/06/12	EPA 3010A	EPA 6010B
Selenium	12	10	187270	06/05/12	06/06/12	EPA 3010A	EPA 6010B
Silver	ND	5.0	187270	06/05/12	06/06/12	EPA 3010A	EPA 6010B
Thallium	ND	10	187270	06/05/12	06/06/12	EPA 3010A	EPA 6010B
Vanadium	ND	5.0	187270	06/05/12	06/06/12	EPA 3010A	EPA 6010B
Zinc	820	20	187270	06/05/12	06/06/12	EPA 3010A	EPA 6010B

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	236813	Project#:	0009.002.007
Client:	Terraphase Engineering	Location:	UC BAPB Investigation
Field ID:	MW-40	Diln Fac:	1.000
Lab ID:	236813-002	Sampled:	06/05/12
Matrix:	Water	Received:	06/05/12
Units:	ug/L		

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	10	187478	06/11/12	06/12/12	EPA 3010A	EPA 6010B
Arsenic	ND	5.0	187478	06/11/12	06/12/12	EPA 3010A	EPA 6010B
Barium	120	5.0	187478	06/11/12	06/12/12	EPA 3010A	EPA 6010B
Beryllium	ND	2.0	187478	06/11/12	06/12/12	EPA 3010A	EPA 6010B
Cadmium	ND	5.0	187478	06/11/12	06/12/12	EPA 3010A	EPA 6010B
Chromium	ND	5.0	187478	06/11/12	06/12/12	EPA 3010A	EPA 6010B
Cobalt	ND	5.0	187478	06/11/12	06/12/12	EPA 3010A	EPA 6010B
Copper	ND	5.0	187478	06/11/12	06/12/12	EPA 3010A	EPA 6010B
Lead	ND	5.0	187478	06/11/12	06/12/12	EPA 3010A	EPA 6010B
Mercury	ND	0.20	187354	06/07/12	06/07/12	METHOD	EPA 7470A
Molybdenum	ND	5.0	187478	06/11/12	06/12/12	EPA 3010A	EPA 6010B
Nickel	ND	5.0	187478	06/11/12	06/12/12	EPA 3010A	EPA 6010B
Selenium	ND	10	187478	06/11/12	06/12/12	EPA 3010A	EPA 6010B
Silver	ND	5.0	187478	06/11/12	06/12/12	EPA 3010A	EPA 6010B
Thallium	ND	10	187478	06/11/12	06/12/12	EPA 3010A	EPA 6010B
Vanadium	ND	5.0	187478	06/11/12	06/12/12	EPA 3010A	EPA 6010B
Zinc	ND	20	187478	06/11/12	06/12/12	EPA 3010A	EPA 6010B

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	236813	Project#:	0009.002.007
Client:	Terraphase Engineering	Location:	UC BAPB Investigation
Field ID:	MW-40-D	Diln Fac:	1.000
Lab ID:	236813-003	Sampled:	06/05/12
Matrix:	Water	Received:	06/05/12
Units:	ug/L		

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	10	187478	06/11/12	06/12/12	EPA 3010A	EPA 6010B
Arsenic	ND	5.0	187478	06/11/12	06/12/12	EPA 3010A	EPA 6010B
Barium	120	5.0	187478	06/11/12	06/12/12	EPA 3010A	EPA 6010B
Beryllium	ND	2.0	187478	06/11/12	06/12/12	EPA 3010A	EPA 6010B
Cadmium	ND	5.0	187478	06/11/12	06/12/12	EPA 3010A	EPA 6010B
Chromium	ND	5.0	187478	06/11/12	06/12/12	EPA 3010A	EPA 6010B
Cobalt	ND	5.0	187478	06/11/12	06/12/12	EPA 3010A	EPA 6010B
Copper	ND	5.0	187478	06/11/12	06/12/12	EPA 3010A	EPA 6010B
Lead	ND	5.0	187478	06/11/12	06/12/12	EPA 3010A	EPA 6010B
Mercury	ND	0.20	187354	06/07/12	06/07/12	METHOD	EPA 7470A
Molybdenum	ND	5.0	187478	06/11/12	06/12/12	EPA 3010A	EPA 6010B
Nickel	ND	5.0	187478	06/11/12	06/12/12	EPA 3010A	EPA 6010B
Selenium	ND	10	187478	06/11/12	06/12/12	EPA 3010A	EPA 6010B
Silver	ND	5.0	187478	06/11/12	06/12/12	EPA 3010A	EPA 6010B
Thallium	ND	10	187478	06/11/12	06/12/12	EPA 3010A	EPA 6010B
Vanadium	ND	5.0	187478	06/11/12	06/12/12	EPA 3010A	EPA 6010B
Zinc	ND	20	187478	06/11/12	06/12/12	EPA 3010A	EPA 6010B

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	236813	Project#:	0009.002.007
Client:	Terraphase Engineering	Location:	UC BAPB Investigation
Field ID:	EB-06-05-12	Diln Fac:	1.000
Lab ID:	236813-004	Sampled:	06/05/12
Matrix:	Water	Received:	06/05/12
Units:	ug/L		

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	10	187478	06/11/12	06/12/12	EPA 3010A	EPA 6010B
Arsenic	ND	5.0	187478	06/11/12	06/12/12	EPA 3010A	EPA 6010B
Barium	ND	5.0	187478	06/11/12	06/12/12	EPA 3010A	EPA 6010B
Beryllium	ND	2.0	187478	06/11/12	06/12/12	EPA 3010A	EPA 6010B
Cadmium	ND	5.0	187478	06/11/12	06/12/12	EPA 3010A	EPA 6010B
Chromium	ND	5.0	187478	06/11/12	06/12/12	EPA 3010A	EPA 6010B
Cobalt	ND	5.0	187478	06/11/12	06/12/12	EPA 3010A	EPA 6010B
Copper	ND	5.0	187478	06/11/12	06/12/12	EPA 3010A	EPA 6010B
Lead	ND	5.0	187478	06/11/12	06/12/12	EPA 3010A	EPA 6010B
Mercury	ND	0.20	187354	06/07/12	06/07/12	METHOD	EPA 7470A
Molybdenum	ND	5.0	187478	06/11/12	06/12/12	EPA 3010A	EPA 6010B
Nickel	ND	5.0	187478	06/11/12	06/12/12	EPA 3010A	EPA 6010B
Selenium	ND	10	187478	06/11/12	06/12/12	EPA 3010A	EPA 6010B
Silver	ND	5.0	187478	06/11/12	06/12/12	EPA 3010A	EPA 6010B
Thallium	ND	10	187478	06/11/12	06/12/12	EPA 3010A	EPA 6010B
Vanadium	ND	5.0	187478	06/11/12	06/12/12	EPA 3010A	EPA 6010B
Zinc	ND	20	187478	06/11/12	06/12/12	EPA 3010A	EPA 6010B

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	236813	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 3010A
Project#:	0009.002.007	Analysis:	EPA 6010B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC642706	Batch#:	187270
Matrix:	Water	Prepared:	06/05/12
Units:	ug/L	Analyzed:	06/06/12

Analyte	Result	RL
Antimony	ND	10
Arsenic	ND	5.0
Barium	ND	5.0
Beryllium	ND	2.0
Cadmium	ND	5.0
Chromium	ND	5.0
Cobalt	ND	5.0
Copper	ND	5.0
Lead	ND	5.0
Molybdenum	ND	5.0
Nickel	ND	5.0
Selenium	ND	10
Silver	ND	5.0
Thallium	ND	10
Vanadium	ND	5.0
Zinc	ND	20

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	236813	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 3010A
Project#:	0009.002.007	Analysis:	EPA 6010B
Matrix:	Water	Batch#:	187270
Units:	ug/L	Prepared:	06/05/12
Diln Fac:	1.000	Analyzed:	06/06/12

Type: BS Lab ID: QC642707

Analyte	Spiked	Result	%REC	Limits
Antimony	500.0	467.4	93	72-120
Arsenic	100.0	95.21	95	80-130
Barium	2,000	1,833	92	80-120
Beryllium	50.00	48.56	97	80-120
Cadmium	50.00	49.48	99	80-120
Chromium	200.0	185.2	93	80-120
Cobalt	500.0	447.3	89	80-120
Copper	250.0	222.0	89	78-120
Lead	100.0	92.22	92	78-120
Molybdenum	400.0	371.7	93	80-120
Nickel	500.0	465.5	93	80-120
Selenium	100.0	93.31	93	78-122
Silver	50.00	47.20	94	79-120
Thallium	100.0	96.64	97	80-124
Vanadium	500.0	471.6	94	80-120
Zinc	500.0	473.8	95	80-120

Type: BSD Lab ID: QC642708

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Antimony	500.0	454.6	91	72-120	3	20
Arsenic	100.0	93.53	94	80-130	2	20
Barium	2,000	1,799	90	80-120	2	20
Beryllium	50.00	47.42	95	80-120	2	20
Cadmium	50.00	48.14	96	80-120	3	20
Chromium	200.0	181.5	91	80-120	2	20
Cobalt	500.0	438.6	88	80-120	2	20
Copper	250.0	217.9	87	78-120	2	20
Lead	100.0	90.59	91	78-120	2	20
Molybdenum	400.0	362.9	91	80-120	2	20
Nickel	500.0	456.6	91	80-120	2	20
Selenium	100.0	90.07	90	78-122	4	23
Silver	50.00	45.97	92	79-120	3	21
Thallium	100.0	94.35	94	80-124	2	20
Vanadium	500.0	462.7	93	80-120	2	20
Zinc	500.0	461.8	92	80-120	3	20

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	236813	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 3010A
Project#:	0009.002.007	Analysis:	EPA 6010B
Field ID:	ZZZZZZZZZZ	Batch#:	187270
MSS Lab ID:	236797-001	Sampled:	06/04/12
Matrix:	Water	Received:	06/05/12
Units:	ug/L	Prepared:	06/05/12
Diln Fac:	1.000	Analyzed:	06/06/12

Type: MS Lab ID: QC642709

Analyte	MSS Result	Spiked	Result	%REC	Limits
Antimony	<2.869	500.0	487.1	97	66-122
Arsenic	6.811	100.0	107.3	100	70-136
Barium	33.72	2,000	1,834	90	74-120
Beryllium	<0.2182	50.00	48.18	96	80-122
Cadmium	<0.3835	50.00	45.02	90	76-120
Chromium	56.89	200.0	234.0	89	73-120
Cobalt	<0.3634	500.0	420.7	84	75-120
Copper	<1.279	250.0	228.0	91	70-122
Lead	<1.080	100.0	87.04	87	62-120
Molybdenum	3.696	400.0	369.8	92	77-120
Nickel	13.72	500.0	454.7	88	71-120
Selenium	<3.309	100.0	97.64	98	63-131
Silver	1.773	50.00	50.58	98	61-124
Thallium	2.745	100.0	90.23	87	69-129
Vanadium	12.80	500.0	487.4	95	76-120
Zinc	14.09	500.0	469.5	91	75-124

Type: MSD Lab ID: QC642710

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Antimony	500.0	499.8	100	66-122	3	21
Arsenic	100.0	108.1	101	70-136	1	31
Barium	2,000	1,886	93	74-120	3	28
Beryllium	50.00	49.28	99	80-122	2	22
Cadmium	50.00	46.20	92	76-120	3	20
Chromium	200.0	239.2	91	73-120	2	21
Cobalt	500.0	438.8	88	75-120	4	20
Copper	250.0	233.0	93	70-122	2	25
Lead	100.0	89.07	89	62-120	2	29
Molybdenum	400.0	380.9	94	77-120	3	29
Nickel	500.0	464.1	90	71-120	2	21
Selenium	100.0	98.12	98	63-131	0	33
Silver	50.00	50.69	98	61-124	0	28
Thallium	100.0	91.32	89	69-129	1	22
Vanadium	500.0	497.7	97	76-120	2	20
Zinc	500.0	479.6	93	75-124	2	25

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	236813	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	METHOD
Project#:	0009.002.007	Analysis:	EPA 7470A
Analyte:	Mercury	Diln Fac:	1.000
Type:	BLANK	Batch#:	187354
Lab ID:	QC643066	Prepared:	06/07/12
Matrix:	Water	Analyzed:	06/07/12
Units:	ug/L		

Result	RL
ND	0.20

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	236813	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	METHOD
Project#:	0009.002.007	Analysis:	EPA 7470A
Analyte:	Mercury	Batch#:	187354
Matrix:	Water	Prepared:	06/07/12
Units:	ug/L	Analyzed:	06/07/12
Diln Fac:	1.000		

Type	Lab ID	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC643067	2.500	2.462	98	79-120		
BSD	QC643068	2.500	2.528	101	79-120	3	29

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	236813	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	METHOD
Project#:	0009.002.007	Analysis:	EPA 7470A
Analyte:	Mercury	Batch#:	187354
Field ID:	MW-41	Sampled:	06/05/12
MSS Lab ID:	236813-001	Received:	06/05/12
Matrix:	Water	Prepared:	06/07/12
Units:	ug/L	Analyzed:	06/07/12
Diln Fac:	1.000		

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
MS	QC643069	0.04680	2.500	2.874	113	59-123		
MSD	QC643070		2.500	2.849	112	59-123	1	51

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	236813	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 3010A
Project#:	0009.002.007	Analysis:	EPA 6010B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC643620	Batch#:	187478
Matrix:	Water	Prepared:	06/11/12
Units:	ug/L	Analyzed:	06/12/12

Analyte	Result	RL
Antimony	ND	10
Arsenic	ND	5.0
Barium	ND	5.0
Beryllium	ND	2.0
Cadmium	ND	5.0
Chromium	ND	5.0
Cobalt	ND	5.0
Copper	ND	5.0
Lead	ND	5.0
Molybdenum	ND	5.0
Nickel	ND	5.0
Selenium	ND	10
Silver	ND	5.0
Thallium	ND	10
Vanadium	ND	5.0
Zinc	ND	20

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	236813	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 3010A
Project#:	0009.002.007	Analysis:	EPA 6010B
Matrix:	Water	Batch#:	187478
Units:	ug/L	Prepared:	06/11/12
Diln Fac:	1.000	Analyzed:	06/12/12

Type: BS Lab ID: QC643621

Analyte	Spiked	Result	%REC	Limits
Antimony	500.0	439.1	88	72-120
Arsenic	100.0	90.62	91	80-130
Barium	2,000	1,730	86	80-120
Beryllium	50.00	47.85	96	80-120
Cadmium	50.00	45.68	91	80-120
Chromium	200.0	175.0	87	80-120
Cobalt	500.0	418.5	84	80-120
Copper	250.0	214.6	86	78-120
Lead	100.0	88.19	88	78-120
Molybdenum	400.0	350.4	88	80-120
Nickel	500.0	440.7	88	80-120
Selenium	100.0	88.51	89	78-122
Silver	50.00	43.87	88	79-120
Thallium	100.0	93.88	94	80-124
Vanadium	500.0	445.4	89	80-120
Zinc	500.0	452.0	90	80-120

Type: BSD Lab ID: QC643622

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Antimony	500.0	444.0	89	72-120	1	20
Arsenic	100.0	90.04	90	80-130	1	20
Barium	2,000	1,756	88	80-120	1	20
Beryllium	50.00	48.11	96	80-120	1	20
Cadmium	50.00	45.64	91	80-120	0	20
Chromium	200.0	177.3	89	80-120	1	20
Cobalt	500.0	419.0	84	80-120	0	20
Copper	250.0	217.6	87	78-120	1	20
Lead	100.0	89.24	89	78-120	1	20
Molybdenum	400.0	355.9	89	80-120	2	20
Nickel	500.0	441.7	88	80-120	0	20
Selenium	100.0	88.34	88	78-122	0	23
Silver	50.00	44.28	89	79-120	1	21
Thallium	100.0	94.65	95	80-124	1	20
Vanadium	500.0	450.5	90	80-120	1	20
Zinc	500.0	450.3	90	80-120	0	20

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	236813	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 3010A
Project#:	0009.002.007	Analysis:	EPA 6010B
Field ID:	ZZZZZZZZZZ	Batch#:	187478
MSS Lab ID:	236961-001	Sampled:	06/07/12
Matrix:	Water	Received:	06/08/12
Units:	ug/L	Prepared:	06/11/12
Diln Fac:	1.000	Analyzed:	06/12/12

Type: MS Lab ID: QC643623

Analyte	MSS Result	Spiked	Result	%REC	Limits
Antimony	<2.869	500.0	451.3	90	66-122
Arsenic	<1.485	100.0	92.87	93	70-136
Barium	16.58	2,000	1,783	88	74-120
Beryllium	<0.2182	50.00	48.81	98	80-122
Cadmium	<0.3835	50.00	45.72	91	76-120
Chromium	<0.5103	200.0	178.4	89	73-120
Cobalt	<0.3634	500.0	423.3	85	75-120
Copper	<1.279	250.0	219.6	88	70-122
Lead	<1.080	100.0	89.90	90	62-120
Molybdenum	1.867	400.0	360.7	90	77-120
Nickel	<0.7580	500.0	440.1	88	71-120
Selenium	<3.309	100.0	89.16	89	63-131
Silver	<1.124	50.00	45.00	90	61-124
Thallium	1.771	100.0	96.33	95	69-129
Vanadium	0.7247	500.0	455.7	91	76-120
Zinc	<2.259	500.0	456.1	91	75-124

Type: MSD Lab ID: QC643624

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Antimony	500.0	436.4	87	66-122	3	21
Arsenic	100.0	90.13	90	70-136	3	31
Barium	2,000	1,717	85	74-120	4	28
Beryllium	50.00	46.89	94	80-122	4	22
Cadmium	50.00	44.44	89	76-120	3	20
Chromium	200.0	172.0	86	73-120	4	21
Cobalt	500.0	408.3	82	75-120	4	20
Copper	250.0	210.1	84	70-122	4	25
Lead	100.0	87.31	87	62-120	3	29
Molybdenum	400.0	349.0	87	77-120	3	29
Nickel	500.0	425.3	85	71-120	3	21
Selenium	100.0	86.96	87	63-131	3	33
Silver	50.00	43.03	86	61-124	4	28
Thallium	100.0	93.01	91	69-129	4	22
Vanadium	500.0	440.6	88	76-120	3	20
Zinc	500.0	441.9	88	75-124	3	25

RPD= Relative Percent Difference


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2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 236561
ANALYTICAL REPORT

Terraphase Engineering	Project : 0009.002.007
1404 Franklin Street	Location : UC BAPB Investigation
Oakland, CA 94612	Level : II

Sample ID	Lab ID
RFS-BAPB-8-5	236561-001
RFS-BAPB-8-7.5	236561-002
EB-05-25-12	236561-003
TRIPBLANK-05-25-12	236561-004

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 signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: _____ Date: 06/06/2012
Project Manager

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**236561**
Client:	**Terraphase Engineering**
Project:	**0009.002.007**
Location:	**UC BAPB Investigation**
Request Date:	**05/25/12**
Samples Received:	**05/25/12**

This data package contains sample and QC results for four water samples, requested for the above referenced project on 05/25/12. The samples were received cold and intact.

Volatile Organics by GC/MS (EPA 8260B):
RFS-BAPB-8-7.5 (lab # 236561-002) had pH greater than 2. No other analytical problems were encountered.

Metals (EPA 6010B and EPA 7470A):
No analytical problems were encountered.

CHAIN OF CUSTODY

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Fax (510) 486-0532

Chain of Custody # _____

C&T LOGIN # 236561

Project No: 0009.002.007
Project Name: UC BAPB Investigation
Project P. O. No:
EDD Format: Report Level ☑ II ☐ III ☐ IV
Turnaround Time: ☐ RUSH _____ ☑ Standard

Sampler: Kara Quan-Montgomery
Report To: Andrew Romolo
Company: Terraphase
Telephone: 510-645-1850
Email: andrew.romolo@terraphase.com

Lab No.	Sample ID.	SAMPLING		MATRIX				# of Containers	CHEMICAL PRESERVATIVE					ANALYTICAL REQUEST		
		Date Collected	Time Collected	Water	Solid				HCl	H2SO4	HNO3	NaOH	None	VOCs by 8260	CAM 17 Metals by 6010 Lab Filtered	
1	RFS-BAPB-8-5	5/25/12	1030	X				1					X		X	
2	RFS-BAPB-8-7.5	5/25/12	1100	X				4	X				X	X	X	
3	EB-05-25-12	5/25/12	1130	X				3	X				X	X	X	
4	TripBlank-05-25-12	5/25/12	1230	X				1	X					X		

Notes:

SAMPLE RECEIPT
☐ Intact
☐ Cold
☑ On Ice
☐ Ambient

RELINQUISHED BY:
DATE: 5/25/12 TIME: 1325
DATE: TIME:
DATE: TIME:

RECEIVED BY:
DATE: 5/25/12 TIME: 13:25
DATE: TIME:
DATE: TIME:

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 236561 Date Received 5/25/12 Number of coolers 1
Client Terraphase Project 0009.002.007

Date Opened 5/25/12 By (print) CPM (sign)
Date Logged in ↓ By (print) ↓ (sign)

1. Did cooler come with a shipping slip (airbill, etc) YES NO
Shipping info

2A. Were custody seals present? .... ☐ YES (circle) on cooler on samples ☒ NO
How many Name Date
2B. Were custody seals intact upon arrival? YES NO N/A
3. Were custody papers dry and intact when received? YES NO
4. Were custody papers filled out properly (ink, signed, etc)? YES NO
5. Is the project identifiable from custody papers? (If so fill out top of form) YES NO
6. Indicate the packing in cooler: (if other, describe)

☒ Bubble Wrap ☒ Foam blocks ☒ Bags ☐ None
☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation: * Notify PM if temperature exceeds 6°C

Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C) 4.0

☐ Samples Received on ice & cold without a temperature blank; temp. taken with IR gun

☐ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? YES NO
If YES, what time were they transferred to freezer?
9. Did all bottles arrive unbroken/unopened? YES NO
10. Are there any missing / extra samples? YES NO
11. Are samples in the appropriate containers for indicated tests? YES NO
12. Are sample labels present, in good condition and complete? YES NO
13. Do the sample labels agree with custody papers? YES NO
14. Was sufficient amount of sample sent for tests requested? YES NO
15. Are the samples appropriately preserved? YES NO N/A
16. Did you check preservatives for all bottles for each sample? YES NO N/A
17. Did you document your preservative check? YES NO N/A
18. Did you change the hold time in LIMS for unpreserved VOAs? YES NO N/A
19. Did you change the hold time in LIMS for preserved terracores? YES NO N/A
20. Are bubbles > 6mm absent in VOA samples? YES NO N/A
21. Was the client contacted concerning this sample delivery? YES NO
If YES, Who was called? By Date:

COMMENTS

(6) COC says sample -003 has 4 containers, but we rec'd 3 only (2 vials and a 1L amber)

Rev 10, 11/11

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	236561	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	RFS-BAPB-8-7.5	Batch#:	187234
Lab ID:	236561-002	Sampled:	05/25/12
Matrix:	Water	Received:	05/25/12
Units:	ug/L	Analyzed:	06/05/12
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	0.9	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Acetone	ND	10
Freon 113	ND	2.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
Carbon Disulfide	0.8	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	0.9	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	4.8	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	ND	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	ND	0.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	236561	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	RFS-BAPB-8-7.5	Batch#:	187234
Lab ID:	236561-002	Sampled:	05/25/12
Matrix:	Water	Received:	05/25/12
Units:	ug/L	Analyzed:	06/05/12
Diln Fac:	1.000		

Analyte	Result	RL
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	3.2	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	2.0
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	2.0
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	100	80-125
1,2-Dichloroethane-d4	94	69-145
Toluene-d8	100	80-120
Bromofluorobenzene	102	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	236561	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	EB-05-25-12	Batch#:	187186
Lab ID:	236561-003	Sampled:	05/25/12
Matrix:	Water	Received:	05/25/12
Units:	ug/L	Analyzed:	06/04/12
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Acetone	ND	10
Freon 113	ND	2.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
Carbon Disulfide	ND	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	ND	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	0.7	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	5.1	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	ND	0.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	236561	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	EB-05-25-12	Batch#:	187186
Lab ID:	236561-003	Sampled:	05/25/12
Matrix:	Water	Received:	05/25/12
Units:	ug/L	Analyzed:	06/04/12
Diln Fac:	1.000		

Analyte	Result	RL
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	ND	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	0.8	0.5
m,p-Xylenes	2.7	0.5
o-Xylene	1.1	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	2.0
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	2.0
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	91	80-125
1,2-Dichloroethane-d4	99	69-145
Toluene-d8	99	80-120
Bromofluorobenzene	96	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	236561	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	TRIPBLANK-05-25-12	Batch#:	187186
Lab ID:	236561-004	Sampled:	05/25/12
Matrix:	Water	Received:	05/25/12
Units:	ug/L	Analyzed:	06/04/12
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Acetone	ND	10
Freon 113	ND	2.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
Carbon Disulfide	ND	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	ND	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	ND	0.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	236561	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	TRIPBLANK-05-25-12	Batch#:	187186
Lab ID:	236561-004	Sampled:	05/25/12
Matrix:	Water	Received:	05/25/12
Units:	ug/L	Analyzed:	06/04/12
Diln Fac:	1.000		

Analyte	Result	RL
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	ND	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	2.0
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	2.0
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	91	80-125
1,2-Dichloroethane-d4	100	69-145
Toluene-d8	98	80-120
Bromofluorobenzene	93	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	236561	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	187186
Units:	ug/L	Analyzed:	06/04/12
Diln Fac:	1.000		

Type: BS Lab ID: QC642369

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	37.50	34.71	93	66-131
Benzene	37.50	34.47	92	80-121
Trichloroethene	37.50	38.75	103	79-120
Toluene	37.50	37.15	99	80-120
Chlorobenzene	37.50	35.36	94	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	91	80-125
1,2-Dichloroethane-d4	97	69-145
Toluene-d8	96	80-120
Bromofluorobenzene	91	80-120

Type: BSD Lab ID: QC642370

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	37.50	32.89	88	66-131	5	20
Benzene	37.50	32.75	87	80-121	5	20
Trichloroethene	37.50	36.74	98	79-120	5	20
Toluene	37.50	37.08	99	80-120	0	20
Chlorobenzene	37.50	34.69	93	80-120	2	20

Surrogate	%REC	Limits
Dibromofluoromethane	90	80-125
1,2-Dichloroethane-d4	96	69-145
Toluene-d8	99	80-120
Bromofluorobenzene	92	80-120

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	236561	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC642371	Batch#:	187186
Matrix:	Water	Analyzed:	06/04/12
Units:	ug/L		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Acetone	ND	10
Freon 113	ND	2.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
Carbon Disulfide	ND	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	ND	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	ND	0.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	236561	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC642371	Batch#:	187186
Matrix:	Water	Analyzed:	06/04/12
Units:	ug/L		

Analyte	Result	RL
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	ND	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	2.0
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	2.0
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	91	80-125
1,2-Dichloroethane-d4	98	69-145
Toluene-d8	97	80-120
Bromofluorobenzene	95	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	236561	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	187234
Units:	ug/L	Analyzed:	06/05/12
Diln Fac:	1.000		

Type: BS Lab ID: QC642559

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	25.00	22.57	90	66-131
Benzene	25.00	24.28	97	80-121
Trichloroethene	25.00	24.07	96	79-120
Toluene	25.00	26.58	106	80-120
Chlorobenzene	25.00	23.31	93	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	96	80-125
1,2-Dichloroethane-d4	92	69-145
Toluene-d8	101	80-120
Bromofluorobenzene	95	80-120

Type: BSD Lab ID: QC642560

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	25.00	21.91	88	66-131	3	20
Benzene	25.00	23.32	93	80-121	4	20
Trichloroethene	25.00	22.83	91	79-120	5	20
Toluene	25.00	25.76	103	80-120	3	20
Chlorobenzene	25.00	22.62	90	80-120	3	20

Surrogate	%REC	Limits
Dibromofluoromethane	92	80-125
1,2-Dichloroethane-d4	91	69-145
Toluene-d8	100	80-120
Bromofluorobenzene	95	80-120

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	236561	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC642561	Batch#:	187234
Matrix:	Water	Analyzed:	06/05/12
Units:	ug/L		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Acetone	ND	10
Freon 113	ND	2.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
Carbon Disulfide	ND	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	ND	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	ND	0.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	236561	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC642561	Batch#:	187234
Matrix:	Water	Analyzed:	06/05/12
Units:	ug/L		

Analyte	Result	RL
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	ND	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	2.0
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	2.0
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	98	80-125
1,2-Dichloroethane-d4	94	69-145
Toluene-d8	102	80-120
Bromofluorobenzene	103	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Dissolved California Title 22 Metals

Lab #:	236561	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	METHOD
Project#:	0009.002.007		
Field ID:	RFS-BAPB-8-5	Diln Fac:	1.000
Lab ID:	236561-001	Sampled:	05/25/12
Matrix:	Filtrate	Received:	05/25/12
Units:	ug/L	Prepared:	05/29/12

Analyte	Result	RL	Batch#	Analyzed	Analysis
Antimony	ND	10	187041	05/30/12	EPA 6010B
Arsenic	ND	5.0	187041	05/30/12	EPA 6010B
Barium	140	5.0	187041	05/30/12	EPA 6010B
Beryllium	ND	2.0	187041	05/30/12	EPA 6010B
Cadmium	ND	5.0	187041	05/30/12	EPA 6010B
Chromium	ND	5.0	187041	05/30/12	EPA 6010B
Cobalt	22	5.0	187041	05/30/12	EPA 6010B
Copper	ND	5.0	187041	05/30/12	EPA 6010B
Lead	ND	5.0	187041	05/30/12	EPA 6010B
Mercury	ND	0.20	187023	05/29/12	EPA 7470A
Molybdenum	57	5.0	187041	05/30/12	EPA 6010B
Nickel	22	5.0	187041	05/30/12	EPA 6010B
Selenium	ND	10	187041	05/30/12	EPA 6010B
Silver	6.7	5.0	187041	05/30/12	EPA 6010B
Thallium	ND	10	187041	05/30/12	EPA 6010B
Vanadium	ND	5.0	187041	05/30/12	EPA 6010B
Zinc	ND	20	187041	05/30/12	EPA 6010B

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Dissolved California Title 22 Metals

Lab #:	236561	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	METHOD
Project#:	0009.002.007		
Field ID:	RFS-BAPB-8-7.5	Diln Fac:	1.000
Lab ID:	236561-002	Sampled:	05/25/12
Matrix:	Filtrate	Received:	05/25/12
Units:	ug/L	Prepared:	05/29/12

Analyte	Result	RL	Batch#	Analyzed	Analysis
Antimony	ND	10	187041	05/30/12	EPA 6010B
Arsenic	ND	5.0	187041	05/30/12	EPA 6010B
Barium	200	5.0	187041	05/30/12	EPA 6010B
Beryllium	ND	2.0	187041	05/30/12	EPA 6010B
Cadmium	ND	5.0	187041	05/30/12	EPA 6010B
Chromium	ND	5.0	187041	05/30/12	EPA 6010B
Cobalt	ND	5.0	187041	05/30/12	EPA 6010B
Copper	ND	5.0	187041	05/30/12	EPA 6010B
Lead	ND	5.0	187041	05/30/12	EPA 6010B
Mercury	ND	0.20	187023	05/29/12	EPA 7470A
Molybdenum	28	5.0	187041	05/30/12	EPA 6010B
Nickel	5.2	5.0	187041	05/30/12	EPA 6010B
Selenium	ND	10	187041	05/30/12	EPA 6010B
Silver	ND	5.0	187041	05/30/12	EPA 6010B
Thallium	ND	10	187041	05/30/12	EPA 6010B
Vanadium	7.6	5.0	187041	05/30/12	EPA 6010B
Zinc	ND	20	187041	05/30/12	EPA 6010B

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Dissolved California Title 22 Metals

Lab #:	236561	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	METHOD
Project#:	0009.002.007		
Field ID:	EB-05-25-12	Diln Fac:	1.000
Lab ID:	236561-003	Sampled:	05/25/12
Matrix:	Filtrate	Received:	05/25/12
Units:	ug/L	Prepared:	05/29/12

Analyte	Result	RL	Batch#	Analyzed	Analysis
Antimony	ND	10	187041	05/30/12	EPA 6010B
Arsenic	ND	5.0	187041	05/30/12	EPA 6010B
Barium	ND	5.0	187041	05/30/12	EPA 6010B
Beryllium	ND	2.0	187041	05/30/12	EPA 6010B
Cadmium	ND	5.0	187041	05/30/12	EPA 6010B
Chromium	ND	5.0	187041	05/30/12	EPA 6010B
Cobalt	ND	5.0	187041	05/30/12	EPA 6010B
Copper	ND	5.0	187041	05/30/12	EPA 6010B
Lead	ND	5.0	187041	05/30/12	EPA 6010B
Mercury	ND	0.20	187023	05/29/12	EPA 7470A
Molybdenum	ND	5.0	187041	05/30/12	EPA 6010B
Nickel	ND	5.0	187041	05/30/12	EPA 6010B
Selenium	ND	10	187041	05/30/12	EPA 6010B
Silver	ND	5.0	187041	05/30/12	EPA 6010B
Thallium	ND	10	187041	05/30/12	EPA 6010B
Vanadium	ND	5.0	187041	05/30/12	EPA 6010B
Zinc	ND	20	187041	05/30/12	EPA 6010B

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	236561	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	METHOD
Project#:	0009.002.007	Analysis:	EPA 7470A
Analyte:	Mercury	Diln Fac:	1.000
Type:	BLANK	Batch#:	187023
Lab ID:	QC641700	Prepared:	05/29/12
Matrix:	Filtrate	Analyzed:	05/29/12
Units:	ug/L		

Result	RL
ND	0.20

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	236561	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	METHOD
Project#:	0009.002.007	Analysis:	EPA 7470A
Analyte:	Mercury	Batch#:	187023
Matrix:	Filtrate	Prepared:	05/29/12
Units:	ug/L	Analyzed:	05/29/12
Diln Fac:	1.000		

Type	Lab ID	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC641701	2.500	2.278	91	79-120		
BSD	QC641702	2.500	2.323	93	79-120	2	29

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	236561	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	METHOD
Project#:	0009.002.007	Analysis:	EPA 7470A
Analyte:	Mercury	Batch#:	187023
Field ID:	ZZZZZZZZZZ	Sampled:	05/23/12
MSS Lab ID:	236483-001	Received:	05/23/12
Matrix:	Filtrate	Prepared:	05/29/12
Units:	ug/L	Analyzed:	05/29/12
Diln Fac:	1.000		

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
MS	QC641703	<0.02014	2.500	2.328	93	59-123		
MSD	QC641704		2.500	2.309	92	59-123	1	51

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	236561	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	METHOD
Project#:	0009.002.007	Analysis:	EPA 6010B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC641768	Batch#:	187041
Matrix:	Filtrate	Prepared:	05/29/12
Units:	ug/L	Analyzed:	05/30/12

Analyte	Result	RL
Antimony	ND	10
Arsenic	ND	5.0
Barium	ND	5.0
Beryllium	ND	2.0
Cadmium	ND	5.0
Chromium	ND	5.0
Cobalt	ND	5.0
Copper	ND	5.0
Lead	ND	5.0
Molybdenum	ND	5.0
Nickel	ND	5.0
Selenium	ND	10
Silver	ND	5.0
Thallium	ND	10
Vanadium	ND	5.0
Zinc	ND	20

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	236561	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	METHOD
Project#:	0009.002.007	Analysis:	EPA 6010B
Matrix:	Filtrate	Batch#:	187041
Units:	ug/L	Prepared:	05/29/12
Diln Fac:	1.000	Analyzed:	05/30/12

Type: BS Lab ID: QC641769

Analyte	Spiked	Result	%REC	Limits
Antimony	500.0	459.3	92	72-120
Arsenic	100.0	93.29	93	80-130
Barium	2,000	1,834	92	80-120
Beryllium	50.00	47.65	95	80-120
Cadmium	50.00	47.29	95	80-120
Chromium	200.0	182.6	91	80-120
Cobalt	500.0	445.2	89	80-120
Copper	250.0	228.0	91	78-120
Lead	100.0	89.99	90	78-120
Molybdenum	400.0	376.7	94	80-120
Nickel	500.0	456.4	91	80-120
Selenium	100.0	91.69	92	78-122
Silver	50.00	46.38	93	79-120
Thallium	100.0	90.71	91	80-124
Vanadium	500.0	475.5	95	80-120
Zinc	500.0	465.8	93	80-120

Type: BSD Lab ID: QC641770

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Antimony	500.0	468.5	94	72-120	2	20
Arsenic	100.0	95.08	95	80-130	2	20
Barium	2,000	1,840	92	80-120	0	20
Beryllium	50.00	48.50	97	80-120	2	20
Cadmium	50.00	48.26	97	80-120	2	20
Chromium	200.0	184.7	92	80-120	1	20
Cobalt	500.0	453.2	91	80-120	2	20
Copper	250.0	231.3	93	78-120	1	20
Lead	100.0	91.18	91	78-120	1	20
Molybdenum	400.0	379.8	95	80-120	1	20
Nickel	500.0	470.9	94	80-120	3	20
Selenium	100.0	98.34	98	78-122	7	23
Silver	50.00	48.00	96	79-120	3	21
Thallium	100.0	93.59	94	80-124	3	20
Vanadium	500.0	480.6	96	80-120	1	20
Zinc	500.0	475.7	95	80-120	2	20

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	236561	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	METHOD
Project#:	0009.002.007	Analysis:	EPA 6010B
Field ID:	ZZZZZZZZZZ	Batch#:	187041
MSS Lab ID:	236483-001	Sampled:	05/23/12
Matrix:	Filtrate	Received:	05/23/12
Units:	ug/L	Prepared:	05/29/12
Diln Fac:	1.000	Analyzed:	05/30/12

Type: MS Lab ID: QC641771

Analyte	MSS Result	Spiked	Result	%REC	Limits
Antimony	5.419	500.0	550.7	109	66-122
Arsenic	<1.291	100.0	106.6	107	70-136
Barium	20.91	2,000	2,150	106	74-120
Beryllium	0.2681	50.00	56.02	112	80-122
Cadmium	<0.4753	50.00	51.43	103	76-120
Chromium	<0.6310	200.0	213.4	107	73-120
Cobalt	<0.7752	500.0	507.2	101	75-120
Copper	<1.610	250.0	257.3	103	70-122
Lead	<1.552	100.0	104.1	104	62-120
Molybdenum	<1.413	400.0	436.4	109	77-120
Nickel	<1.214	500.0	524.3	105	71-120
Selenium	3.165	100.0	112.0	109	63-131
Silver	<1.331	50.00	54.09	108	61-124
Thallium	<1.639	100.0	104.6	105	69-129
Vanadium	2.112	500.0	550.7	110	76-120
Zinc	<2.280	500.0	539.0	108	75-124

Type: MSD Lab ID: QC641772

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Antimony	500.0	541.6	107	66-122	2	21
Arsenic	100.0	106.9	107	70-136	0	31
Barium	2,000	2,125	105	74-120	1	28
Beryllium	50.00	54.91	109	80-122	2	22
Cadmium	50.00	50.74	101	76-120	1	20
Chromium	200.0	209.5	105	73-120	2	21
Cobalt	500.0	503.2	101	75-120	1	20
Copper	250.0	253.1	101	70-122	2	25
Lead	100.0	102.0	102	62-120	2	29
Molybdenum	400.0	427.7	107	77-120	2	29
Nickel	500.0	515.0	103	71-120	2	21
Selenium	100.0	109.6	106	63-131	2	33
Silver	50.00	53.55	107	61-124	1	28
Thallium	100.0	104.4	104	69-129	0	22
Vanadium	500.0	544.1	108	76-120	1	20
Zinc	500.0	530.8	106	75-124	2	25

RPD= Relative Percent Difference


Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

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

Laboratory Job Number 236041
ANALYTICAL REPORT

Terraphase Engineering	Project : 0009.002.007
1404 Franklin Street	Location : UC BAPB Investigation
Oakland, CA 94612	Level : II

Sample ID	Lab ID
RFS-BAPB-GGW-6-31	236041-001
RFS-BAPB-GGW-6-31-D	236041-002
RFS-BAPB-GGW-6-47	236041-003
RFS-BAPB-GGW-6-47-D	236041-004
RFS-BAPB-GGW-7-16	236041-005
EB-05-04-12	236041-006
TRIP BLANK-05-04-12	236041-007

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 signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: _____ Date: 05/17/2012
Project Manager

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**236041**
Client:	**Terraphase Engineering**
Project:	**0009.002.007**
Location:	**UC BAPB Investigation**
Request Date:	**05/07/12**
Samples Received:	**05/04/12**

This data package contains sample and QC results for seven water samples, requested for the above referenced project on 05/07/12. The samples were received cold and intact.

Volatile Organics by GC/MS (EPA 8260B):
No analytical problems were encountered.

Metals (EPA 6010B and EPA 7470A):
No analytical problems were encountered.

CHAIN OF CUSTODY

Curtis & Tompkins Laboratories
ENVIRONMENTAL ANALYTICAL TESTING LABORATORY
In Business Since 1878

2323 Fifth Street
Berkeley, CA 94710

Phone (510) 486-0900
Fax (510) 486-0532

Chain of Custody #

C&T LOGIN # 236041

Project No: 0009.002.007
Project Name: UC BAPB Investigation
Project P. O. No:
EDD Format: Report Level ☐ II ☐ III ☐ IV
Turnaround Time: ☐ RUSH ☑ Standard

Sampler: Kara Quan-Montgomery
Report To: Andrew Romolo
Company: Terraphase
Telephone: 510-645-1850
Email: andrew.romolo@terraphase.com

Lab No.	Sample ID.	SAMPLING		MATRIX					CHEMICAL PRESERVATIVE					ANALYTICAL REQUEST		
		Date Collected	Time Collected	Water	Solid			# of Containers	HCl	H2SO4	HNO3	NaOH	None	VOCs by 8260	CAM17 Metals by 6010	HOLD (1 Lanthanum)
1	RFS-BAPB-GGW-6-31	5/4/12	1045	X				5	X		X		X	X	X	X
2	RFS-BAPB-GGW-6-31-D	5/4/12	1100	X				5	X		X		X	X	X	X
3	RFS-BAPB-GGW-6-47	5/4/12	1130	X				5	X		X		X	X	X	X
4	RFS-BAPB-GGW-6-47-D	5/4/12	1140	X				5	X		X		X	X	X	X
5	RFS-BAPB-GGW-7-16	5/4/12	1455	X				5	X		X		X	X	X	X
6	EB-05-04-12	5/4/12	1645	X				5	X		X		X	X	X	X
7	Trip Blank-05-04-12	5/4/12	1730	X				3	X					X		

Notes:

SAMPLE RECEIPT
☒ Intact
☐ Cold
☒ On Ice
☐ Ambient

RELINQUISHED BY:
Kara Quan-Montgomery DATE: 5/4/12 TIME: 1745
DATE: TIME:
DATE: TIME:

RECEIVED BY:
Troy Bligh DATE: 5/4/12 TIME: 1745
DATE: TIME:
DATE: TIME:

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 236041 Date Received 5/4/12 Number of coolers 1
Client Terraphase Project 0004.002.0007

Date Opened 5/4/12 By (print) CPM (sign)
Date Logged in 5/7/12 By (print) I. CHOU (sign)

1. Did cooler come with a shipping slip (airbill, etc)_____ YES (NO)
Shipping info_____

2A. Were custody seals present? .... ☐ YES (circle) on cooler on samples ☒ NO
How many _____ Name_____ Date_____
2B. Were custody seals intact upon arrival? _____ YES NO (N/A)
3. Were custody papers dry and intact when received?_____ (YES) NO
4. Were custody papers filled out properly (ink, signed, etc)? _____ (YES) NO
5. Is the project identifiable from custody papers? (If so fill out top of form)___ (YES) NO
6. Indicate the packing in cooler: (if other, describe)_____

☒ Bubble Wrap ☒ Foam blocks ☒ Bags ☐ None
☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation: * Notify PM if temperature exceeds 6°C

Type of ice used: ☐ Wet ☐ Blue/Gel ☐ None Temp(°C) 1.5

☐ Samples Received on ice & cold without a temperature blank; temp. taken with IR gun

☒ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present?_____ YES (NO)
If YES, what time were they transferred to freezer?_____
9. Did all bottles arrive unbroken/unopened?_____ (YES) NO
10. Are there any missing / extra samples? _____ YES (NO)
11. Are samples in the appropriate containers for indicated tests? _____ (YES) NO
12. Are sample labels present, in good condition and complete? _____ (YES) NO
13. Do the sample labels agree with custody papers? _____ (YES) NO
14. Was sufficient amount of sample sent for tests requested? _____ (YES) NO
15. Are the samples appropriately preserved? _____ (YES) NO N/A
16. Did you check preservatives for all bottles for each sample? _____ (YES) NO N/A
17. Did you document your preservative check? _____ (YES) NO N/A
18. Did you change the hold time in LIMS for unpreserved VOAs? _____ YES NO (N/A)
19. Did you change the hold time in LIMS for preserved terracores? _____ YES NO (N/A)
20. Are bubbles > 6mm absent in VOA samples? _____ (YES) NO N/A
21. Was the client contacted concerning this sample delivery? _____ YES (NO)
If YES, Who was called?_____ By_____ Date:_____

COMMENTS
* 11 AMBERS ARE 1/3 FULL.

Rev 10, 11/11

Curtis & Tompkins Sample Preservation for 236041

Sample	pH: <2	>9	>12	Other
-001a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[X]	[ ]	[ ]	_____
e	[ ]	[ ]	[ ]	_____
-002a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[X]	[ ]	[ ]	_____
e	[ ]	[ ]	[ ]	_____
-003a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[X]	[ ]	[ ]	_____
e	[ ]	[ ]	[ ]	_____
-004a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[X]	[ ]	[ ]	_____
e	[ ]	[ ]	[ ]	_____
-005a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[X]	[ ]	[ ]	_____
e	[ ]	[ ]	[ ]	_____
-006a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[X]	[ ]	[ ]	_____
e	[ ]	[ ]	[ ]	_____

Analyst: JSC
Date: 5/7/12

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	236041	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	RFS-BAPB-GGW-6-31	Batch#:	186566
Lab ID:	236041-001	Sampled:	05/04/12
Matrix:	Water	Received:	05/04/12
Units:	ug/L	Analyzed:	05/15/12
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Acetone	ND	10
Freon 113	ND	2.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
Carbon Disulfide	ND	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	7.8	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	4.2	0.5
Benzene	1.7	0.5
Trichloroethene	4.0	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	0.8	0.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	236041	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	RFS-BAPB-GGW-6-31	Batch#:	186566
Lab ID:	236041-001	Sampled:	05/04/12
Matrix:	Water	Received:	05/04/12
Units:	ug/L	Analyzed:	05/15/12
Diln Fac:	1.000		

Analyte	Result	RL
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	54	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	2.0
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	2.0
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	105	80-125
1,2-Dichloroethane-d4	101	69-145
Toluene-d8	106	80-120
Bromofluorobenzene	111	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	236041	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	RFS-BAPB-GGW-6-31-D	Batch#:	186566
Lab ID:	236041-002	Sampled:	05/04/12
Matrix:	Water	Received:	05/04/12
Units:	ug/L	Analyzed:	05/15/12
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Acetone	ND	10
Freon 113	ND	2.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
Carbon Disulfide	ND	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	0.5	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	9.3	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	4.7	0.5
Benzene	1.6	0.5
Trichloroethene	5.1	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	1.1	0.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	236041	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	RFS-BAPB-GGW-6-31-D	Batch#:	186566
Lab ID:	236041-002	Sampled:	05/04/12
Matrix:	Water	Received:	05/04/12
Units:	ug/L	Analyzed:	05/15/12
Diln Fac:	1.000		

Analyte	Result	RL
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	61	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	2.0
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	2.0
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	107	80-125
1,2-Dichloroethane-d4	107	69-145
Toluene-d8	109	80-120
Bromofluorobenzene	107	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	236041	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	RFS-BAPB-GGW-6-47	Batch#:	186566
Lab ID:	236041-003	Sampled:	05/04/12
Matrix:	Water	Received:	05/04/12
Units:	ug/L	Analyzed:	05/15/12
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Acetone	ND	10
Freon 113	ND	2.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
Carbon Disulfide	ND	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	ND	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	ND	0.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	236041	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	RFS-BAPB-GGW-6-47	Batch#:	186566
Lab ID:	236041-003	Sampled:	05/04/12
Matrix:	Water	Received:	05/04/12
Units:	ug/L	Analyzed:	05/15/12
Diln Fac:	1.000		

Analyte	Result	RL
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	ND	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	2.0
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	2.0
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	108	80-125
1,2-Dichloroethane-d4	106	69-145
Toluene-d8	109	80-120
Bromofluorobenzene	113	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	236041	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	RFS-BAPB-GGW-6-47-D	Batch#:	186566
Lab ID:	236041-004	Sampled:	05/04/12
Matrix:	Water	Received:	05/04/12
Units:	ug/L	Analyzed:	05/15/12
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Acetone	ND	10
Freon 113	ND	2.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
Carbon Disulfide	ND	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	ND	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	ND	0.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	236041	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	RFS-BAPB-GGW-6-47-D	Batch#:	186566
Lab ID:	236041-004	Sampled:	05/04/12
Matrix:	Water	Received:	05/04/12
Units:	ug/L	Analyzed:	05/15/12
Diln Fac:	1.000		

Analyte	Result	RL
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	ND	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	2.0
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	2.0
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	105	80-125
1,2-Dichloroethane-d4	105	69-145
Toluene-d8	110	80-120
Bromofluorobenzene	115	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	236041	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	RFS-BAPB-GGW-7-16	Batch#:	186566
Lab ID:	236041-005	Sampled:	05/04/12
Matrix:	Water	Received:	05/04/12
Units:	ug/L	Analyzed:	05/15/12
Diln Fac:	25.00		

Analyte	Result	RL
Freon 12	ND	25
Chloromethane	ND	25
Vinyl Chloride	ND	13
Bromomethane	ND	25
Chloroethane	ND	25
Trichlorofluoromethane	ND	25
Acetone	ND	250
Freon 113	ND	50
1,1-Dichloroethene	ND	13
Methylene Chloride	ND	250
Carbon Disulfide	ND	13
MTBE	ND	13
trans-1,2-Dichloroethene	ND	13
Vinyl Acetate	ND	250
1,1-Dichloroethane	ND	13
2-Butanone	ND	250
cis-1,2-Dichloroethene	33	13
2,2-Dichloropropane	ND	13
Chloroform	15	13
Bromochloromethane	ND	13
1,1,1-Trichloroethane	ND	13
1,1-Dichloropropene	ND	13
Carbon Tetrachloride	ND	13
1,2-Dichloroethane	42	13
Benzene	ND	13
Trichloroethene	270	13
1,2-Dichloropropane	ND	13
Bromodichloromethane	ND	13
Dibromomethane	ND	13
4-Methyl-2-Pentanone	ND	250
cis-1,3-Dichloropropene	ND	13
Toluene	ND	13
trans-1,3-Dichloropropene	ND	13
1,1,2-Trichloroethane	ND	13
2-Hexanone	ND	250
1,3-Dichloropropane	ND	13
Tetrachloroethene	1,300	13

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	236041	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	RFS-BAPB-GGW-7-16	Batch#:	186566
Lab ID:	236041-005	Sampled:	05/04/12
Matrix:	Water	Received:	05/04/12
Units:	ug/L	Analyzed:	05/15/12
Diln Fac:	25.00		

Analyte	Result	RL
Dibromochloromethane	ND	13
1,2-Dibromoethane	ND	13
Chlorobenzene	1,500	13
1,1,1,2-Tetrachloroethane	ND	13
Ethylbenzene	ND	13
m,p-Xylenes	ND	13
o-Xylene	ND	13
Styrene	ND	13
Bromoform	ND	25
Isopropylbenzene	ND	13
1,1,2,2-Tetrachloroethane	ND	13
1,2,3-Trichloropropane	ND	13
Propylbenzene	ND	13
Bromobenzene	ND	13
1,3,5-Trimethylbenzene	ND	13
2-Chlorotoluene	ND	13
4-Chlorotoluene	ND	13
tert-Butylbenzene	ND	13
1,2,4-Trimethylbenzene	ND	13
sec-Butylbenzene	ND	13
para-Isopropyl Toluene	ND	13
1,3-Dichlorobenzene	ND	13
1,4-Dichlorobenzene	ND	13
n-Butylbenzene	ND	13
1,2-Dichlorobenzene	ND	13
1,2-Dibromo-3-Chloropropane	ND	50
1,2,4-Trichlorobenzene	ND	13
Hexachlorobutadiene	ND	50
Naphthalene	ND	50
1,2,3-Trichlorobenzene	ND	13

Surrogate	%REC	Limits
Dibromofluoromethane	105	80-125
1,2-Dichloroethane-d4	107	69-145
Toluene-d8	114	80-120
Bromofluorobenzene	114	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	236041	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	EB-05-04-12	Batch#:	186621
Lab ID:	236041-006	Sampled:	05/04/12
Matrix:	Water	Received:	05/04/12
Units:	ug/L	Analyzed:	05/16/12
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Acetone	15	10
Freon 113	ND	2.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
Carbon Disulfide	ND	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	ND	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	ND	0.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	236041	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	EB-05-04-12	Batch#:	186621
Lab ID:	236041-006	Sampled:	05/04/12
Matrix:	Water	Received:	05/04/12
Units:	ug/L	Analyzed:	05/16/12
Diln Fac:	1.000		

Analyte	Result	RL
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	ND	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	2.0
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	2.0
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	102	80-125
1,2-Dichloroethane-d4	100	69-145
Toluene-d8	101	80-120
Bromofluorobenzene	108	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	236041	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	TRIP BLANK-05-04-12	Batch#:	186621
Lab ID:	236041-007	Sampled:	05/04/12
Matrix:	Water	Received:	05/04/12
Units:	ug/L	Analyzed:	05/16/12
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Acetone	ND	10
Freon 113	ND	2.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
Carbon Disulfide	ND	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	ND	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	ND	0.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	236041	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	TRIP BLANK-05-04-12	Batch#:	186621
Lab ID:	236041-007	Sampled:	05/04/12
Matrix:	Water	Received:	05/04/12
Units:	ug/L	Analyzed:	05/16/12
Diln Fac:	1.000		

Analyte	Result	RL
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	ND	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	2.0
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	2.0
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	101	80-125
1,2-Dichloroethane-d4	98	69-145
Toluene-d8	101	80-120
Bromofluorobenzene	106	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	236041	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	186566
Units:	ug/L	Analyzed:	05/15/12
Diln Fac:	1.000		

Type: BS Lab ID: QC639794

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	25.00	25.74	103	66-131
Benzene	25.00	30.36	121	80-121
Trichloroethene	25.00	26.76	107	79-120
Toluene	25.00	29.59	118	80-120
Chlorobenzene	25.00	25.04	100	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	103	80-125
1,2-Dichloroethane-d4	108	69-145
Toluene-d8	109	80-120
Bromofluorobenzene	106	80-120

Type: BSD Lab ID: QC639795

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	25.00	24.27	97	66-131	6	20
Benzene	25.00	26.97	108	80-121	12	20
Trichloroethene	25.00	25.46	102	79-120	5	20
Toluene	25.00	27.81	111	80-120	6	20
Chlorobenzene	25.00	23.67	95	80-120	6	20

Surrogate	%REC	Limits
Dibromofluoromethane	101	80-125
1,2-Dichloroethane-d4	103	69-145
Toluene-d8	102	80-120
Bromofluorobenzene	107	80-120

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	236041	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC639796	Batch#:	186566
Matrix:	Water	Analyzed:	05/15/12
Units:	ug/L		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Acetone	ND	10
Freon 113	ND	2.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
Carbon Disulfide	ND	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	ND	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	ND	0.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	236041	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC639796	Batch#:	186566
Matrix:	Water	Analyzed:	05/15/12
Units:	ug/L		

Analyte	Result	RL
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	ND	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	2.0
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	2.0
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	101	80-125
1,2-Dichloroethane-d4	101	69-145
Toluene-d8	100	80-120
Bromofluorobenzene	114	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	236041	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	186621
Units:	ug/L	Analyzed:	05/16/12
Diln Fac:	1.000		

Type: BS Lab ID: QC640024

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	25.00	25.32	101	66-131
Benzene	25.00	24.41	98	80-121
Trichloroethene	25.00	25.21	101	79-120
Toluene	25.00	25.16	101	80-120
Chlorobenzene	25.00	22.68	91	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	100	80-125
1,2-Dichloroethane-d4	97	69-145
Toluene-d8	101	80-120
Bromofluorobenzene	98	80-120

Type: BSD Lab ID: QC640025

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	25.00	23.87	95	66-131	6	20
Benzene	25.00	23.52	94	80-121	4	20
Trichloroethene	25.00	24.06	96	79-120	5	20
Toluene	25.00	23.99	96	80-120	5	20
Chlorobenzene	25.00	21.76	87	80-120	4	20

Surrogate	%REC	Limits
Dibromofluoromethane	100	80-125
1,2-Dichloroethane-d4	98	69-145
Toluene-d8	101	80-120
Bromofluorobenzene	99	80-120

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	236041	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC640026	Batch#:	186621
Matrix:	Water	Analyzed:	05/16/12
Units:	ug/L		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Acetone	ND	10
Freon 113	ND	2.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
Carbon Disulfide	ND	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	ND	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	ND	0.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	236041	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC640026	Batch#:	186621
Matrix:	Water	Analyzed:	05/16/12
Units:	ug/L		

Analyte	Result	RL
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	ND	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	2.0
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	2.0
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	101	80-125
1,2-Dichloroethane-d4	102	69-145
Toluene-d8	100	80-120
Bromofluorobenzene	106	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	236041	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	ZZZZZZZZZZ	Batch#:	186621
MSS Lab ID:	236058-002	Sampled:	05/07/12
Matrix:	Water	Received:	05/08/12
Units:	ug/L	Analyzed:	05/17/12
Diln Fac:	1.000		

Type: MS Lab ID: QC640109

Analyte	MSS Result	Spiked	Result	%REC	Limits
1,1-Dichloroethene	<0.1268	20.00	21.40	107	74-123
Benzene	<0.1000	20.00	19.61	98	80-120
Trichloroethene	13.65	20.00	33.56	100	68-122
Toluene	<0.1000	20.00	19.62	98	80-120
Chlorobenzene	<0.1000	20.00	17.58	88	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	102	80-125
1,2-Dichloroethane-d4	99	69-145
Toluene-d8	99	80-120
Bromofluorobenzene	100	80-120

Type: MSD Lab ID: QC640110

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	20.00	21.00	105	74-123	2	20
Benzene	20.00	19.18	96	80-120	2	20
Trichloroethene	20.00	32.64	95	68-122	3	20
Toluene	20.00	19.33	97	80-120	1	20
Chlorobenzene	20.00	17.44	87	80-120	1	20

Surrogate	%REC	Limits
Dibromofluoromethane	104	80-125
1,2-Dichloroethane-d4	99	69-145
Toluene-d8	100	80-120
Bromofluorobenzene	101	80-120

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	236041	Project#:	0009.002.007
Client:	Terraphase Engineering	Location:	UC BAPB Investigation
Field ID:	RFS-BAPB-GGW-6-31	Diln Fac:	1.000
Lab ID:	236041-001	Sampled:	05/04/12
Matrix:	Water	Received:	05/04/12
Units:	ug/L		

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	10	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Arsenic	ND	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Barium	130	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Beryllium	ND	2.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Cadmium	ND	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Chromium	ND	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Cobalt	ND	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Copper	ND	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Lead	ND	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Mercury	ND	0.20	186476	05/11/12	05/11/12	METHOD	EPA 7470A
Molybdenum	14	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Nickel	6.0	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Selenium	ND	10	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Silver	ND	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Thallium	ND	10	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Vanadium	ND	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Zinc	ND	20	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	236041	Project#:	0009.002.007
Client:	Terraphase Engineering	Location:	UC BAPB Investigation
Field ID:	RFS-BAPB-GGW-6-31-D	Diln Fac:	1.000
Lab ID:	236041-002	Sampled:	05/04/12
Matrix:	Water	Received:	05/04/12
Units:	ug/L		

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	10	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Arsenic	ND	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Barium	210	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Beryllium	ND	2.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Cadmium	ND	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Chromium	ND	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Cobalt	ND	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Copper	ND	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Lead	ND	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Mercury	ND	0.20	186476	05/11/12	05/11/12	METHOD	EPA 7470A
Molybdenum	12	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Nickel	8.7	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Selenium	ND	10	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Silver	ND	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Thallium	ND	10	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Vanadium	ND	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Zinc	ND	20	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	236041	Project#:	0009.002.007
Client:	Terraphase Engineering	Location:	UC BAPB Investigation
Field ID:	RFS-BAPB-GGW-6-47	Diln Fac:	1.000
Lab ID:	236041-003	Sampled:	05/04/12
Matrix:	Water	Received:	05/04/12
Units:	ug/L		

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	10	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Arsenic	ND	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Barium	210	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Beryllium	ND	2.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Cadmium	ND	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Chromium	ND	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Cobalt	ND	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Copper	ND	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Lead	ND	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Mercury	ND	0.20	186476	05/11/12	05/11/12	METHOD	EPA 7470A
Molybdenum	9.1	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Nickel	ND	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Selenium	ND	10	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Silver	ND	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Thallium	ND	10	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Vanadium	ND	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Zinc	ND	20	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	236041	Project#:	0009.002.007
Client:	Terraphase Engineering	Location:	UC BAPB Investigation
Field ID:	RFS-BAPB-GGW-6-47-D	Diln Fac:	1.000
Lab ID:	236041-004	Sampled:	05/04/12
Matrix:	Water	Received:	05/04/12
Units:	ug/L		

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	10	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Arsenic	ND	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Barium	200	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Beryllium	ND	2.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Cadmium	ND	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Chromium	ND	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Cobalt	ND	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Copper	ND	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Lead	ND	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Mercury	ND	0.20	186476	05/11/12	05/11/12	METHOD	EPA 7470A
Molybdenum	10	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Nickel	ND	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Selenium	ND	10	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Silver	ND	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Thallium	ND	10	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Vanadium	ND	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Zinc	ND	20	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	236041	Project#:	0009.002.007
Client:	Terraphase Engineering	Location:	UC BAPB Investigation
Field ID:	RFS-BAPB-GGW-7-16	Diln Fac:	1.000
Lab ID:	236041-005	Sampled:	05/04/12
Matrix:	Water	Received:	05/04/12
Units:	ug/L		

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	10	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Arsenic	6.7	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Barium	31	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Beryllium	ND	2.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Cadmium	29	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Chromium	14	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Cobalt	8.3	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Copper	ND	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Lead	ND	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Mercury	ND	0.20	186476	05/11/12	05/11/12	METHOD	EPA 7470A
Molybdenum	ND	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Nickel	520	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Selenium	23	10	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Silver	6.1	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Thallium	ND	10	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Vanadium	ND	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Zinc	4,300	20	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	236041	Project#:	0009.002.007
Client:	Terraphase Engineering	Location:	UC BAPB Investigation
Field ID:	EB-05-04-12	Diln Fac:	1.000
Lab ID:	236041-006	Sampled:	05/04/12
Matrix:	Water	Received:	05/04/12
Units:	ug/L		

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	10	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Arsenic	ND	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Barium	ND	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Beryllium	ND	2.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Cadmium	ND	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Chromium	ND	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Cobalt	ND	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Copper	ND	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Lead	ND	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Mercury	ND	0.20	186476	05/11/12	05/11/12	METHOD	EPA 7470A
Molybdenum	ND	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Nickel	ND	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Selenium	ND	10	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Silver	ND	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Thallium	ND	10	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Vanadium	ND	5.0	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B
Zinc	ND	20	186323	05/07/12	05/08/12	EPA 3010A	EPA 6010B

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	236041	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 3010A
Project#:	0009.002.007	Analysis:	EPA 6010B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC638748	Batch#:	186323
Matrix:	Water	Prepared:	05/07/12
Units:	ug/L	Analyzed:	05/08/12

Analyte	Result	RL
Antimony	ND	10
Arsenic	ND	5.0
Barium	ND	5.0
Beryllium	ND	2.0
Cadmium	ND	5.0
Chromium	ND	5.0
Cobalt	ND	5.0
Copper	ND	5.0
Lead	ND	5.0
Molybdenum	ND	5.0
Nickel	ND	5.0
Selenium	ND	10
Silver	ND	5.0
Thallium	ND	10
Vanadium	ND	5.0
Zinc	ND	20

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	236041	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 3010A
Project#:	0009.002.007	Analysis:	EPA 6010B
Matrix:	Water	Batch#:	186323
Units:	ug/L	Prepared:	05/07/12
Diln Fac:	1.000	Analyzed:	05/08/12

Type: BS Lab ID: QC638749

Analyte	Spiked	Result	%REC	Limits
Antimony	500.0	504.5	101	72-120
Arsenic	100.0	101.0	101	80-130
Barium	2,000	1,946	97	80-120
Beryllium	50.00	52.69	105	80-120
Cadmium	50.00	51.64	103	80-120
Chromium	200.0	196.1	98	80-120
Cobalt	500.0	487.6	98	80-120
Copper	250.0	242.6	97	78-120
Lead	100.0	99.70	100	78-120
Molybdenum	400.0	402.3	101	80-120
Nickel	500.0	493.2	99	80-120
Selenium	100.0	102.8	103	78-122
Silver	50.00	50.38	101	79-120
Thallium	100.0	105.9	106	80-124
Vanadium	500.0	498.1	100	80-120
Zinc	500.0	500.2	100	80-120

Type: BSD Lab ID: QC638750

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Antimony	500.0	505.3	101	72-120	0	20
Arsenic	100.0	101.5	101	80-130	0	20
Barium	2,000	1,948	97	80-120	0	20
Beryllium	50.00	52.67	105	80-120	0	20
Cadmium	50.00	51.94	104	80-120	1	20
Chromium	200.0	196.6	98	80-120	0	20
Cobalt	500.0	489.4	98	80-120	0	20
Copper	250.0	242.5	97	78-120	0	20
Lead	100.0	100.1	100	78-120	0	20
Molybdenum	400.0	404.7	101	80-120	1	20
Nickel	500.0	495.4	99	80-120	0	20
Selenium	100.0	102.1	102	78-122	1	23
Silver	50.00	50.54	101	79-120	0	21
Thallium	100.0	107.2	107	80-124	1	20
Vanadium	500.0	498.6	100	80-120	0	20
Zinc	500.0	502.2	100	80-120	0	20

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	236041	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 3010A
Project#:	0009.002.007	Analysis:	EPA 6010B
Field ID:	ZZZZZZZZZZ	Batch#:	186323
MSS Lab ID:	235956-001	Sampled:	05/02/12
Matrix:	Water	Received:	05/03/12
Units:	ug/L	Prepared:	05/07/12
Diln Fac:	1.000	Analyzed:	05/08/12

Type: MS Lab ID: QC638751

Analyte	MSS Result	Spiked	Result	%REC	Limits
Antimony	<2.869	500.0	524.0	105	66-122
Arsenic	<1.485	100.0	106.8	107	70-136
Barium	112.8	2,000	2,043	96	74-120
Beryllium	<0.2182	50.00	52.53	105	80-122
Cadmium	<0.3835	50.00	48.81	98	76-120
Chromium	11.49	200.0	205.3	97	73-120
Cobalt	<0.3634	500.0	464.9	93	75-120
Copper	<1.279	250.0	246.5	99	70-122
Lead	<1.080	100.0	94.82	95	62-120
Molybdenum	2.134	400.0	406.6	101	77-120
Nickel	0.9553	500.0	468.7	94	71-120
Selenium	<3.309	100.0	105.0	105	63-131
Silver	1.570	50.00	53.41	104	61-124
Thallium	5.204	100.0	104.7	100	69-129
Vanadium	8.036	500.0	511.0	101	76-120
Zinc	45.03	500.0	527.6	97	75-124

Type: MSD Lab ID: QC638752

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Antimony	500.0	529.3	106	66-122	1	21
Arsenic	100.0	107.4	107	70-136	1	31
Barium	2,000	2,050	97	74-120	0	28
Beryllium	50.00	52.69	105	80-122	0	22
Cadmium	50.00	48.81	98	76-120	0	20
Chromium	200.0	205.0	97	73-120	0	21
Cobalt	500.0	461.4	92	75-120	1	20
Copper	250.0	246.5	99	70-122	0	25
Lead	100.0	95.67	96	62-120	1	29
Molybdenum	400.0	408.7	102	77-120	1	29
Nickel	500.0	469.1	94	71-120	0	21
Selenium	100.0	106.8	107	63-131	2	33
Silver	50.00	53.30	103	61-124	0	28
Thallium	100.0	105.3	100	69-129	1	22
Vanadium	500.0	511.1	101	76-120	0	20
Zinc	500.0	525.8	96	75-124	0	25

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	236041	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	METHOD
Project#:	0009.002.007	Analysis:	EPA 7470A
Analyte:	Mercury	Diln Fac:	1.000
Type:	BLANK	Batch#:	186476
Lab ID:	QC639396	Prepared:	05/11/12
Matrix:	Water	Analyzed:	05/11/12
Units:	ug/L		

Result	RL
ND	0.20

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	236041	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	METHOD
Project#:	0009.002.007	Analysis:	EPA 7470A
Analyte:	Mercury	Batch#:	186476
Matrix:	Water	Prepared:	05/11/12
Units:	ug/L	Analyzed:	05/11/12
Diln Fac:	1.000		

Type	Lab ID	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC639397	2.500	2.674	107	79-120		
BSD	QC639398	2.500	2.684	107	79-120	0	29

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	236041	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	METHOD
Project#:	0009.002.007	Analysis:	EPA 7470A
Analyte:	Mercury	Batch#:	186476
Field ID:	RFS-BAPB-GGW-6-31	Sampled:	05/04/12
MSS Lab ID:	236041-001	Received:	05/04/12
Matrix:	Water	Prepared:	05/11/12
Units:	ug/L	Analyzed:	05/11/12
Diln Fac:	1.000		

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
MS	QC639399	0.03820	2.500	2.999	118	59-123		
MSD	QC639400		2.500	2.989	118	59-123	0	51

RPD= Relative Percent Difference


Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

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

Laboratory Job Number 235999
ANALYTICAL REPORT

Terraphase Engineering	Project : 0009.002.007
1404 Franklin Street	Location : UC BAPB Investigation
Oakland, CA 94612	Level : II

Sample ID	Lab ID
RFS-BAPB-GGW-2-9	235999-001
RFS-BAPB-GGW-2-16	235999-002
RFS-BAPB-GGW-2-28	235999-003
RFS-BAPB-GGW-5-10	235999-004
RFS-BAPB-GGW-5-28	235999-005
RFS-BAPB-GGW-5-47	235999-006
RFS-BAPB-GGW-1-12	235999-007
RFS-BAPB-GGW-1-35	235999-008
TRIP BLANK-05-03-12	235999-009

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 signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: _____ Date: 05/15/2012
Project Manager

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**235999**
Client:	**Terraphase Engineering**
Project:	**0009.002.007**
Location:	**UC BAPB Investigation**
Request Date:	**05/04/12**
Samples Received:	**05/03/12**

This data package contains sample and QC results for nine water samples, requested for the above referenced project on 05/04/12. The samples were received cold and intact.

Volatile Organics by GC/MS (EPA 8260B):
1,2,3-trichlorobenzene was detected above the RL in the method blank for batch 186499; this analyte was not detected in the sample at or above the RL. RFS-BAPB-GGW-2-9 (lab # 235999-001) had pH greater than 2. No other analytical problems were encountered.

Metals (EPA 6010B and EPA 7470A):
No analytical problems were encountered.

CHAIN OF CUSTODY

Curtis & Tompkins Laboratories
ENVIRONMENTAL ANALYTICAL TESTING LABORATORY
In Business Since 1878

2323 Fifth Street
Berkeley, CA 94710

Phone (510) 486-0900
Fax (510) 486-0532

Chain of Custody # _____

C&T LOGIN # 235999

Project No: 0009.002.007
Project Name: UC BAPB Investigation
Project P. O. No:
EDD Format: Report Level ☐ II ☐ III ☐ IV
Turnaround Time: ☐ RUSH ☑ Standard

Sampler: Kara Quan-Montgomery
Report To: Andrew Romolo
Company: Terraphase
Telephone: 510-645-1850
Email: andrew.romolo@terraphase.com

Lab No.	Sample ID.	SAMPLING		MATRIX			# of Containers	CHEMICAL PRESERVATIVE					ANALYTICAL REQUEST: VOCs by 8260	ANALYTICAL REQUEST: CAM 17 Metals by 6010	ANALYTICAL REQUEST: HCLD (1 L amber.)
	RFS-BAPB-GGW-2-9	Date Collected	Time Collected	Water	Solid			HCl	H2SO4	HNO3	NaOH	None			
1	~~RFS-BAPB-2-9~~ dam 4	5/3/12	0950	X			5	X		X		X	X	X	X
2	RFS-BAPB-GGW-2-16	5/3/12	1015	X			5	X		X		X	X	X	X
3	RFS-BAPB-GGW-2-28	5/3/12	1045	X			5	X		X		X	X	X	X
4	RFS-BAPB-GGW-5-10	5/3/12	1300	X			5	X		X		X	X	X	X
5	RFS-BAPB-GGW-5-28	5/3/12	1355	X			5	X		X		X	X	X	X
6	RFS-BAPB-GGW-5-47	5/3/12	1440	X			5	X		X		X	X	X	X
7	RFS-BAPB-GGW-1-12	5/3/12	1525	X			5	X		X		X	X	X	X
8	RFS-BAPB-GGW-1-35	5/3/12	1825	X			5	X		X		X	X	X	X
9	Trip Blank-05-03-12	5/3/12	1910	X			3	X					X		

Notes:

SAMPLE RECEIPT
☐ Intact
☐ Cold
☐ On Ice
☐ Ambient

RELINQUISHED BY:
DATE: 5/3/12 TIME: 1930
DATE: TIME:
DATE: TIME:

RECEIVED BY:
DATE: 5/3/12 TIME: 1930
DATE: TIME:
DATE: TIME:

COOLER RECEIPT CHECKLIST Curtis & Tompkins, Ltd.

Login # 235999 Date Received 5/3/12 Number of coolers 2
Client Terraphase Project 0009.002.007

Date Opened 5/3/12 By (print) CPM (sign)
Date Logged in 5/4/12 By (print) L. CHOY (sign)

1. Did cooler come with a shipping slip (airbill, etc)_____ YES (NO)
Shipping info_____

2A. Were custody seals present? .... ☐ YES (circle) on cooler on samples ☒ NO
How many _____ Name_____ Date_____
2B. Were custody seals intact upon arrival? _____ YES NO (N/A)
3. Were custody papers dry and intact when received?_____ (YES) NO
4. Were custody papers filled out properly (ink, signed, etc)? _____ (YES) NO
5. Is the project identifiable from custody papers? (If so fill out top of form)___ (YES) NO
6. Indicate the packing in cooler: (if other, describe)_____

☐ Bubble Wrap ☒ Foam blocks ☒ Bags ☐ None
☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation: * Notify PM if temperature exceeds 6°C

Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C) 4.4, 2.1

☒ Samples Received on ice & cold without a temperature blank; temp. taken with IR gun

☒ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present?_____ YES (NO)
If YES, what time were they transferred to freezer?_____
9. Did all bottles arrive unbroken/unopened?_____ (YES) NO
10. Are there any missing / extra samples? _____ YES (NO)
11. Are samples in the appropriate containers for indicated tests? _____ (YES) NO
12. Are sample labels present, in good condition and complete? _____ (YES) NO
13. Do the sample labels agree with custody papers? _____ (YES) NO
14. Was sufficient amount of sample sent for tests requested? _____ (YES) NO
15. Are the samples appropriately preserved? _____ (YES) NO N/A
16. Did you check preservatives for all bottles for each sample? _____ (YES) NO N/A
17. Did you document your preservative check? _____ (YES) NO N/A
18. Did you change the hold time in LIMS for unpreserved VOAs? _____ YES NO (N/A)
19. Did you change the hold time in LIMS for preserved terracores? _____ YES NO (N/A)
20. Are bubbles > 6mm absent in VOA samples? _____ (YES) NO N/A
21. Was the client contacted concerning this sample delivery? _____ YES (NO)
If YES, Who was called?_____ By_____ Date:_____

COMMENTS
* 11 AMBERS are 1/3 FULL.

Rev 10, 11/11

Curtis & Tompkins Sample Preservation for 235999

Sample	pH: <2	>9	>12	Other
-001a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[X]	[ ]	[ ]	_____
e	[ ]	[ ]	[ ]	_____
-002a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[X]	[ ]	[ ]	_____
e	[ ]	[ ]	[ ]	_____
-003a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[X]	[ ]	[ ]	_____
e	[ ]	[ ]	[ ]	_____
-004a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[X]	[ ]	[ ]	_____
e	[ ]	[ ]	[ ]	_____

Sample	pH: <2	>9	>12	Other
-005a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[X]	[ ]	[ ]	_____
e	[ ]	[ ]	[ ]	_____
-006a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[X]	[ ]	[ ]	_____
e	[ ]	[ ]	[ ]	_____
-007a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[X]	[ ]	[ ]	_____
e	[ ]	[ ]	[ ]	_____
-008a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[X]	[ ]	[ ]	_____
e	[ ]	[ ]	[ ]	_____

Analyst: NC
Date: 5/4/12

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	235999	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	RFS-BAPB-GGW-2-9	Batch#:	186465
Lab ID:	235999-001	Sampled:	05/03/12
Matrix:	Water	Received:	05/03/12
Units:	ug/L	Analyzed:	05/11/12
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Acetone	ND	10
Freon 113	ND	2.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
Carbon Disulfide	3.3	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	5.8	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	ND	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	ND	0.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	235999	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	RFS-BAPB-GGW-2-9	Batch#:	186465
Lab ID:	235999-001	Sampled:	05/03/12
Matrix:	Water	Received:	05/03/12
Units:	ug/L	Analyzed:	05/11/12
Diln Fac:	1.000		

Analyte	Result	RL
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	ND	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	2.0
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	2.0
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	111	80-125
1,2-Dichloroethane-d4	113	69-145
Toluene-d8	102	80-120
Bromofluorobenzene	99	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	235999	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	RFS-BAPB-GGW-2-16	Batch#:	186465
Lab ID:	235999-002	Sampled:	05/03/12
Matrix:	Water	Received:	05/03/12
Units:	ug/L	Analyzed:	05/11/12
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Acetone	ND	10
Freon 113	ND	2.0
1,1-Dichloroethene	0.5	0.5
Methylene Chloride	ND	10
Carbon Disulfide	2.5	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	0.5	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	26	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	ND	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	14	0.5
Benzene	ND	0.5
Trichloroethene	55	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	5.7	0.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	235999	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	RFS-BAPB-GGW-2-16	Batch#:	186465
Lab ID:	235999-002	Sampled:	05/03/12
Matrix:	Water	Received:	05/03/12
Units:	ug/L	Analyzed:	05/11/12
Diln Fac:	1.000		

Analyte	Result	RL
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	11	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	2.0
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	2.0
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	110	80-125
1,2-Dichloroethane-d4	115	69-145
Toluene-d8	102	80-120
Bromofluorobenzene	100	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	235999	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	RFS-BAPB-GGW-2-28	Batch#:	186465
Lab ID:	235999-003	Sampled:	05/03/12
Matrix:	Water	Received:	05/03/12
Units:	ug/L	Analyzed:	05/11/12
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Acetone	ND	10
Freon 113	ND	2.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
Carbon Disulfide	ND	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	1.3	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	1.9	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	3.2	0.5
Benzene	ND	0.5
Trichloroethene	54	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	7.3	0.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	235999	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	RFS-BAPB-GGW-2-28	Batch#:	186465
Lab ID:	235999-003	Sampled:	05/03/12
Matrix:	Water	Received:	05/03/12
Units:	ug/L	Analyzed:	05/11/12
Diln Fac:	1.000		

Analyte	Result	RL
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	25	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	2.0
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	2.0
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	114	80-125
1,2-Dichloroethane-d4	114	69-145
Toluene-d8	103	80-120
Bromofluorobenzene	101	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	235999	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	RFS-BAPB-GGW-5-10	Units:	ug/L
Lab ID:	235999-004	Sampled:	05/03/12
Matrix:	Water	Received:	05/03/12

Analyte	Result	RL	Diln Fac	Batch#	Analyzed
Freon 12	ND	1.0	1.000	186465	05/11/12
Chloromethane	ND	1.0	1.000	186465	05/11/12
Vinyl Chloride	ND	0.5	1.000	186465	05/11/12
Bromomethane	ND	1.0	1.000	186465	05/11/12
Chloroethane	ND	1.0	1.000	186465	05/11/12
Trichlorofluoromethane	ND	1.0	1.000	186465	05/11/12
Acetone	ND	10	1.000	186465	05/11/12
Freon 113	ND	2.0	1.000	186465	05/11/12
1,1-Dichloroethene	0.7	0.5	1.000	186465	05/11/12
Methylene Chloride	ND	10	1.000	186465	05/11/12
Carbon Disulfide	ND	0.5	1.000	186465	05/11/12
MTBE	ND	0.5	1.000	186465	05/11/12
trans-1,2-Dichloroethene	1.3	0.5	1.000	186465	05/11/12
Vinyl Acetate	ND	10	1.000	186465	05/11/12
1,1-Dichloroethane	ND	0.5	1.000	186465	05/11/12
2-Butanone	ND	10	1.000	186465	05/11/12
cis-1,2-Dichloroethene	20	0.5	1.000	186465	05/11/12
2,2-Dichloropropane	ND	0.5	1.000	186465	05/11/12
Chloroform	ND	0.5	1.000	186465	05/11/12
Bromochloromethane	ND	0.5	1.000	186465	05/11/12
1,1,1-Trichloroethane	ND	0.5	1.000	186465	05/11/12
1,1-Dichloropropene	ND	0.5	1.000	186465	05/11/12
Carbon Tetrachloride	ND	0.5	1.000	186465	05/11/12
1,2-Dichloroethane	1.2	0.5	1.000	186465	05/11/12
Benzene	ND	0.5	1.000	186465	05/11/12
Trichloroethene	48	0.5	1.000	186465	05/11/12
1,2-Dichloropropane	ND	0.5	1.000	186465	05/11/12
Bromodichloromethane	ND	0.5	1.000	186465	05/11/12
Dibromomethane	ND	0.5	1.000	186465	05/11/12
4-Methyl-2-Pentanone	ND	10	1.000	186465	05/11/12
cis-1,3-Dichloropropene	ND	0.5	1.000	186465	05/11/12
Toluene	ND	0.5	1.000	186465	05/11/12
trans-1,3-Dichloropropene	ND	0.5	1.000	186465	05/11/12
1,1,2-Trichloroethane	ND	0.5	1.000	186465	05/11/12
2-Hexanone	ND	10	1.000	186465	05/11/12
1,3-Dichloropropane	ND	0.5	1.000	186465	05/11/12
Tetrachloroethene	83	1.0	2.000	186499	05/13/12
Dibromochloromethane	ND	0.5	1.000	186465	05/11/12
1,2-Dibromoethane	ND	0.5	1.000	186465	05/11/12

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	235999	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	RFS-BAPB-GGW-5-10	Units:	ug/L
Lab ID:	235999-004	Sampled:	05/03/12
Matrix:	Water	Received:	05/03/12

Analyte	Result	RL	Diln Fac	Batch#	Analyzed
Chlorobenzene	7.6	0.5	1.000	186465	05/11/12
1,1,1,2-Tetrachloroethane	ND	0.5	1.000	186465	05/11/12
Ethylbenzene	ND	0.5	1.000	186465	05/11/12
m,p-Xylenes	ND	0.5	1.000	186465	05/11/12
o-Xylene	ND	0.5	1.000	186465	05/11/12
Styrene	ND	0.5	1.000	186465	05/11/12
Bromoform	ND	1.0	1.000	186465	05/11/12
Isopropylbenzene	ND	0.5	1.000	186465	05/11/12
1,1,2,2-Tetrachloroethane	ND	0.5	1.000	186465	05/11/12
1,2,3-Trichloropropane	ND	0.5	1.000	186465	05/11/12
Propylbenzene	ND	0.5	1.000	186465	05/11/12
Bromobenzene	ND	0.5	1.000	186465	05/11/12
1,3,5-Trimethylbenzene	ND	0.5	1.000	186465	05/11/12
2-Chlorotoluene	ND	0.5	1.000	186465	05/11/12
4-Chlorotoluene	ND	0.5	1.000	186465	05/11/12
tert-Butylbenzene	ND	0.5	1.000	186465	05/11/12
1,2,4-Trimethylbenzene	ND	0.5	1.000	186465	05/11/12
sec-Butylbenzene	ND	0.5	1.000	186465	05/11/12
para-Isopropyl Toluene	ND	0.5	1.000	186465	05/11/12
1,3-Dichlorobenzene	ND	0.5	1.000	186465	05/11/12
1,4-Dichlorobenzene	ND	0.5	1.000	186465	05/11/12
n-Butylbenzene	ND	0.5	1.000	186465	05/11/12
1,2-Dichlorobenzene	ND	0.5	1.000	186465	05/11/12
1,2-Dibromo-3-Chloropropane	ND	2.0	1.000	186465	05/11/12
1,2,4-Trichlorobenzene	ND	0.5	1.000	186465	05/11/12
Hexachlorobutadiene	ND	2.0	1.000	186465	05/11/12
Naphthalene	ND	2.0	1.000	186465	05/11/12
1,2,3-Trichlorobenzene	ND	0.5	1.000	186465	05/11/12

Surrogate	%REC	Limits	Diln Fac	Batch#	Analyzed
Dibromofluoromethane	112	80-125	1.000	186465	05/11/12
1,2-Dichloroethane-d4	115	69-145	1.000	186465	05/11/12
Toluene-d8	102	80-120	1.000	186465	05/11/12
Bromofluorobenzene	101	80-120	1.000	186465	05/11/12

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	235999	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	RFS-BAPB-GGW-5-28	Batch#:	186465
Lab ID:	235999-005	Sampled:	05/03/12
Matrix:	Water	Received:	05/03/12
Units:	ug/L	Analyzed:	05/11/12
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Acetone	ND	10
Freon 113	ND	2.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
Carbon Disulfide	ND	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	5.6	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	0.7	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	ND	0.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	235999	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	RFS-BAPB-GGW-5-28	Batch#:	186465
Lab ID:	235999-005	Sampled:	05/03/12
Matrix:	Water	Received:	05/03/12
Units:	ug/L	Analyzed:	05/11/12
Diln Fac:	1.000		

Analyte	Result	RL
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	1.1	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	2.0
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	2.0
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	115	80-125
1,2-Dichloroethane-d4	114	69-145
Toluene-d8	103	80-120
Bromofluorobenzene	101	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	235999	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	RFS-BAPB-GGW-5-47	Batch#:	186465
Lab ID:	235999-006	Sampled:	05/03/12
Matrix:	Water	Received:	05/03/12
Units:	ug/L	Analyzed:	05/11/12
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Acetone	ND	10
Freon 113	ND	2.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
Carbon Disulfide	ND	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	ND	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	ND	0.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	235999	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	RFS-BAPB-GGW-5-47	Batch#:	186465
Lab ID:	235999-006	Sampled:	05/03/12
Matrix:	Water	Received:	05/03/12
Units:	ug/L	Analyzed:	05/11/12
Diln Fac:	1.000		

Analyte	Result	RL
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	ND	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	2.0
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	2.0
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	115	80-125
1,2-Dichloroethane-d4	114	69-145
Toluene-d8	102	80-120
Bromofluorobenzene	100	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	235999	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	RFS-BAPB-GGW-1-12	Batch#:	186465
Lab ID:	235999-007	Sampled:	05/03/12
Matrix:	Water	Received:	05/03/12
Units:	ug/L	Analyzed:	05/11/12
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Acetone	ND	10
Freon 113	ND	2.0
1,1-Dichloroethene	0.5	0.5
Methylene Chloride	ND	10
Carbon Disulfide	2.8	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	0.7	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	44	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	ND	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	10	0.5
Benzene	ND	0.5
Trichloroethene	53	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	3.6	0.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	235999	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	RFS-BAPB-GGW-1-12	Batch#:	186465
Lab ID:	235999-007	Sampled:	05/03/12
Matrix:	Water	Received:	05/03/12
Units:	ug/L	Analyzed:	05/11/12
Diln Fac:	1.000		

Analyte	Result	RL
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	12	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	2.0
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	2.0
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	113	80-125
1,2-Dichloroethane-d4	114	69-145
Toluene-d8	103	80-120
Bromofluorobenzene	101	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	235999	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	RFS-BAPB-GGW-1-35	Batch#:	186465
Lab ID:	235999-008	Sampled:	05/03/12
Matrix:	Water	Received:	05/03/12
Units:	ug/L	Analyzed:	05/11/12
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Acetone	ND	10
Freon 113	ND	2.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
Carbon Disulfide	ND	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	ND	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	ND	0.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	235999	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	RFS-BAPB-GGW-1-35	Batch#:	186465
Lab ID:	235999-008	Sampled:	05/03/12
Matrix:	Water	Received:	05/03/12
Units:	ug/L	Analyzed:	05/11/12
Diln Fac:	1.000		

Analyte	Result	RL
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	ND	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	2.0
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	2.0
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	117	80-125
1,2-Dichloroethane-d4	115	69-145
Toluene-d8	104	80-120
Bromofluorobenzene	102	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	235999	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	TRIP BLANK-05-03-12	Batch#:	186465
Lab ID:	235999-009	Sampled:	05/03/12
Matrix:	Water	Received:	05/03/12
Units:	ug/L	Analyzed:	05/11/12
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Acetone	ND	10
Freon 113	ND	2.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
Carbon Disulfide	ND	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	ND	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	ND	0.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	235999	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	TRIP BLANK-05-03-12	Batch#:	186465
Lab ID:	235999-009	Sampled:	05/03/12
Matrix:	Water	Received:	05/03/12
Units:	ug/L	Analyzed:	05/11/12
Diln Fac:	1.000		

Analyte	Result	RL
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	ND	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	2.0
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	2.0
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	111	80-125
1,2-Dichloroethane-d4	111	69-145
Toluene-d8	103	80-120
Bromofluorobenzene	102	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	235999	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	186465
Units:	ug/L	Analyzed:	05/11/12
Diln Fac:	1.000		

Type: BS Lab ID: QC639358

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	25.00	21.91	88	66-131
Benzene	25.00	24.77	99	80-121
Trichloroethene	25.00	23.57	94	79-120
Toluene	25.00	24.56	98	80-120
Chlorobenzene	25.00	22.15	89	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	105	80-125
1,2-Dichloroethane-d4	111	69-145
Toluene-d8	101	80-120
Bromofluorobenzene	103	80-120

Type: BSD Lab ID: QC639359

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	25.00	22.78	91	66-131	4	20
Benzene	25.00	25.72	103	80-121	4	20
Trichloroethene	25.00	24.69	99	79-120	5	20
Toluene	25.00	25.53	102	80-120	4	20
Chlorobenzene	25.00	23.10	92	80-120	4	20

Surrogate	%REC	Limits
Dibromofluoromethane	106	80-125
1,2-Dichloroethane-d4	111	69-145
Toluene-d8	101	80-120
Bromofluorobenzene	105	80-120

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	235999	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC639360	Batch#:	186465
Matrix:	Water	Analyzed:	05/11/12
Units:	ug/L		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Acetone	ND	10
Freon 113	ND	2.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
Carbon Disulfide	ND	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	ND	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	ND	0.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	235999	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC639360	Batch#:	186465
Matrix:	Water	Analyzed:	05/11/12
Units:	ug/L		

Analyte	Result	RL
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	ND	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	2.0
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	2.0
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	106	80-125
1,2-Dichloroethane-d4	108	69-145
Toluene-d8	102	80-120
Bromofluorobenzene	103	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	235999	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Type:	BLANK	Dil'n Fac:	1.000
Lab ID:	QC639502	Batch#:	186499
Matrix:	Water	Analyzed:	05/13/12
Units:	ug/L		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Acetone	ND	10
Freon 113	ND	2.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
Carbon Disulfide	ND	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	ND	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	ND	0.5
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	ND	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5

b= See narrative
ND= Not Detected
RL= Reporting Limit

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	235999	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC639502	Batch#:	186499
Matrix:	Water	Analyzed:	05/13/12
Units:	ug/L		

Analyte	Result	RL
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	2.0
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	2.0
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	0.6 b	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	99	80-125
1,2-Dichloroethane-d4	101	69-145
Toluene-d8	101	80-120
Bromofluorobenzene	92	80-120

b= See narrative
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	235999	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	ZZZZZZZZZZ	Batch#:	186499
MSS Lab ID:	236023-045	Sampled:	05/02/12
Matrix:	Water	Received:	05/04/12
Units:	ug/L	Analyzed:	05/13/12
Diln Fac:	1.000		

Type: MS Lab ID: QC639522

Analyte	MSS Result	Spiked	Result	%REC	Limits
1,1-Dichloroethene	<0.1000	20.00	22.82	114	74-123
Benzene	<0.1000	20.00	20.83	104	80-120
Trichloroethene	3.973	20.00	25.63	108	68-122
Toluene	<0.1000	20.00	21.59	108	80-120
Chlorobenzene	<0.1000	20.00	21.46	107	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	102	80-125
1,2-Dichloroethane-d4	102	69-145
Toluene-d8	99	80-120
Bromofluorobenzene	91	80-120

Type: MSD Lab ID: QC639523

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	20.00	20.85	104	74-123	9	20
Benzene	20.00	18.66	93	80-120	11	20
Trichloroethene	20.00	22.52	93	68-122	13	20
Toluene	20.00	21.90	110	80-120	1	20
Chlorobenzene	20.00	20.19	101	80-120	6	20

Surrogate	%REC	Limits
Dibromofluoromethane	99	80-125
1,2-Dichloroethane-d4	95	69-145
Toluene-d8	101	80-120
Bromofluorobenzene	90	80-120

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	235999	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC639526	Batch#:	186499
Matrix:	Water	Analyzed:	05/13/12
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	20.00	20.10	100	66-131
Benzene	20.00	17.86	89	80-121
Trichloroethene	20.00	18.78	94	79-120
Toluene	20.00	19.23	96	80-120
Chlorobenzene	20.00	18.81	94	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	100	80-125
1,2-Dichloroethane-d4	99	69-145
Toluene-d8	103	80-120
Bromofluorobenzene	92	80-120

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	235999	Project#:	0009.002.007
Client:	Terraphase Engineering	Location:	UC BAPB Investigation
Field ID:	RFS-BAPB-GGW-2-9	Diln Fac:	1.000
Lab ID:	235999-001	Sampled:	05/03/12
Matrix:	Water	Received:	05/03/12
Units:	ug/L	Analyzed:	05/07/12

Analyte	Result	RL	Batch#	Prepared	Prep	Analysis
Antimony	ND	10	186268	05/04/12	EPA 3010A	EPA 6010B
Arsenic	19	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Barium	130	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Beryllium	ND	2.0	186268	05/04/12	EPA 3010A	EPA 6010B
Cadmium	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Chromium	34	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Cobalt	9.1	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Copper	29	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Lead	11	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Mercury	ND	0.20	186304	05/07/12	METHOD	EPA 7470A
Molybdenum	18	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Nickel	27	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Selenium	ND	10	186268	05/04/12	EPA 3010A	EPA 6010B
Silver	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Thallium	ND	10	186268	05/04/12	EPA 3010A	EPA 6010B
Vanadium	74	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Zinc	250	20	186268	05/04/12	EPA 3010A	EPA 6010B

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	235999	Project#:	0009.002.007
Client:	Terraphase Engineering	Location:	UC BAPB Investigation
Field ID:	RFS-BAPB-GGW-2-16	Diln Fac:	1.000
Lab ID:	235999-002	Sampled:	05/03/12
Matrix:	Water	Received:	05/03/12
Units:	ug/L	Analyzed:	05/07/12

Analyte	Result	RL	Batch#	Prepared	Prep	Analysis
Antimony	ND	10	186268	05/04/12	EPA 3010A	EPA 6010B
Arsenic	25	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Barium	24	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Beryllium	ND	2.0	186268	05/04/12	EPA 3010A	EPA 6010B
Cadmium	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Chromium	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Cobalt	30	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Copper	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Lead	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Mercury	ND	0.20	186304	05/07/12	METHOD	EPA 7470A
Molybdenum	7.1	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Nickel	41	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Selenium	ND	10	186268	05/04/12	EPA 3010A	EPA 6010B
Silver	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Thallium	ND	10	186268	05/04/12	EPA 3010A	EPA 6010B
Vanadium	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Zinc	400	20	186268	05/04/12	EPA 3010A	EPA 6010B

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	235999	Project#:	0009.002.007
Client:	Terraphase Engineering	Location:	UC BAPB Investigation
Field ID:	RFS-BAPB-GGW-2-28	Diln Fac:	1.000
Lab ID:	235999-003	Sampled:	05/03/12
Matrix:	Water	Received:	05/03/12
Units:	ug/L	Analyzed:	05/07/12

Analyte	Result	RL	Batch#	Prepared	Prep	Analysis
Antimony	ND	10	186268	05/04/12	EPA 3010A	EPA 6010B
Arsenic	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Barium	23	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Beryllium	ND	2.0	186268	05/04/12	EPA 3010A	EPA 6010B
Cadmium	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Chromium	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Cobalt	8.1	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Copper	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Lead	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Mercury	ND	0.20	186304	05/07/12	METHOD	EPA 7470A
Molybdenum	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Nickel	14	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Selenium	ND	10	186268	05/04/12	EPA 3010A	EPA 6010B
Silver	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Thallium	ND	10	186268	05/04/12	EPA 3010A	EPA 6010B
Vanadium	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Zinc	270	20	186268	05/04/12	EPA 3010A	EPA 6010B

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	235999	Project#:	0009.002.007
Client:	Terraphase Engineering	Location:	UC BAPB Investigation
Field ID:	RFS-BAPB-GGW-5-10	Diln Fac:	1.000
Lab ID:	235999-004	Sampled:	05/03/12
Matrix:	Water	Received:	05/03/12
Units:	ug/L	Analyzed:	05/07/12

Analyte	Result	RL	Batch#	Prepared	Prep	Analysis
Antimony	ND	10	186268	05/04/12	EPA 3010A	EPA 6010B
Arsenic	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Barium	20	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Beryllium	ND	2.0	186268	05/04/12	EPA 3010A	EPA 6010B
Cadmium	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Chromium	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Cobalt	75	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Copper	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Lead	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Mercury	ND	0.20	186304	05/07/12	METHOD	EPA 7470A
Molybdenum	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Nickel	270	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Selenium	ND	10	186268	05/04/12	EPA 3010A	EPA 6010B
Silver	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Thallium	ND	10	186268	05/04/12	EPA 3010A	EPA 6010B
Vanadium	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Zinc	490	20	186268	05/04/12	EPA 3010A	EPA 6010B

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	235999	Project#:	0009.002.007
Client:	Terraphase Engineering	Location:	UC BAPB Investigation
Field ID:	RFS-BAPB-GGW-5-28	Diln Fac:	1.000
Lab ID:	235999-005	Sampled:	05/03/12
Matrix:	Water	Received:	05/03/12
Units:	ug/L	Analyzed:	05/07/12

Analyte	Result	RL	Batch#	Prepared	Prep	Analysis
Antimony	ND	10	186268	05/04/12	EPA 3010A	EPA 6010B
Arsenic	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Barium	310	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Beryllium	ND	2.0	186268	05/04/12	EPA 3010A	EPA 6010B
Cadmium	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Chromium	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Cobalt	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Copper	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Lead	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Mercury	ND	0.20	186304	05/07/12	METHOD	EPA 7470A
Molybdenum	7.3	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Nickel	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Selenium	ND	10	186268	05/04/12	EPA 3010A	EPA 6010B
Silver	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Thallium	ND	10	186268	05/04/12	EPA 3010A	EPA 6010B
Vanadium	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Zinc	ND	20	186268	05/04/12	EPA 3010A	EPA 6010B

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	235999	Project#:	0009.002.007
Client:	Terraphase Engineering	Location:	UC BAPB Investigation
Field ID:	RFS-BAPB-GGW-5-47	Diln Fac:	1.000
Lab ID:	235999-006	Sampled:	05/03/12
Matrix:	Water	Received:	05/03/12
Units:	ug/L	Analyzed:	05/07/12

Analyte	Result	RL	Batch#	Prepared	Prep	Analysis
Antimony	ND	10	186268	05/04/12	EPA 3010A	EPA 6010B
Arsenic	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Barium	240	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Beryllium	ND	2.0	186268	05/04/12	EPA 3010A	EPA 6010B
Cadmium	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Chromium	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Cobalt	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Copper	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Lead	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Mercury	ND	0.20	186304	05/07/12	METHOD	EPA 7470A
Molybdenum	8.3	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Nickel	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Selenium	ND	10	186268	05/04/12	EPA 3010A	EPA 6010B
Silver	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Thallium	ND	10	186268	05/04/12	EPA 3010A	EPA 6010B
Vanadium	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Zinc	ND	20	186268	05/04/12	EPA 3010A	EPA 6010B

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	235999	Project#:	0009.002.007
Client:	Terraphase Engineering	Location:	UC BAPB Investigation
Field ID:	RFS-BAPB-GGW-1-12	Diln Fac:	1.000
Lab ID:	235999-007	Sampled:	05/03/12
Matrix:	Water	Received:	05/03/12
Units:	ug/L	Analyzed:	05/07/12

Analyte	Result	RL	Batch#	Prepared	Prep	Analysis
Antimony	ND	10	186268	05/04/12	EPA 3010A	EPA 6010B
Arsenic	16	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Barium	20	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Beryllium	ND	2.0	186268	05/04/12	EPA 3010A	EPA 6010B
Cadmium	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Chromium	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Cobalt	15	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Copper	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Lead	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Mercury	ND	0.20	186304	05/07/12	METHOD	EPA 7470A
Molybdenum	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Nickel	17	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Selenium	ND	10	186268	05/04/12	EPA 3010A	EPA 6010B
Silver	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Thallium	ND	10	186268	05/04/12	EPA 3010A	EPA 6010B
Vanadium	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Zinc	480	20	186268	05/04/12	EPA 3010A	EPA 6010B

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	235999	Project#:	0009.002.007
Client:	Terraphase Engineering	Location:	UC BAPB Investigation
Field ID:	RFS-BAPB-GGW-1-35	Diln Fac:	1.000
Lab ID:	235999-008	Sampled:	05/03/12
Matrix:	Water	Received:	05/03/12
Units:	ug/L	Analyzed:	05/07/12

Analyte	Result	RL	Batch#	Prepared	Prep	Analysis
Antimony	ND	10	186268	05/04/12	EPA 3010A	EPA 6010B
Arsenic	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Barium	510	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Beryllium	ND	2.0	186268	05/04/12	EPA 3010A	EPA 6010B
Cadmium	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Chromium	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Cobalt	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Copper	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Lead	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Mercury	ND	0.20	186304	05/07/12	METHOD	EPA 7470A
Molybdenum	6.2	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Nickel	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Selenium	ND	10	186268	05/04/12	EPA 3010A	EPA 6010B
Silver	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Thallium	ND	10	186268	05/04/12	EPA 3010A	EPA 6010B
Vanadium	ND	5.0	186268	05/04/12	EPA 3010A	EPA 6010B
Zinc	ND	20	186268	05/04/12	EPA 3010A	EPA 6010B

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	235999	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 3010A
Project#:	0009.002.007	Analysis:	EPA 6010B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC638529	Batch#:	186268
Matrix:	Water	Prepared:	05/04/12
Units:	ug/L	Analyzed:	05/07/12

Analyte	Result	RL
Antimony	ND	10
Arsenic	ND	5.0
Barium	ND	5.0
Beryllium	ND	2.0
Cadmium	ND	5.0
Chromium	ND	5.0
Cobalt	ND	5.0
Copper	ND	5.0
Lead	ND	5.0
Molybdenum	ND	5.0
Nickel	ND	5.0
Selenium	ND	10
Silver	ND	5.0
Thallium	ND	10
Vanadium	ND	5.0
Zinc	ND	20

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	235999	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 3010A
Project#:	0009.002.007	Analysis:	EPA 6010B
Matrix:	Water	Batch#:	186268
Units:	ug/L	Prepared:	05/04/12
Diln Fac:	1.000	Analyzed:	05/07/12

Type: BS Lab ID: QC638530

Analyte	Spiked	Result	%REC	Limits
Antimony	500.0	483.5	97	72-120
Arsenic	100.0	94.00	94	80-130
Barium	2,000	1,887	94	80-120
Beryllium	50.00	49.01	98	80-120
Cadmium	50.00	49.11	98	80-120
Chromium	200.0	187.8	94	80-120
Cobalt	500.0	463.3	93	80-120
Copper	250.0	249.5	100	78-120
Lead	100.0	93.45	93	78-120
Molybdenum	400.0	376.7	94	80-120
Nickel	500.0	483.1	97	80-120
Selenium	100.0	92.93	93	78-122
Silver	50.00	47.96	96	79-120
Thallium	100.0	93.22	93	80-124
Vanadium	500.0	483.5	97	80-120
Zinc	500.0	479.3	96	80-120

Type: BSD Lab ID: QC638531

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Antimony	500.0	490.3	98	72-120	1	20
Arsenic	100.0	95.60	96	80-130	2	20
Barium	2,000	1,905	95	80-120	1	20
Beryllium	50.00	49.23	98	80-120	0	20
Cadmium	50.00	49.77	100	80-120	1	20
Chromium	200.0	188.8	94	80-120	1	20
Cobalt	500.0	466.2	93	80-120	1	20
Copper	250.0	251.7	101	78-120	1	20
Lead	100.0	94.69	95	78-120	1	20
Molybdenum	400.0	383.0	96	80-120	2	20
Nickel	500.0	483.8	97	80-120	0	20
Selenium	100.0	94.48	94	78-122	2	23
Silver	50.00	48.39	97	79-120	1	21
Thallium	100.0	91.74	92	80-124	2	20
Vanadium	500.0	482.7	97	80-120	0	20
Zinc	500.0	482.7	97	80-120	1	20

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	235999	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 3010A
Project#:	0009.002.007	Analysis:	EPA 6010B
Field ID:	ZZZZZZZZZZ	Batch#:	186268
MSS Lab ID:	235997-001	Sampled:	05/03/12
Matrix:	Water	Received:	05/03/12
Units:	ug/L	Prepared:	05/04/12
Diln Fac:	1.000	Analyzed:	05/07/12

Type: MS Lab ID: QC638532

Analyte	MSS Result	Spiked	Result	%REC	Limits
Antimony	<1.079	500.0	507.6	102	66-122
Arsenic	7.238	100.0	103.7	97	70-136
Barium	448.5	2,000	2,300	93	74-120
Beryllium	0.4804	50.00	49.71	98	80-122
Cadmium	<0.4753	50.00	45.19	90	76-120
Chromium	3.585	200.0	190.9	94	73-120
Cobalt	4.070	500.0	462.2	92	75-120
Copper	6.144	250.0	256.8	100	70-122
Lead	2.330	100.0	93.45	91	62-120
Molybdenum	2.983	400.0	388.5	96	77-120
Nickel	9.579	500.0	479.2	94	71-120
Selenium	<2.490	100.0	67.05	67	63-131
Silver	<1.331	50.00	50.86	102	61-124
Thallium	<1.639	100.0	87.40	87	69-129
Vanadium	5.362	500.0	494.3	98	76-120
Zinc	61.05	500.0	541.4	96	75-124

Type: MSD Lab ID: QC638533

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Antimony	500.0	495.0	99	66-122	3	21
Arsenic	100.0	102.7	95	70-136	1	31
Barium	2,000	2,277	91	74-120	1	28
Beryllium	50.00	48.41	96	80-122	3	22
Cadmium	50.00	44.43	89	76-120	2	20
Chromium	200.0	186.0	91	73-120	3	21
Cobalt	500.0	452.7	90	75-120	2	20
Copper	250.0	243.6	95	70-122	5	25
Lead	100.0	92.16	90	62-120	1	29
Molybdenum	400.0	378.4	94	77-120	3	29
Nickel	500.0	471.9	92	71-120	2	21
Selenium	100.0	66.71	67	63-131	1	33
Silver	50.00	49.62	99	61-124	2	28
Thallium	100.0	87.25	87	69-129	0	22
Vanadium	500.0	483.4	96	76-120	2	20
Zinc	500.0	528.6	94	75-124	2	25

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	235999	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	METHOD
Project#:	0009.002.007	Analysis:	EPA 7470A
Analyte:	Mercury	Diln Fac:	1.000
Type:	BLANK	Batch#:	186304
Lab ID:	QC638668	Prepared:	05/07/12
Matrix:	Filtrate	Analyzed:	05/07/12
Units:	ug/L		

Result	RL
ND	0.20

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	235999	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	METHOD
Project#:	0009.002.007	Analysis:	EPA 7470A
Analyte:	Mercury	Batch#:	186304
Matrix:	Filtrate	Prepared:	05/07/12
Units:	ug/L	Analyzed:	05/07/12
Diln Fac:	1.000		

Type	Lab ID	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC638669	2.500	2.686	107	79-120		
BSD	QC638670	2.500	2.563	103	79-120	5	29

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	235999	Location:	UC BAPB Investigation
Client:	Terraphase Engineering	Prep:	METHOD
Project#:	0009.002.007	Analysis:	EPA 7470A
Analyte:	Mercury	Batch#:	186304
Field ID:	ZZZZZZZZZZ	Sampled:	04/30/12
MSS Lab ID:	235978-001	Received:	05/02/12
Matrix:	Filtrate	Prepared:	05/07/12
Units:	ug/L	Analyzed:	05/07/12
Diln Fac:	1.000		

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
MS	QC638671	0.04320	2.500	2.631	104	59-123		
MSD	QC638672		2.500	2.656	105	59-123	1	51

RPD= Relative Percent Difference


Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

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

Laboratory Job Number 235962
ANALYTICAL REPORT

Terraphase Engineering	Project : 0009.002.007
1404 Franklin Street	Location : BAPB Investigation
Oakland, CA 94612	Level : II

Sample ID	Lab ID
RFS-BAPB-GGW-4-12	235962-001
RFS-BAPB-GGW-4-22	235962-002
RFS-BAPB-GGW-4-39	235962-003
RFS-BAPB-GGW-3-12	235962-004
RFS-BAPB-GGW-3-23	235962-005
TRIP-BLANK-05-02-12	235962-006

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 signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: _____ Date: 05/17/2012
Project Manager

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**235962**
Client:	**Terraphase Engineering**
Project:	**0009.002.007**
Location:	**BAPB Investigation**
Request Date:	**05/03/12**
Samples Received:	**05/02/12**

This data package contains sample and QC results for six water samples, requested for the above referenced project on 05/03/12. The samples were received cold and intact.

Volatile Organics by GC/MS (EPA 8260B):
RFS-BAPB-GGW-4-12 (lab # 235962-001) and RFS-BAPB-GGW-3-12 (lab # 235962-004) had pH greater than 2. No other analytical problems were encountered.

Metals (EPA 6010B and EPA 7470A):
Low recoveries were observed for copper, selenium, and zinc in the MS/MSD for batch 186225; the parent sample was not a project sample, the BS/BSD were within limits, and the associated RPDs were within limits. No other analytical problems were encountered.

CHAIN OF CUSTODY

Curtis & Tompkins Laboratories
ENVIRONMENTAL ANALYTICAL TESTING LABORATORY
In Business Since 1878

2323 Fifth Street
Berkeley, CA 94710

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Fax (510) 486-0532

C&T LOGIN # 235962

Page 1 of 1

Chain of Custody #

Project No: 0009.002.007
Project Name: BAPB Investigation
Project P. O. No:
EDD Format: Report Level ☑ II ☐ III ☐ IV
Turnaround Time: ☐ RUSH ☑ Standard

Sampler: Emily Mosen & Kara O-M
Report To: Andrew Rondo
Company: Terraphase
Telephone: 510-645-1850
Email: emily.mosen@terraphase.com

Lab No.	Sample ID.	SAMPLING		MATRIX				# of Containers	CHEMICAL PRESERVATIVE					ANALYTICAL REQUEST			
		Date Collected	Time Collected	Water	Solid				HCl	H2SO4	HNO3	NaOH	None	VOCs 8260	Metals (6010 + 7471)	HOLD 1L amber	
1	RFS-BAPB-GGW-4-12	5/2/12	1200	X				4	X		X			X	X		
-	RFS-BAPB-GGW-4-22	5/2/12	1220	X				5	X		X		X	X	X	X	
3	RFS-BAPB-GGW-4-39	5/2/12	1400	X				4	X		X			X	X		
4	RFS-BAPB-GGW-3-12	5/2/12	1640	X				5	X		X		X	X	X	X	
5	RFS-BAPB-GGW-3-23	5/2/12	1705	X				5	X		X		X	X	X	X	
6	Trip-blank-05-02-12	5/2/12		X				3	X					X			

Notes:

SAMPLE RECEIPT
☐ Intact
☐ Cold
☒ On Ice
☐ Ambient

RELINQUISHED BY:
DATE: 5/2/12 TIME: 1905
DATE: TIME:
DATE: TIME:

RECEIVED BY:
DATE: 5/2/12 TIME: 1905
DATE: TIME:
DATE: TIME:

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 235902 Date Received 5/2/12 Number of coolers 2
Client Terraphase Project 0409, 402.007

Date Opened 5/2/12 By (print) CPM (sign)
Date Logged in 5/3/12 By (print) LCHOY (sign)

1. Did cooler come with a shipping slip (airbill, etc)_____ YES (NO)
Shipping info_____

2A. Were custody seals present? .... ☐ YES (circle) on cooler on samples ☒ NO
How many_____ Name_____ Date_____
2B. Were custody seals intact upon arrival? _____ YES NO (N/A)
3. Were custody papers dry and intact when received? _____ (YES) NO
4. Were custody papers filled out properly (ink, signed, etc)? _____ (YES) NO
5. Is the project identifiable from custody papers? (If so fill out top of form) (YES) NO
6. Indicate the packing in cooler: (if other, describe)_____

☐ Bubble Wrap ☒ Foam blocks ☐ Bags ☐ None
☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation: * Notify PM if temperature exceeds 6°C

Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C) 5.7, 6.4

☐ Samples Received on ice & cold without a temperature blank; temp. taken with IR gun

☒ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? _____ YES (NO)
If YES, what time were they transferred to freezer?_____
9. Did all bottles arrive unbroken/unopened? _____ (YES) NO
10. Are there any missing / extra samples? _____ YES (NO)
11. Are samples in the appropriate containers for indicated tests? _____ (YES) NO
12. Are sample labels present, in good condition and complete? _____ (YES) NO
13. Do the sample labels agree with custody papers? _____ YES (NO)
14. Was sufficient amount of sample sent for tests requested? _____ (YES) NO
15. Are the samples appropriately preserved? _____ (YES) NO N/A
16. Did you check preservatives for all bottles for each sample? _____ (YES) NO N/A
17. Did you document your preservative check? _____ (YES) NO N/A
18. Did you change the hold time in LIMS for unpreserved VOAs? _____ YES NO (N/A)
19. Did you change the hold time in LIMS for preserved terracores? _____ YES NO (N/A)
20. Are bubbles > 6mm absent in VOA samples? _____ YES (NO) N/A
21. Was the client contacted concerning this sample delivery? _____ YES (NO)
If YES, Who was called?_____ By_____ Date:_____

COMMENTS
13)-005 [RFS-BAPB-GGN-3-23] - SAMPLE LABEL IDs READ "RFS-BAPB-GGN-3-32"
20)-001 [RFS-BAPB-GGN-4-12] - 3 of 3 VOAs recd w/ BUBBLES.
* 1L AMBERS [ON HOLD] ARE ONLY 1/3 FULL

Rev 10, 11/11

Curtis & Tompkins Sample Preservation for 235962

Sample	pH: <2	>9	>12	Other
-001a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[X]	[ ]	[ ]	_____
-002a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[X]	[ ]	[ ]	_____
e	[ ]	[ ]	[ ]	_____
-003a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[X]	[ ]	[ ]	_____
-004a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[X]	[ ]	[ ]	_____
e	[ ]	[ ]	[ ]	_____
-005a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[X]	[ ]	[ ]	_____
e	[ ]	[ ]	[ ]	_____

Analyst: NC
Date: 5/3/12

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	235962	Location:	BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	RFS-BAPB-GGW-4-12	Batch#:	186420
Lab ID:	235962-001	Sampled:	05/02/12
Matrix:	Water	Received:	05/02/12
Units:	ug/L	Analyzed:	05/11/12
Diln Fac:	5.000		

Analyte	Result	RL
Freon 12	ND	5.0
Chloromethane	ND	5.0
Vinyl Chloride	ND	2.5
Bromomethane	ND	5.0
Chloroethane	ND	5.0
Trichlorofluoromethane	ND	5.0
Acetone	ND	50
Freon 113	ND	10
1,1-Dichloroethene	ND	2.5
Methylene Chloride	ND	50
Carbon Disulfide	ND	2.5
MTBE	ND	2.5
trans-1,2-Dichloroethene	ND	2.5
Vinyl Acetate	ND	50
1,1-Dichloroethane	ND	2.5
2-Butanone	ND	50
cis-1,2-Dichloroethene	23	2.5
2,2-Dichloropropane	ND	2.5
Chloroform	ND	2.5
Bromochloromethane	ND	2.5
1,1,1-Trichloroethane	ND	2.5
1,1-Dichloropropene	ND	2.5
Carbon Tetrachloride	ND	2.5
1,2-Dichloroethane	ND	2.5
Benzene	ND	2.5
Trichloroethene	8.9	2.5
1,2-Dichloropropane	ND	2.5
Bromodichloromethane	ND	2.5
Dibromomethane	ND	2.5
4-Methyl-2-Pentanone	ND	50
cis-1,3-Dichloropropene	ND	2.5
Toluene	ND	2.5
trans-1,3-Dichloropropene	ND	2.5
1,1,2-Trichloroethane	ND	2.5
2-Hexanone	ND	50
1,3-Dichloropropane	ND	2.5
Tetrachloroethene	9.2	2.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	235962	Location:	BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	RFS-BAPB-GGW-4-12	Batch#:	186420
Lab ID:	235962-001	Sampled:	05/02/12
Matrix:	Water	Received:	05/02/12
Units:	ug/L	Analyzed:	05/11/12
Diln Fac:	5.000		

Analyte	Result	RL
Dibromochloromethane	ND	2.5
1,2-Dibromoethane	ND	2.5
Chlorobenzene	6.4	2.5
1,1,1,2-Tetrachloroethane	ND	2.5
Ethylbenzene	3.6	2.5
m,p-Xylenes	3.9	2.5
o-Xylene	2.6	2.5
Styrene	ND	2.5
Bromoform	ND	5.0
Isopropylbenzene	ND	2.5
1,1,2,2-Tetrachloroethane	ND	2.5
1,2,3-Trichloropropane	ND	2.5
Propylbenzene	ND	2.5
Bromobenzene	ND	2.5
1,3,5-Trimethylbenzene	3.6	2.5
2-Chlorotoluene	ND	2.5
4-Chlorotoluene	ND	2.5
tert-Butylbenzene	ND	2.5
1,2,4-Trimethylbenzene	6.1	2.5
sec-Butylbenzene	ND	2.5
para-Isopropyl Toluene	ND	2.5
1,3-Dichlorobenzene	ND	2.5
1,4-Dichlorobenzene	ND	2.5
n-Butylbenzene	ND	2.5
1,2-Dichlorobenzene	ND	2.5
1,2-Dibromo-3-Chloropropane	ND	10
1,2,4-Trichlorobenzene	ND	2.5
Hexachlorobutadiene	ND	10
Naphthalene	440	10
1,2,3-Trichlorobenzene	ND	2.5

Surrogate	%REC	Limits
Dibromofluoromethane	107	80-125
1,2-Dichloroethane-d4	108	69-145
Toluene-d8	103	80-120
Bromofluorobenzene	100	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	235962	Location:	BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	RFS-BAPB-GGW-4-22	Batch#:	186515
Lab ID:	235962-002	Sampled:	05/02/12
Matrix:	Water	Received:	05/02/12
Units:	ug/L	Analyzed:	05/14/12
Diln Fac:	40.00		

Analyte	Result	RL
Freon 12	ND	40
Chloromethane	ND	40
Vinyl Chloride	ND	20
Bromomethane	ND	40
Chloroethane	ND	40
Trichlorofluoromethane	ND	40
Acetone	ND	400
Freon 113	ND	80
1,1-Dichloroethene	ND	20
Methylene Chloride	ND	400
Carbon Disulfide	ND	20
MTBE	ND	20
trans-1,2-Dichloroethene	ND	20
Vinyl Acetate	ND	400
1,1-Dichloroethane	ND	20
2-Butanone	ND	400
cis-1,2-Dichloroethene	ND	20
2,2-Dichloropropane	ND	20
Chloroform	77	20
Bromochloromethane	ND	20
1,1,1-Trichloroethane	ND	20
1,1-Dichloropropene	ND	20
Carbon Tetrachloride	ND	20
1,2-Dichloroethane	48	20
Benzene	ND	20
Trichloroethene	250	20
1,2-Dichloropropane	ND	20
Bromodichloromethane	ND	20
Dibromomethane	ND	20
4-Methyl-2-Pentanone	ND	400
cis-1,3-Dichloropropene	ND	20
Toluene	ND	20
trans-1,3-Dichloropropene	ND	20
1,1,2-Trichloroethane	ND	20
2-Hexanone	ND	400
1,3-Dichloropropane	ND	20
Tetrachloroethene	1,400	20

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	235962	Location:	BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	RFS-BAPB-GGW-4-22	Batch#:	186515
Lab ID:	235962-002	Sampled:	05/02/12
Matrix:	Water	Received:	05/02/12
Units:	ug/L	Analyzed:	05/14/12
Diln Fac:	40.00		

Analyte	Result	RL
Dibromochloromethane	ND	20
1,2-Dibromoethane	ND	20
Chlorobenzene	3,500	20
1,1,1,2-Tetrachloroethane	ND	20
Ethylbenzene	ND	20
m,p-Xylenes	ND	20
o-Xylene	ND	20
Styrene	ND	20
Bromoform	ND	40
Isopropylbenzene	ND	20
1,1,2,2-Tetrachloroethane	ND	20
1,2,3-Trichloropropane	ND	20
Propylbenzene	ND	20
Bromobenzene	ND	20
1,3,5-Trimethylbenzene	ND	20
2-Chlorotoluene	ND	20
4-Chlorotoluene	ND	20
tert-Butylbenzene	ND	20
1,2,4-Trimethylbenzene	ND	20
sec-Butylbenzene	ND	20
para-Isopropyl Toluene	ND	20
1,3-Dichlorobenzene	ND	20
1,4-Dichlorobenzene	ND	20
n-Butylbenzene	ND	20
1,2-Dichlorobenzene	ND	20
1,2-Dibromo-3-Chloropropane	ND	80
1,2,4-Trichlorobenzene	ND	20
Hexachlorobutadiene	ND	80
Naphthalene	ND	80
1,2,3-Trichlorobenzene	ND	20

Surrogate	%REC	Limits
Dibromofluoromethane	118	80-125
1,2-Dichloroethane-d4	104	69-145
Toluene-d8	101	80-120
Bromofluorobenzene	92	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	235962	Location:	BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	RFS-BAPB-GGW-4-39	Units:	ug/L
Lab ID:	235962-003	Sampled:	05/02/12
Matrix:	Water	Received:	05/02/12

Analyte	Result	RL	Diln Fac	Batch#	Analyzed
Freon 12	ND	13	12.50	186420	05/11/12
Chloromethane	ND	13	12.50	186420	05/11/12
Vinyl Chloride	ND	6.3	12.50	186420	05/11/12
Bromomethane	ND	13	12.50	186420	05/11/12
Chloroethane	ND	13	12.50	186420	05/11/12
Trichlorofluoromethane	ND	13	12.50	186420	05/11/12
Acetone	ND	130	12.50	186420	05/11/12
Freon 113	ND	25	12.50	186420	05/11/12
1,1-Dichloroethene	ND	6.3	12.50	186420	05/11/12
Methylene Chloride	ND	130	12.50	186420	05/11/12
Carbon Disulfide	ND	6.3	12.50	186420	05/11/12
MTBE	ND	6.3	12.50	186420	05/11/12
trans-1,2-Dichloroethene	ND	6.3	12.50	186420	05/11/12
Vinyl Acetate	ND	130	12.50	186420	05/11/12
1,1-Dichloroethane	ND	6.3	12.50	186420	05/11/12
2-Butanone	ND	130	12.50	186420	05/11/12
cis-1,2-Dichloroethene	ND	6.3	12.50	186420	05/11/12
2,2-Dichloropropane	ND	6.3	12.50	186420	05/11/12
Chloroform	41	6.3	12.50	186420	05/11/12
Bromochloromethane	ND	6.3	12.50	186420	05/11/12
1,1,1-Trichloroethane	ND	6.3	12.50	186420	05/11/12
1,1-Dichloropropene	ND	6.3	12.50	186420	05/11/12
Carbon Tetrachloride	ND	6.3	12.50	186420	05/11/12
1,2-Dichloroethane	21	6.3	12.50	186420	05/11/12
Benzene	7.0	6.3	12.50	186420	05/11/12
Trichloroethene	99	6.3	12.50	186420	05/11/12
1,2-Dichloropropane	ND	6.3	12.50	186420	05/11/12
Bromodichloromethane	ND	6.3	12.50	186420	05/11/12
Dibromomethane	ND	6.3	12.50	186420	05/11/12
4-Methyl-2-Pentanone	ND	130	12.50	186420	05/11/12
cis-1,3-Dichloropropene	ND	6.3	12.50	186420	05/11/12
Toluene	ND	6.3	12.50	186420	05/11/12
trans-1,3-Dichloropropene	ND	6.3	12.50	186420	05/11/12
1,1,2-Trichloroethane	ND	6.3	12.50	186420	05/11/12
2-Hexanone	ND	130	12.50	186420	05/11/12
1,3-Dichloropropane	ND	6.3	12.50	186420	05/11/12
Tetrachloroethene	300	6.3	12.50	186420	05/11/12
Dibromochloromethane	ND	6.3	12.50	186420	05/11/12
1,2-Dibromoethane	ND	6.3	12.50	186420	05/11/12

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	235962	Location:	BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	RFS-BAPB-GGW-4-39	Units:	ug/L
Lab ID:	235962-003	Sampled:	05/02/12
Matrix:	Water	Received:	05/02/12

Analyte	Result	RL	Diln Fac	Batch#	Analyzed
Chlorobenzene	2,700	17	33.33	186515	05/14/12
1,1,1,2-Tetrachloroethane	ND	6.3	12.50	186420	05/11/12
Ethylbenzene	ND	6.3	12.50	186420	05/11/12
m,p-Xylenes	ND	6.3	12.50	186420	05/11/12
o-Xylene	ND	6.3	12.50	186420	05/11/12
Styrene	ND	6.3	12.50	186420	05/11/12
Bromoform	ND	13	12.50	186420	05/11/12
Isopropylbenzene	ND	6.3	12.50	186420	05/11/12
1,1,2,2-Tetrachloroethane	ND	6.3	12.50	186420	05/11/12
1,2,3-Trichloropropane	ND	6.3	12.50	186420	05/11/12
Propylbenzene	ND	6.3	12.50	186420	05/11/12
Bromobenzene	ND	6.3	12.50	186420	05/11/12
1,3,5-Trimethylbenzene	ND	6.3	12.50	186420	05/11/12
2-Chlorotoluene	ND	6.3	12.50	186420	05/11/12
4-Chlorotoluene	ND	6.3	12.50	186420	05/11/12
tert-Butylbenzene	ND	6.3	12.50	186420	05/11/12
1,2,4-Trimethylbenzene	ND	6.3	12.50	186420	05/11/12
sec-Butylbenzene	ND	6.3	12.50	186420	05/11/12
para-Isopropyl Toluene	ND	6.3	12.50	186420	05/11/12
1,3-Dichlorobenzene	ND	6.3	12.50	186420	05/11/12
1,4-Dichlorobenzene	ND	6.3	12.50	186420	05/11/12
n-Butylbenzene	ND	6.3	12.50	186420	05/11/12
1,2-Dichlorobenzene	ND	6.3	12.50	186420	05/11/12
1,2-Dibromo-3-Chloropropane	ND	25	12.50	186420	05/11/12
1,2,4-Trichlorobenzene	ND	6.3	12.50	186420	05/11/12
Hexachlorobutadiene	ND	25	12.50	186420	05/11/12
Naphthalene	ND	25	12.50	186420	05/11/12
1,2,3-Trichlorobenzene	ND	6.3	12.50	186420	05/11/12

Surrogate	%REC	Limits	Diln Fac	Batch#	Analyzed
Dibromofluoromethane	108	80-125	12.50	186420	05/11/12
1,2-Dichloroethane-d4	108	69-145	12.50	186420	05/11/12
Toluene-d8	97	80-120	12.50	186420	05/11/12
Bromofluorobenzene	101	80-120	12.50	186420	05/11/12

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	235962	Location:	BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	RFS-BAPB-GGW-3-12	Batch#:	186420
Lab ID:	235962-004	Sampled:	05/02/12
Matrix:	Water	Received:	05/02/12
Units:	ug/L	Analyzed:	05/11/12
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Acetone	ND	10
Freon 113	ND	2.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
Carbon Disulfide	4.8	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	9.6	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	ND	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Trichloroethene	1.4	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	0.7	0.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	235962	Location:	BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	RFS-BAPB-GGW-3-12	Batch#:	186420
Lab ID:	235962-004	Sampled:	05/02/12
Matrix:	Water	Received:	05/02/12
Units:	ug/L	Analyzed:	05/11/12
Diln Fac:	1.000		

Analyte	Result	RL
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	1.5	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	2.0
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	2.0
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	107	80-125
1,2-Dichloroethane-d4	109	69-145
Toluene-d8	102	80-120
Bromofluorobenzene	97	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	235962	Location:	BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	RFS-BAPB-GGW-3-23	Batch#:	186515
Lab ID:	235962-005	Sampled:	05/02/12
Matrix:	Water	Received:	05/02/12
Units:	ug/L	Analyzed:	05/14/12
Diln Fac:	33.33		

Analyte	Result	RL
Freon 12	ND	33
Chloromethane	ND	33
Vinyl Chloride	ND	17
Bromomethane	ND	33
Chloroethane	ND	33
Trichlorofluoromethane	ND	33
Acetone	ND	330
Freon 113	ND	67
1,1-Dichloroethene	ND	17
Methylene Chloride	ND	330
Carbon Disulfide	ND	17
MTBE	ND	17
trans-1,2-Dichloroethene	ND	17
Vinyl Acetate	ND	330
1,1-Dichloroethane	ND	17
2-Butanone	ND	330
cis-1,2-Dichloroethene	ND	17
2,2-Dichloropropane	ND	17
Chloroform	49	17
Bromochloromethane	ND	17
1,1,1-Trichloroethane	ND	17
1,1-Dichloropropene	ND	17
Carbon Tetrachloride	ND	17
1,2-Dichloroethane	26	17
Benzene	ND	17
Trichloroethene	120	17
1,2-Dichloropropane	ND	17
Bromodichloromethane	ND	17
Dibromomethane	ND	17
4-Methyl-2-Pentanone	ND	330
cis-1,3-Dichloropropene	ND	17
Toluene	ND	17
trans-1,3-Dichloropropene	ND	17
1,1,2-Trichloroethane	ND	17
2-Hexanone	ND	330
1,3-Dichloropropane	ND	17
Tetrachloroethene	360	17

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	235962	Location:	BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	RFS-BAPB-GGW-3-23	Batch#:	186515
Lab ID:	235962-005	Sampled:	05/02/12
Matrix:	Water	Received:	05/02/12
Units:	ug/L	Analyzed:	05/14/12
Diln Fac:	33.33		

Analyte	Result	RL
Dibromochloromethane	ND	17
1,2-Dibromoethane	ND	17
Chlorobenzene	2,800	17
1,1,1,2-Tetrachloroethane	ND	17
Ethylbenzene	ND	17
m,p-Xylenes	ND	17
o-Xylene	ND	17
Styrene	ND	17
Bromoform	ND	33
Isopropylbenzene	ND	17
1,1,2,2-Tetrachloroethane	ND	17
1,2,3-Trichloropropane	ND	17
Propylbenzene	ND	17
Bromobenzene	ND	17
1,3,5-Trimethylbenzene	ND	17
2-Chlorotoluene	ND	17
4-Chlorotoluene	ND	17
tert-Butylbenzene	ND	17
1,2,4-Trimethylbenzene	ND	17
sec-Butylbenzene	ND	17
para-Isopropyl Toluene	ND	17
1,3-Dichlorobenzene	ND	17
1,4-Dichlorobenzene	ND	17
n-Butylbenzene	ND	17
1,2-Dichlorobenzene	ND	17
1,2-Dibromo-3-Chloropropane	ND	67
1,2,4-Trichlorobenzene	ND	17
Hexachlorobutadiene	ND	67
Naphthalene	ND	67
1,2,3-Trichlorobenzene	ND	17

Surrogate	%REC	Limits
Dibromofluoromethane	117	80-125
1,2-Dichloroethane-d4	105	69-145
Toluene-d8	101	80-120
Bromofluorobenzene	93	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	235962	Location:	BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	TRIP-BLANK-05-02-12	Batch#:	186420
Lab ID:	235962-006	Sampled:	05/02/12
Matrix:	Water	Received:	05/02/12
Units:	ug/L	Analyzed:	05/10/12
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Acetone	ND	10
Freon 113	ND	2.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
Carbon Disulfide	ND	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	ND	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	ND	0.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	235962	Location:	BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	TRIP-BLANK-05-02-12	Batch#:	186420
Lab ID:	235962-006	Sampled:	05/02/12
Matrix:	Water	Received:	05/02/12
Units:	ug/L	Analyzed:	05/10/12
Diln Fac:	1.000		

Analyte	Result	RL
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	ND	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	2.0
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	2.0
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	102	80-125
1,2-Dichloroethane-d4	104	69-145
Toluene-d8	102	80-120
Bromofluorobenzene	102	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	235962	Location:	BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC639160	Batch#:	186420
Matrix:	Water	Analyzed:	05/10/12
Units:	ug/L		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Acetone	ND	10
Freon 113	ND	2.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
Carbon Disulfide	ND	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	ND	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	ND	0.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	235962	Location:	BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC639160	Batch#:	186420
Matrix:	Water	Analyzed:	05/10/12
Units:	ug/L		

Analyte	Result	RL
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	ND	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	2.0
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	2.0
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	101	80-125
1,2-Dichloroethane-d4	104	69-145
Toluene-d8	101	80-120
Bromofluorobenzene	99	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	235962	Location:	BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC639237	Batch#:	186420
Matrix:	Water	Analyzed:	05/10/12
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	25.00	24.83	99	66-131
Benzene	25.00	25.84	103	80-121
Trichloroethene	25.00	25.44	102	79-120
Toluene	25.00	26.06	104	80-120
Chlorobenzene	25.00	23.66	95	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	101	80-125
1,2-Dichloroethane-d4	105	69-145
Toluene-d8	100	80-120
Bromofluorobenzene	98	80-120

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	235962	Location:	BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Field ID:	ZZZZZZZZZZ	Batch#:	186420
MSS Lab ID:	235989-005	Sampled:	05/02/12
Matrix:	Water	Received:	05/03/12
Units:	ug/L	Analyzed:	05/11/12
Diln Fac:	1.000		

Type: MS Lab ID: QC639292

Analyte	MSS Result	Spiked	Result	%REC	Limits
1,1-Dichloroethene	<0.1591	25.00	23.96	96	74-123
Benzene	<0.1000	25.00	25.79	103	80-120
Trichloroethene	<0.1000	25.00	24.00	96	68-122
Toluene	<0.1000	25.00	24.56	98	80-120
Chlorobenzene	<0.1000	25.00	22.34	89	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	110	80-125
1,2-Dichloroethane-d4	116	69-145
Toluene-d8	102	80-120
Bromofluorobenzene	100	80-120

Type: MSD Lab ID: QC639293

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	25.00	22.30	89	74-123	7	20
Benzene	25.00	23.73	95	80-120	8	20
Trichloroethene	25.00	22.08	88	68-122	8	20
Toluene	25.00	22.88	92	80-120	7	20
Chlorobenzene	25.00	21.08	84	80-120	6	20

Surrogate	%REC	Limits
Dibromofluoromethane	109	80-125
1,2-Dichloroethane-d4	114	69-145
Toluene-d8	102	80-120
Bromofluorobenzene	99	80-120

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	235962	Location:	BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	186515
Units:	ug/L	Analyzed:	05/14/12
Diln Fac:	1.000		

Type: BS Lab ID: QC639564

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	25.00	26.91	108	66-131
Benzene	25.00	27.21	109	80-121
Trichloroethene	25.00	23.39	94	79-120
Toluene	25.00	24.30	97	80-120
Chlorobenzene	25.00	22.74	91	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	103	80-125
1,2-Dichloroethane-d4	104	69-145
Toluene-d8	102	80-120
Bromofluorobenzene	96	80-120

Type: BSD Lab ID: QC639565

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	24.75	27.38	111	66-131	3	20
Benzene	24.75	25.62	103	80-121	5	20
Trichloroethene	24.75	22.70	92	79-120	2	20
Toluene	24.75	24.18	98	80-120	1	20
Chlorobenzene	24.75	22.54	91	80-120	0	20

Surrogate	%REC	Limits
Dibromofluoromethane	104	80-125
1,2-Dichloroethane-d4	103	69-145
Toluene-d8	100	80-120
Bromofluorobenzene	99	80-120

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	235962	Location:	BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC639566	Batch#:	186515
Matrix:	Water	Analyzed:	05/14/12
Units:	ug/L		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Acetone	ND	10
Freon 113	ND	2.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
Carbon Disulfide	ND	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	ND	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	ND	0.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	235962	Location:	BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 5030B
Project#:	0009.002.007	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC639566	Batch#:	186515
Matrix:	Water	Analyzed:	05/14/12
Units:	ug/L		

Analyte	Result	RL
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	ND	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	2.0
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	2.0
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	112	80-125
1,2-Dichloroethane-d4	104	69-145
Toluene-d8	99	80-120
Bromofluorobenzene	95	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	235962	Project#:	0009.002.007
Client:	Terraphase Engineering	Location:	BAPB Investigation
Field ID:	RFS-BAPB-GGW-4-12	Units:	ug/L
Lab ID:	235962-001	Sampled:	05/02/12
Matrix:	Water	Received:	05/02/12

Analyte	Result	RL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	10	1.000	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Arsenic	340	5.0	1.000	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Barium	95	5.0	1.000	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Beryllium	3.3	2.0	1.000	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Cadmium	71	5.0	1.000	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Chromium	130	5.0	1.000	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Cobalt	250	5.0	1.000	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Copper	2,000	5.0	1.000	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Lead	250	5.0	1.000	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Mercury	38	2.0	10.00	186304	05/07/12	05/07/12	METHOD	EPA 7470A
Molybdenum	ND	5.0	1.000	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Nickel	400	5.0	1.000	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Selenium	ND	10	1.000	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Silver	ND	5.0	1.000	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Thallium	ND	10	1.000	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Vanadium	200	5.0	1.000	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Zinc	33,000	200	10.00	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	235962	Project#:	0009.002.007
Client:	Terraphase Engineering	Location:	BAPB Investigation
Field ID:	RFS-BAPB-GGW-4-22	Units:	ug/L
Lab ID:	235962-002	Sampled:	05/02/12
Matrix:	Water	Received:	05/02/12

Analyte	Result	RL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	10	1.000	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Arsenic	ND	5.0	1.000	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Barium	35	5.0	1.000	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Beryllium	ND	2.0	1.000	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Cadmium	72	5.0	1.000	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Chromium	13	5.0	1.000	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Cobalt	120	5.0	1.000	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Copper	280	5.0	1.000	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Lead	8.1	5.0	1.000	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Mercury	0.22	0.20	1.000	186304	05/07/12	05/07/12	METHOD	EPA 7470A
Molybdenum	ND	5.0	1.000	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Nickel	1,900	5.0	1.000	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Selenium	12	10	1.000	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Silver	15	5.0	1.000	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Thallium	ND	10	1.000	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Vanadium	ND	5.0	1.000	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Zinc	18,000	200	10.00	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	235962	Project#:	0009.002.007
Client:	Terraphase Engineering	Location:	BAPB Investigation
Field ID:	RFS-BAPB-GGW-4-39	Diln Fac:	1.000
Lab ID:	235962-003	Sampled:	05/02/12
Matrix:	Water	Received:	05/02/12
Units:	ug/L		

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	10	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Arsenic	ND	5.0	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Barium	36	5.0	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Beryllium	ND	2.0	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Cadmium	12	5.0	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Chromium	ND	5.0	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Cobalt	7.3	5.0	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Copper	ND	5.0	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Lead	ND	5.0	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Mercury	0.31	0.20	186304	05/07/12	05/07/12	METHOD	EPA 7470A
Molybdenum	5.9	5.0	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Nickel	450	5.0	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Selenium	ND	10	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Silver	8.0	5.0	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Thallium	ND	10	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Vanadium	ND	5.0	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Zinc	2,000	20	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	235962	Project#:	0009.002.007
Client:	Terraphase Engineering	Location:	BAPB Investigation
Field ID:	RFS-BAPB-GGW-3-12	Units:	ug/L
Lab ID:	235962-004	Sampled:	05/02/12
Matrix:	Water	Received:	05/02/12

Analyte	Result	RL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	10	1.000	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Arsenic	48	5.0	1.000	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Barium	58	5.0	1.000	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Beryllium	ND	2.0	1.000	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Cadmium	35	5.0	1.000	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Chromium	46	5.0	1.000	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Cobalt	66	5.0	1.000	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Copper	61	5.0	1.000	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Lead	130	5.0	1.000	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Mercury	12	2.0	10.00	186304	05/07/12	05/07/12	METHOD	EPA 7470A
Molybdenum	ND	5.0	1.000	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Nickel	120	5.0	1.000	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Selenium	ND	10	1.000	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Silver	ND	5.0	1.000	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Thallium	ND	10	1.000	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Vanadium	80	5.0	1.000	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Zinc	12,000	200	10.00	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	235962	Project#:	0009.002.007
Client:	Terraphase Engineering	Location:	BAPB Investigation
Field ID:	RFS-BAPB-GGW-3-23	Diln Fac:	1.000
Lab ID:	235962-005	Sampled:	05/02/12
Matrix:	Water	Received:	05/02/12
Units:	ug/L		

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	10	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Arsenic	ND	5.0	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Barium	39	5.0	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Beryllium	ND	2.0	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Cadmium	ND	5.0	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Chromium	ND	5.0	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Cobalt	ND	5.0	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Copper	ND	5.0	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Lead	ND	5.0	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Mercury	0.57	0.20	186304	05/07/12	05/07/12	METHOD	EPA 7470A
Molybdenum	ND	5.0	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Nickel	49	5.0	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Selenium	ND	10	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Silver	ND	5.0	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Thallium	ND	10	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Vanadium	ND	5.0	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B
Zinc	21	20	186225	05/03/12	05/04/12	EPA 3010A	EPA 6010B

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	235962	Location:	BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 3010A
Project#:	0009.002.007	Analysis:	EPA 6010B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC638355	Batch#:	186225
Matrix:	Water	Prepared:	05/03/12
Units:	ug/L	Analyzed:	05/04/12

Analyte	Result	RL
Antimony	ND	10
Arsenic	ND	5.0
Barium	ND	5.0
Beryllium	ND	2.0
Cadmium	ND	5.0
Chromium	ND	5.0
Cobalt	ND	5.0
Copper	ND	5.0
Lead	ND	5.0
Molybdenum	ND	5.0
Nickel	ND	5.0
Selenium	ND	10
Silver	ND	5.0
Thallium	ND	10
Vanadium	ND	5.0
Zinc	ND	20

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	235962	Location:	BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 3010A
Project#:	0009.002.007	Analysis:	EPA 6010B
Matrix:	Water	Batch#:	186225
Units:	ug/L	Prepared:	05/03/12
Diln Fac:	1.000	Analyzed:	05/04/12

Type: BS Lab ID: QC638356

Analyte	Spiked	Result	%REC	Limits
Antimony	500.0	462.6	93	72-120
Arsenic	100.0	91.55	92	80-130
Barium	2,000	1,797	90	80-120
Beryllium	50.00	47.35	95	80-120
Cadmium	50.00	47.11	94	80-120
Chromium	200.0	181.7	91	80-120
Cobalt	500.0	439.9	88	80-120
Copper	250.0	228.1	91	78-120
Lead	100.0	89.91	90	78-120
Molybdenum	400.0	366.7	92	80-120
Nickel	500.0	459.2	92	80-120
Selenium	100.0	89.28	89	78-122
Silver	50.00	46.08	92	79-120
Thallium	100.0	92.47	92	80-124
Vanadium	500.0	463.8	93	80-120
Zinc	500.0	460.4	92	80-120

Type: BSD Lab ID: QC638357

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Antimony	500.0	445.8	89	72-120	4	20
Arsenic	100.0	89.81	90	80-130	2	20
Barium	2,000	1,739	87	80-120	3	20
Beryllium	50.00	45.37	91	80-120	4	20
Cadmium	50.00	45.62	91	80-120	3	20
Chromium	200.0	177.1	89	80-120	3	20
Cobalt	500.0	425.4	85	80-120	3	20
Copper	250.0	220.2	88	78-120	4	20
Lead	100.0	86.78	87	78-120	4	20
Molybdenum	400.0	352.4	88	80-120	4	20
Nickel	500.0	445.6	89	80-120	3	20
Selenium	100.0	84.97	85	78-122	5	23
Silver	50.00	44.75	89	79-120	3	21
Thallium	100.0	90.07	90	80-124	3	20
Vanadium	500.0	448.7	90	80-120	3	20
Zinc	500.0	447.8	90	80-120	3	20

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	235962	Location:	BAPB Investigation
Client:	Terraphase Engineering	Prep:	EPA 3010A
Project#:	0009.002.007	Analysis:	EPA 6010B
Field ID:	ZZZZZZZZZZ	Batch#:	186225
MSS Lab ID:	235903-001	Sampled:	05/01/12
Matrix:	Water	Received:	05/01/12
Units:	ug/L	Prepared:	05/03/12
Diln Fac:	1.000	Analyzed:	05/04/12

Type: MS Lab ID: QC638358

Analyte	MSS Result	Spiked	Result	%REC	Limits
Antimony	4.359	500.0	456.8	90	66-122
Arsenic	6.868	100.0	97.08	90	70-136
Barium	29.45	2,000	1,567	77	74-120
Beryllium	0.6573	50.00	41.56	82	80-122
Cadmium	6.430	50.00	44.85	77	76-120
Chromium	1.303	200.0	156.6	78	73-120
Cobalt	1.381	500.0	378.3	75	75-120
Copper	413.8	250.0	431.4	7 *	70-122
Lead	8.627	100.0	81.87	73	62-120
Molybdenum	3.547	400.0	325.8	81	77-120
Nickel	86.69	500.0	449.9	73	71-120
Selenium	4.516	100.0	57.93	53 *	63-131
Silver	3.838	50.00	48.08	88	61-124
Thallium	<1.639	100.0	73.12	73	69-129
Vanadium	2.246	500.0	414.1	82	76-120
Zinc	1,776	500.0	1,990	43 *	75-124

Type: MSD Lab ID: QC638359

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Antimony	500.0	503.0	100	66-122	10	21
Arsenic	100.0	106.8	100	70-136	10	31
Barium	2,000	1,728	85	74-120	10	28
Beryllium	50.00	46.58	92	80-122	11	22
Cadmium	50.00	49.85	87	76-120	11	20
Chromium	200.0	173.8	86	73-120	10	21
Cobalt	500.0	422.2	84	75-120	11	20
Copper	250.0	532.8	48 *	70-122	21	25
Lead	100.0	89.01	80	62-120	8	29
Molybdenum	400.0	356.0	88	77-120	9	29
Nickel	500.0	509.1	84	71-120	12	21
Selenium	100.0	63.96	59 *	63-131	10	33
Silver	50.00	53.86	100	61-124	11	28
Thallium	100.0	78.00	78	69-129	6	22
Vanadium	500.0	457.0	91	76-120	10	20
Zinc	500.0	2,245	94	75-124	12	25

*= Value outside of QC limits; see narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	235962	Location:	BAPB Investigation
Client:	Terraphase Engineering	Prep:	METHOD
Project#:	0009.002.007	Analysis:	EPA 7470A
Analyte:	Mercury	Diln Fac:	1.000
Type:	BLANK	Batch#:	186304
Lab ID:	QC638668	Prepared:	05/07/12
Matrix:	Filtrate	Analyzed:	05/07/12
Units:	ug/L		

Result	RL
ND	0.20

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	235962	Location:	BAPB Investigation
Client:	Terraphase Engineering	Prep:	METHOD
Project#:	0009.002.007	Analysis:	EPA 7470A
Analyte:	Mercury	Batch#:	186304
Matrix:	Filtrate	Prepared:	05/07/12
Units:	ug/L	Analyzed:	05/07/12
Diln Fac:	1.000		

Type	Lab ID	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC638669	2.500	2.686	107	79-120		
BSD	QC638670	2.500	2.563	103	79-120	5	29

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	235962	Location:	BAPB Investigation
Client:	Terraphase Engineering	Prep:	METHOD
Project#:	0009.002.007	Analysis:	EPA 7470A
Analyte:	Mercury	Batch#:	186304
Field ID:	ZZZZZZZZZZ	Sampled:	04/30/12
MSS Lab ID:	235978-001	Received:	05/02/12
Matrix:	Filtrate	Prepared:	05/07/12
Units:	ug/L	Analyzed:	05/07/12
Diln Fac:	1.000		

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
MS	QC638671	0.04320	2.500	2.631	104	59-123		
MSD	QC638672		2.500	2.656	105	59-123	1	51

RPD= Relative Percent Difference

APPENDIX C

WELL DEVELOPMENT LOGS

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GREGG

MONITORING WELL DEVELOPMENT LOG

Page _____ of _____

All measurements taken from: ☒ Top of Casing ☐ Protective Casing ☐ Ground Level

Sample ID _____

Well Number MW-46
Date 5.21.12
Time Start: 11:30 End: 1:30
Client Terraphase
Project U.C. Richmond
Job Number 212177
Installation Date —
Well Diameter 1½

Borehole Diameter 6"
Screen Length 5FT
Measured Depth (pre-development) 17.30
Measured Depth (post-development) 17.30
Static Water Level (ft.) 3.35
Standing Water Column (ft.) 13.95
One Well Volume (gal.) 1.2555
One Annulus Vol. (gal.) _____

Qty. of Drilling Fluid Lost _____
Minimum Gal. to be Purged 12.555
Development Method Bail-Surge-Bail-Pump
Purging Equipment SS Bailer. 4" pump
Water Level Equipment Solinst
pH/EC Meter Horiba U10
Turbidity Meter Horiba U10
Other _____

Time	Amount Purged (gal.)	Field Parameters Measured						GPM / W.L.	Comments	Field Tech.
		pH	EC	Turbidity	D.O.	D.O. Temp.	SAL.		W.L	
12:29	3	6.44	7.91	710	—	16.3	.42	¼	12.90 Bail-	¼
12:33	4	6.26	7.89	588	—	16.0	.42		13.25 Surge	15 Min
12:37	5	6.15	7.82	525	—	16.2	.42		14.11	
12:41	6	6.25	7.83	227	—	16.1	.42		15.41	
12:45	7	6.23	7.82	163	—	16.0	.42		15.41	
12:49	8	6.24	7.84	105	—	16.2	.42		15.88	
12:53	9	6.24	7.83	50	—	16.1	.42		16.50 STOP To Recharge	
1:00	10	6.25	7.82	58	—	16.2	.42		9.12	
1:04	11	6.25	7.81	26	—	15.9	.42		13.11	
1:08	12	6.26	7.83	12		16.1	.42		14.22	
1:12	13	6.25	7.82	10	—	16.2	.42		15.93	

FINAL FIELD PARAMETER MEASUREMENTS

GREGG

MONITORING WELL DEVELOPMENT LOG

Page _____ of _____

All measurements taken from: ☒ Top of Casing ☐ Protective Casing ☐ Ground Level

Sample ID _____

Well Number MW-41
Date 5/21/12
Time Start: 9:30 End: 11:15
Client TERRAPHASE
Project U.C Richmond
Job Number D2R20177
Installation Date _____
Well Diameter 1 1/2

Borehole Diameter 6"
Screen Length 5FT
Measured Depth (pre-development) 15.83
Measured Depth (post-development) 15.83
Static Water Level (ft.) 3.25
Standing Water Column (ft.) 12.58
One Well Volume (gal.) 1.1322
One Annulus Vol. (gal.) _____

Qty. of Drilling Fluid Lost _____
Minimum Gal. to be Purged 11.322
Development Method Bail- Surge - Bail - pump
Purging Equipment SS Bailer - 2" pump
Water Level Equipment Solinst
pH/EC Meter Horiba U10
Turbidity Meter Horiba U10
Other _____

Time	Amount Purged (gal.)	Field Parameters Measured							Comments	Field Tech.
		pH	EC	Turbidity	D.O.	D.O. Temp.	SAL.	GPM / W.L.	W.L	
10:15	1	6.57	9.23	733	-	15.8	.50	1/4	11.55	Bail - 1/4 G.C
10:19	2	6.07	9.30	593	-	15.7	.51	1/4	11.55	Surge - 15min
10:23	3	6.09	9.32	612	-	15.9	.51	1/4	11.55	Bail - 1/4 G.C
10:27	4	6.05	9.35	653	-	15.7	.51	1/4	11.55	
10:31	5	6.02	9.33	395	-	15.8	.52	1/4	11.71	
10:35	6	6.05	9.53	205	-	15.9	.52	1/4	12.11	
10:39	7	6.02	9.51	127	-	15.8	.52	1/4	11.85	
10:43	8	6.01	9.56	70	-	15.9	.52	1/4	11.77	
10:47	9	6.05	9.57	68	-	15.7	.52	1/4	11.77	
10:51	10	6.08	9.58	42	-	15.7	.52	1/4	11.77	
10:55	11	6.06	9.60	28	-	15.8	.52	1/4	11.77	
FINAL FIELD PARAMETER MEASUREMENTS										
10:59	12	6.09	9.58	16	-	15.7	.52	1/4	11.77	
11:03	13	6.10	9.61	9		15.8	.53	1/4	11.77	

APPENDIX D

WATER QUALITY SAMPLING FIELD LOGS

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Water Quality Sampling Field Log

terraphase engineering

Project Name: UC BAPB Investigation Sample ID: MW-40 Page 1 of ___

Project Number: 0009.002.007 Site Location: UC RFS, Richmond, CA Sample Type: ☑ Primary Sample ☑ Duplicate Sample ☐ Field Blank ☐ Other

Sampler: KQM Sample Date: 6/5/2012

Weather Conditions: sunny, breezy Sample Plan By: A. Romolo

Purge Data

Purge Method: ☑ Peristaltic Pump ☐ Disposable Bailer ☐ Centrifugal Pump ☐ Bladder Pump ☐ Other

Depth to Water (ft): 3.26 Well Depth: 16.87 ft. Pump Inlet ~ 14.25 ft.

Well Diameter: ☐ 2" (0.16 gal/feet) ☐ 4" (0.65 gal/feet) ☐ 5" (1.02 gal/feet) ☑ 1.5" (0.092 gal/ft.) ☐ 6" (1.47 gal/feet)

Water Column Height: 13.61 ft

Well Volume: 1.25 gal 1103 start purge

Purge Water Storage Location and Container Type: 55-gal. drums

Notes: Screen is 9-14 ft below ground surface. Water reactive to HCl in voas.

Time	Depth To Water (ft)	Volume Purged	Temperature (°C)	DO (mg/l)	pH (SU)	Cond (uS/cm C)	ORP (mV)	Turbidity (NTU)	Comments
1109	4.00	0	17.63	3.98	6.77	7896	-128.2	25.2	slightly silty
1114	4.01	~0.1	17.29	2.14	6.77	7834	-139.1	26.6	
1119	4.08	~0.25	17.47	1.62	6.77	7780	-141.1	34.1	
1124	3.96	~0.4	17.70	1.38	6.77	7734	-142.9	41.8	
1129	3.92	~0.55	18.04	1.28	6.78	7707	-141.0	47.2	
1134	3.95	~0.7	18.33	1.19	6.78	7696	-151.7	56.2	
1139	3.98	~0.8	18.24	1.12	6.77	7663	-155.1	62.5	
1144	3.90	~0.9	18.37	1.05	6.77	7617	-155.9	73.4	
1149	4.06	~1.0	18.40	1.01	6.78	7576	-164.9	57.1	
1154	4.01	~~1.2~~ 1.15	17.99	0.94	6.77	7558	-163.4	55.0	
1159	4.03	~1.3	18.21	0.88	6.78	7498	-166.5	65.2	
1210	Sampled								
1220	Sampled duplicate								

Water Quality Sampling Field Log

terraphase engineering

Project Name: UC BAPB Investigation Sample ID: MW-41 Page 1 of ___

Project Number: 0009.002.007 Site Location: UC RFS, Richmond, CA Sample Type: ☑ Primary Sample ☐ Duplicate Sample ☐ Field Blank ☐ Other

Sampler: KQM Sample Date: 06/05/2012

Weather Conditions: Sunny, breezy Sample Plan By: A. Romolo

Purge Data

Purge Method: ☑ Peristaltic Pump ☐ Disposable Bailer ☐ Centrifugal Pump ☐ Bladder Pump ☐ Other

Depth to Water (ft): 3.33 Well Depth: 15.51 ft. Pump Inlet ~13 ft.

Well Diameter: ☐ 2" (0.16 gal/feet) ☐ 4" (0.65 gal/feet) ☑ 1.5" (0.092 gal/ft.) ☐ 5" (1.02 gal/feet) ☐ 6" (1.47 gal/feet)

Water Column Height: 12.18 ft.

Well Volume: 1.12 gal

Purge Water Storage Location and Container Type: 55-gal drum 0941 start purge

Notes: Screen 8-13 ft below ground surface.

Time	Depth To Water (ft)	Volume Purged	Temperature (°C)	DO (mg/l)	pH (SU)	Cond (uS/cm C)	ORP (mV)	Turbidity (NTU)	Comments
0947	3.66	0	16.12	4.12	6.33	10111	-40.8	15.6	
0952	3.67	~0.2	16.04	2.48	6.34	9813	-56.3	9.4	
0957	3.67	~0.4	15.99	2.10	6.34	9737	-58.8	7.1	
1002	3.68	~0.85	16.06	1.78	6.34	9689	-58.2	4.4	
1007	3.68	~1.0	16.21	1.57	6.35	9675	-61.6	3.1	
1012	3.68	~1.2	16.34	1.43	6.35	9647	-63.2	2.6	
1020	sampled								

APPENDIX E

2011 DATA TRANSMITTAL

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ARCADIS
Infrastructure, environment, buildings

March 11, 2011 EM009358.0017.00001

Ms. Barbara Cook, P.E.
Acting Assistant Deputy Director, Cleanup Program
Site Mitigation Branch
c/o Lynn Nakashima
Department of Toxic Substances Control
700 Heinz Avenue, Suite 200
Berkeley, California 94710

Subject: Transmittal of Groundwater Data Collected in Select Areas at the University of California Richmond Field Station, Richmond, California

Dear Ms. Cook:

ARCADIS U.S., Inc. (ARCADIS) is submitting this letter on behalf of Zeneca Inc. (Zeneca), a respondent to the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) Site Investigation Order, Docket No. 06/07-004 ("DTSC Order")[1]. This letter report summarizes monitoring well installation and groundwater sampling activities and transmits the analytical results of groundwater samples collected in select areas at the University of California Richmond Field Station (UCRFS) located in Richmond, California ("the Site"; Figure 1). The well installation and sampling activities were required by the DTSC in its September 16, 2010 letter to Zeneca. The activities discussed in this letter were conducted in accordance with the procedures set forth in the following ARCADIS documents previously approved by the DTSC:

- "Revised Work Plan to Evaluate Groundwater in Select Areas at the University of California Richmond Field Station, Richmond, California," dated November 24, 2010 ("the Work Plan")
- "Lot 3 Field Sampling and Analysis Plan, Campus Bay Site, Former Zeneca, Inc., Richmond Facility, Richmond, California," dated November 2, 2005 ("the Lot 3 FSAP")
- "Revised Health and Safety Plan, Environmental and Associated Activities, Campus Bay Site, Former Zeneca, Inc., Richmond Facility, Richmond, California," dated January 7, 2008
- "Revised Quality Assurance Project Plan Approval, Former Zeneca Property, Campus Bay Site," dated July 18, 2005

In accordance with the Work Plan, five upper-horizon groundwater monitoring wells were installed in and around the biologically active permeable barrier (BAPB) on the UCRFS to evaluate the groundwater quality in the vicinity BAPB (Figure 2). The upper horizon has been defined as the shallow water-bearing sediments present from the ground surface to approximately

[1] The Regents of the University of California (UC) is also a respondent to the DTSC Order.

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20 feet below ground surface (bgs). The newly installed groundwater monitoring wells are labeled MW-34 through MW-38.

In addition, a grab groundwater sample was collected from a direct-push boring west of the slurry wall on the UCRFS property (Figure 2). The grab groundwater sample, labeled UCB-SL-GGW, was collected from the first water-bearing sediments located below the slurry wall. The purpose of this data was to assess the potential presence of volatile organic compound (VOC) concentrations in groundwater beneath the slurry wall located on the UCRFS.

The approximate locations of the monitoring wells and the grab groundwater sample are illustrated on Figure 2. The construction details for the monitoring wells and grab groundwater sample are provided in Table 1. A discussion of the monitoring well installation and groundwater sample collection procedures is provided below.

INSTALLATION AND SAMPLING ACTIVITIES

Pre-Fieldwork Activities

Prior to implementing field activities, Underground Service Alert (USA) was notified 48 hours in advance of mobilization to the field. A private utility locator was contracted to identify underground utilities at each monitoring well and grab groundwater location. Ground penetrating radar (GPR) was also used in an attempt to assess the exact location of the BAPB prior to initiating subsurface drilling and sampling activities. In addition, ARCADIS obtained the applicable drilling and well permits required for the work from the Contra Costa County Environmental Health Division (CCCEHD).

Monitoring Well Installation

On December 15 through 17, 2010, five groundwater monitoring wells were installed within the BAPB and the upper-horizon sediments at the approximate locations illustrated on Figure 2. The purpose of these wells is to provide data regarding the groundwater quality in the vicinity of the BAPB and assess the effectiveness of the BAPB in reducing dissolved metals (and to a lesser extent VOCs) in upper-horizon groundwater as it migrates towards the marsh on the UCRFS.

Three groundwater monitoring wells (MW-34, MW-35, and MW-36) were installed in a line perpendicular to the BAPB, one each at a location upgradient from, within, and downgradient from the BAPB, respectively (see Figure 2). The upgradient and downgradient wells were installed approximately 10 feet from the well located within the BAPB. The two additional wells (MW-37 and MW-38) were installed within the BAPB to the east and west of the well cluster at the approximate locations indicated on Figure 2. The approximate location of the BABP was determined in the field prior to installation of the monitoring wells using a global positioning system (GPS), historical site maps and documents, and GPR. The location of the BAPB near the ground surface at wells MW35, MW37, and MW38 was verified by observing BAPB material that was removed from the subsurface using a hand auger prior to drilling.

At each well location a pilot soil boring was advanced using the direct-push drilling method for the purpose of determining the subsurface lithology and desired well screen interval. Soil samples were collected continuously for the total depth of the boring. The lithology was recorded onto soil boring logs in general accordance with the Unified Soil Classification System (USCS) by an ARCADIS field geologist. Soil samples were screened in the field using a portable photoionization detector (PID). The PID measurements were also recorded onto the soil boring logs. The soil boring logs have been provided in Attachment 1.

The monitoring well borings were then drilled over the pilot borings using a drilling rig equipped with 8-inch hollow-stem augers in accordance with the procedure outlined in the Work Plan. At each location, the monitoring wells were constructed using flush threaded 2-inch-diameter schedule 40 polyvinyl chloride (PVC) well casing with 10 feet of PVC 0.010-inch slotted well screen installed at various depths depending on observed lithology in the soil cores. For wells MW-35, MW-37, and MW-38, installed within the BAPB, the bottom of the well screen was set at the base of the BAPB. As the augers were removed, the annular space between the well and the formation was filled with No. 2/12 sand to a depth of approximately 1 foot above the screened interval. An approximately 2-foot-thick layer of bentonite chips was then placed above the sand pack and hydrated to form a coherent seal. The remaining annular space above the bentonite was filled with cement grout. A locking well cap was then placed on top of the well casing. The monitoring wells were completed with a riser pipe extending approximately 3 feet above grade. A metal casing was then installed to protect the PVC riser pipe. The monitoring well construction details are included on the soil boring logs provided in Attachment 1. A summary of the well construction details are provided in Table 1.

In accordance with county permits, the monitoring wells were completed under the oversight of a representative of the CCCEHD. All five monitoring wells were developed on January 4, 2010 in accordance with the procedures provided in the Lot 3 FSAP. The well development logs are provided in Attachment 2. The elevation, northing, and easting of each newly installed monitoring well were then surveyed by a California-licensed surveyor.

Grab Groundwater Sample

A single grab groundwater sample was collected from the first groundwater-bearing sediments located beneath the slurry wall from a location approximately 25 feet to the west of the slurry wall (UCB-GW-SL; Figure 2). The purpose of this sample was to provide data to assess for the potential presence of VOCs in groundwater below the slurry wall on the UCRFS. The grab groundwater sample was collected from approximately 25 and 30 feet bgs. The sample interval is approximately 5 to 10 feet below the base of the slurry wall and approximately 3 to 8 feet below the upper-horizon water-bearing sediments (see the soil boring in Attachment 1).

The grab groundwater sample was collected using a limited-access direct-push rig. The drilling contractor used a hand auger to advance the first 5 feet to verify that no utilities would be affected. During the advancement of the boring, soil samples were collected continuously to a total depth 30

feet bgs to identify the first water-bearing zone beneath the slurry wall. The slurry wall is completed to approximately 20 feet bgs.

The lithology was recorded onto soil boring logs in general accordance with the USCS. The soil boring log has been provided in Attachment 1.

To prevent cross-contamination from the shallow groundwater zone, a separate hydropunch boring was advanced approximately 3 feet to the south of the original soil boring to 30 feet bgs. The hydropunch tooling was then pulled up approximately 5 feet exposing a screened sample interval of 25 to 30 feet bgs. The groundwater sample was collected by lowering a small-diameter (0.75-inch) stainless steel bailer down into the hydropunch sampler. The groundwater was then transferred from the bailer into clean laboratory-provided sample containers, stored in an ice-chilled cooler, and transported under chain-of-custody protocol to the laboratory for analysis.

The grab groundwater sample was submitted to Curtis & Tompkins, Ltd. (C&T), a state-certified laboratory. In accordance with the Work Plan, the sample was analyzed for VOCs by U.S. Environmental Protection Agency (EPA) Method 8260B. VOCs detected in the grab groundwater sample are presented in Table 2.

After the groundwater sample was collected, the hydropunch sampler was removed and the soil borings were abandoned using the procedures described in the Lot 3 FSAP under the oversight of the CCCEHD.

Monitoring Well Sampling

Groundwater samples were collected from the newly installed monitoring wells on January 7, 2011 using low-flow purging techniques in accordance with the procedures described in the Lot 3 FSAP.

Groundwater samples were collected in sample containers provided by the analytical laboratory and temporarily stored in an ice-chilled cooler for transport to the laboratory. Sample containers were labeled with the collector's initials, sample identification number (well identification), time of sample collection, date, location, sample type, analytical method, and preservative used. Complete chain-of-custody (COC) forms accompanied the samples to C&T.

During low-flow purging from groundwater monitoring wells, the following field parameters are measured and recorded on water quality field sheets prior to sample collection using a YSI 556 Multiparameter Water Quality Meter equipped with a flow-through cell:

- Dissolved oxygen (DO)
- oxidation-reduction potential (ORP)
- pH
- specific conductance

- temperature
- turbidity

In accordance with the Work Plan, groundwater samples were collected in laboratory-supplied containers and submitted to C&T for the following chemical analyses:

- Title 22 Metals using EPA Method 6010 (EPA Method 7470 for mercury)
- VOCs using EPA Method 8260B
- Zeneca proprietary pesticides (OPPs) using EPA Method 8270SIM
- Ferrous iron using Standard Method 3500 FeB
- Dissolved sulfide using Standard Method 4500S2-D
- Alkalinity using Standard Method 2320B
- Chloride using EPA Method 300.0
- Sulfate using EPA Method 300.0
- Total dissolved solids (TDS) using Standard Method 2540C

Analytical results and field measurements for groundwater samples collected on January 7, 2011 are presented in Tables 2 through 5. Table 6 presents a summary of key parameters in analyzing the effectiveness of the BAPB.

Additional Groundwater Quality Data

In accordance with the Work Plan "relevant data from UC sampling at the UCRFS" is to be included in this transmittal. As such, the analytical results for samples collected from piezometers RFS-GW-ETA and RFS-GW-B163 located on the UCRFS are included in Tables 2 through 5 and the locations of piezometers RFS-GW-ETA and RFS-GW-B163 are illustrated on Figure 3. This data represents upper-horizon groundwater quality at locations in the upgradient direction relative to the groundwater samples collected on January 7, 2011 from the wells installed in the vicinity of the BABP. Piezometers RFS-GW-ETA and RFS-GW-B163 are reported to be screened from 3.5 to 13.5 feet bgs and 7 to 17 feet bgs, respectively (Table 1). UCRFS provided this data in the technical memorandum prepared by Tetra Tech Inc. entitled: "Draft Phase I Groundwater Sampling Results, Technical Memorandum, University of California, Berkeley, Richmond Field Station, Richmond, California," dated January 12, 2011.

In addition, ARCADIS has included the analytical results for grab groundwater samples collected in the vicinity of the BABP in 2001. This data is presented on a figure included as Attachment 3 to this letter. The figure was included in the report prepared by URS Corporation on behalf of UCRFS entitled: "Final Report, Results of Additional Soil and Groundwater Investigations and Surface Water Monitoring Plan, Marsh Portion of Subunit 2A, Richmond Field Station, Richmond, California (Tasks 3A & 3B, Regional Water Quality Control Board (RWQCB) Order No. 01-102)," dated November 21, 2001. As indicated, this figure presents historical metals

concentrations collected just upgradient of the marsh on the UCRFS prior to the installation of the BAPB.

If you have any questions regarding the information provided above, please do not hesitate to call the undersigned at (510) 652-4500.

Sincerely,

ARCADIS U.S., Inc.

Ronald Goloubow, P.G. (8655)
Principal Geologist

Daren Roth
Senior Geologist

cc: Ms. Lynn Nakashima, DTSC
Mr. Doug Mosteller
Mr. Bill Marsh, Esq.
Mr. Anthony Garvin, University Counsel for UC
Mr. Nicholas Targ, Esq.
Mr. Karl Hans, UC

Attachments:

Table 1: UC BAPB Well Construction Details
Table 2: UC BAPB Sampling Analytical Results, Volatile Organic Compounds in Groundwater
Table 3: UC BAPB Sampling Analytical Results, Metals in Groundwater
Table 4: UC BAPB Sampling Analytical Results, Proprietary Pesticides
Table 5: UC BAPB Sampling Analytical Results, General Minerals and Field Parameters
Table 6: Summary of UC BAPB Cluster Wells Indicator Parameters

Figure 1: Site Vicinity Map
Figure 2: Approximate Monitoring Well and Grab Groundwater Locations at the Richmond Field Station

Attachment 1: Soil Boring Logs with Well Construction Details

Attachment 2: Monitoring Well Development Logs

Attachment 3: Figure 6 of 2001 URS Report

Table 1
UC BAPB Well Construction Details
UC Richmond Field Station
Campus Bay, Richmond, CA

Area	Well Name	Installation Date	Approximate Total Depth (feet bgs)	Casing Diameter (inches)	Approximate Screen Interval (feet bgs)	TOC Elevation	Ground Surface Elevation	Approximate Screen Elevation	Screen Size and Material	Surface Mount
ARCADIS Monitoring Wells										
Near BAPB	MW-34	12/17/10	19.0	2.0 PVC	9.0 - 19.0	7.18	4.74	-4.26 to -14.26	0.010 PVC	Monument
	MW-35	12/16/10	16.0	2.0 PVC	6.0 - 16.0	6.98	4.24	-1.76 to -11.76	0.010 PVC	Monument
	MW-36	12/16/10	17.0	2.0 PVC	7.0 - 17.0	6.78	4.07	-2.93 to -12.93	0.010 PVC	Monument
	MW-37	12/17/10	15.0	2.0 PVC	5.0 - 15.0	7.92	4.92	-0.08 to -10.08	0.010 PVC	Monument
	MW-38	12/15/10	18.0	2.0 PVC	8.0 - 18.0	8.23	6.00	-2.0 to -12.0	0.010 PVC	Monument
Grab Groundwater Sample Near Slurry Wall										
West of Slurry Wall	UCB-SL-GGW-30	12/17/10	30.0	NA	25.0 - 30.0	NA	9.84	NA	NA	NA
Tetra Tech Monitoring Wells										
Upgradient of BAPB	RFS-GW-B163*	7/26/10	17.5	2.0	7.0 - 17.0	7.68	7.91	0.91 to -9.09	NA	Flush
	RFS-GW-ETA*	7/28/10	14.0	2.0	3.5 - 13.5	4.85	5.03	1.53 to -8.47	NA	Flush

Notes:
BAPB = Biologically Active Permeable Barrier
feet bgs = feet below ground surface
NA = Information not applicable or available
PVC = Polyvinyl chloride
TOC = Top of Casing Elevation (based on the National Geodetic Vertical Datum 29 Standard)
* = Well installed by Tetra Tech on behalf of the University of California (UC), Berkeley.

Table 2
UC BABP Sampling Analytical Results
Volatile Organic Compounds in Groundwater
UC Richmond Field Station
Campus Bay, Richmond, CA

*All results in micrograms per liter (µg/l)**

Sample ID	Sample Type	Sample Date	1,1,2,2-Tetrachloroethane	1,1-Dichloroethene	1,2-Dichloroethane	Acetone	Benzene	Chlorobenzene	Chloroform	cis-1,2-Dichloroethene	Tetrachloroethene	trans-1,2-Dichloroethene	Trichloroethene	Vinyl Chloride
MW-34	Primary	1/7/2011	<0.5	<0.5	**3.1**	<10	**0.3J**	**92**	**2.0**	**1.8**	**13**	<0.5	**20**	<0.5
MW-35	Primary	1/7/2011	<0.5	<0.5	**0.6**	**7.7J**	**0.7**	**26**	<0.5	**4.5**	<0.5	**0.5**	**0.7**	**0.4J**
MW-36	Primary	1/7/2011	<1.3	<1.3	**3**	<25	**1.1J**	**160**	**2.6**	**1.1J**	**11**	<1.3	**9.3**	<1.3
MW-37	Primary	1/7/2011	<0.5	**0.5J**	**3.9**	<10	**0.4J**	**29**	<0.5	**24**	**87**	**1.9**	**32**	<0.5
MW-38	Primary	1/7/2011	<1	<1	**13**	<20	**1.6**	**300**	**1.7**	**41**	**190**	**0.8J**	**86**	**3.3**
	Duplicate	1/7/2011	<2.5	<2.5	**12**	<50	**1.5J**	**280**	**1.5J**	**38**	**180**	<2.5	**82**	**3.4**
UCB-SL-GGW-30	Primary	12/17/2010	**8.9**	<8.3	**47**	<170	**11**	**3600**	**62**	**11**	**1200**	<8.3	**260**	<8.3
RFS-GW-B163*	Primary	9/2/2010	<0.5	**0.3J**	**8.5**	**2.7J**	**0.2J**	**6.5**	**2.1**	**3**	**8.4**	**0.3J**	**100**	**0.7**
RFS-GW-ETA*	Primary	9/24/2010	<0.5	<0.5	<0.5	<4.0	<0.5	<0.5	<0.5	**0.9**	<0.5	<0.5	**12**	<0.5
	Duplicate	9/24/2010	<0.5	<0.5	<0.5	<4.0	<0.5	<0.5	<0.5	**0.9**	<0.5	<0.5	**14**	<0.5
Equipment Blank	Primary	1/7/2011	<0.5	<0.5	<0.5	<10	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Trip Blank	Primary	1/7/2011	<0.5	<0.5	<0.5	<10	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Notes:
<0.5 = Concentration not detected at or above indicated laboratory reporting limit
BAPB = Biologically Active Permeable Barrier
J = estimated value
MW = monitoring well
* = Sample Collected by Tetra Tech on behalf of the University of California (UC), Berkeley.
Bold values indicate concentrations above laboratory detection limits. Only chemicals with at least one detection in the current sampling event are shown in this table.

Table 3
UC BAPB Sampling Analytical Results
Metals in Groundwater
UC Richmond Field Station
Campus Bay, Richmond, CA

*All results in micrograms per liter (µg/l)**

Sample ID	Sample Type	Sample Date	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
MW-34	Primary	1/7/2011	<10	<5	**19**	<2	<5	**6.9**	<5	<5	<5	<0.2	<5	**30**	**13**	**7.1**	<10	<5	<20
MW-35	Primary	1/7/2011	<10	<5	**75**	<2	<5	**7.7**	**6.2**	<5	<5	<0.2	**5.2**	**11**	**65**	**6.3**	<10	<5	<20
MW-36	Primary	1/7/2011	<10	<5	**31**	<2	<5	**12**	**160**	<5	<5	<0.2	<5	**460**	**43**	**7.6**	<10	<5	**310**
MW-37	Primary	1/7/2011	<10	<5	**53**	<2	<5	**7.9**	**320**	<5	<5	<0.2	<5	**360**	**25**	<5	<10	<5	**23,000**
MW-38	Primary	1/7/2011	<10	**63**	**100**	<2	<5	**11**	**19**	<5	<5	<0.2	**6.4**	**90**	**47**	**7.1**	<10	<5	**590**
	Duplicate	1/7/2011	<10	**61**	**100**	<2	<5	**11**	**19**	<5	<5	<0.2	**6.4**	**91**	**41**	**7.2**	<10	<5	**590**
RFS-GW-B163*	Primary	9/2/2010	<1.0	**1.6**	**17**	<0.5	**5.2**	<5.0	**6**	**2.5**	<2.0	**0.083**	**0.95**	**170**	<2.0	<0.5	<2.0	<4.0	**9.2**
RFS-GW-ETA*	Primary	9/24/2010	<1.0	**22**	**39**	<0.5	**0.93J**	**5.8**	**3.8**	**22**	**9.8**	**2.3**	**2.7**	**10**	<2.0	<0.5	<2.0	**5.4**	**110**
	Duplicate	9/24/2010	<1.0	**13**	**28**	<0.5	<1.0	**2.6**	**2.4**	**8**	**3.2**	**1.3**	**2.9**	**4.9**	<2.0	<0.5	<2.0	<4.0	**50**
Equipment	Primary	1/7/2011	<10	<5	<5	<2	<5	<5	<5	<5	<5	<0.2	<5	<5	<10	<5	<10	<5	<20

Notes:
<0.2 = Concentration not detected at or above indicated laboratory reporting limit
BAPB = Biologically Active Permeable Barrier
J = Estimated Value
MW = monitoring well
* = Sample Collected by Tetra Tech on behalf of the University of California (UC), Berkeley.
Bold values indicate concentrations above laboratory detection limits.

Table 4
UC BAPB Sampling Analytical Results
Proprietary Pesticides
UC Richmond Field Station
Campus Bay, Richmond, CA

*All results in micrograms per liter (µg/l)**

Well ID	Sample Type	Sample Date	Butylate	Cycloate	EPTC	Molinate	Napropamide	Pebulate	Vernolate
MW-34	Primary	1/7/2011	<2.5	<2.5	<5	<2.5	<2.5	<2.5	<2.5
MW-35	Primary	1/7/2011	<2.5	<2.5	<5	<2.5	<2.5	<2.5	<2.5
MW-36	Primary	1/7/2011	<2.5	<2.5	<5	<2.5	<2.5	<2.5	<2.5
MW-37	Primary	1/7/2011	<2.5	<2.5	<5	<2.5	<2.5	<2.5	<2.5
MW-38	Primary	1/7/2011	<2.5	<2.5	<5	<2.5	<2.5	<2.5	<2.5
	Duplicate	1/7/2011	<2.5	<2.5	<5	<2.5	<2.5	<2.5	<2.5
Equipment Blank	Primary	1/7/2011	<2.5	<2.5	<5	<2.5	<2.5	<2.5	<2.5

Notes:
<0.5 = Concentration not detected at or above indicated laboratory reporting limit
BAPB = Biologically Active Permeable Barrier
MW = monitoring well
EPTC = S-ethyl dipropylthiocarbarnate
UC = University of California

Table 5
UC BAPB Sampling Analytical Results
General Minerals and Field Parameters
UC Richmond Field Station
Campus Bay, Richmond, CA

Sample ID	Sample Type	Sample Date	Alkalinity, Bicarbonate (mg/l)	Alkalinity, Carbonate (mg/l)	Alkalinity, Hydroxide (mg/l)	Alkalinity, Total as CaCO3 (mg/l)	Chloride (mg/l)	Conductivity (µS/cm)	Dissolved Oxygen (mg/l)	Dissolved Sulfide (mg/l)	Sulfate (mg/l)	Total Dissolved Solids (mg/l)	Oxidation Reduction Potential (mV)	pH (SU)	Temperature (C°)	Turbidity (NTU)
MW-34	Primary	1/7/2011	**380**	<6.7	<6.7	**380**	**1800**	**9360**	**3.92**	<0.04	**3300**	**7540**	**11.1**	**6.54**	**14.8**	**10**
MW-35	Primary	1/7/2011	**1700**	<6.7	<6.7	**1700**	**2800**	**10852**	**3.04**	<0.04	**970**	**7450**	**-42.8**	**6.65**	**13.2**	**25**
MW-36	Primary	1/7/2011	**310**	<6.7	<6.7	**310**	**2900**	**12896**	**5.18**	<0.04	**3400**	**9560**	**35.5**	**5.97**	**13.6**	**8**
MW-37	Primary	1/7/2011	**340**	<6.7	<6.7	**340**	**2200**	**9001**	**5.12**	<0.04	**2200**	**6470**	**-29.3**	**5.97**	**13.3**	**11**
MW-38	Primary	1/7/2011	**830**	<6.7	<6.7	**830**	**2400**	**9767**	**3.93**	<0.04	**1700**	**7040**	**-16**	**6.25**	**15.9**	**7**
	Duplicate	1/7/2011	**820**	<6.7	<6.7	**820**	**2400**	-	-	<0.04	**1700**	**7010**	-	-	-	-
RFS-GW-B163*	Primary	9/2/2010	-	-	-	-	-	-	-	-	-	**2900**	-	-	-	-
RFS-GW-ETA*	Primary	9/24/2010	-	-	-	-	-	-	-	-	-	**1300**	-	-	-	-
	Duplicate	9/24/2010	-	-	-	-	-	-	-	-	-	**1300**	-	-	-	-
FIELD BLANK	Primary	1/7/2011	<1	<1	<1	<1	<0.2	-	-	<0.04	<0.5	<10	-	-	-	-

Notes:
<0.04 = Concentration not detected at or above indicated laboratory reporting limit.
BAPB = Biologically Active Permeable Barrier
mV = millivolts
mg/L = Milligrams per liter
MW = Monitoring well
NTU = Nephelometric Turbidity Units
SU = Standard units
µg/L = Micrograms per liter
µS/cm = Microsiemens per centimeter
- = result not available or not applicable

* = Sample Collected by Tetra Tech on behalf of the University of California (UC), Berkeley.
Bold values indicate concentrations above laboratory detection limits.
Dissolved oxygen, oxidation reduction potential, pH, specific conductance, temperature and turbidity were measured in the field.

Table 6
Summary of UC BAPB Cluster Wells Indicator Parameters
UC Richmond Field Station
Campus Bay, Richmond, CA

Sample ID	Sample Type	Location	Sample Date	Alkalinity, Bicarbonate (mg/L)	Ferrous Iron (Fe^{2+}) (mg/L)	Oxidation Reduction Potential (mV)	pH (SU)	Sulfate (mg/L)	Dissolved Sulfide (mg/L)	Arsenic (μg/L)	Copper (μg/L)	Nickel (μg/L)	Zinc (μg/L)
MW-34	Primary	Upgradient	1/7/2011	380	<0.1	11.1	6.54	3,300	<0.04	<5	<5	30	<20
MW-35	Primary	In BAPB	1/7/2011	1,700	21	-42.8	6.65	970	<0.04	<5	<5	11	<20
MW-36	Primary	Downgradient	1/7/2011	310	5.0	35.5	5.97	3,400	<0.04	<5	<5	460	310
MW-37	Primary	In BAPB	1/7/2011	340	140	-29.3	5.97	2,200	<0.04	<5	<5	360	23,000
MW-38	Primary	In BAPB	1/7/2011	830	4.7	-16.0	6.25	1,700	<0.04	63	<5	90	590
	Duplicate		1/7/2011	820	4.7	-16.0	6.25	1,700	<0.04	61	<5	91	590

Abbreviations:
<0.1 = Concentration not detected at or above indicated laboratory reporting limit.
BAPB = Biologically Active Permeable Barrier
mV = millivolts
mg/L = Milligrams per liter
MW = Monitoring well
SU = Standard units
μg/L = Micrograms per liter
UC = University of California

Note:
This table summarizes data presented in Tables 2 through 5 for cluster wells upgradient, within, and downgradient of the BAPB. The indicator parameters presented in this table are measured in the BAPB cluster wells to evaluate the effectiveness of the BAPB in buffering the groundwater and creating reducing conditions necessary for the precipitation of dissolved metals in groundwater.

SOURCE: THOMAS BROS MAP - Bay Area 2001

Approximate Campus Bay Property Boundary

Approximate HEA Boundary

0 .5 mile

CAMPUS BAY, RICHMOND, CALIFORNIA

SITE VICINITY MAP

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FIGURE 1

DESIGN\00110935B\Campus Bay Site Vicinity Map.CDR 120203

RFS-GW-ETA

MW-37

MW-36

MW-34

MW-35

BAPB

RFS-GW-B163

MW-38

UCB-SL-GGW-30

OUTFALL 003

MW-1

Slurry Wall

MW-18

MW-4

MW-3

MW-2

MW-5

PZ-1S
PZ-1D
PZ-2S
PZ-2D
PZ-3S
PZ-3D

MW-7

MW-6

MW-8

MW-28

MW-10A

MW-9

PZ-4S
PZ-4D

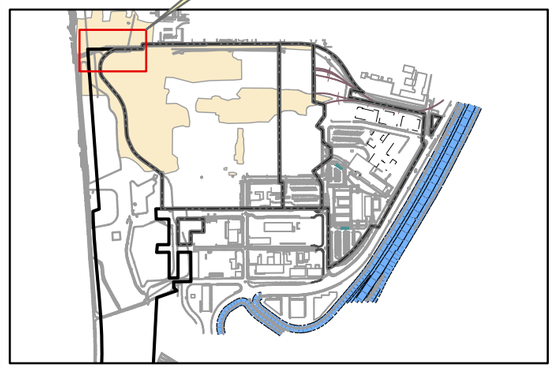
MW-32A
MW-32B

MW-19

LEGEND

- APPROXIMATE MONITORING WELL LOCATION
- APPROXIMATE GRAB GROUNDWATER LOCATION
- MW-16B — APPROXIMATE LOCATION OF EXISTING MONITORING WELL
- PZ-8 — APPROXIMATE LOCATION OF EXISTING PIEZOMETER
- RFS-GW-B163 — APPROXIMATE LOCATION OF EXISTING TETRA TECH PIEZOMETER
- Outfall 003 — SURFACE-WATER MONITORING LOCATION
- HABITAT ENHANCEMENT AREA BOUNDARY
- PROPERTY BOUNDARY
- SUBAREA BOUNDARY
- PREVIOUS CINDER EXCAVATION AREA
- 2-FOOT CONTOUR INTERVAL

AREA ILLUSTRATED



N

0 80 160 Feet

GRAPHIC SCALE

CAMPUS BAY, RICHMOND, CALIFORNIA

APPROXIMATE MONITORING WELL AND GRAB GROUNDWATER LOCATIONS AT THE RICHMOND FIELD STATION

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FIGURE 2

ATTACHMENT 1

Soil Boring Logs with Well Construction Details

PROJECT NAME Zeneca: UCRFS Groundwater Monitoring
CLIENT Zeneca

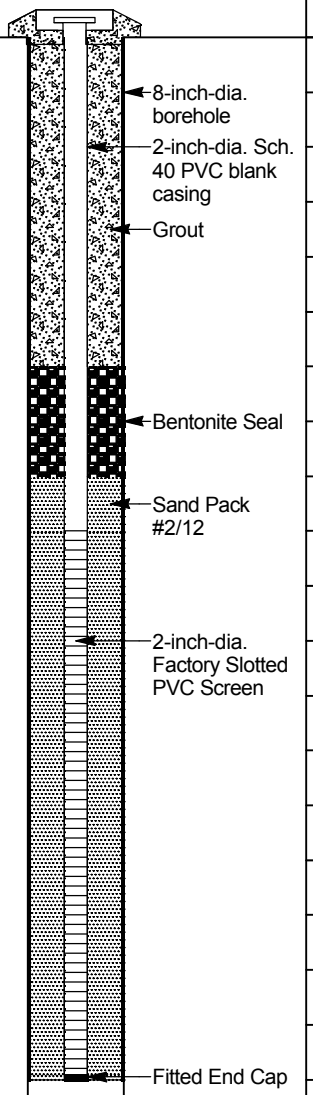
WELL NUMBER MW-34

PROJECT LOCATION Campus Bay
PROJECT NUMBER EM009358.0017.00001
LOCATION Richmond, CA
OVA EQUIPMENT Photoionization Meter
GROUND ELEVATION _____ **HOLE DIAMETER** 8 Inches
TOP OF CASING ELEVATION _____ **HOLE DEPTH** 20.0 feet
▽ **FIRST ENCOUNTERED WATER** 9.5 feet
STABILIZED WATER ---
LOGGED BY Thomas R. Collins, IV **DATE** 12/17/10

DRILLING CONTRACTOR Gregg Drilling
DRILLING METHOD Direct Push / Hollow Stem Auger
STAMP (IF APPLICABLE) AND/OR NOTES
Hand augered to 5 Feet Below Ground Surface
No PID due to rain

DEPTH (feet)	SAMPLE TYPE NUMBER	SAMPLE RECOVERY	U.S.C.S.	GRAPHIC LOG	DEPTHS	LITHOLOGIC DESCRIPTION
0	Hand Auger to 5 Feet		CL			CLAY (CL); Dark Grayish Brown (10YR 4/2)
5					6.0	
			SW		7.5	SAND (SW); Very Dark Greenish Gray (GLEY 2 3/5BG)
			CL		9.5▽	CLAY (CL); Dark Yellowish Brown (10YR 4/6)
10			SC		11.0	SAND with Clay (SC); Wet; with some Cinder
			CL		16.0	CLAY (CL); Dark Yellowish Brown (10YR 4/6)
15			SC		19.0	CLAYEY SAND (SC) above CLAY bottom; Dark Yellowish Brown (10YR 4/6)
20			CL		20.0	CLAY (CL); Dark Yellowish Brown (10YR 4/6)
						Bottom of Boring at Approximately 20 Feet Below Ground Surface

WELL DIAGRAM



DEPTH (feet): 0, 5, 10, 15, 20

APPROVED BY: _____ **DATE:** _____

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BORING+WELL 2006 EM009358.0017_DEC2010.GPJ LFR SEPT 2006.GDT 02/16/11

PROJECT NAME Zeneca: UCRFS Groundwater Monitoring
CLIENT Zeneca

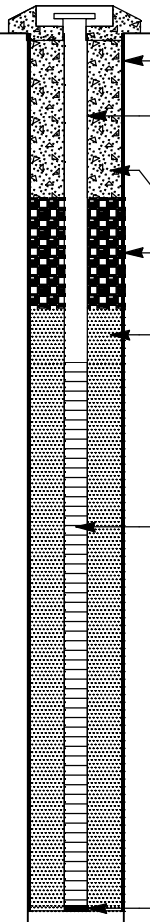
WELL NUMBER MW-35

PROJECT LOCATION Campus Bay
PROJECT NUMBER EM009358.0017.00001
LOCATION UCB Marsh, Richmond, CA
OVA EQUIPMENT Photoionization Meter
GROUND ELEVATION _____ **HOLE DIAMETER** 8 Inches
TOP OF CASING ELEVATION _____ **HOLE DEPTH** 18.0 feet
▽ **FIRST ENCOUNTERED WATER** 3.0 feet
STABILIZED WATER ---
LOGGED BY Thomas R. Collins, IV **DATE** 12/16/10

DRILLING CONTRACTOR Gregg Drilling
DRILLING METHOD Direct Push / Hollow Stem Auger
STAMP (IF APPLICABLE) AND/OR NOTES
Hand augered to 5 Feet Below Ground Surface

DEPTH (feet)	SAMPLE TYPE NUMBER	SAMPLE RECOVERY	U.S.C.S.	GRAPHIC LOG	DEPTHS	LITHOLOGIC DESCRIPTION	PID (ppm)
	Hand Auger to 5 Feet		SC		▽	SAND w/ Some Clay (SC); GLEY2 3/5B	0.0
5					5.0	BAPB possible here but recovery is poor and sluff from above results in about 1 foot of Sand recovery each time. Black organic gravel with mulch.	0.0
10	No Recovery from 5 feet to 16 feet.						0.0
15					16.0	Bottom of BAPB at Approximately 16 Feet	0.0
			CL			CLAY (CL); 10YR 4/6; low plastic	0.0
					18.0	Bottom of Boring at Approximately 18 Feet Below Ground Surface	

WELL DIAGRAM



DEPTH (feet): 5, 10, 15

APPROVED BY: _____ **DATE:** _____

ARCADIS

BORING+WELL 2006 EM009358.0017_DEC2010.GPJ LFR SEPT 2006.GDT 02/16/11

PROJECT NAME Zeneca: UCRFS Groundwater Monitoring
CLIENT Zeneca

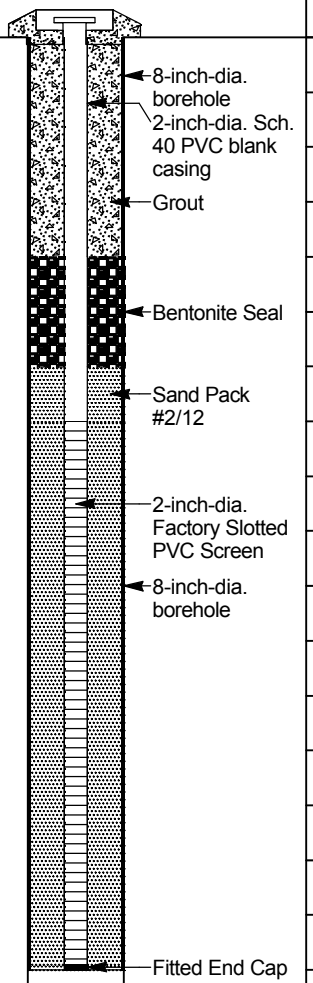
WELL NUMBER MW-36

PROJECT LOCATION Campus Bay
PROJECT NUMBER EM009358.0017.00001
LOCATION UCB Marsh, Richmond, CA
OVA EQUIPMENT Photoionization Meter
GROUND ELEVATION _____ **HOLE DIAMETER** 8 Inches
TOP OF CASING ELEVATION _____ **HOLE DEPTH** 20.0 feet
▽ **FIRST ENCOUNTERED WATER** 7.5 feet
STABILIZED WATER ---
LOGGED BY Thomas R. Collins, IV **DATE** 12/16/10

DRILLING CONTRACTOR Gregg Drilling
DRILLING METHOD Direct Push / Hollow Stem Auger
STAMP (IF APPLICABLE) AND/OR NOTES
Hand augered to 5 Feet Below Ground Surface

DEPTH (feet)	SAMPLE TYPE NUMBER	SAMPLE RECOVERY	U.S.C.S.	GRAPHIC LOG	DEPTHS	LITHOLOGIC DESCRIPTION	PID (ppm)
	Hand Auger to 5 Feet		SP			SAND (SP); Very Dark Greenish Gray (GLEY 1 3/10Y)	
5					5.0		0.0
			CL			CLAY (CL); Yellowish Brown (10YR 5/4); Low Plastic	
					7.0		
			SP			▽ SAND (SP); Very Dark Bluish Gray (GLEY 2 3/5B); Wet; with some purple cinder staining on the edges	0.0
10					11.0		0.0
			CL			CLAY (CL) with Very Fine Sand; Dark Yellowish Brown (10YR 4/4); Moist; Low Plastic	0.0
					13.0		
			SP			SAND (SP); as above; 6-inch sections of Clay like above throughout, sluff likely mixed with clay, native sand is wet, clay is not	0.0
15					16.0		0.0
						No Recovery	
							0.0
20					20.0		
						Bottom of Boring at Approximately 20 Feet Below Ground Surface	

WELL DIAGRAM



DEPTH (feet): 5, 10, 15, 20

APPROVED BY: _____ **DATE:** _____

ARCADIS

BORING+WELL 2006 EM009358.0017_DEC2010.GPJ LFR SEPT 2006.GDT 02/16/11

PROJECT NAME Zeneca: UCRFS Groundwater Monitoring
CLIENT Zeneca

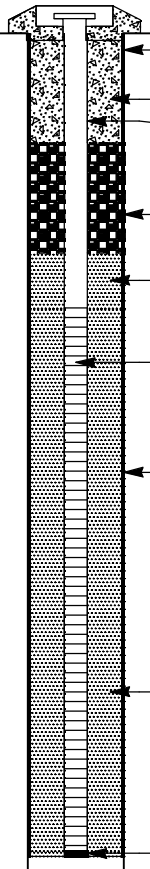
WELL NUMBER MW-37

PROJECT LOCATION Campus Bay
PROJECT NUMBER EM009358.0017.00001
LOCATION Richmond, CA
OVA EQUIPMENT Photoionization Meter
GROUND ELEVATION _____ **HOLE DIAMETER** 8 Inches
TOP OF CASING ELEVATION _____ **HOLE DEPTH** 16.0 feet
▽ **FIRST ENCOUNTERED WATER** 9.0 feet
STABILIZED WATER ---
LOGGED BY Thomas R. Collins, IV **DATE** 12/17/10

DRILLING CONTRACTOR Gregg Drilling
DRILLING METHOD Direct Push / Hollow Stem Auger
STAMP (IF APPLICABLE) AND/OR NOTES
Hand augered to 5 Feet Below Ground Surface
No PID due to rain

DEPTH (feet)	SAMPLE TYPE NUMBER	SAMPLE RECOVERY	U.S.C.S.	GRAPHIC LOG	DEPTHS	LITHOLOGIC DESCRIPTION
			CL			CLAY (CL); Dark Yellowish Brown (10YR 4/6); Low to Medium Plastic
					2.0	
	Hand Auger to 5 Feet					BAPB Black Mulchy Organic; Sandy and rocky with some mud BAPB is moist/wet, groundwater location is difficult because of rain from surface makes everything wet
5						
					▽ 10.0	
10			SW		11.0	SAND (SW); Very Dark Bluish Gray (GLEY 2 3/5B)
			CL			CLAY (CL); Dark Yellowish Brown (10YR 4/6); Low to Medium Plastic
15					16.0	
						Bottom of Boring at Approximately 16 Feet Below Ground Surface

WELL DIAGRAM



DEPTH (feet): 5, 10, 15

APPROVED BY: _____ **DATE:** _____

ARCADIS

BORING+WELL 2006 EM009358.0017_DEC2010.GPJ LFR SEPT 2006.GDT 02/16/11

PROJECT NAME Zeneca: UCRFS Groundwater Monitoring
CLIENT Zeneca

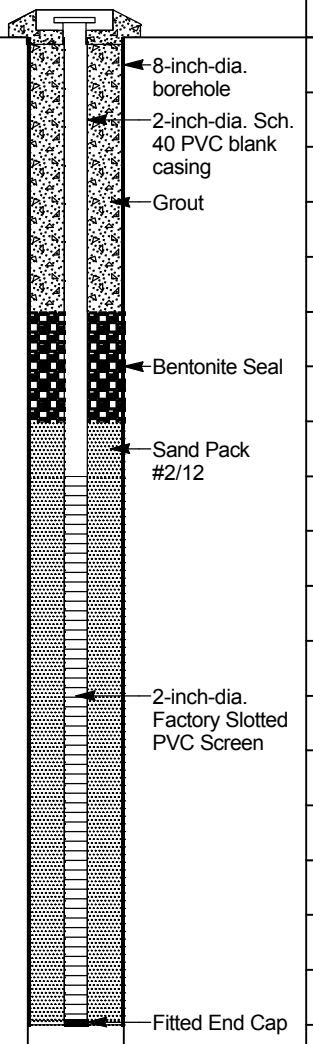
WELL NUMBER MW-38

PROJECT LOCATION Campus Bay
PROJECT NUMBER EM009358.0017.00001
LOCATION Richmond, CA
OVA EQUIPMENT Photoionization Meter
GROUND ELEVATION _____ **HOLE DIAMETER** 8 Inches
TOP OF CASING ELEVATION _____ **HOLE DEPTH** 20.0 feet
▽ **FIRST ENCOUNTERED WATER** 9.0 feet
STABILIZED WATER ---
LOGGED BY Thomas R. Collins, IV **DATE** 12/15/10

DRILLING CONTRACTOR Gregg Drilling
DRILLING METHOD Direct Push / Hollow Stem Auger
STAMP (IF APPLICABLE) AND/OR NOTES
Hand augered to 5 Feet Below Ground Surface

DEPTH (feet)	SAMPLE TYPE NUMBER	SAMPLE RECOVERY	U.S.C.S.	GRAPHIC LOG	DEPTHS	LITHOLOGIC DESCRIPTION	PID (ppm)
	Hand Auger to 5 Feet		CL			CLAY (CL)	
					3.0	Start BAPB at 3 feet, little to no recovery in BAPB, approximately 4-inches very soft and sluffing	0.0
5							
						▽	0.0
10							
							0.2
15							
							0.3
					19.0		
			CL			CLAY (CL); Dark Yellowish Brown (10YR 4/6)	0.6
20					20.0		
						Bottom of Boring at Approximately 20 Feet Below Ground Surface	0.0

WELL DIAGRAM



DEPTH (feet): 5, 10, 15, 20

APPROVED BY: _____ **DATE:** _____

ARCADIS

BORING+WELL 2006 EM009358.0017_DEC2010.GPJ LFR SEPT 2006.GDT 02/16/11

PROJECT NAME Zeneca: UCRFS Groundwater Monitoring
CLIENT Zeneca

BORING NUMBER UCB-SL-GGW

PROJECT LOCATION Campus Bay
PROJECT NUMBER EM009358.0017.00001
LOCATION Richmond, CA
OVA EQUIPMENT Photoionization Meter
GROUND ELEVATION _____ **HOLE DIAMETER** 2 Inches
TOP OF CASING ELEVATION _____ **HOLE DEPTH** 32.0 feet
▽ **FIRST ENCOUNTERED WATER** 17.0 feet
STABILIZED WATER ---
LOGGED BY Thomas R. Collins, IV **DATE** 12/17/10

DRILLING CONTRACTOR Gregg Drilling
DRILLING METHOD Direct Push / Hollow Stem Auger
STAMP (IF APPLICABLE) AND/OR NOTES

Hand augered to 5 Feet Below Ground Surface
No PID due to rain
Grab groundwater sample taken, no well constructed

DEPTH (feet)	SAMPLE TYPE NUMBER	SAMPLE RECOVERY	U.S.C.S.	GRAPHIC LOG	DEPTHS	LITHOLOGIC DESCRIPTION	DEPTH (feet)
	Hand Auger to 5 Feet		SP			SAND (SP)	
					4.0		
5						SAND (SP); Very Dark Greenish Gray (GLEY 2 3/5G); Well Graded	5
			SP				
10							10
					10.5		
					10.8	CINDER	
			CL			CLAY (CL); Yellowish Brown (10YR 5/4)	
15							15
					16.0		
			SC			CLAYEY SAND (SC); Dark Yellowish Brown (10YR 3/4); Wet ▽	
20					20.0		20
			SP			SAND (SP); Very Dark Grayish Brown (10YR 3/2); Coarse Grained; Well Sorted; with some multi-color gravel / pebbles	

(Continued Next Page)

APPROVED BY: _____ **DATE:** _____

ARCADIS

PROJECT NAME Zeneca: UCRFS Groundwater Monitoring

CLIENT Zeneca

BORING NUMBER UCB-SL-GGW

DEPTH (feet)	SAMPLE TYPE NUMBER	SAMPLE RECOVERY	U.S.C.S.	GRAPHIC LOG	DEPTHS	LITHOLOGIC DESCRIPTION	DEPTH (feet)
			SP			SAND (SP); Very Dark Grayish Brown (10YR 3/2); Coarse Grained; Well Sorted; with some multi-color gravel / pebbles *(continued)*	
					23.0		
			CL			CLAY (CL); Low Plastic; with some Sand	
					24.0		
25							25
			SW			4-inches coarse gravel, poorly graded sand (SP), coarsens with depth, wet	
						4-inches well graded sand (SW), with fines, Dark Yellowish Brown (10YR 4/6)	
30							30
						Gravely Sand with Clay, not very wet	
					32.0		
						Bottom of Boring at Approximately 32 Feet Below Ground Surface	

APPROVED BY: _____ **DATE:** _____

ARCADIS

ATTACHMENT 2

Monitoring Well Development Logs

Development Data Sheet

Job#: B1-110104	**Developer:** J Kerns B Myers	**Client:** Arcadis
Well ID: MW34	**Date:** 1/4/11	**Site:** Campus Bay
Well diam: 1/4" 1" (2") 3" 4" 6" Other:	**DTW:** 2.77	**TD Before:** 21.84 **TD After:** 21.84
Purge equip: ES - diam: Bladder Peri Waterra Positive Air Displacement Ext. System		
disp bailer (teflon bailer) other:	**Surge block used:** (Y) N	
Length of time surged prior to development: 10 mins		
Pump depth/ intake:	**Multipliers:** 1"= 0.04 2"= 0.16 3"= 0.37 4"= 0.65 5"=1.02 6"= 1.47 Radius² X 0.163	
(TD - DTW X Multiplier = 1 Volume	80% Recovery (TD - DTW X 0.20 + DTW)	

1 Volume = 3.0 X **10** = 30 (Total Purge) Meter(s): Ultrameter, Hach

Time	Temp (°C) °F)	pH	Cond (mS / (µS))	Turbidity (NTU)	Purge Rate (gal or mL/ min)	Volume Removed (gal / L)	DTW	Notes
1055	14.4	7.0	8299	>1000	—	3	—	Hard bottom, Turbid, silty
1058	15.3	7.0	8313	>1000	—	6	—	Turbid
1103	15.6	6.7	8547	>1000	—	9	—	"
1107	15.7	6.7	8817	>1000	—	12	—	"
1112	16.1	6.9	8459	>1000	—	15	10.50	"
1116	15.7	6.6	9247	>1000	—	18	—	"
1120	15.8	6.6	9437	>1000	—	21	—	"
~~1125~~ 1124	15.9	6.6	9506	>1000	—	24	—	"
1130	16.0	6.6	9660	>1000	—	27	—	"
1134	16.0	6.6	9670	>1000	—	30	—	"
								DTW= 2.67

Did well dewater? YES (NO) Total volume removed: 30 (gal / L)

Sample method (if applicable): Disp Bailer Ded. Tubing New Tubing Ext. Port Other:

Sample date:	Sample time:	DTW at sample:
Sample ID:	Lab:	Number of bottles:
Analysis:		

Development Data Sheet

Job#: B1-110104	**Developer:** J Kerns B Myers	**Client:** Arcadis
Well ID: MW35	**Date:** 1/4/11	**Site:** Campus Bay
Well diam: 1/4" 1" (2") 3" 4" 6" Other:	**DTW:** 2.50	**TD Before:** 18.20 **TD After:** 18.23
Purge equip: ES - diam: Bladder Peri Waterra Positive Air Displacement Ext. System		
disp bailer (teflon bailer) other:	**Surge block used:** (Y) N	
Length of time surged prior to development: 10 mins		
Pump depth/ intake:	**Multipliers:** 1"= 0.04 2"= 0.16 3"= 0.37 4"= 0.65 5"=1.02 6"= 1.47 Radius² X 0.163	
(TD - DTW X Multiplier = 1 Volume	80% Recovery (TD - DTW X 0.20 + DTW)	

1 Volume = 2.5 X **10** = 25 (Total Purge) Meter(s): Ultrameter, Hach

Time	Temp (°C) °F)	pH	Cond (mS) µS)	Turbidity (NTU)	Purge Rate (gal or mL/ min)	Volume Removed (gal / L)	DTW	Notes
1034	14.1	6.4	10.08	71000	—	2.5	—	Hard bottom Turbid
1038	14.6	6.5	10.37	71000	—	5	—	Turbid
1042	15.2	6.5	10.33	71000	—	7.5	—	"
1046	14.9	6.6	10.20	71000	—	10	—	"
	Well	dewatered	@ 10	gallons			DTW=	17.81
1139	14.7	6.5	10.45	>1000		12.5	-	clearing slowly
1143	14.8	6.6	10.54	>1000		15.0	-	
1147	15.1	6.7	10.30	>1000		17.5		
	Dewatered	@	17.5 gallons.				DTW=	17.88
1244	15.1	6.9	10.30	>1000	—	20.0	—	
1247	15.2	6.7	10.27	>1000	—	22.5	—	
1250	15.2	6.8	10.28	>1000	—	25.0	—	DTW= 3.52
		Dewatered @				25.0 gallons		

Did well dewater? (YES) NO Total volume removed: 25.0 (gal) / L)

Sample method (if applicable): Disp Bailer Ded. Tubing New Tubing Ext. Port Other:

Sample date: Sample time: DTW at sample:

Sample ID: Lab: Number of bottles:

Analysis:

Development Data Sheet

Job#: B1-110104	**Developer:** J Kerns B Myers	**Client:** Arcadis
Well ID: MW36	**Date:** 1/4/11	**Site:** Campus Bay
Well diam: 1/4" 1" (2") 3" 4" 6" Other:	**DTW:** 2.54	**TD Before:** 19.67 **TD After:** 19.67
Purge equip: ES - diam: Bladder Peri Waterra Positive Air Displacement Ext. System		
disp bailer (teflon bailer) other:	**Surge block used:** (Y) N	
Length of time surged prior to development: 10 mins		
Pump depth/ intake:	**Multipliers:** 1"= 0.04 2"= 0.16 3"= 0.37 4"= 0.65 5"=1.02 6"= 1.47 Radius^2 X 0.163	
(TD - DTW X Multiplier = 1 Volume	80% Recovery (TD - DTW X 0.20 + DTW)	

1 Volume = 2.7 X **10** = 27 (Total Purge) Meter(s):

Time	Temp (°C) / °F)	pH	Cond (mS / µS)	Turbidity (NTU)	Purge Rate (gal or mL/ min)	Volume Removed (gal / L)	DTW	Notes
1000	14.6	6.6	12.61	71000	—	2.7	—	Hard bottom, Turbid, silty
1004	14.6	6.7	12.42	71000	—	5.4	—	Turbid, silty
1008	14.7	6.2	12.34	71000	—	8.1	9.11	Turbid
1012	14.8	6.1	12.21	71000	—	10.8	—	"
1015	14.8	6.0	12.17	71000	—	13.5 ~~14.5~~	—	"
1018	14.9	6.3	12.14	71000	—	16.2 ~~16.2~~	—	"
1021	14.6	6.3	12.15	71000	—	19 ~~18~~	—	"
1025	14.8	6.1	12.07	71000	—	21.7 ~~20.7~~	—	"
1027	14.7	6.1	12.01	71000	—	24.4	—	"
1030	14.6	6.1	11.96	71000	—	27	—	"
							2.66	
A Well bottom clean + hard								

Did well dewater? YES (NO) Total volume removed: 27 (gal / L)

Sample method (if applicable): Disp Bailer Ded. Tubing New Tubing Ext. Port Other

Sample date:	Sample time:	DTW at sample:
Sample ID:	Lab:	Number of bottles:
Analysis:		

Development Data Sheet

Job#: B1-110104	**Developer:** J Kerns B Myers	**Client:** Arcadis
Well ID: MW-37	**Date:** 1/4/11	**Site:** Campus Bay
Well diam: 1/4" 1" (2") 3" 4" 6" Other:	**DTW:** 2.88	**TD Before:** 17.81 **TD After:** 17.86
Purge equip: ES - diam: Bladder Peri Waterra Positive Air Displacement Ext. System		
disp bailer (teflon bailer) other:	**Surge block used:** (Y) N	
Length of time surged prior to development: 10 mins		
Pump depth/ intake:	**Multipliers:** 1"= 0.04 2"= 0.16 3"= 0.37 4"= 0.65 5"=1.02 6"= 1.47 Radius^2 X 0.163	
(TD - DTW X Multiplier = 1 Volume	80% Recovery (TD - DTW X 0.20 + DTW)	

1 Volume = 2.4 X **10** = 24 (Total Purge) Meter(s):

Time	Temp (°C / °F)	pH	Cond (mS / µS)	Turbidity (NTU)	Purge Rate (gal or mL/ min)	Volume Removed (gal / L)	DTW	Notes
914	13.1	5.9	9263	71000	—	2.4	—	Hard bottom, Turbid, silty
916	14.7	5.7	8618	71000	—	4.8	—	Turbid, silty
919	14.7	5.8	8846	71000	—	7.2	—	Turbid
924	14.7	5.9	8967	71000	—	9.6	—	"
928	14.5	6.0	~~9186~~ 9186	71000	—	12	—	"
932	14.4	6.0	9297	71000	—	14.4	—	"
936	14.2	6.0	9036	71000	—	16.8	—	"
940	14.0	6.0	8946	71000	—	19.2	—	"
944	14.0	6.0	8889	71000	—	21.6	—	"
948	13.6	6.0	8844	71000	—	24	—	"
							2.71	
* well bottom clean + hard								

Did well dewater? YES (NO) Total volume removed: 24 (gal / L)

Sample method (if applicable): Disp Bailer Ded. Tubing New Tubing Ext. Port Other:

Sample date: Sample time: DTW at sample:

Sample ID: Lab: Number of bottles:

Analysis:

Development Data Sheet

Job#: B1-110104	**Developer:** J Kerns B Myers	**Client:** Arcadis
Well ID: HW38	**Date:** 1/4/11	**Site:** Campus Bay
Well diam: 1/4" 1" (2") 3" 4" 6" Other:	**DTW:** 3.08	**TD Before:** 20.5 **TD After:** 20.80
Purge equip: ES - diam: Bladder Peri Waterra Positive Air Displacement Ext. System		
disp bailer (teflon bailer) other:	**Surge block used:** (Y) N	
Length of time surged prior to development: 10 mins		
Pump depth/ intake:	**Multipliers:** 1"= 0.04 2"= 0.16 3"= 0.37 4"= 0.65 5"=1.02 6"= 1.47 Radius² X 0.163	
(TD - DTW X Multiplier = 1 Volume	80% Recovery (TD - DTW X 0.20 + DTW)	

1 Volume = 2.8 X 10 = 28 (Total Purge) Meter(s): Ultrameter, HACH

Time	Temp (°C) °F)	pH	Cond (mS / µS)	Turbidity (NTU)	Purge Rate (gal or mL/ min)	Volume Removed (gal / L)	DTW	Notes
1201	15.0	7.3	7955	>1000	—	2.8	—	Hard bottom, Turbid, silty
1205	16.1	6.7	8788	>1000	—	5.6	—	Turbid
1208	16.6	6.5	8594	>1000	—	8.4	17.15	Turbid
	Well dewatered @ 8.5 gallons							
1315	16.1	7.5	8823	>1000	—	11.2	—	
1319	16.4	7.1	8821	>1000	—	14	—	
1323	16.6	7.0	8601	>1000	—	16.8	—	
	well dewatered @ 17 gallons						DTW= 19.87	
1340	16.3	7.2	8843	>1000	—	19.6	—	
1348	16.7	6.6	8745	>1000	—	22.4	—	
	Well dewatered @ 22.5 gallons						DTW= 19.87	
1418	16.5	7.3	8894	>1000	—	25.2	—	
1424	16.7	7.3	8821	>1000	—	28	—	
							17.88	

Did well dewater? (YES) NO		Total volume removed: 28 (gal / L)	
Sample method (if applicable): Disp Bailer / Ded. Tubing / New Tubing / Ext. Port / Other:			
Sample date:	Sample time:	DTW at sample:	
Sample ID:	Lab:	Number of bottles:	
Analysis:			

Well Maintenance Inspection Form

Client: Arcadis Site: Campus Bay Date: 1/4/11

Job #: M1-110104 Technician: BM Page of

Inspection Point	Well Inspected - No Corrective Action Required	Entry Indicates Deficiency: Cap non-functional	Lock non-functional	Lock missing	Bolts missing (# missing / # total tabs)	Tabs stripped (# stripped / # total tabs.)	Tabs broken (# broken / # of total tabs)	Annular seal incomplete	Apron damaged	Rim / Lid broken	Trip Hazard	Below Grade	Other (explain in notes)	Well Not Inspected (explain in notes)	Notes (Note any repairs made while on site)
MW-34				X											standpipe
MW-35				X											
MW-36				X											
MW-37				X											
MW-30				X											

Notes: MW-37 Casing is loose - connection between lengths is loose

Repair codes: **rt**=retap/ bolts added or replaced **as**=annular seal repair,

Confluence Environmental, Inc 3308 El Camino Ave, Suite 300 #148, Sacramento CA, 95821, 916-760-7641

Confluence Environmental, Inc

Equipment Calibration Log

Equipment make/model	Equipment ID/ serial number	Date	Time	Calibration Standards	Equipment Reading	Equipment Calibrated	Temp (°C / °F)	Tech init.	Comments
Ultrameter	6226442	1/4/11	900	4, 7, 10	4.0, 7.0 10.0	Y	14	BM	
1	1	1	1	1413	1413	Y	14	BM	

Notes/comments:

Water Level Measurements

Job Number: MI-110104 Date: 1/4/11 Client: Arcadis

Site: Campus Bay PRE POST

Well I.D.	Time	Dia	Depth to NAPL	Thickness of NAPL	Depth to water (DTW)	Total Depth ~~(measured)~~	Total Depth ~~(historical)~~	Ref Point (TOC/ TOB)		
2.67 MW-34	~~8:17~~	2			2.77	21.84	21.84	TOC		
3.52 MW-35	~~8:50~~	2			2.50	18.20	18.23			
2.66 MW-36	8:53	2			2.54 ~~2.77~~	19.67 ~~21.84~~	19.67			
2.71 MW-37	~~8:14~~	2			2.88	17.81	17.86			
MW-38	~~8:26~~	2			3.08	20.50	20.80			

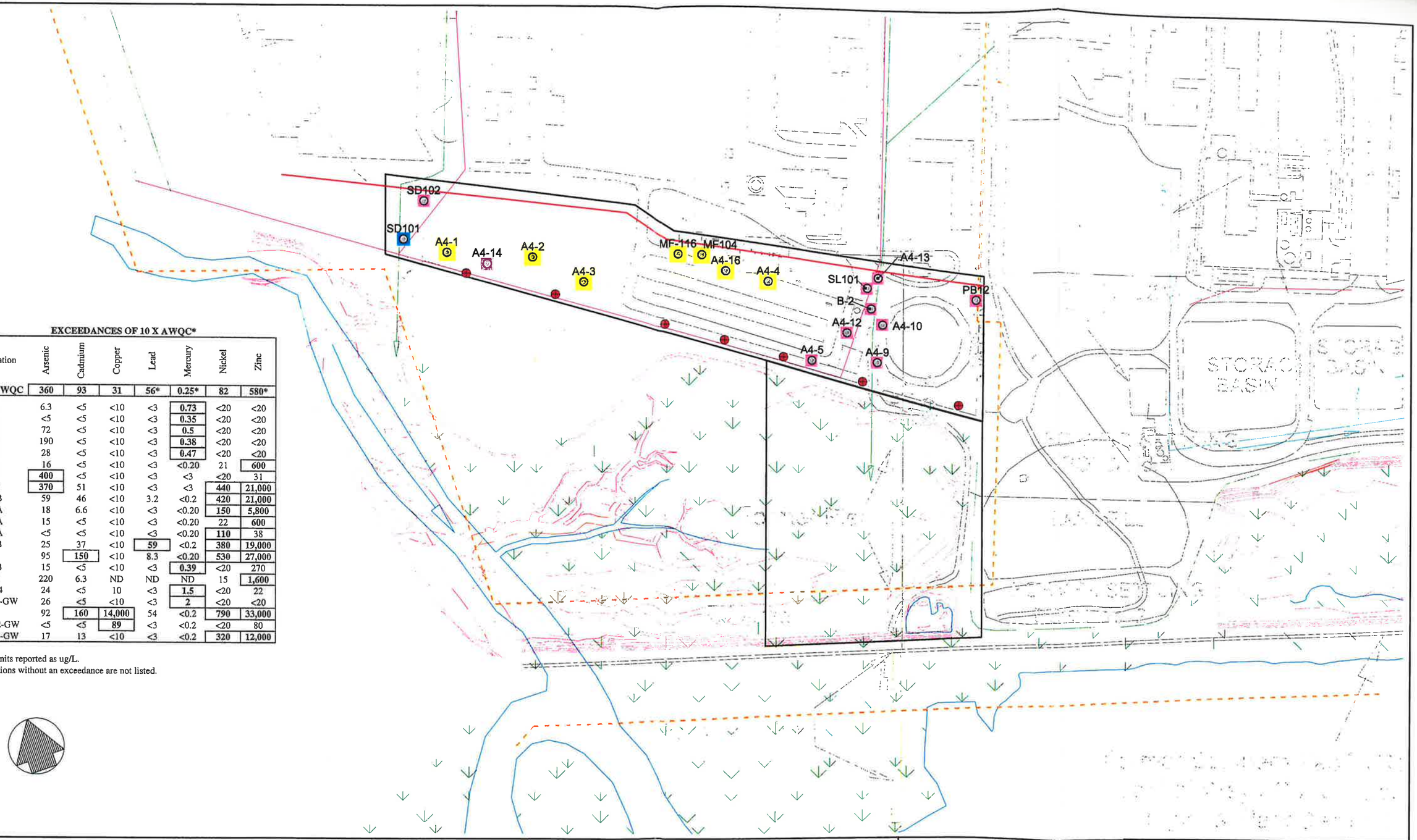
ATTACHMENT 3

Figure 6 of 2001 URS Report

EXCEEDANCES OF 10 X AWQC*

Location	Arsenic	Cadmium	Copper	Lead	Mercury	Nickel	Zinc
10 X AWQC	**360**	**93**	**31**	**56***	**0.25***	**82**	**580***
A4-1A	6.3	<5	<10	<3	**0.73**	<20	<20
A4-2A	<5	<5	<10	<3	**0.35**	<20	<20
A4-2B	72	<5	<10	<3	**0.5**	<20	<20
A4-3B	190	<5	<10	<3	**0.38**	<20	<20
A4-4B	28	<5	<10	<3	**0.47**	<20	<20
A4-5A	16	<5	<10	<3	<0.20	21	**600**
A4-5B	**400**	<5	<10	<3	<3	<20	31
A4-9B	**370**	51	<10	<3	<3	**440**	**21,000**
A4-10B	59	46	<10	3.2	<0.2	**420**	**21,000**
A4-12A	18	6.6	<10	<3	<0.20	**150**	**5,800**
A4-13A	15	<5	<10	<3	<0.20	22	**600**
A4-13A	<5	<5	<10	<3	<0.20	**110**	38
A4-13B	25	37	<10	**59**	<0.2	**380**	**19,000**
A4-14	95	**150**	<10	8.3	<0.20	**530**	**27,000**
A4-16B	15	<5	<10	<3	**0.39**	<20	270
B-2-W	220	6.3	ND	ND	ND	15	**1,600**
MF-104	24	<5	10	<3	**1.5**	<20	22
MF116-GW	26	<5	<10	<3	**2**	<20	<20
PB-12	92	**160**	**14,000**	54	<0.2	**790**	**33,000**
SD-102-GW	<5	<5	**89**	<3	<0.2	<20	80
SL-101-GW	17	13	<10	<3	<0.2	**320**	**12,000**

Note: units reported as ug/L.
* Locations without an exceedance are not listed.



LEGEND

- Sampling Location (Borings)
- Sampling Location (Test Pits)
- Mecury exceedance
- As, Cd, Cu, Pb, Ni, Zn exceedances
- No Exceedance
- Proposed monitoring well
- Property Boundary
- Stege Marsh
- Storm Drain System (Approximate)
- Industrial Drain (Approximate)
- Sanitary Sewer System (Approximate) (dashed line to be verified)
- Edge of Surface Water

NOTES :

Project No.
51-09967067.00
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University of California, Berkeley
Richmond Field Station
URS

Metals in Groundwater > 10 x AWQC

November 2001 | Scale 1" = 150' | Figure 6