TETRA TECH, INC.

September 26, 2016

Lynn Nakashima
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Department of Toxic Substances Control
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Subject: **University of California, Berkeley, Richmond Field Station Site**
Draft 2016 Groundwater Sampling Results Technical Memorandum
Site Investigation and Remediation Order I/SE-RAO 07/07-004, Section 5.16

Dear Ms. Nakashima:

Please find enclosed the Draft 2016 Groundwater Sampling Results Technical Memorandum, dated September 26, 2016. Tetra Tech, Inc. was contracted to conduct groundwater sampling activities at the Richmond Field Station Site as a follow up to the Field Sampling Workplan Phase I groundwater sampling events (November 2010 through April 2012) and pursuant to the Final Removal Action Workplan, Research, Education, and Support Area and Groundwater within the Former Richmond Field Station Site, dated July 18, 2014.

This technical memorandum presents a summary of the data collected during the water level sampling events in October 2015 and April 2016, and groundwater sampling event conducted in April 2016. The sampling was conducted per the Proposed Continued Groundwater Monitoring Locations for 2016 letter, dated March 30, 2016.

This submission is provided on behalf of UC Berkeley and includes two hard copies; electronic copies have been submitted via email. If you have any questions or comments regarding this submittal, please call me at (510) 302-6283.

Sincerely,

Jason Brodersen, P.G.
Project Manager

Enclosure

cc: Greg Haet, Office of EH&S, University of California, Berkeley
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DRAFT

2016 Groundwater Sampling Results Technical Memorandum

Richmond Field Station Site
Berkeley Global Campus at Richmond Bay
University of California, Berkeley

Prepared for

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September 26, 2016

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ACRONYMS AND ABBREVIATIONS

µg/L	Micrograms per liter
BAPB	Biologically active permeable barrier
bgs	Below ground surface
DCA	Dichloroethane
DCE	Dichloroethane
Dn	Downward gradient
DQO	Data Quality objective
DTSC	Department of Toxic Substances Control
EPA	U.S. Environmental Protection Agency
FSP	Field sampling plan
FSW	Field Sampling Workplan
ft/ft	Feet per foot
IDW	Investigation-derived waste
J	Estimated value
MCL	Maximum contaminant level
MDL	Method detection level
NM	Not measured
ORP	Oxidation-reduction potential
PCE	Tetrachloroethene
QA	Quality assurance
QC	Quality control
QL	Quantitation limit
R	Rejected data
RFS	Richmond Field Station
TCE	Trichloroethene
TDS	Total dissolved solids
U	Not detected
UC	University of California
UJ	Not detected at an estimated value
Up	Upward gradient
VOC	Volatile organic compound

1.0 INTRODUCTION

This technical memorandum was prepared on behalf of The Regents of the University of California (UC) in accordance with California Environmental Protection Agency, Department of Toxic Substances Control (DTSC), Site Investigation and Remediation Order, Docket No. IS/E-RAO 06/07-004, dated September 15, 2006. The order provides for investigation and cleanup of 96 acres of upland and 13 acres of tidal marsh and transition habitat within the Richmond Field Station (RFS) Site.

This technical memorandum presents the results of annual groundwater monitoring and maintenance conducted during the October 2015 to April 2016 time period as proposed in the Final Phase I November 2010 through April 2012 Groundwater Sampling Results Technical Memorandum, dated December 12, 2012 (Tetra Tech 2012). The groundwater monitoring was conducted as a part of the selected remedy for groundwater within the RFS Site as presented in the Final Removal Action Workplan, Proposed Richmond Bay Campus, Research, Education, and Support Area and Groundwater within the Richmond Field Station, dated July 18, 2014 (Tetra Tech 2014a).

The field work consisted of dry and wet season water level measurements, and wet season groundwater sampling. The sampling event was conducted in accordance with the Final Phase I Groundwater Sampling, Field Sampling Workplan (FSW) dated June 2, 2010 (Tetra Tech 2010), and with the proposed sampling approach (Tetra Tech 2016a). The objective of the FSW was to address data gaps identified in the Current Conditions Report (Tetra Tech 2008) and to identify immediate or potential risks to public health and the environment. The objective of continued groundwater monitoring is to fulfill in part the selection of remedy for groundwater by (1) monitoring the water level and direction of groundwater flow bi-annually, and (2) monitoring concentrations of chemicals in groundwater at piezometers where sample results exceeded one-half of screening criteria during any of the first four Phase I monitoring events conducted in 2010 to 2012.

This technical memorandum presents a summary of field activities, site hydrology, data quality assessment, and data evaluation associated with the October 2015 water level measurement and April 2016 groundwater sampling event. The report presents a general comparison of the April 2016 results to the previous seven rounds of groundwater sampling. The report appendices and attachment provide field documentation forms as well as complete analytical results.

1.1 PHYSICAL SETTING

The RFS Site is located at 1301 South 46th Street, Richmond, California, along the southeastern shoreline of the City of Richmond on the San Francisco Bay and northwest of Point Isabel (see Figure 1). It consists of upland areas developed for academic teaching and research, an upland remnant coastal terrace prairie, a tidal salt marsh, and a transition zone between the upland areas and the marsh. Between the late 1800s and 1948, several companies, including the California Cap Company, manufactured explosives at the RFS Site. In 1950, the UC Regents purchased the property from the California Cap Company. UC Berkeley initially used the Site for research for the College of Engineering; later, it was also used by other campus departments.

Three habitat type areas have been identified at the site: (1) the Upland Area, (2) the Transition Area, and (3) the Western Stege Marsh (see Figure 2). The Upland Area consists of 96 acres of

land bounded by Meade Street to the north, South 46th Street to the east, the Transition Area to the south, and Meeker Slough and Regatta Boulevard to the west. The Transition Area occupies approximately 5.5 acres and is bounded to the north by the Upland Area at the location of a buried, former seawall that is believed to have been the edge of the historical mudflats, and to the south by Western Stege Marsh at the 5-foot elevation upper extent of the marsh (National Geodetic Vertical Datum 29). The Transition Area is believed to consist entirely of artificial fill placed on historical mudflats. Western Stege Marsh occupies approximately 7.5 acres and is bounded by the Transition Area to the north, the RFS connector trail to the East Bay Regional Park District Trail and Eastern Stege Marsh to the east, the Bay Trail to the south, and Meeker Slough and Marina Bay housing development to the west (see Figure 2).

1.2 INVESTIGATION PURPOSE

The Current Conditions Report (Tetra Tech 2008) for the RFS Site identified the possible presence of contaminants in groundwater as a data gap. Potential sources include contamination from off-site sources as well as previous site activities that may have leached contaminants from soil or underground utilities to groundwater.

The Phase I FSW field effort addressed this data gap by installing 51 piezometers throughout the Site: 47 in the shallow groundwater zone and four in a deeper zone (see Figure 3). Data collected included groundwater samples, geology, and depth to water, which were used to develop a hydrogeologic conceptual model of the site and improve the understanding of overall site-wide groundwater quality. The groundwater investigation also includes (1) three piezometers (PZ8, PZ9, and PZ11) previously installed by consultants on behalf of the Campus Bay respondents to the DTSC Order; and (2) four shallow zone piezometers (ETA01, ETA02, ETA03, and WSM01) installed in the Biologically Active Permeable Barrier [BAPB] Area) in January 2015 as part of the Phase IV Field Sampling Plan (FSP) investigation of groundwater in the vicinity of the BAPB (Tetra Tech 2016b). There are 54 total shallow-zone piezometers and 4 deeper zone piezometers.

Continued groundwater monitoring evaluates seasonal groundwater elevations and fluctuations in chemical concentrations. The 2016 annual groundwater sampling consisted of the following activities:

- Collecting October 2015 depth-to-water measurements at the 54 shallow zone piezometers and four deep piezometers. Table 2 presents the depth-to-groundwater measurements for each piezometer.
- Collecting April 2016 depth-to-water measurements at 53 of the 54 shallow zone piezometers and four deep piezometers. Well CTPS could not be located due to overgrown vegetation and therefore depth-to-groundwater measurements could not be collected. Table 2 presents the depth-to-groundwater measurements for each piezometer.
- Sampling 37 shallow zone piezometers in April 2016 for chemical analysis, selected based on the results of past rounds of groundwater investigations. Table 1 presents the sample registry identifying the piezometers sampled.
- Manually removing roots from piezometer B185 because roots had grown within the well casing.

2.0 FIELD ACTIVITIES

In October 2015, depth-to-water measurements were collected at 50 shallow zone piezometers, four deep piezometers, and four BAPB area piezometers to calculate the potentiometric surface. The April 2016 sampling strategy consisted of measuring depth to water on April 4, 2016 consistent with the October 2014 approach, with one change - piezometer CTPS could not be located and measured due to overgrown vegetation despite a thorough search of the area. In addition, groundwater sampling was conducted at 37 piezometers in April 2016, as proposed in a letter to DTSC summarizing the 2016 proposed sampling approach (Tetra Tech 2016a). Monitoring consisted of chemical analysis at piezometers with previous sample results exceeding one-half of the lesser of the California or federal maximum contaminant levels (MCL) during any of the four most recent monitoring events (those conducted between October 2011 to April 2015). Piezometer Bulb2 was also sampled despite having results lower than this threshold, since the piezometer is located within known fill in the Western Transition Area, which is scoped for future investigation as part of the Phase V FSP (Tetra Tech 2016a).

Groundwater samples were analyzed for dissolved metals (field-filtered) or volatile organic compounds (VOC), as indicated in Table 1. In addition, the following water quality parameters were measured at each of the 37 sampled locations during the April 2016 sampling event: pH, temperature, specific conductance, turbidity, dissolved oxygen, total dissolved solids (TDS), salinity, and oxidation-reduction potential (ORP). Groundwater sampling locations, depths, and the analytical suite are presented in Table 1. Water level measurement sampling forms are included as Appendix D.

2.1 WATER LEVEL MEASUREMENTS

Depth to water for all piezometers was recorded on October 1, 2015, and April 4, 2016, to coincide with similar field events occurring on the adjacent Campus Bay property. The depth to water was measured from the top of the polyvinyl chloride casing to 0.01-foot accuracy using an electronic water level indicator; the data are presented in Table 2.

The well caps were removed a minimum of 15 minutes before the depth to water was recorded to allow the water level to adjust to ambient conditions. These groundwater measurements were mapped to assess seasonal variation in groundwater elevations and contours. The measurements were recorded on groundwater water level logs and are reported in Figures 4 through 15.

2.2 PIEZOMETER MAINTENANCE

Piezometer B185 was blocked at 5.60 feet below ground surface (bgs) during water level measurements in April 2016. Field personnel used a snake device to clear a root mass from the well casing; no inorganic debris was observed. Based on inspection of the well and root mass, it appears roots entered the casings through the screens by thin dendritic roots, and subsequently grew within the piezometer casing, and did not damage the well screen.

2.3 GROUNDWATER SAMPLING

Groundwater samples were collected from April 5 through April 11, 2015. The groundwater from each piezometer sampled was collected through sterile polyethylene and silicon tubing using a low-flow, peristaltic pump. The discharge from the pump ran through a flow cell that measured pH, temperature, specific conductance, turbidity, dissolved oxygen, TDS, salinity, and

ORP. Groundwater samples were collected from each piezometer after the parameters stabilized to within the acceptable ranges, as shown on the groundwater sample collection sheets included in Appendix A and summarized in Table 3. The flow-through cell was disconnected from the sampling system prior to sample collection. Groundwater results are discussed in Section 6.0.

Ample sample volume was collected from the shallow piezometers to submit samples for laboratory analysis of VOCs or dissolved metals, as indicated in Table 1. Samples were immediately placed in coolers containing ice. At the end of every other field day, the samples were delivered to Curtis and Tompkins laboratory in Berkeley, California, using chain-of-custody procedures.

2.4 WASTE CHARACTERIZATION AND DISPOSAL

All investigation-derived waste (IDW) generated during the field effort was drummed, labeled, and moved to a fenced storage location west of Building 110. The IDW from this sampling investigation consisted of two drums containing water purged from piezometers during the sampling processes.

The IDW was characterized based on results from the April 2016 groundwater samples and determined to be nonhazardous. The drums were transported off-site on September 2, 2016 by Stericycle Specialty Waste Solutions for disposal at 21st Century Environmental Management of Nevada, in Fernley, Nevada.

3.0 GEOLOGY

Four major geologic units are defined for the RFS Site as presented in the Site Characterization Report (Tetra Tech 2013a):

- Artificial Fill
- Quaternary Alluvium
- Bay Sediments
- Yerba Buena Mud (Older Bay Mud)

The borings for the FSW investigation were drilled within the upper 40 feet bgs; therefore, only the artificial fill, alluvium, and, to a lesser extent, bay sediments were encountered during piezometer installation in 2010. During the installation, artificial fill was difficult to differentiate from the underlying alluvium because it was of a similar lithology and texture. The lithology of the fill and alluvium can be grouped into four basic soil types: silt/clay, clayey gravel, clayey/silty sand, and sand. In most cases, the gravels contained clay and sand and the clays layers were found to have an estimated 5 to 40 percent sand or gravel. The relationship between the lithologies of the alluvium is typical of a coastal alluvial plain: thin interbedded layers of clays, silts, sands, and gravels that are laterally discontinuous. The fine-grained sediments (clays and silts) may have been deposited as over-bank flood-plain deposits and the coarse grained sediments may be from former stream or river beds meandering across a flood plain. The meandering of former surface water channels likely causes the lateral variation in the lithologies observed in the borings.

Two geologic cross sections were developed to aid in the description of the site stratigraphy; the transects of the cross-sections are shown on Figure 3. The cross sections were developed for the technical memorandum presenting the October 2010 groundwater results (Tetra Tech 2011), and have been updated to include measured groundwater levels from all rounds of sampling. Cross section A-A' is along an east-west transect and is shown on Figure 16. Cross section B-B' is along a north-south transect and is shown on Figure 16. Generally, the horizontal extent of individual layers of clay, sand, and gravel is limited in the upper 20 feet bgs, as would be expected in a coastal alluvial depositional environment. Between 20 and 44 feet bgs, less variation in lateral extent was observed, although this could be an artificial result of fewer borings to define the deeper horizons.

4.0 HYDROGEOLOGY

The geologic materials at the site consist of clays, silts, sands, and gravels. Generally, the coarser-grained materials are expected to transmit or yield more groundwater; however, most of the gravels and sands contained a silt/clay fraction that may inhibit groundwater flow or yield. A few exceptions were encountered where cleaner, well-graded and poorly graded sand lenses occurred. These sand lenses occurred only over short lateral distances in the upper 20 feet bgs. Based on the limited number of deeper borings, a more continuous thin layer of sand may be present between depths of 35 and 40 feet bgs.

In total, UC Berkeley installed 55 piezometers throughout the site as part of the FSW investigations:

- 51 shallow piezometers with 10-foot screen intervals to a maximum total depth of 20 feet bgs
- Three deep piezometers with 10-foot screen intervals to a maximum depth of 40 feet bgs
- One deep piezometer with a 5-foot screen interval, to a maximum depth of 40 feet bgs

In addition, three piezometers (PZ8, PZ9, and PZ11) were installed by consultants for the adjacent Campus Bay property. Piezometers B197 and DH were abandoned due to root blockage and were replaced with B197R and DHR in 2013 (Tetra Tech 2013b).

Site-wide groundwater contours and flow directions were estimated using the Natural Neighbor interpolation function within the geographic information systems program based on water level measurements from the shallow piezometers at the Site and available water level measurements from wells at the adjacent Campus Bay property. Groundwater flow directions are inferred in areas where there are no piezometers or wells with available measurements. Figures 4 through 15 present the shallow groundwater elevations measured between November 2010 and April 2016 and the corresponding elevation contours for the shallow piezometers. The November 2010, October 2011, October 2012, October 2013, October 2014, and October 2015 groundwater elevations are likely representative of the dry season because no major rainfall had occurred in the 6 months prior to either event. The April 2011, 2012, 2013, 2014, 2015, and 2016 measurements were collected toward the end of the annual wet season; the 2011-2015 wet seasons were drier than usual as Northern California experienced low rainfall and extreme drought conditions (from 2011 to 2015). The 2015-2016 Bay Area wet season rainfall recovered to about 70 percent of average.

Groundwater generally flows onto the site from the northeast and across the site to the southwest. Minor seasonal variation in groundwater flow direction and gradients are observed as expected from wet to dry seasons. Groundwater elevations will continue to be measured semiannually to gather a comprehensive dataset and continue assessment of seasonal variation in groundwater flow.

The horizontal groundwater gradient is estimated from the groundwater elevation contours. Horizontal gradient is expressed as a ratio of change in vertical groundwater elevation to change in corresponding horizontal distance; a steep gradient value is larger than a flat gradient value. The horizontal groundwater gradient varies across the site with representative values ranging

from 0.002 feet per foot (ft/ft) to 0.028 ft/ft. Representative gradients calculated for the October 2012 through April 2016 events are shown in several locations on Figures 8 through 15.

Fall measurements are intended to represent the dry season; the October 2015 gradients are consistent with previous measurements conducted in the fall. Dry season groundwater contours are shown on Figures 4, 6, 8, 10, 12, and 14. Spring measurements are intended to represent the wet season. Northern and southern gradients measured in April 2016 are generally higher than those measured from recent wet seasons. Wet season contours are shown on Figures 5, 7, 9, 11, 13, and 15. Comparing the dry and wet seasons, the dry season gradients tend to be shallower in the central and southern portions of the site and slightly steeper in the northeast portion of the site.

The variation in gradients within the site and seasonally is likely influenced by changes in seasonal and local areas of recharge caused by varying surface cover and features, and the variation in hydraulic conductivity of the soil. For example, extremely low hydraulic conductivity in clays result in slower response to increases in groundwater recharge than sands which have higher conductivity. While the site is underlain predominantly by clayey soil with low conductivity, there are localized areas with higher silt and sand content throughout.

A localized variation in the groundwater gradient had been identified near location B150, where the groundwater elevations were higher than in nearby piezometers from 2010 through 2016. In April 2016, this mound was also present, as indicated by the concentric groundwater contours around location B150 and B121 shown on Figure 15. Water levels in the area suggest there may be an artificial source of water from nearby irrigation, landscape maintenance, or other leaky pipes. A decrease in the mounding had been observed since the initial groundwater elevation measurements; however, as of April 2016, this groundwater variation is still present.

Vertical groundwater gradients were also estimated from the water level measurements at the shallow/deep well pairs:

Vertical Groundwater Gradients (ft/ft), November 2010 – April 2016

Well Pair	2010 Dry Season	2011 Wet Season	2011 Dry Season	2012 Wet Season	2012 Dry Season	2013 Wet Season	2013 Dry Season	2014 Wet Season	2015 Wet Season	2016 Wet Season
B480/ B480deep	0.25 Up	0.13 Up	0.23 Up	0.19 Up	0.22 Up	0.19 Up	0.22 Up	0.20 Up	0.19 Up	0.14 Up
B128/ B128deep	0.03 Dn	0.05 Up	0.02 Dn	0.09 Dn	0.01 Up	0.08 Up	0.082 Up	0.01 Up	NM	0.04 Dn
B38/ B38deep	0.02 Up	0.04 Dn	0.02 Up	0.06 Dn	0.02 Up	0.00 None	0.01 Up	0.00 None	0.01 Up	0.16 Up
CTP/ CTPdeep	0.04 Dn	0.07 Dn	0.01 Dn	0.01 Up	0.01 Up	0.01 Up	0.08 Up	0.01 Up	0.01 Up	0.02 Up

Notes:

NM Not measured

Dn Downward gradient

Up Upward gradient

Temporal changes in the vertical gradients are likely the result of seasonal variations in surface water infiltration and recharge. Spatial variation in the vertical gradients is likely due to the spatial variability in the aquifer properties from more permeable sands to less permeable clays.

5.0 DATA QUALITY ASSESSMENT

This section presents the data quality assessment for the 2016 groundwater sampling event. A summary of data quality objectives (DQO), review of analytical data and findings, and any deviations from the work plans or previous sampling events is presented below.

The data collected as part of the April 2016 sampling event meet all the requirements of the precision, accuracy, representativeness, completeness, and comparability described in U.S. Environmental Protection Agency (EPA) guidance for quality assurance project plans (EPA 2002) and the Quality Assurance Project Plan (Tetra Tech 2010), and are usable for meeting the project DQOs and future risk assessments. The overall assessment of the sampling program, quality assurance (QA)/quality control (QC) data, and data review indicates the data from this investigation are of acceptable precision, accuracy, representativeness, completeness, and comparability.

5.1 DATA QUALITY OBJECTIVES

DQOs were developed during the FSW planning process to help ensure data appropriate to support defensible decisions is collected. The DQOs stated the need for additional groundwater data collection to develop a hydrogeologic model of the site and to improve overall understanding of groundwater quality. This objective was achieved through the strategic placement of the 51 groundwater monitoring piezometers during the Phase I FSP investigation that spanned the entire site and also targeted specific locations defined as data gaps in the Current Conditions Report (Tetra Tech 2008). Of the 51 piezometers installed in 2010, 37 were sampled in April 2016, along with five duplicate samples, three trip blanks, four equipment rinsate blanks, and one source water blank.

The data collected during the first seven rounds of groundwater sampling were adequate to create hydraulic gradient maps to gain a better understanding of the general hydrology at the site. Additionally, the chemical data collected have improved site knowledge relative to previously identified data gaps and has provided data for previously uncharacterized areas.

All locations were sampled in April 2016 according to the methods described in the sampling plan and quality assurance project plan in the FSW (Tetra Tech 2010). The analytical data achieved appropriate method detection levels (MDL) to be compared with relevant state and federal groundwater criteria and are presented in Section 6.0, along with a general comparison to the previous five rounds of data in Section 7.0.

5.2 LABORATORY DATA REVIEW

Assignment of data qualification flags for analytical data from Curtis and Tompkins conformed to EPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (EPA 2014b) and Inorganic Data Review (EPA 2014a). Data review specifications require that various data qualifiers be assigned when a deficiency is detected or when a result is less than its detection limit. If no qualifier is assigned to a result that has been reviewed, the data user is assured that no technical deficiencies were identified during validation. The qualification flags used are defined as follows:

- U – Indicates that the chemical was not detected at the numerical detection limit (sample-specific detection limit) noted. Non-detected results from the laboratory are reported in this manner.
- UJ – Indicates that the chemical was not detected; however, the detection limit (sample-specific detection limit) is considered estimated based on problems encountered during laboratory analysis. The associated numerical detection limit is regarded as inaccurate or imprecise. This qualifier is also added to a positive result (reported by the laboratory) if the detected concentration is determined to be attributable to contamination introduced during field sampling or laboratory analysis.
- J – Indicates that the chemical was detected; however, the associated numerical result is not a precise representation of the concentration that is actually present in the sample. The laboratory-reported concentration is considered an estimate of the true concentration.
- R – Indicates that the chemical may or may not be present, and that the data was rejected. The non-detected analytical result reported by the laboratory is considered unreliable and unusable. This qualifier is applied in cases of gross technical deficiencies (for example, a holding time missed by a factor of two times the specified time limit, severe calibration non-compliance, or extremely low analyte recovery in QC spike samples).

The preceding data qualifiers may be categorized as indicating major or minor problems. Major problems are defined as issues that result in the rejection of data and qualification with R. These data are considered invalid and are not used for decision-making unless they are used in a qualitative way and the use is justified and documented. Minor problems are defined as issues resulting in the estimation of data and qualification with U, J, and UJ qualifiers. Estimated analytical results are considered suitable for decision-making unless the data use requirements are stringent and the qualifier indicates a deficiency that is incompatible with the intended data use. A U qualifier does not indicate that a data deficiency exists because all non-detect values are flagged with the U qualifier regardless of whether a quality deficiency has been detected.

5.3 DATA QUALITY REVIEW FINDINGS

A review of the April 2016 inorganic data quality determined that QA/QC objectives for bias and precision were met for the analytical results, with the following exceptions:

- Because of low recoveries in the matrix spike/matrix spike duplicate in the dissolved metal analysis, the thallium result in one sample (20160405B163) was “J” qualified as estimated based on QC spike violations.
- Because of high calibration response for the dissolved metal analysis, the arsenic result in one sample (20160411EERC) was “J” qualified as estimated based on calibration violations.
- Because of laboratory blank contamination, dissolved copper results in eight samples (20160407B450, 20160407B150, 20160407B150DUP, 20160408BULB2, 20160411EERC, 20160407FG, 20160407ER, 20160407TP1), the dissolved lead result in one sample (20160405B163), and dissolved vanadium results in two samples (20160411B474, 20160411EERC), are considered nondetect and “UJ” qualified. Less than 3 percent of the inorganic groundwater data were qualified based on laboratory blank contamination problems.

- Several inorganic sample results were "J" qualified as estimated because they were reported at concentrations between the MDL and the laboratory quantitation limit (QL). The analytical instrument can make reliable qualitative identification of analyte concentrations above the MDL but below the QL; however, detected results below the QL are considered quantitatively uncertain. Approximately 26 percent of the inorganic groundwater data was affected; however, these results are considered usable as qualified.

A review of the April 2016 organic data quality determined that QA/QC objectives for bias and precision were met for analytical results, with the following exceptions:

- Because of low response in the continuing calibration verification in the VOC analysis, chloromethane results in four sample results (20160411CTP, 20160411GEO, 20160411ER, 20160411TB) were "J" qualified as estimated based on calibration QC violations. Less than 0.5 percent of all the organic groundwater data were qualified as a result of these criteria violations.
- Because of laboratory blank contamination, the 1,2-dichloroethane result in four samples (20160405B120, 20160407CCCT, 20160405ETA, 20160405ETA01), are considered nondetect and "UJ" qualified. Because of field blank contamination, the acetone result in two samples (20160405SWB, 20160407ER), 2-butanone result in five samples (20160405ER, 20160405SWB, 20160407ER, 20160408ER, 20160411ER), and the chloroform result in two samples (20160405ER, 20160405SWB) are considered nondetect and "UJ" qualified. Less than 0.5 percent of the organic groundwater data were affected by laboratory or field blank contamination.
- The results for several organic compounds in a few samples were estimated because they were reported at a concentration between the MDL and the QL. The analytical instrument can make reliable qualitative identification of analyte concentrations above the MDL but below the QL; however, detected results below the QL are considered quantitatively uncertain. Less than 2.2 percent of the organic groundwater data was affected.

Although some qualifiers were added to the data, a final review of the dataset compared with EPA data quality parameters indicate the data are of high overall quality. The data meet all the requirements of the precision, accuracy, representativeness, completeness, and comparability described in EPA guidance for quality assurance project plans (EPA 2002) and the Quality Assurance Project Plan (Tetra Tech 2010), and are usable for meeting the project DQOs and future risk assessments. The overall assessment of the sampling program, QA/QC data, and data review indicates the data from this investigation are of acceptable precision, accuracy, representativeness, completeness, and comparability.

5.4 DEVIATIONS

One deviation from the sampling plan proposed in the Final Phase I November 2010 through April 2012 Groundwater Sampling Results Technical Memorandum (Tetra Tech 2012) was identified during the April 2016 sampling event. The original FSP recommends that depth-to-water measurements be collected at all available piezometers. However, piezometer CTPS was not able to be located due to overgrown vegetation. The piezometer was not scheduled to be sampled for groundwater, therefore this deviation does not represent a significant data gap and does not impact the data quality or data evaluation presented in this report.

6.0 DATA EVALUATION

This section provides an overview of the compounds detected during the groundwater sampling conducted between April 5 and April 11, 2016. State and federal water quality criteria and risk-based concentrations consistent with those used for the groundwater data evaluation presented in the Final Site Characterization Report (Tetra Tech 2013a), as presented in Table 5, were identified to help evaluate the groundwater data. The comparisons are intended solely to provide a baseline comparison and are not intended to represent remedial or cleanup criteria or triggers for further sampling. Tables 6 through 9 provide summaries of the detected data. Complete analytical results are included in Appendix B, and the laboratory reports are provided in Attachment 1. Appendix C presents concentration-time graphs for piezometers where carbon tetrachloride, trichloroethene (TCE), or dissolved mercury results have exceeded an MCL in at least one sampling event from 2010 to 2016.

6.1 VOLATILE ORGANIC COMPOUNDS

Groundwater samples from 30 piezometers were submitted for analysis of VOCs by EPA Method 8260 (Table 1); four duplicate samples were also collected. While VOCs were detected at all 30 sampling locations, only 13 of the 71 target analytes analyzed by this method were detected. These results are presented in Table 7. Six compounds — 1,2-dichloroethane (DCA), carbon tetrachloride, cis-1,2-dichloroethene (DCE), tetrachloroethene (PCE), TCE, and vinyl chloride — exceeded an MCL; this list of chemicals exceeding MCLs matches the lists from 2013 through 2015, except that trans-1,2-DCE also exceeded MCLs in past years. Results for these compounds are discussed below.

1,2-Dichloroethane. 1,2-DCA was detected at five locations with concentrations ranging from 0.8 to 20 micrograms per liter (µg/L). Results from all five locations (B163, B185, ETA02, ETA03, and WSM01) exceeded the California MCL of 0.5 µg/L, and three locations (B163, ETA02, and ETA03) exceeded the federal MCL of 5 µg/L, at concentrations of 9.3, 13, and 20 µg/L. Figure 18 presents concentrations of 1,2-DCA detected at piezometers where results have equaled or exceeded an MCL in at least one sampling event from 2010 to 2016.

Carbon Tetrachloride. Carbon tetrachloride was detected at four locations: B185, B280A, CTP, and GEO. Concentrations ranged from 0.5 to 7.8 µg/L; all equaled or exceeded the California MCL of 0.5 µg/L, and the result from piezometer CTP (7.8 µg/L) exceeded the federal MCL of 5 µg/L. Carbon tetrachloride concentrations reported between 2010 and 2016 are presented in Figure 19. Appendix C presents concentration-time graphs for piezometers where carbon tetrachloride results have equaled or exceeded an MCL in at least one sampling event from 2010 to 2016.

Cis-1,2-Dichloroethene. Cis-1,2-DCE was detected at 14 locations with concentrations ranging from 0.1 to 14 µg/L; three locations (B178, ETA02, and ETA03), exceeded the California MCL of 6 µg/L (with corresponding concentrations of 11, 14, and 10 µg/L), but not the federal MCL of 70 µg/L. A comparison of 2015 and 2016 results at piezometer PZ-11 shows a significant decline; concentrations declined from 480 µg/L to 2.8 µg/L in a one-year period. Figure 16 presents concentrations of cis-1,2-DCE detected at piezometers where results have equaled or exceeded an MCL in at least one sampling event from 2012 to 2016.

Tetrachloroethene. PCE was detected at 14 locations with concentrations ranging from 0.1 µg/L to 25 µg/L. At piezometers B163, ETA03, and WSM01 in the southeastern portion of the site, PCE was detected at concentrations exceeding the California and federal MCLs of 5 µg/L with reported levels of 8.6, 25, and 6 µg/L; all other results were 3.8 µg/L or lower. Figure 18 presents concentrations of PCE detected at piezometers where results have equaled or exceeded an MCL in at least one sampling event from 2010 to 2016. Figure 18 also presents concentrations of PCE breakdown products 1,2-DCA, cis-1,2-DCE, trans-1,2-DCE, and vinyl chloride. Analytical results for TCE, also a known breakdown product of PCE, are presented on Figure 20.

Trichloroethene. TCE was detected at 25 locations, 20 of which exceeded the California and federal MCLs of 5 µg/L. Reported concentrations exceeding the MCLs ranged from 8 µg/L to 120 µg/L. TCE concentrations that exceeded the MCLs were predominantly located along the eastern RFS Site property boundary. TCE concentrations reported between 2010 and 2016 are presented in Figure 20. Appendix C presents concentration-time graphs for piezometers sampled in 2016, where TCE results have equaled or exceeded an MCL in at least one sampling event from 2012 to 2016.

Vinyl Chloride. Vinyl chloride was detected at four locations (B163, ETA01, MFA, and PZ-11) with concentrations ranging from 0.1 to 0.9 µg/L. The results for vinyl chloride exceeded the California MCL of 0.5 µg/L at one location (B163), with a concentration of 0.9 µg/L. Figure 18 presents concentrations of vinyl chloride detected at piezometers where results have equaled or exceeded an MCL in at least one sampling event from 2012 to 2016.

6.2 METALS

Groundwater samples from 20 piezometers were submitted for analysis of dissolved metals by EPA Methods 6010B, 6020A (thallium only), and 7470A (Table 1); two duplicate samples were also collected. All samples were field filtered. Metals were detected in all samples submitted for analysis. A summary of all detected metals is presented in Table 8. Six metals —antimony, arsenic, cadmium, mercury, nickel, and thallium — exceeded an MCL; results for these metals are discussed below.

Antimony. Antimony was detected at eight sampling locations at concentrations ranging from 2.3 to 11 µg/L; samples at locations B197R (7.4 µg/L and 9.5 µg/L in duplicate sample), Bulb1 (6.7 µg/L), and EERC (11 µg/L) exceeded the California and federal MCL of 6 µg/L.

Arsenic. Arsenic was detected at four sampling locations at concentrations ranging from 4.9 to 15 µg/L; the sample at location Bulb1 (15 µg/L) exceeded the California and federal MCL of 10 µg/L.

Cadmium. Cadmium was detected at three sampling locations at concentrations ranging from 1.5 to 6.2 µg/L; the sample at location PZ-11 (6.2 µg/L) exceeded the California and federal MCL of 5 µg/L.

Mercury. Mercury was detected at seven sampling locations, with concentrations ranging from 0.069 to 15 µg/L. The samples collected from locations B195 and ETA01 exceeded the California and federal MCL of 2 µg/L, with concentrations of 2.1 and 15 µg/L. Elevated concentrations of mercury at piezometer ETA01, installed in 2015, are likely a result of its

location directly downgradient of the mercury fulminate area; the February 2015 result was 4.7 µg/L. Mercury results for the neighboring piezometer ETA have been consistently non-detect from 2010 through 2015; and in 2016, mercury was detected at an estimated concentration of 0.071 µg/L. Appendix C presents a concentration-time graph for mercury in piezometer B195, in which dissolved mercury results exceed the MCLs.

Nickel. Nickel was detected at 17 sampling locations at concentrations ranging from 0.89 to 770 µg/L, with the four values at locations B163 (170 µg/L), DHR (770 µg/L), ETA03 (110 µg/L), and PZ-11 (730 µg/L) exceeding the California MCL of 100 µg/L. There is no federal MCL for nickel. Piezometer PZ-11 is located near the eastern property boundary where Campus Bay has performed pilot studies of substrate injections for VOC degradation. The elevated concentrations of metals at this location may be due to the reducing conditions in the soil created by the pilot study.

Thallium. Thallium was detected at five sampling locations (B195, CTP, EERC, ETA01, and ETA02) at concentrations ranging from 2.0 to 8.8 µg/L, and all results were at or higher than the California and federal MCL of 2 µg/L. However, all these wells were sampled on either April 5 or April 11, and concentrations of thallium in the source water blank on April 5, 2016 (5.9 µg/L), and in the equipment rinsate sample on April 11, 2016 (4.9 µg/L), were comparable to the site concentrations; therefore the elevated thallium concentrations may likely be attributed to laboratory contamination as samples from previous years have been non-detect for thallium.

7.0 DATA COMPARISON WITH PREVIOUS SAMPLING EVENTS

Previous Groundwater Sampling Results Technical Memorandum (Tetra Tech 2012, 2013b, 2014b, 2015) evaluated and described chemical trends observed during the first seven rounds of sampling. The data collected in April 2016 were consistent with previous rounds of data in that analytes were detected at similar concentrations in the same geographic areas:

- VOCs were detected at similar concentrations and in the same general areas as in previous sampling events. Most VOCs detected at concentrations that exceed the California or federal MCLs were detected along the eastern property boundary, notably at locations PZ11 and B163. Carbon tetrachloride continues to be detected at concentrations exceeding the MCL at location CTP on the northwestern portion of the site. One notable difference is concentrations of cis-1,2-DCE in location PZ-11 have significantly decreased from 480 µg/L to 2.8 µg/L in 1 year.
- Metals were detected at similar concentrations and in the same general areas as in previous sampling events, with the exception of thallium, which was detected at five locations in 2016, and had previously been detected below the MCLs (or non-detect results with a reporting limit less than or equal to the detection limit), but this was likely due to laboratory contamination. Continued elevated concentrations of metals at piezometer PZ-11 may be due to the reducing conditions in the soil created by the pilot study.

Groundwater elevations will be monitored in October 2016 and April 2017, and samples will be collected for chemical analysis in April 2017. Sampling locations will be determined based on discussions with DTSC prior to the April 2017 sampling event.

8.0 REFERENCES

Tetra Tech EM Inc. (Tetra Tech EM Inc. 1996-2012; Currently Tetra Tech, Inc. [Tetra Tech]). 2008. Final Current Conditions Report, University of California, Berkeley, Richmond Field Station, Richmond, California. November 21.

Tetra Tech. 2010. Final Phase I Groundwater Sampling, Field Sampling Workplan, University of California, Berkeley, Richmond Field Station, Richmond, California. June 2.

Tetra Tech. 2011. Final Phase I Groundwater Sampling Results, Technical Memorandum, University of California, Berkeley, Richmond Field Station, Richmond, California. August 22.

Tetra Tech. 2012. Final Phase I November 2010 through April 2012 Groundwater Sampling Results Technical Memorandum, University of California, Berkeley, Richmond Field Station, Richmond, California. December 12.

Tetra Tech. 2013a. Final Site Characterization Report. Proposed Richmond Bay Campus, Research, Education, and Support Area and Groundwater within the Richmond Field Station Site. May 28.

Tetra Tech. 2013b. Final 2013 Groundwater Sampling Results Technical Memorandum, University of California, Berkeley, Richmond Field Station, Richmond, California. October 10.

Tetra Tech. 2014a. Final Removal Action Workplan. Proposed Richmond Bay Campus, Research, Education, and Support Area and Groundwater within the Richmond Field Station Site. July 18.

Tetra Tech. 2014b. Final 2014 Groundwater Sampling Results Technical Memorandum, University of California, Berkeley, Richmond Field Station, Richmond, California. November 24.

Tetra Tech. 2015. Final 2015 Groundwater Sampling Results Technical Memorandum, University of California, Berkeley, Richmond Field Station, Richmond, California. October 19.

Tetra Tech. 2016a. Letter from Jason Brodersen, Tetra Tech, to Lynn Nakashima, DTSC, regarding “Proposed Continued Groundwater Monitoring Locations for 2016, Richmond Field Station Site, Berkeley Global Campus at Richmond Bay, Berkeley, CA, Site Investigation and Remediation Order I/SE-RAO 07/07-004, Section 5.16.” March 30.

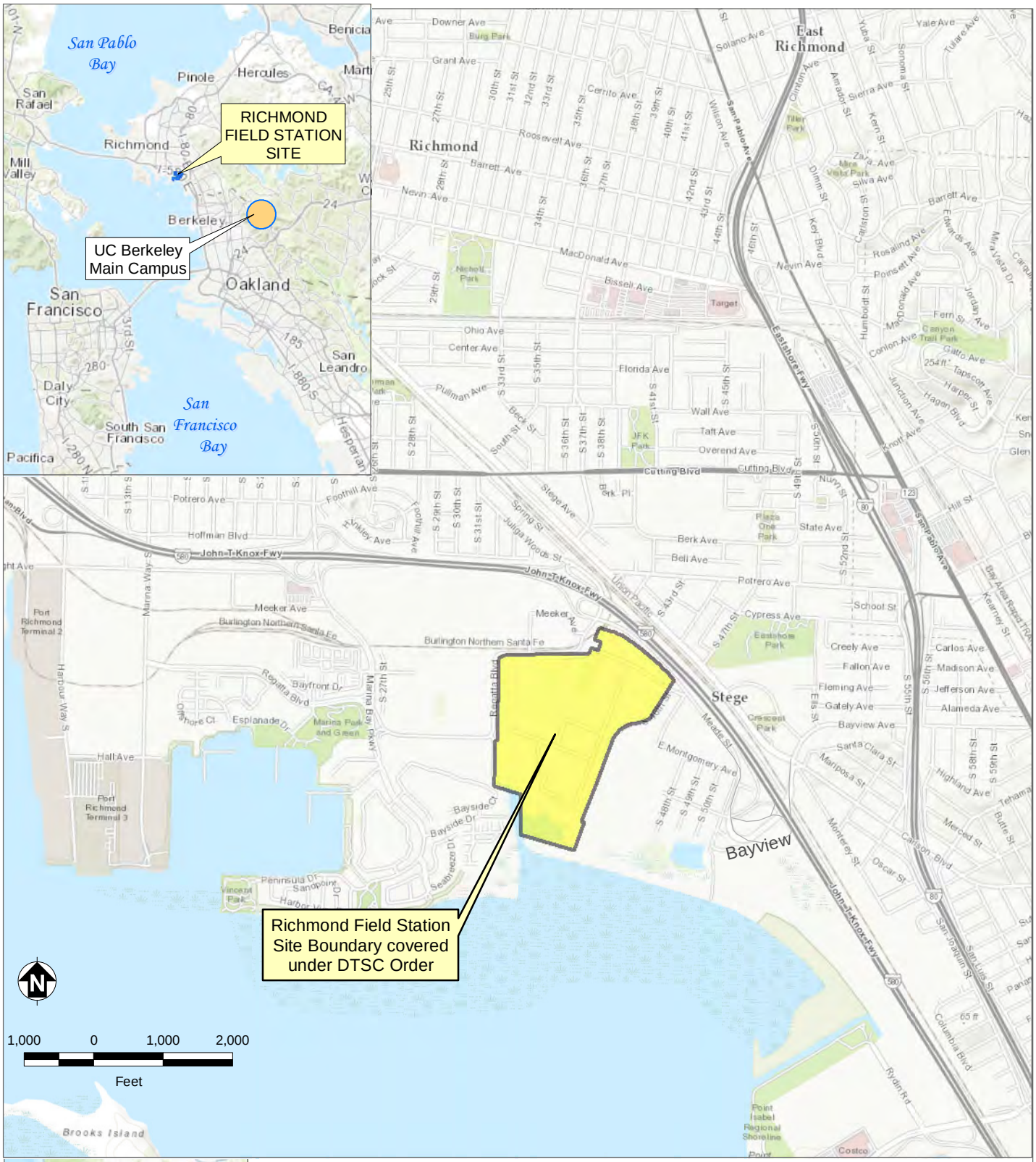
Tetra Tech. 2016b. Final Phase IV Sampling Results Technical Memorandum, Richmond Field Station Site, Berkeley Global Campus at Richmond Bay, University of California, Berkeley. May 16.

U.S. Environmental Protection Agency (EPA). 2002. Guidance for Quality Assurance Project Plans. Document Number EPA QA/G-5. December.

EPA. 2014a. USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review." Document Number EPA-540-R-13-001. August.

EPA. 2014b. USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review." Document Number EPA-540-R-14-002. August.

FIGURES



Notes:
DTSC Department of Toxic Substances Control.

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FIGURE 1
SITE LOCATION MAP

2016 Groundwater Sampling Results

Bay Trail
Meeker Slough
Western Stege Marsh
Transition Area (Including Bulb)
Upland

Richmond Field Station Site Boundary

Notes:
EBRPD East Bay Regional Parks District
EERC Earthquake Engineering Research Center
EPA Environmental Protection Agency
NRLF Northern Regional Library Facility
RFS Richmond Field Station

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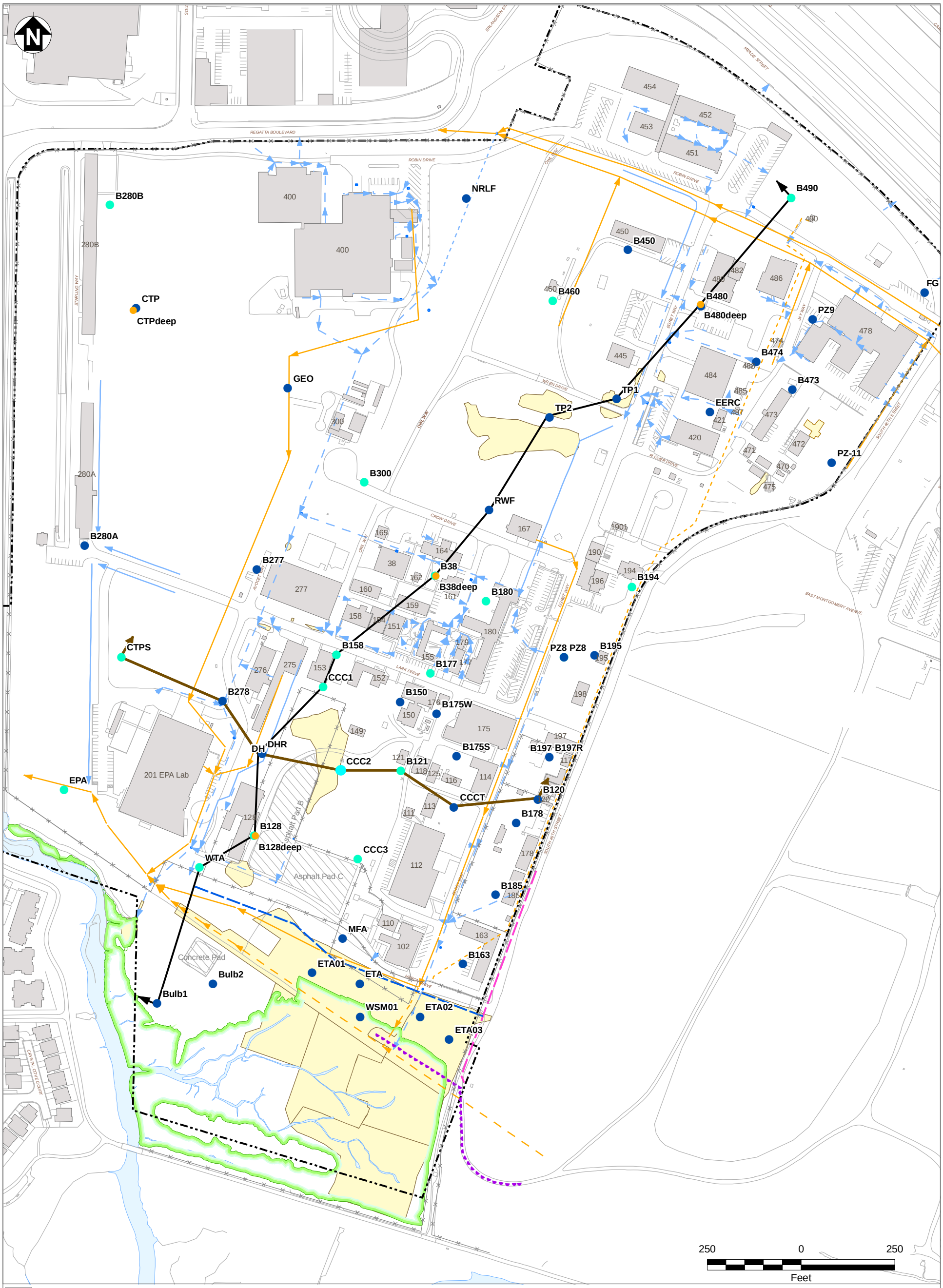
University of California, Berkeley

FIGURE 2
SITE MAP

2016 Groundwater Sampling Results

9/21/2016 V:\Misc_GIS\Richmond_Field_Station\Projects\009_GW_Sampling_Results_2016\02_Site Map.mxd TtEMI-OAK simon.cardinale



Note:
1. Piezometers DHR and B197R replaced piezometers DH and B197, which were abandoned in 2013.

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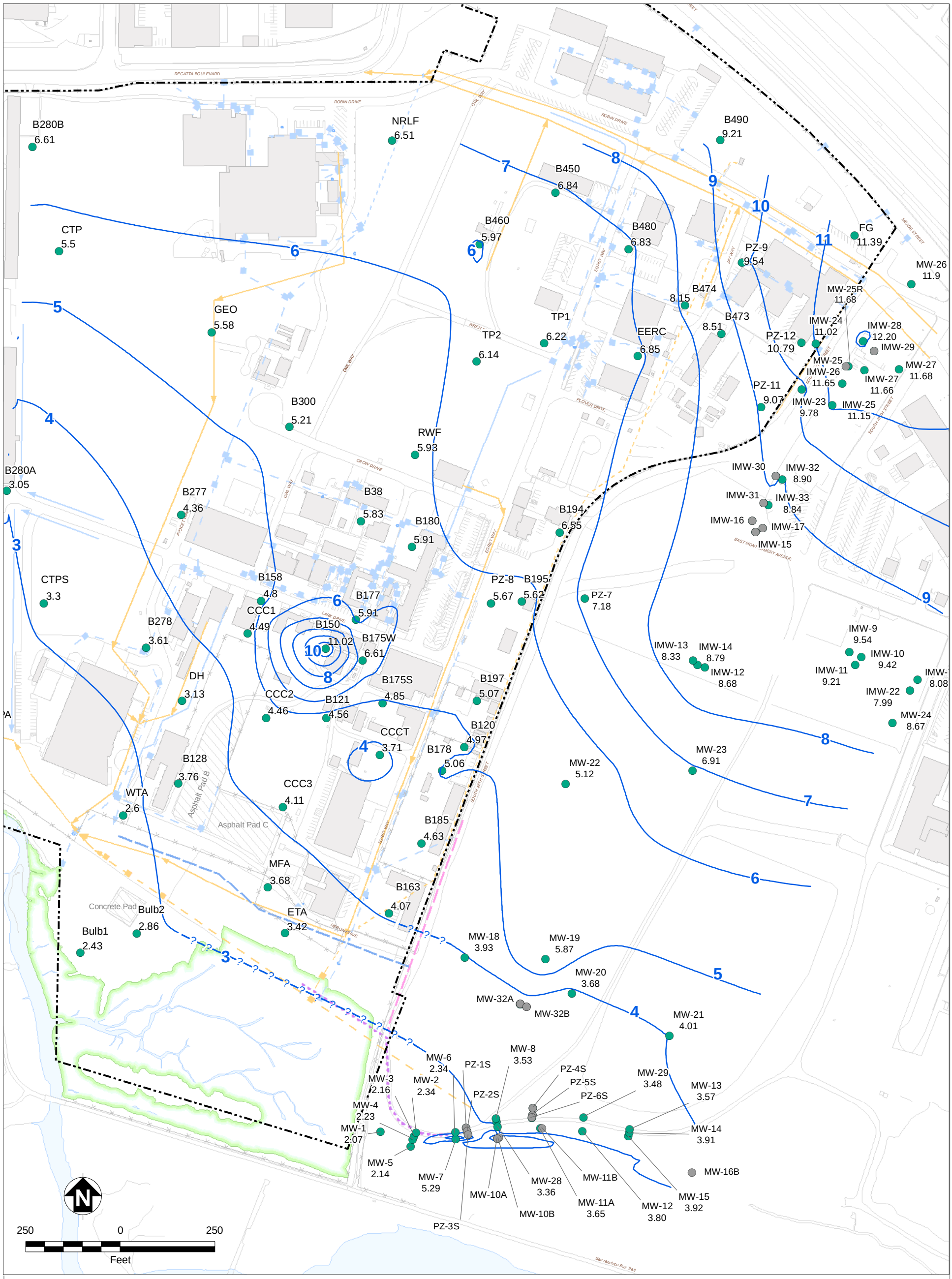
FIGURE 3
GROUNDWATER SAMPLING LOCATIONS

2016 Groundwater Sampling Results



- Piezometer Groundwater Elevation Measured in November 2010
- Piezometer Groundwater Elevation Not Measured in November 2010
- November 2010 Groundwater Contours
- Contour Estimated due to Proximity to BAPB Wall, Slurry Wall, or Marsh
- Existing Building
- Asphalt/Concrete Pad
- Surface Water
- Marsh Boundary
- Richmond Field Station Site Boundary
- Roads and Other Landscape Features
- Fenceline
- BAPB Wall
- Former Seawall (Approximate)
- Slurry Wall

Storm Drain Lines:

- Open Swale
- Underground Culvert
- Underground Culvert, Abandoned (Grouted at Manholes)

Sanitary Sewer Lines:

- Existing Sewer Line
- Removed Sewer Line
- Abandoned Sewer Line

Note:
All data points surveyed to NGVD29.
Mean sea level = NGVD29 elevation (in feet) – 0.58 feet NGVD and mean sea level datum representative of Stege Marsh is derived from NOAA Richmond Inner Harbor tide gauge.

MW-10A
5.27
Piezometer ID
Groundwater Elevation (FT NGVD29)

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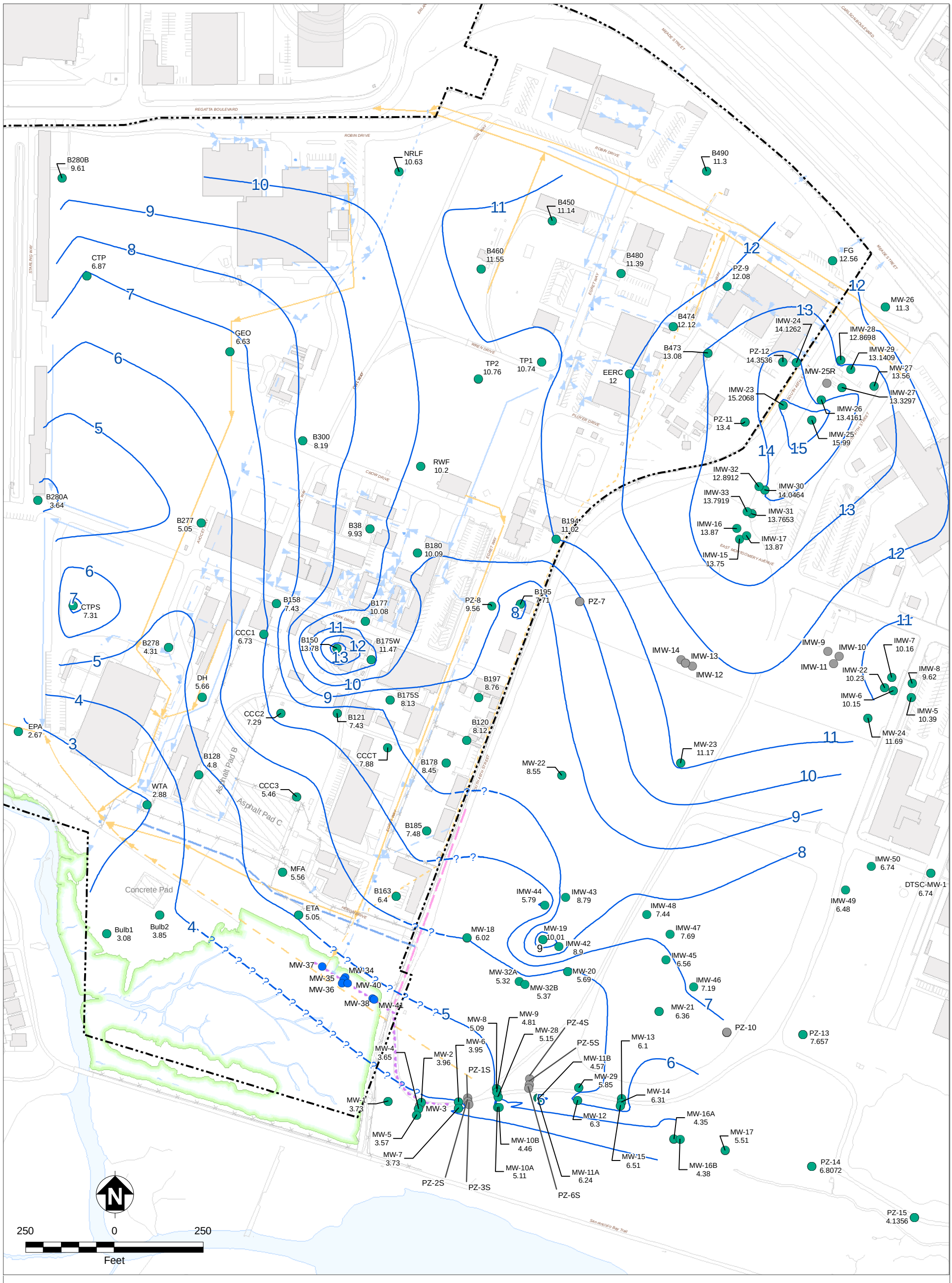
University of California, Berkeley

FIGURE 4
SHALLOW GROUNDWATER ELEVATION CONTOURS, NOVEMBER 1, 2010

2016 Groundwater Sampling Results

9/21/2016 V:\Misc_GIS\Richmond_Field_Station\Projects\009_GW_Sampling_Results_2016\04_Shallow GW Elevation Contours 2010 Nov 1.mxd TtEMI-OAK simon.cardinale



- Piezometer Groundwater Elevation Measured in April 2011
- Piezometer Groundwater Elevation Not Measured in April 2011
- BAPB Piezometers on RFS Property Not Measured in April 2011
- April 2011 Groundwater Contours
- Contour Estimated due to Proximity to BAPB Wall, Slurry Wall, or Marsh
- Existing Building
- Asphalt/Concrete Pad
- Surface Water
- Marsh Boundary
- Richmond Field Station Site Boundary
- Roads and Other Landscape Features
- Fenceline
- Biologically Active Permeable Barrier Wall
- Former Seawall (Approximate)
- Slurry Wall

Storm Drain Lines:

- Open Swale
- Underground Culvert
- Underground Culvert, Abandoned (Grouted at Manholes)

Sanitary Sewer Lines:

- Existing Sewer Line
- Removed Sewer Line
- Abandoned Sewer Line

MW-10A 5.27 — Piezometer ID; Groundwater Elevation (FT NGVD29)

Note:
All data points surveyed to NGVD29.
Mean sea level = NGVD29 elevation (in feet) – 0.58 feet NGVD and mean sea level datum representative of Stege Marsh is derived from NOAA Richmond Inner Harbor tide gauge.

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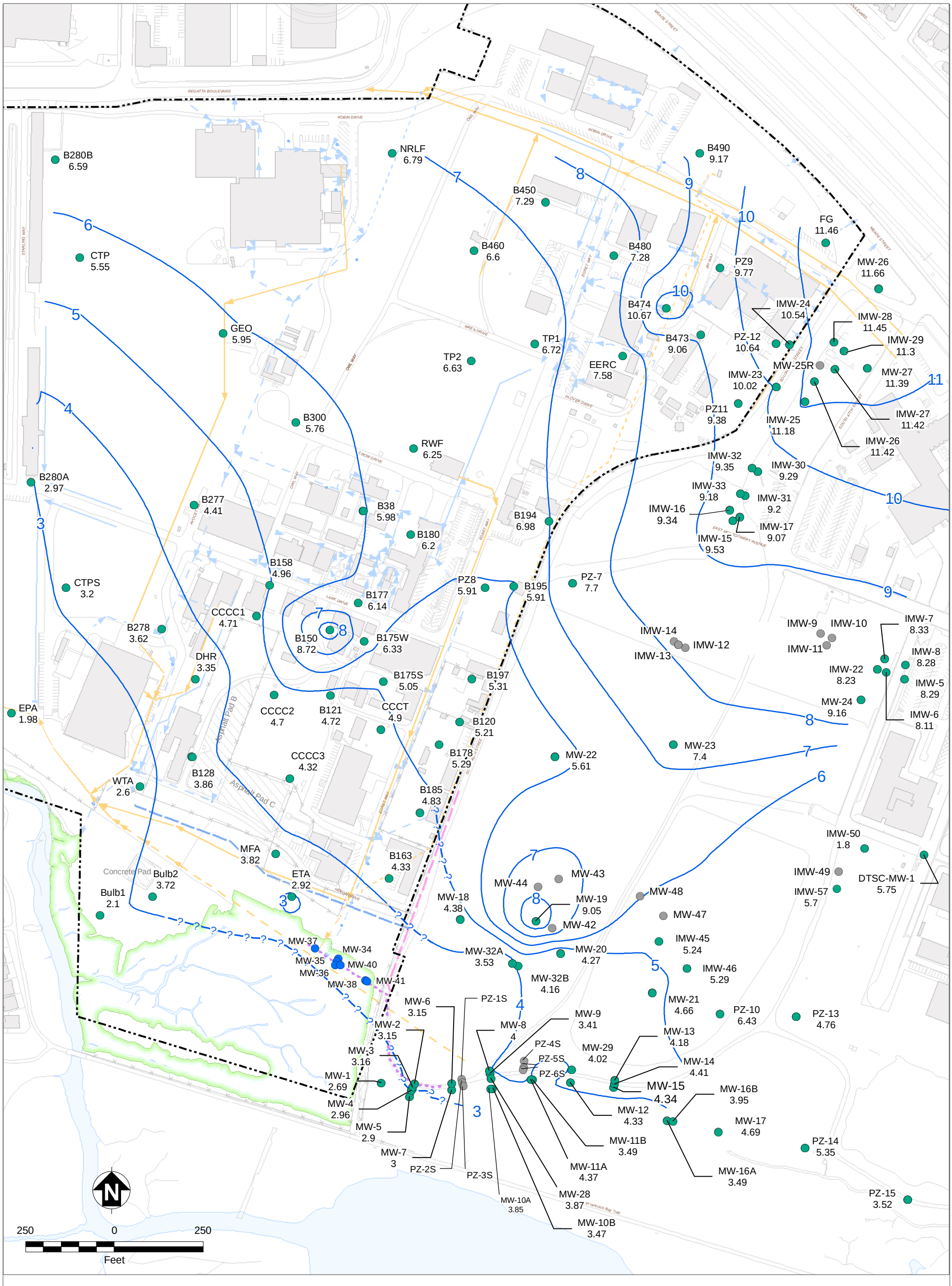
FIGURE 5
SHALLOW GROUNDWATER ELEVATION CONTOURS, APRIL 11, 2011

2016 Groundwater Sampling Results



Piezometer Groundwater Elevation Measured in October 2011
Piezometer Groundwater Elevation Not Measured in October 2011
BAPB Piezometers on RFS Property Not Measured in October 2011
October 2011 Groundwater Contours
Contour Estimated due to Proximity to BAPB Wall, Slurry Wall, or Marsh
Existing Building
Asphalt/Concrete Pad
Surface Water
Marsh Boundary
Richmond Field Station Site Boundary
Roads and Other Landscape Features
Fenceline
BAPB Wall
Former Seawall (Approximate)

Slurry Wall

Storm Drain Lines:
Open Swale
Underground Culvert
Underground Culvert, Abandoned (Grouted at Manholes)

Sanitary Sewer Lines:
Existing Sewer Line
Removed Sewer Line
Abandoned Sewer Line

Note:
All data points surveyed to NGVD29.
Mean sea level = NGVD29 elevation (in feet) – 0.58 feet NGVD and mean sea level datum representative of Stege Marsh is derived from NOAA Richmond Inner Harbor tide gauge.

MW-10A 5.27
Piezometer ID
Groundwater Elevation (FT NGVD29)

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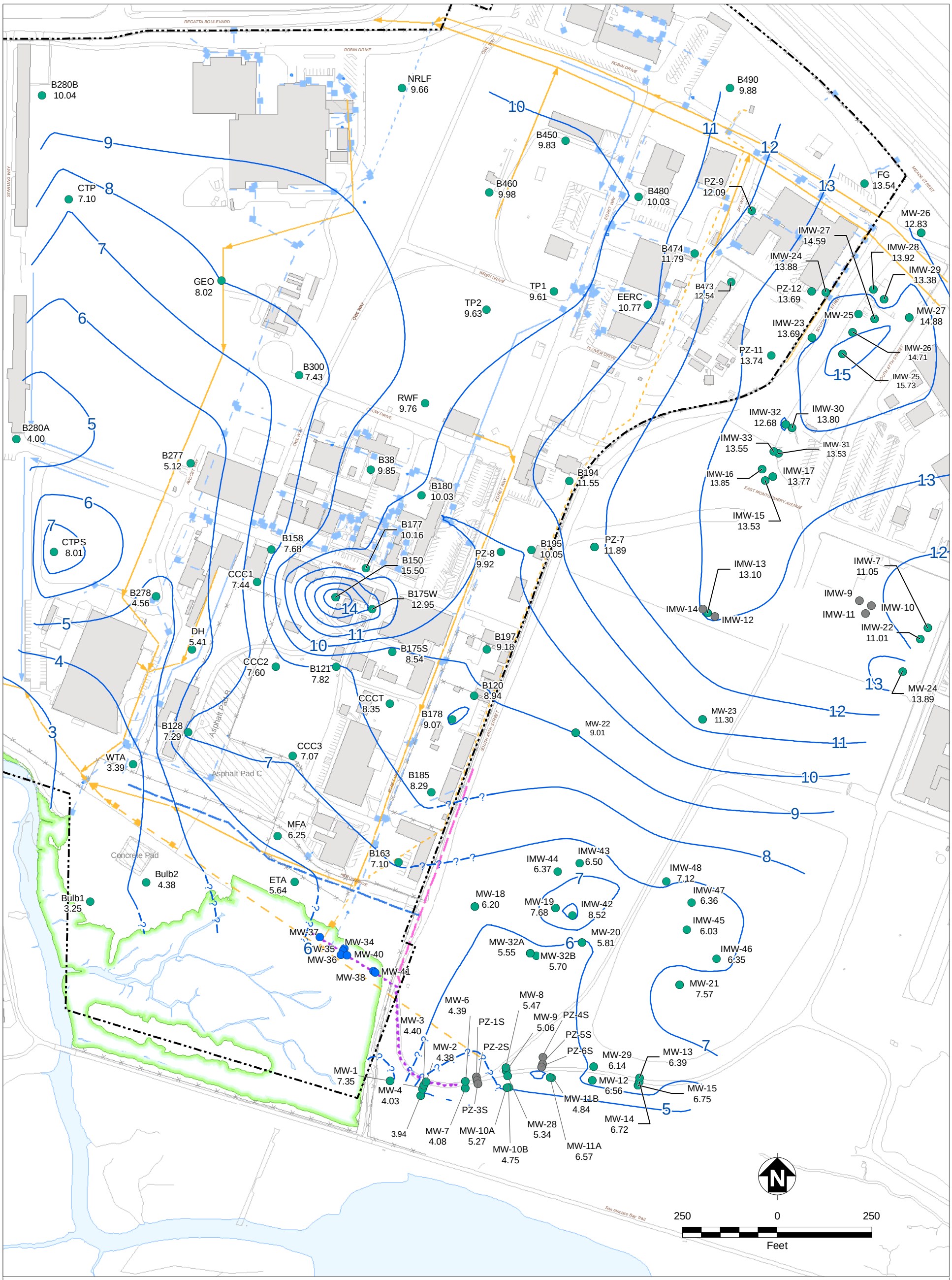
FIGURE 6
SHALLOW GROUNDWATER ELEVATION CONTOURS, OCTOBER 3, 2011

2016 Groundwater Sampling Results



Piezometer Groundwater Elevation Measured in April 2012
Piezometer Groundwater Elevation Not Measured in April 2012
BAPB Piezometers on RFS Property Not Measured in April 2012
April 2012 Groundwater Contour
Contour Estimated due to Proximity to BAPB Wall, Slurry Wall, or Marsh
Existing Building
Asphalt/Concrete Pad
Surface Water
Marsh Boundary
Richmond Field Station Site Boundary
Roads and Other Landscape Features
Fenceline
BAPB Wall
Former Seawall (Approximate)
Slurry Wall

Storm Drain Lines:
Open Swale
Underground Culvert
Underground Culvert, Abandoned (Grouted at Manholes)

Sanitary Sewer Lines:
Existing Sewer Line
Removed Sewer Line
Abandoned Sewer Line

Piezometer ID
MW-10A
5.27
Groundwater Elevation (FT NGVD29)

Note:
All data points surveyed to NGVD29.
Mean sea level = NGVD29 elevation (in feet) – 0.58 feet NGVD and mean sea level datum representative of Stege Marsh is derived from NOAA Richmond Inner Harbor tide gauge.

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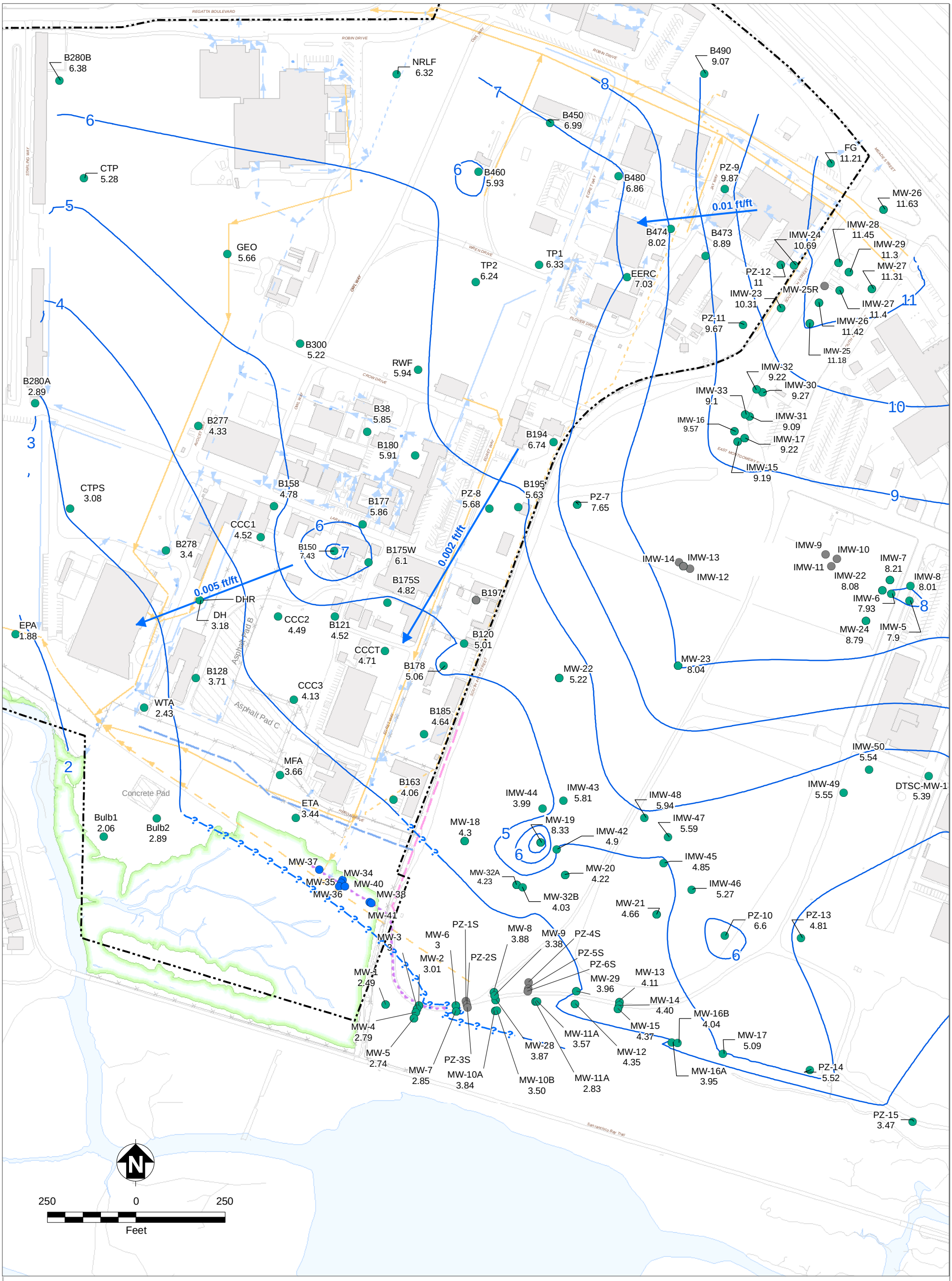
FIGURE 7
SHALLOW GROUNDWATER ELEVATION CONTOURS, APRIL 2, 2012

2016 Groundwater Sampling Results



- Piezometer Groundwater Elevation Measured in October 2012
- Piezometer Groundwater Elevation Not Measured in October 2012
- BAPB Piezometers on RFS Property Not Measured in October 2012
- October 2012 Groundwater Contours
- Contour Estimated due to Proximity to BAPB Wall, Slurry Wall, or Marsh
- Estimated Horizontal Groundwater Gradient Direction (Value)
- Existing Building
- Asphalt/Concrete Pad
- Surface Water
- Marsh Boundary
- Richmond Field Station Site Boundary
- Roads and Other Landscape Features
- Fenceline
- BAPB Wall
- Former Seawall (Approximate)
- Slurry Wall

Storm Drain Lines:

- Open Swale
- Underground Culvert
- Underground Culvert, Abandoned (Grouted at Manholes)

Sanitary Sewer Lines:

- Existing Sewer Line
- Removed Sewer Line
- Abandoned Sewer Line

Note:
All data points surveyed to NGVD29.
Mean sea level = NGVD29 elevation (in feet) – 0.58 feet NGVD and mean sea level datum representative of Stege Marsh is derived from NOAA Richmond Inner Harbor tide gauge.

Piezometer ID
MW-10A
5.27
Groundwater Elevation (FT NGVD29)

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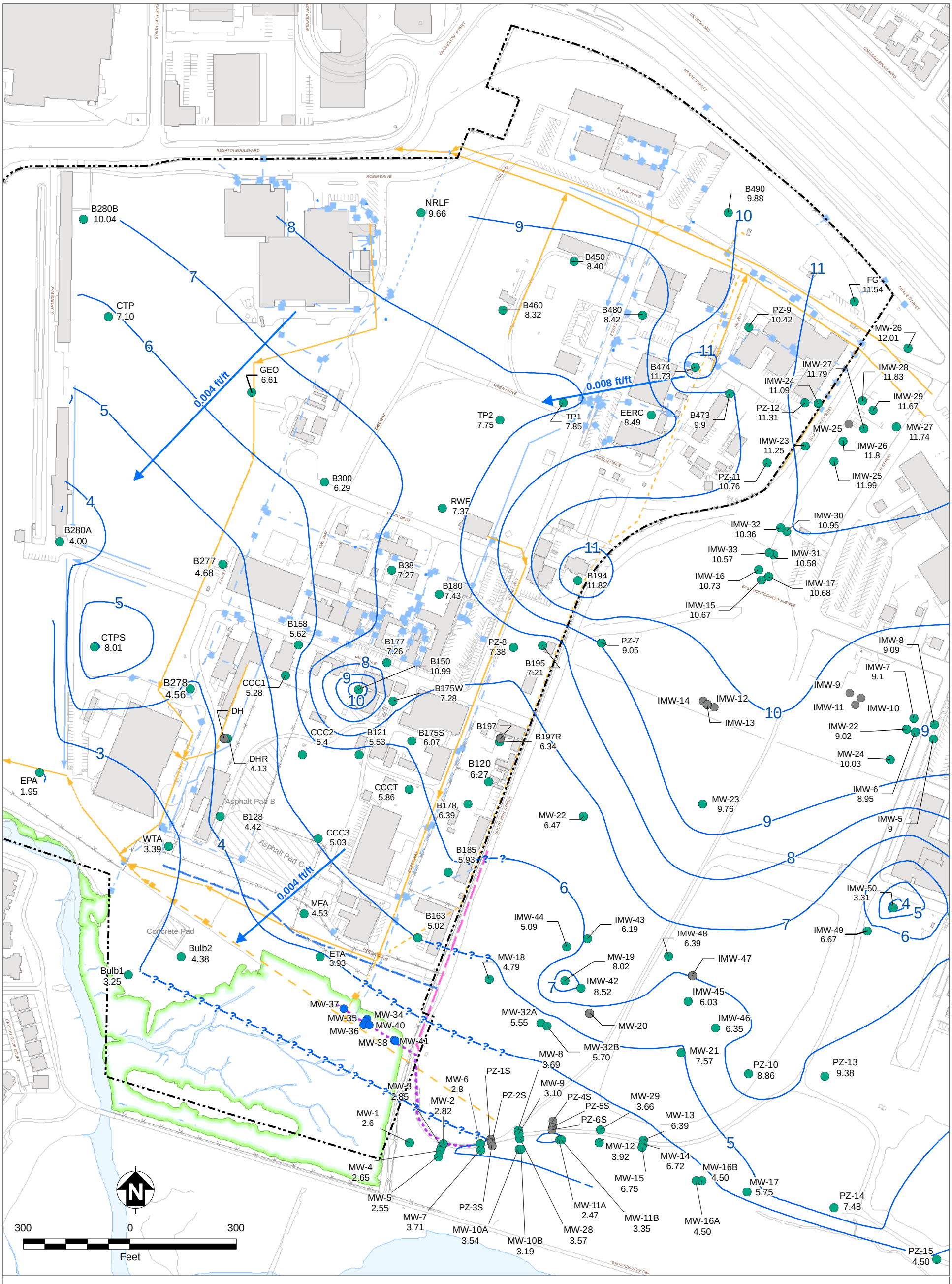
FIGURE 8
SHALLOW GROUNDWATER ELEVATION CONTOURS, OCTOBER 1, 2012

2016 Groundwater Sampling Results



Piezometer Groundwater Elevation Measured in April 2013
Piezometer Groundwater Elevation Not Measured in April 2013
BAPB Piezometers on RFS Property Not Measured in April 2013
April 2013 Groundwater Contour
Contour Estimated due to Proximity to BAPB Wall, Slurry Wall, or Marsh
Estimated Horizontal Groundwater Gradient Direction (Value)
Existing Building
Asphalt/Concrete Pad
Surface Water
Marsh Boundary
Richmond Field Station Site Boundary
Roads and Other Landscape Features
Fenceline
BAPB Wall

Former Seawall (Approximate)
Slurry Wall

Storm Drain Lines:
Open Swale
Underground Culvert
Underground Culvert, Abandoned (Grouted at Manholes)

Sanitary Sewer Lines:
Existing Sewer Line
Removed Sewer Line
Abandoned Sewer Line

Piezometer ID
MW-10A
5.27
Groundwater Elevation (FT NGVD29)

Note:
All data points surveyed to NGVD29.
Mean sea level = NGVD29 elevation (in feet) – 0.58 feet NGVD and mean sea level datum representative of Stege Marsh is derived from NOAA Richmond Inner Harbor tide gauge.

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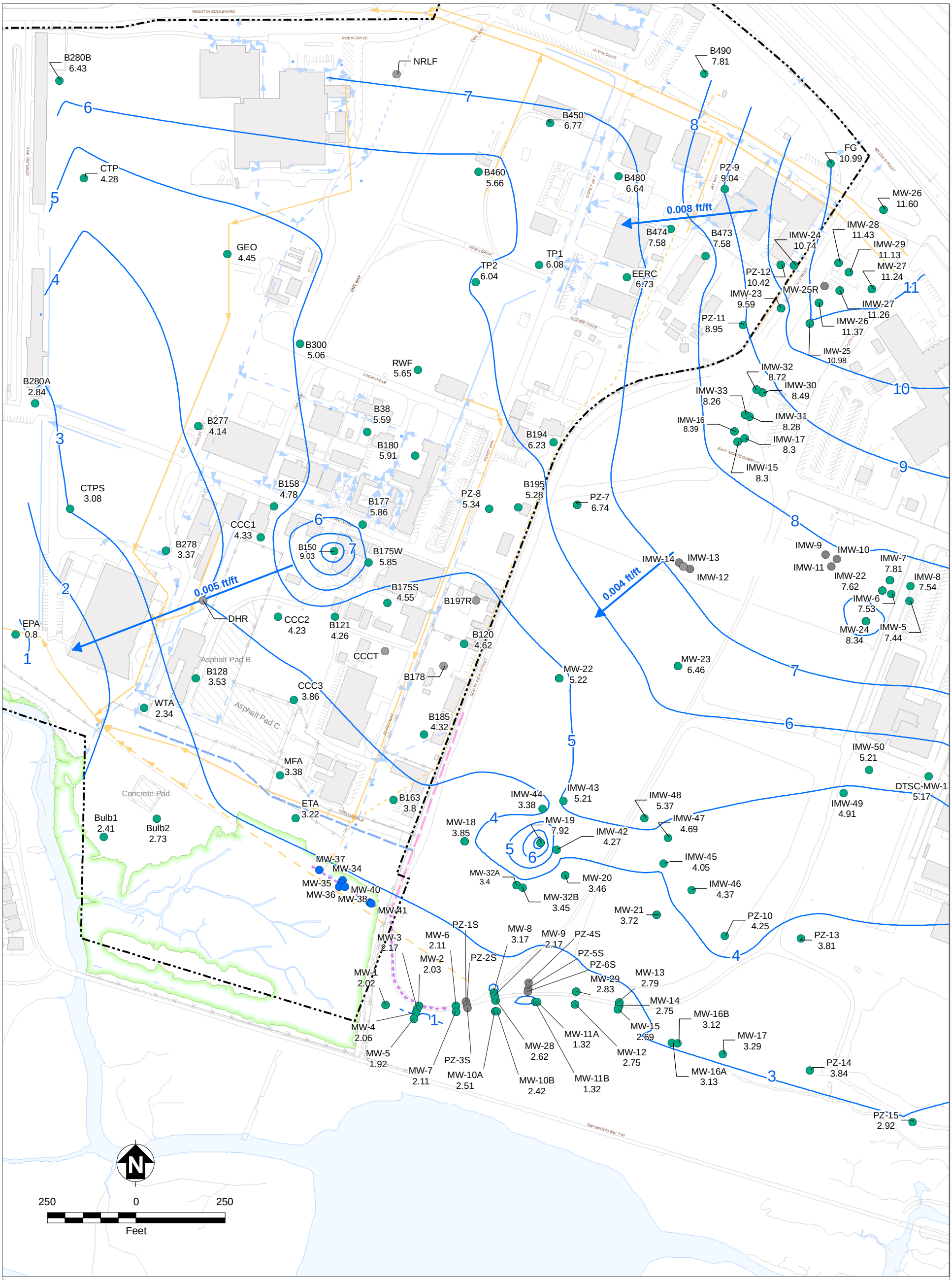
FIGURE 9
SHALLOW GROUNDWATER ELEVATION CONTOURS, APRIL 1, 2013

2016 Groundwater Sampling Results



- Piezometer Groundwater Elevation Measured in October 2013
- Piezometer Groundwater Elevation Not Measured in October 2013
- BAPB Piezometers on RFS Property Not Measured in October 2013
- Estimated Horizontal Groundwater Gradient Direction (Value)
- Existing Building
- Asphalt/Concrete Pad
- Surface Water
- Marsh Boundary
- Richmond Field Station Site Boundary
- Roads and Other Landscape Features
- Fenceline
- BAPB Wall
- Former Seawall (Approximate)
- Slurry Wall

Storm Drain Lines:

- Open Swale
- Underground Culvert
- Underground Culvert, Abandoned (Grouted at Manholes)

Sanitary Sewer Lines:

- Existing Sewer Line
- Removed Sewer Line
- Abandoned Sewer Line

Piezometer ID
MW-10A
5.27
Groundwater Elevation (FT NGVD29)

Note:
All data points surveyed to NGVD29.
Mean sea level = NGVD29 elevation (in feet) – 0.58 feet NGVD and mean sea level datum representative of Stege Marsh is derived from NOAA Richmond Inner Harbor tide gauge.

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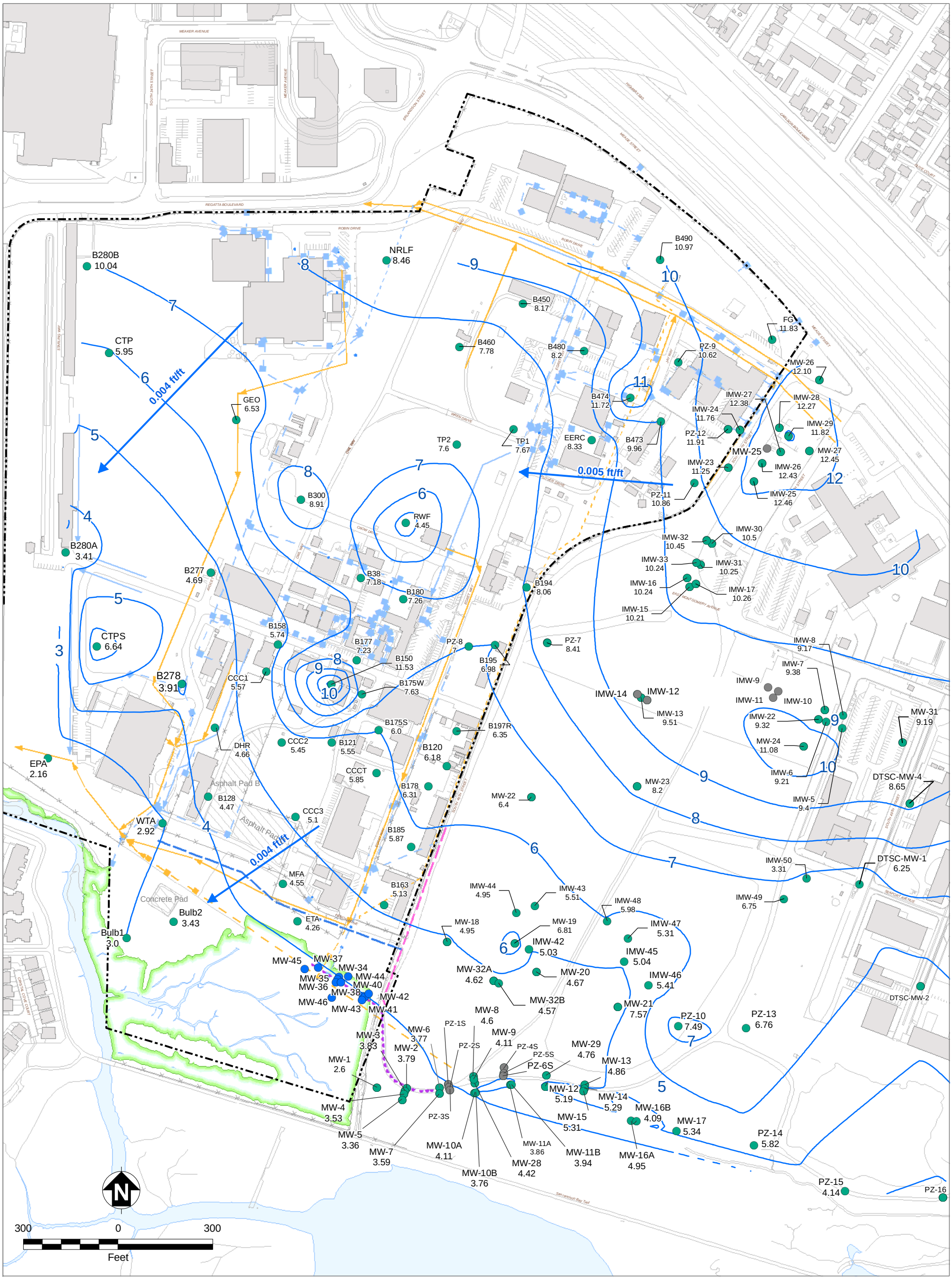
University of California, Berkeley

FIGURE 10
SHALLOW GROUNDWATER ELEVATION CONTOURS, OCTOBER 7, 2013

2016 Groundwater Sampling Results



- Piezometer Groundwater Elevation Measured in March 2014
- Piezometer Groundwater Elevation Not Measured in March 2014
- BAPB Piezometers on RFS Property Not Measured in March 2014
- April 2014 Groundwater Contour
- Estimated Horizontal Groundwater Gradient Direction (Value)
- Existing Building
- Asphalt/Concrete Pad
- Surface Water
- Marsh Boundary
- Richmond Field Station Site Boundary
- Roads and Other Landscape Features
- Fenceline
- BAPB Wall
- Former Seawall (Approximate)
- Slurry Wall

Storm Drain Lines:

- Open Swale
- Underground Culvert
- Underground Culvert, Abandoned (Grouted at Manholes)

Sanitary Sewer Lines:

- Existing Sewer Line
- Removed Sewer Line
- Abandoned Sewer Line

Piezometer ID
MW-10A
5.27
Groundwater Elevation (FT NGVD29)

Note:
All data points surveyed to NGVD29.
Mean sea level = NGVD29 elevation (in feet) – 0.58 feet NGVD and mean sea level datum representative of Stege Marsh is derived from NOAA Richmond Inner Harbor tide gauge.

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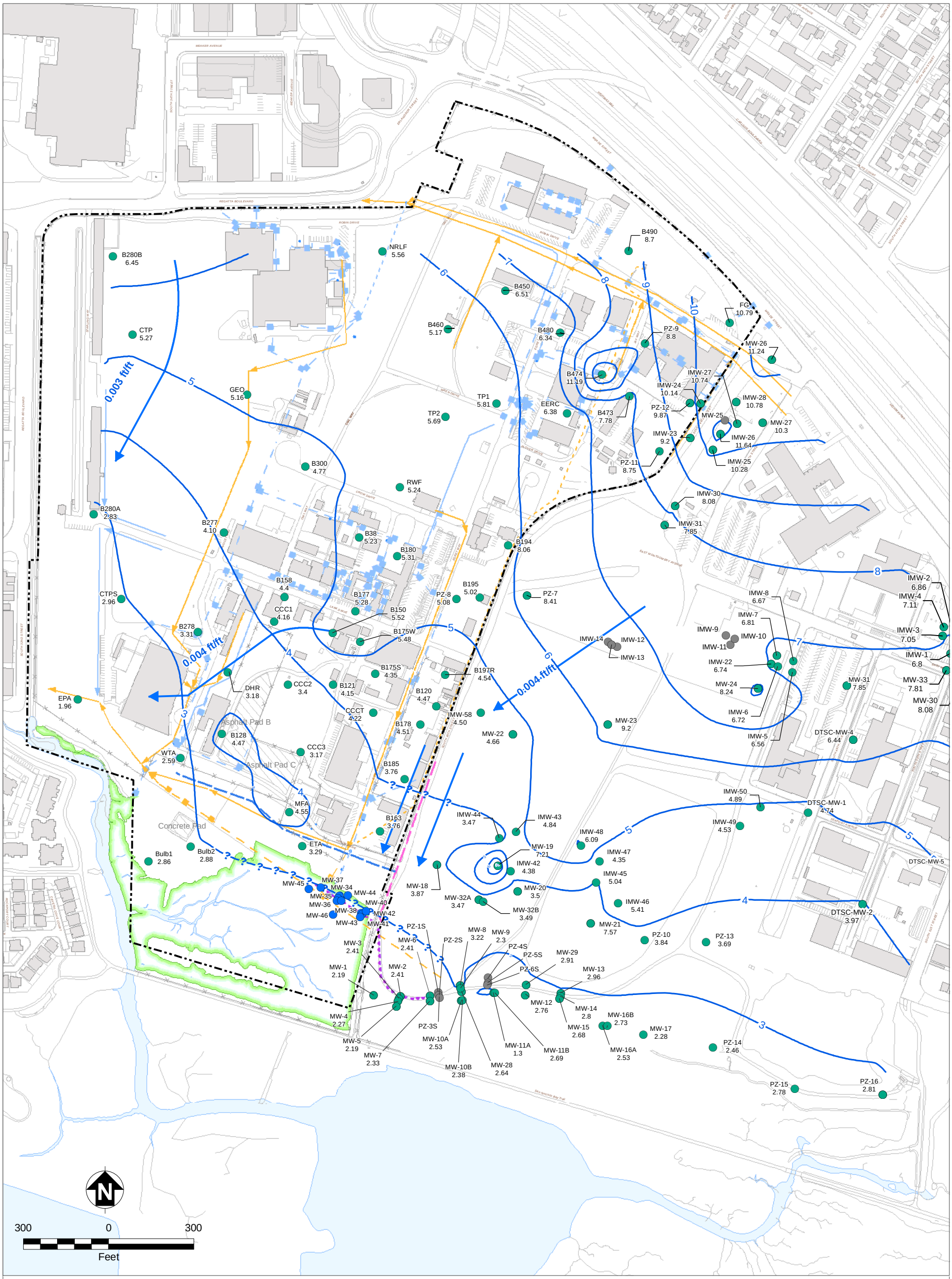
FIGURE 11
SHALLOW GROUNDWATER ELEVATION CONTOURS, MARCH 28, 2014

2016 Groundwater Sampling Results



- Piezometer Groundwater Elevation Measured in October 2014
- Piezometer Groundwater Elevation Not Measured in October 2014
- BAPB Piezometers on RFS Property Not Measured in October 2014
- 1 Estimated October 2014 Groundwater Contour
- ? Contour Estimated due to Proximity to BAPB Wall, Slurry Wall, or Marsh
- Estimated Horizontal Groundwater Gradient Direction (Value)
- Existing Building
- Asphalt/Concrete Pad
- Surface Water
- Marsh Boundary
- Richmond Field Station Site Boundary
- Roads and Other Landscape Features
- Fenceline
- BAPB Wall
- Former Seawall (Approximate)
- Slurry Wall

Storm Drain Lines:

- Open Swale
- Underground Culvert
- Underground Culvert, Abandoned (Grouted at Manholes)

Sanitary Sewer Lines:

- Existing Sewer Line
- Removed Sewer Line
- Abandoned Sewer Line

MW-10A 5.27 — Piezometer ID; Groundwater Elevation (FT NGVD29)

Note:
All data points surveyed to NGVD29.
Mean sea level = NGVD29 elevation (in feet) – 0.58 feet NGVD and mean sea level datum representative of Stege Marsh is derived from NOAA Richmond Inner Harbor tide gauge.
Contours do not include data from Phase IV piezometers completed in January 2015.

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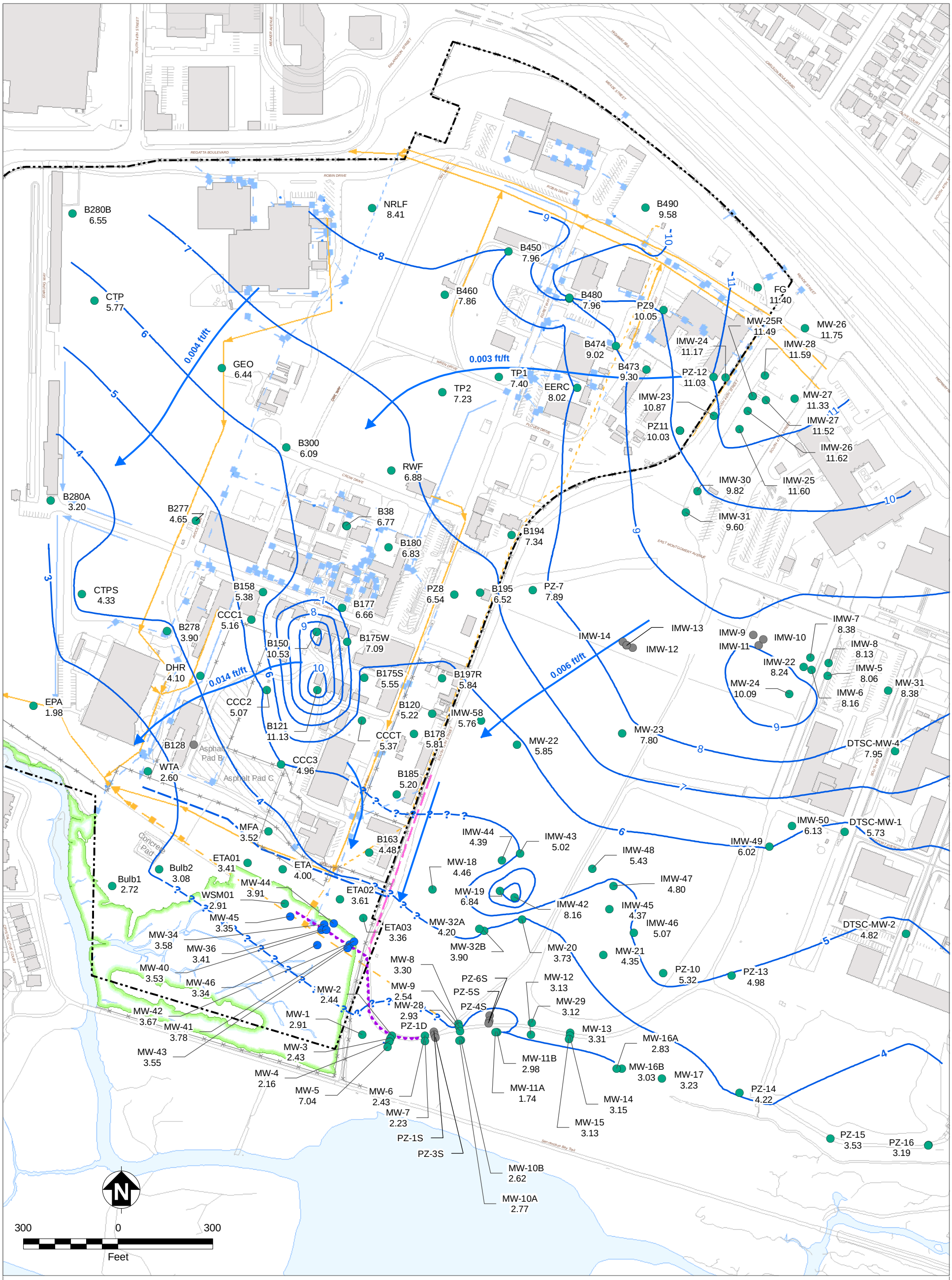
FIGURE 12
SHALLOW GROUNDWATER ELEVATION CONTOURS, OCTOBER 1, 2014

2016 Groundwater Sampling Results



- Piezometer Groundwater Elevation Measured in April 2015
- Piezometer Groundwater Elevation Not Measured in April 2015
- BAPB Piezometers on RFS Property Measured in April 2015

Estimated April 2015 Groundwater Contour

- Horizontal Groundwater Gradient
- Proximity to BAPB Wall
- Estimated Horizontal Groundwater Gradient Direction (Value)
- Existing Building
- Asphalt/Concrete Pad
- Surface Water
- Marsh Boundary
- Richmond Field Station Site Boundary
- Roads and Other Landscape Features
- Fenceline

- BAPB Wall
- Former Seawall (Approximate)
- Slurry Wall

Storm Drain Lines:

- Open Swale
- Underground Culvert
- Underground Culvert, Abandoned (Grouted at Manholes)

Sanitary Sewer Lines:

- Existing Sewer Line
- Removed Sewer Line
- Abandoned Sewer Line

Piezometer ID
MW-10A
5.27
Groundwater Elevation (FT NGVD29)

Note:
All data points surveyed to NGVD29.
Mean sea level = NGVD29 elevation (in feet) – 0.58 feet and mean sea level datum representative of Stege Marsh is derived from NOAA Richmond Inner Harbor tide gauge.

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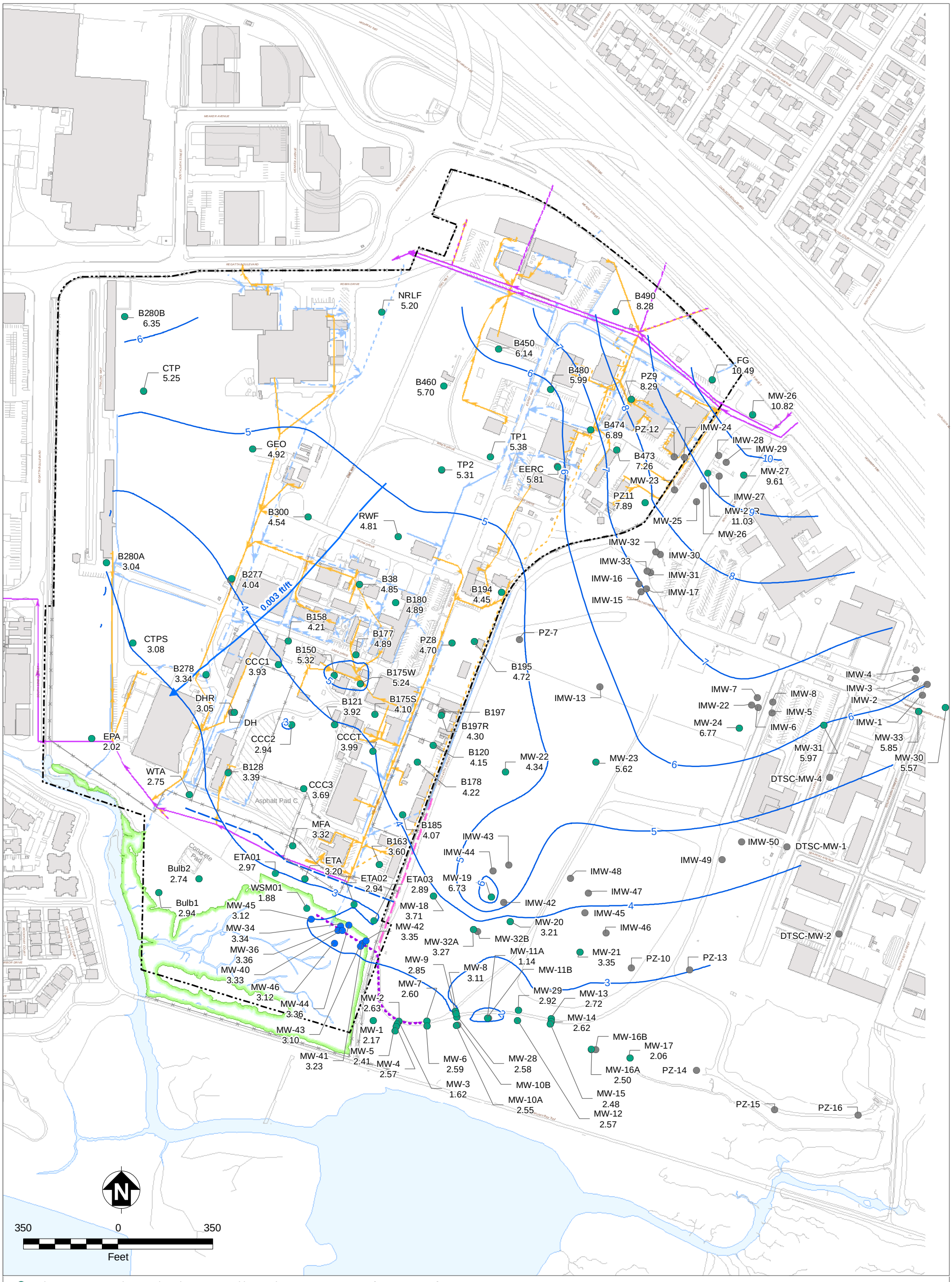
FIGURE 13
SHALLOW GROUNDWATER ELEVATION CONTOURS, APRIL 1, 2015

2016 Groundwater Sampling Results



- Piezometer Groundwater Elevation Measured in October 2015
- Piezometer Groundwater Elevation Not Measured in October 2015
- BAPB Piezometers on RFS Property Measured in October 2015
- Estimated October 2015 Groundwater Contour
- Estimated Horizontal Groundwater Gradient Direction (Value)
- Existing Building
- Asphalt/Concrete Pad
- Surface Water
- Marsh Boundary
- Richmond Field Station Site Boundary
- Roads and Other Landscape Features
- Fenceline
- BAPB Wall
- Former Seawall (Approximate)
- Slurry Wall

Sanitary Sewer Lines:

- Existing City of Richmond Sewer
- Abandoned City of Richmond Sewer
- Existing RFS Sewer
- Abandoned RFS Sewer

Storm Drain Lines:

- Open Swale
- Underground Culvert
- Gutters
- Underground Culvert, Abandoned (Grouted at Manholes)

Piezometer ID
MW-10A
5.27
Groundwater Elevation (FT NGVD29)

Note:
All data points surveyed to NGVD29.
Mean sea level = NGVD29 elevation (in feet) – 0.58 feet and mean sea level datum representative of Stege Marsh is derived from NOAA Richmond Inner Harbor tide gauge.

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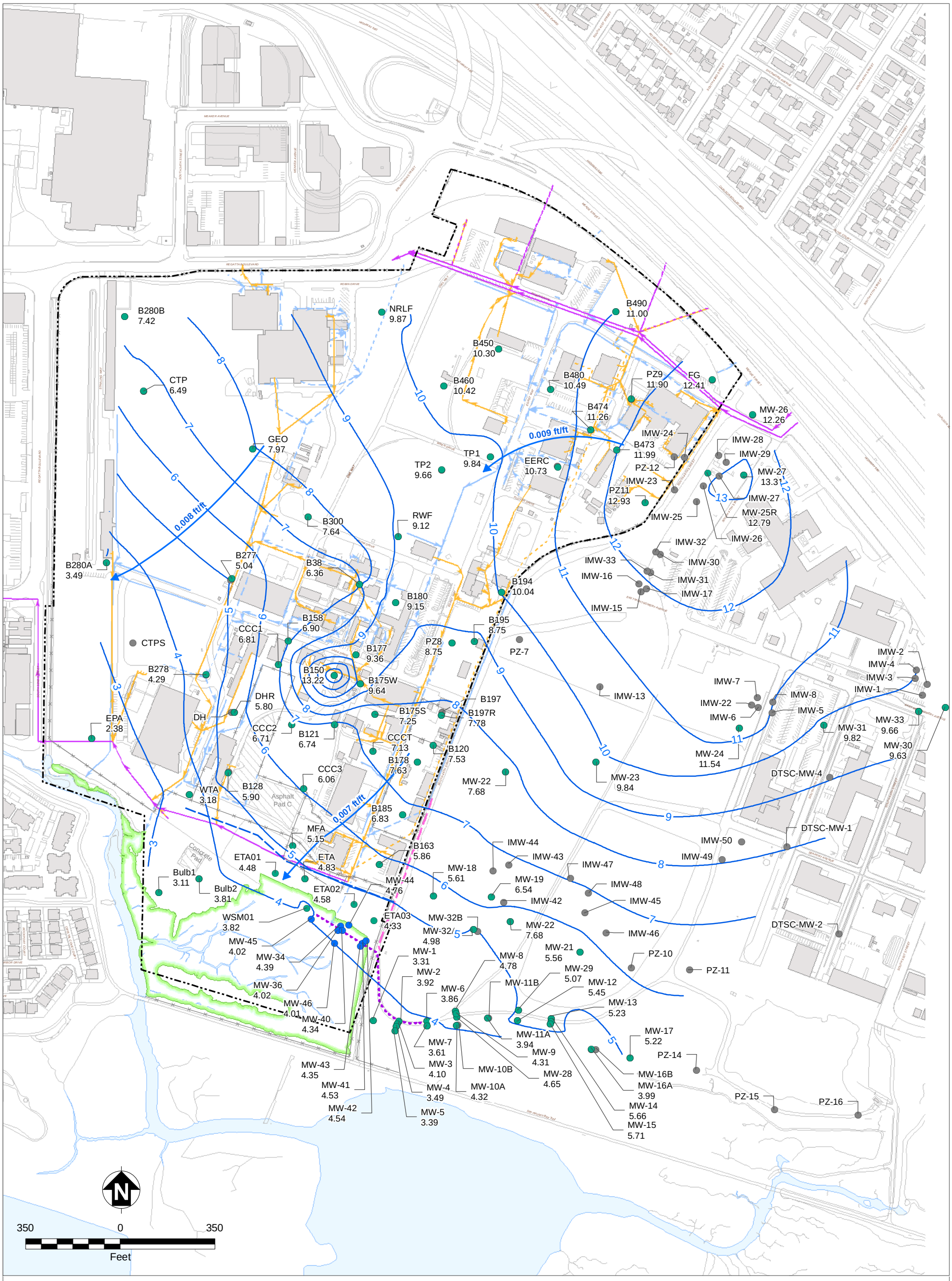
Richmond Field Station Site
University of California, Berkeley

FIGURE 14
SHALLOW GROUNDWATER ELEVATION CONTOURS, OCTOBER 5, 2015

2016 Groundwater Sampling Results



Piezometer Groundwater Elevation Measured in April 2016
Piezometer Groundwater Elevation Not Measured in April 2016
BAPB Piezometers on RFS Property Measured in April 2016
Estimated April 2016 Groundwater Contour
Estimated Horizontal Groundwater Gradient Direction (Value)
Existing Building
Asphalt/Concrete Pad
Surface Water
Marsh Boundary
Richmond Field Station Site Boundary
Roads and Other Landscape Features
Fenceline
BAPB Wall
Former Seawall (Approximate)
Slurry Wall

Sanitary Sewer Lines:
Existing City of Richmond Sewer
Abandoned City of Richmond Sewer
Existing RFS Sewer
Abandoned RFS Sewer

Storm Drain Lines:
Open Swale
Underground Culvert
Gutters
Underground Culvert, Abandoned (Grouted at Manholes)

Piezometer ID
MW-10A
5.27
Groundwater Elevation (FT NGVD29)

Note:
All data points surveyed to NGVD29.
Mean sea level = NGVD29 elevation (in feet) – 0.58 feet and mean sea level datum representative of Stege Marsh is derived from NOAA Richmond Inner Harbor tide gauge.

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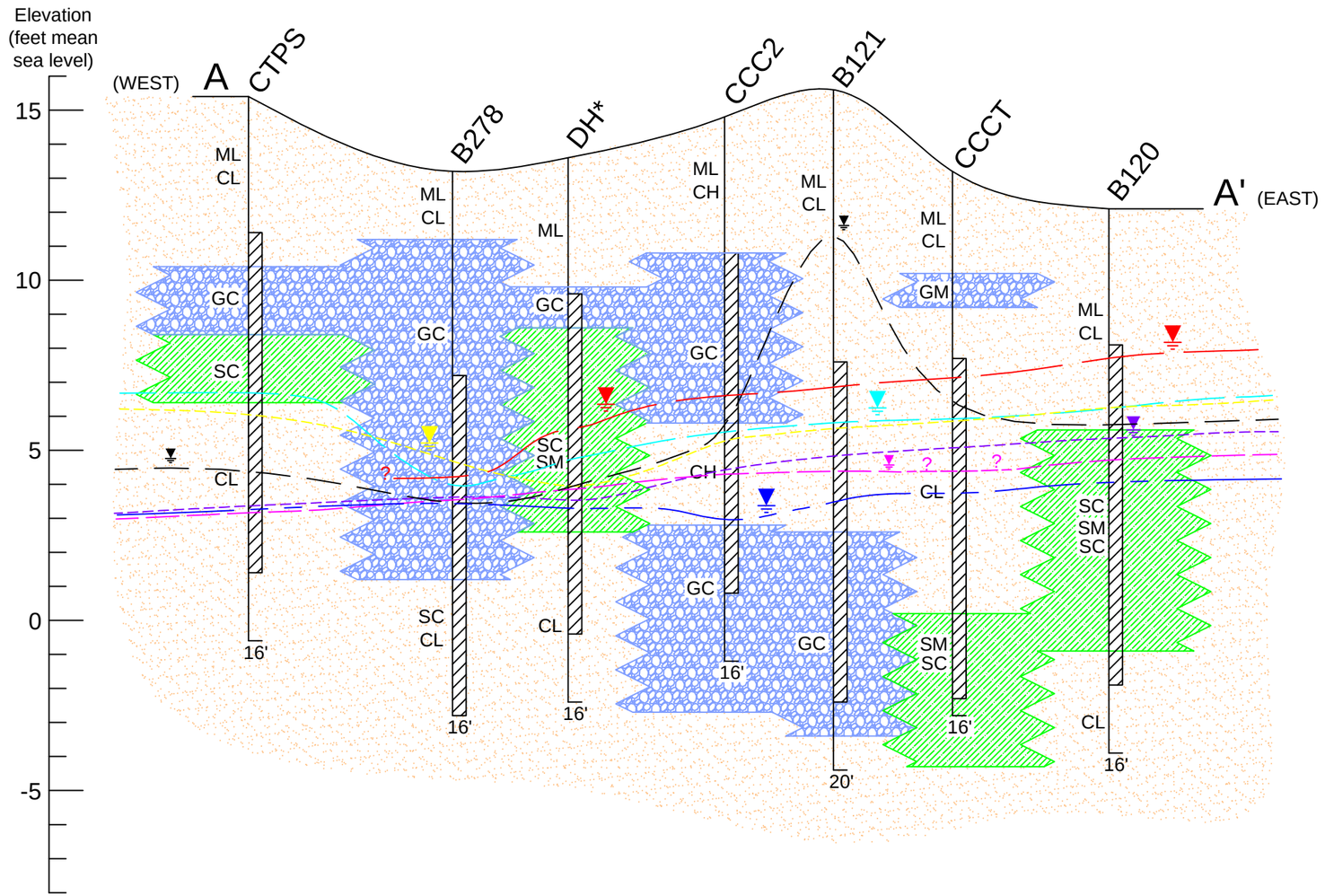
University of California, Berkeley

FIGURE 15
SHALLOW GROUNDWATER ELEVATION CONTOURS, APRIL 4, 2016

2016 Groundwater Sampling Results

9/25/2016 V:\Misc_GIS\Richmond_Field_Station\Projects\009_GW_Sampling_Results_2016\15_Shallow_GW_Elevation_Contours 2016 April 4.mxd TtEMI-OAK simon.cardinale.



Silt / Clay

Clayey Gravel

Clayey / Silty Sand

Well Screen Interval

? Water level not measured at well CTPS in April 2016 because it was not located during field work.

* Piezometer DH was abandoned in 2013 and replaced with piezometer DHR, located 5 feet away from the original location.

Estimated Groundwater Table (October 2012)

Estimated Groundwater Table (April 2013)

Estimated Groundwater Table (October 2013)

Estimated Groundwater Table (March 2014)

Estimated Groundwater Table (April 2015)

Estimated Groundwater Table (October 2015)

Estimated Groundwater Table (April 2016)

Unified Soil Classification System

GM	Silty Gravel, Gravel-Sand-Silt Mix
GC	Clayey Gravel, Gravel-Sand-Clay Mix
SW	Well-graded Sand, Gravelly Sand
SP	Poorly-Graded Sand, Gravelly Sand
SM	Silty Sand, Sand-Silt Mix
SC	Clayey-Sand, Sand-Clay Mix
ML	Inorganic Silt, Silty or Clayey Fine Sand
CL	Inorganic Clay of Low - Mod Plasticity
MH	Inorganic Silt, Silty Soil, Elastic Silt
CH	Inorganic Clay of High Plasticity

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Horizontal Scale

200 0 200

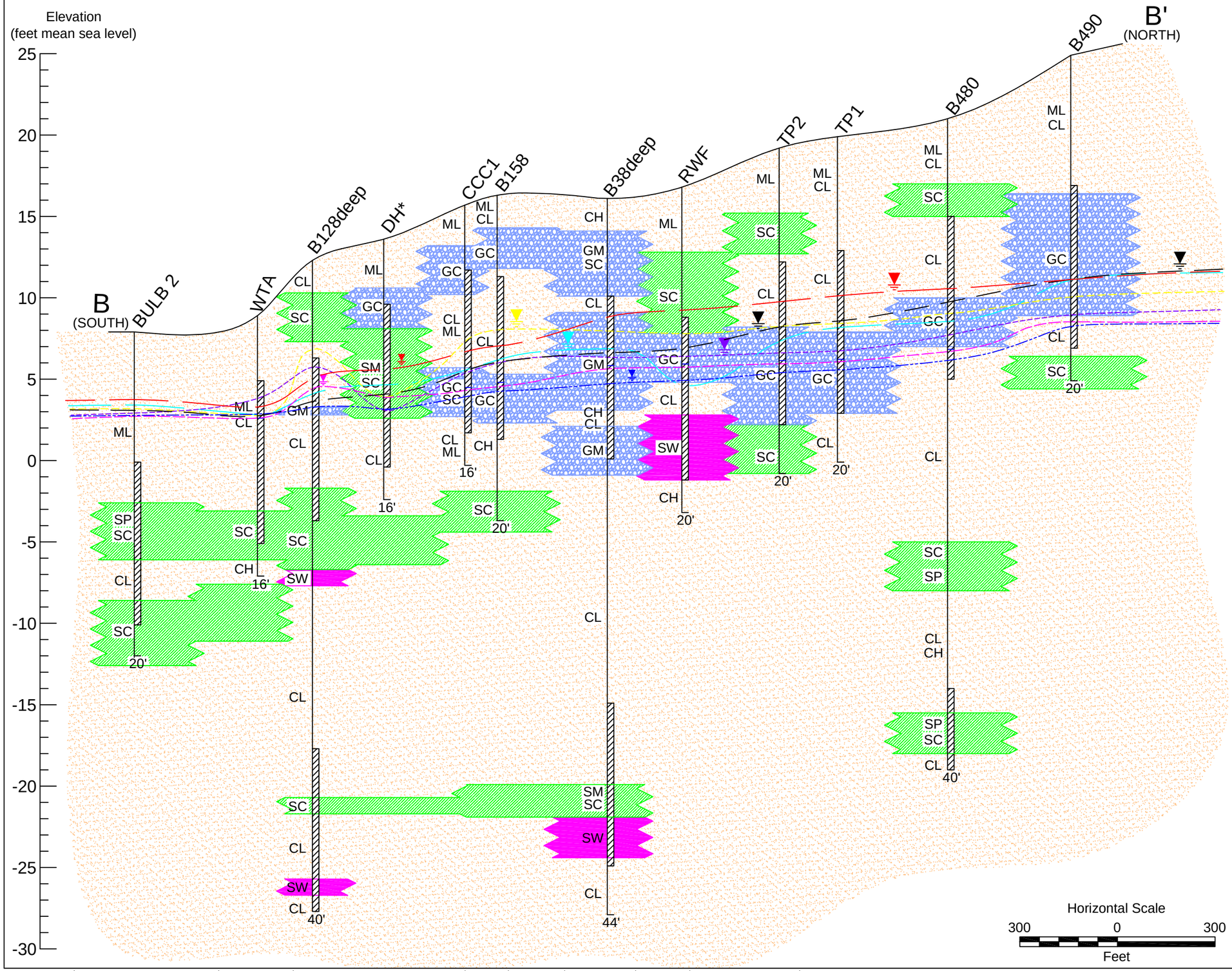
Feet

Richmond Field Station Site
University of California, Berkeley

FIGURE 16
GEOLOGIC CROSS-SECTION
A - A'

2016 Groundwater Sampling Results

s:\univ of cal berkeley_103s2253\task order files\task order 4423, fsw gw sampling v\r8_2016\tech memo\draft tm 2016\02. figures\2016 x sec native cad\rfs_cross-sections with wls_2016.dwg
TtEMI-OAK duffy, mark



Silt / Clay

Clayey Gravel

Clayey / Silty Sand

Sand

Well Screen Interval

* Piezometer DH was abandoned in 2013 and replaced with piezometer DHR, located 5 feet away from the original location.

Estimated Groundwater Table (October 2012)

Estimated Groundwater Table (April 2013)

Estimated Groundwater Table (October 2013)

Estimated Groundwater Table (March 2014)

Estimated Groundwater Table (April 2015)

Estimated Groundwater Table (October 2015)

Estimated Groundwater Table (April 2016)

Unified Soil Classification System

GM	Silty Gravel, Gravel-Sand-Silt Mix
GC	Clayey Gravel, Gravel-Sand-Clay Mix
SW	Well-graded Sand, Gravelly Sand
SP	Poorly-Graded Sand, Gravelly Sand
SM	Silty Sand, Sand-Silt Mix
SC	Clayey-Sand, Sand-Clay Mix
ML	Inorganic Silt, Silty or Clayey Fine Sand
CL	Inorganic Clay of Low - Mod Plasticity
MH	Inorganic Silt, Silty Soil, Elastic Silt
CH	Inorganic Clay of High Plasticity

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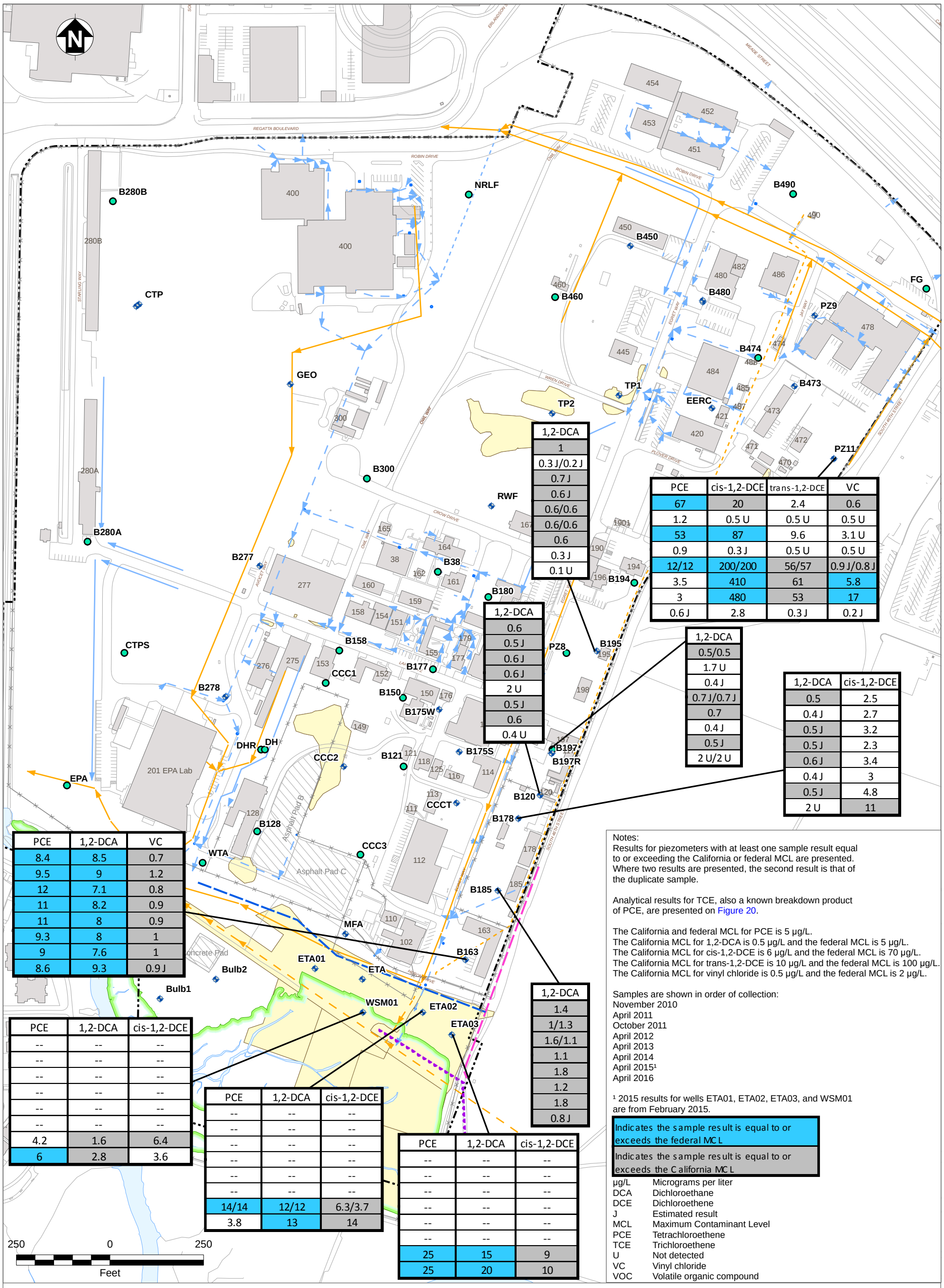
Richmond Field Station Site
University of California, Berkeley

FIGURE 17
GEOLOGIC CROSS-SECTION
B - B'

2016 Groundwater Sampling Results

s:\univ of cal berkeley_103s2253\task order files\task order 4423, fsw gw sampling v\r8_2016\tech memo\draft tm 2016\02. figures\2016 x sec native cad\rfs_cross-sections with wls_2016.dwg TtEMI-OAK duffy, mark



1,2-DCA
1
0.3 J/0.2 J
0.7 J
0.6 J
0.6/0.6
0.6/0.6
0.6
0.3 J
0.1 U

PCE	cis-1,2-DCE	trans-1,2-DCE	VC
67	20	2.4	0.6
1.2	0.5 U	0.5 U	0.5 U
53	87	9.6	3.1 U
0.9	0.3 J	0.5 U	0.5 U
12/12	200/200	56/57	0.9 J/0.8 J
3.5	410	61	5.8
3	480	53	17
0.6 J	2.8	0.3 J	0.2 J

1,2-DCA
0.6
0.5 J
0.6 J
0.6 J
2 U
0.5 J
0.6
0.4 U

1,2-DCA
0.5/0.5
1.7 U
0.4 J
0.7 J/0.7 J
0.7
0.4 J
0.5 J
2 U/2 U

1,2-DCA	cis-1,2-DCE
0.5	2.5
0.4 J	2.7
0.5 J	3.2
0.5 J	2.3
0.6 J	3.4
0.4 J	3
0.5 J	4.8
2 U	11

PCE	1,2-DCA	VC
8.4	8.5	0.7
9.5	9	1.2
12	7.1	0.8
11	8.2	0.9
11	8	0.9
9.3	8	1
9	7.6	1
8.6	9.3	0.9 J

PCE	1,2-DCA	cis-1,2-DCE
--	--	--
--	--	--
--	--	--
--	--	--
--	--	--
--	--	--
4.2	1.6	6.4
6	2.8	3.6

PCE	1,2-DCA	cis-1,2-DCE
--	--	--
--	--	--
--	--	--
--	--	--
--	--	--
--	--	--
14/14	12/12	6.3/3.7
3.8	13	14

PCE	1,2-DCA	cis-1,2-DCE
--	--	--
--	--	--
--	--	--
--	--	--
--	--	--
--	--	--
25	15	9
25	20	10

1,2-DCA
1.4
1/1.3
1.6/1.1
1.1
1.8
1.2
1.8
0.8 J

250 0 250
Feet

Notes:
Results for piezometers with at least one sample result equal to or exceeding the California or federal MCL are presented. Where two results are presented, the second result is that of the duplicate sample.

Analytical results for TCE, also a known breakdown product of PCE, are presented on Figure 20.

The California and federal MCL for PCE is 5 µg/L.
The California MCL for 1,2-DCA is 0.5 µg/L and the federal MCL is 5 µg/L.
The California MCL for cis-1,2-DCE is 6 µg/L and the federal MCL is 70 µg/L.
The California MCL for trans-1,2-DCE is 10 µg/L and the federal MCL is 100 µg/L.
The California MCL for vinyl chloride is 0.5 µg/L and the federal MCL is 2 µg/L.

Samples are shown in order of collection:
November 2010
April 2011
October 2011
April 2012
April 2013
April 2014
April 2015[1]
April 2016

[1] 2015 results for wells ETA01, ETA02, ETA03, and WSM01 are from February 2015.

Indicates the sample result is equal to or exceeds the federal MCL
Indicates the sample result is equal to or exceeds the California MCL

µg/L	Micrograms per liter
DCA	Dichloroethane
DCE	Dichloroethene
J	Estimated result
MCL	Maximum Contaminant Level
PCE	Tetrachloroethene
TCE	Trichloroethene
U	Not detected
VC	Vinyl chloride
VOC	Volatile organic compound

- Groundwater Sampling Locations
- Shallow Piezometers Not Sampled for VOCs in April 2016
- Existing Buildings
- Asphalt/Concrete Pads
- Remediated Areas
- Surface Water
- Marsh Boundary
- Richmond Field Station Site Boundary
- Roads and Other Landscape Features
- Fenceline
- Biologically Active Permeable Barrier Wall
- Former Seawall (Approximate)
- Slurry Wall
- Storm Drain Lines:
- Open Swale
- Underground Culvert
- Underground Culvert, Abandoned (Grouted at Manholes)
- Sanitary Sewer Lines:
- Existing Sewer Line
- Removed Sewer Line
- Abandoned Sewer Line

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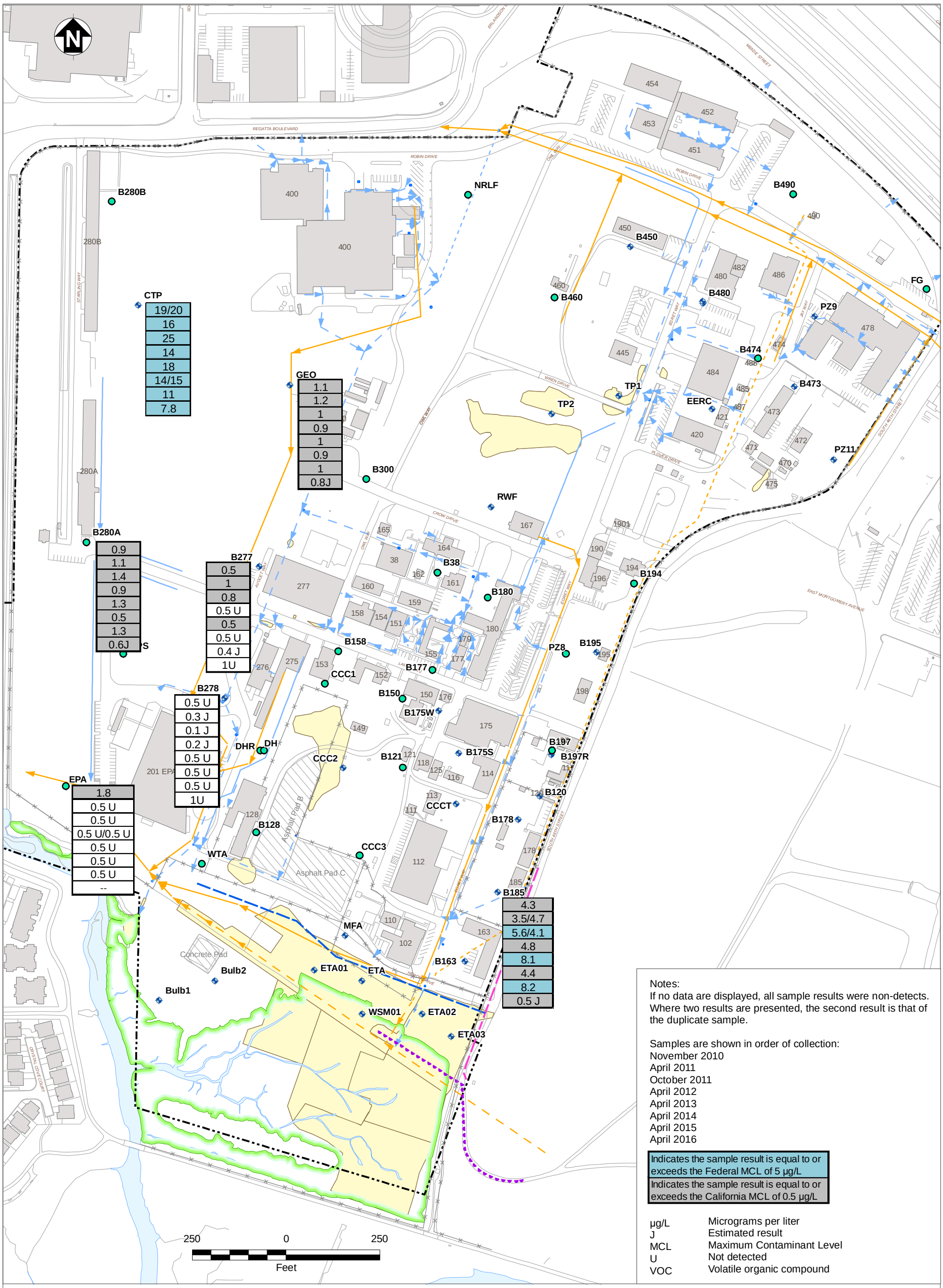
Richmond Field Station Site
University of California, Berkeley

FIGURE 18
PCE AND BREAKDOWN PRODUCTS

2016 Groundwater Sampling Results



Notes:
If no data are displayed, all sample results were non-detects.
Where two results are presented, the second result is that of the duplicate sample.

Samples are shown in order of collection:
November 2010
April 2011
October 2011
April 2012
April 2013
April 2014
April 2015
April 2016

Indicates the sample result is equal to or exceeds the Federal MCL of 5 µg/L
Indicates the sample result is equal to or exceeds the California MCL of 0.5 µg/L

µg/L	Micrograms per liter
J	Estimated result
MCL	Maximum Contaminant Level
U	Not detected
VOC	Volatile organic compound

- Groundwater Sampling Locations
- Shallow Piezometers Not Sampled for VOCs in April 2016
- Existing Buildings
- Asphalt/Concrete Pads
- Remediated Areas
- Surface Water
- Marsh Boundary
- Richmond Field Station Site Boundary
- Roads and Other Landscape Features
- Fenceline
- Biologically Active Permeable Barrier Wall
- Former Seawall (Approximate)
- Slurry Wall

Storm Drain Lines:
- Open Swale
- Underground Culvert
- Underground Culvert, Abandoned (Grouted at Manholes)

Sanitary Sewer Lines:
- Existing Sewer Line
- Removed Sewer Line
- Abandoned Sewer Line

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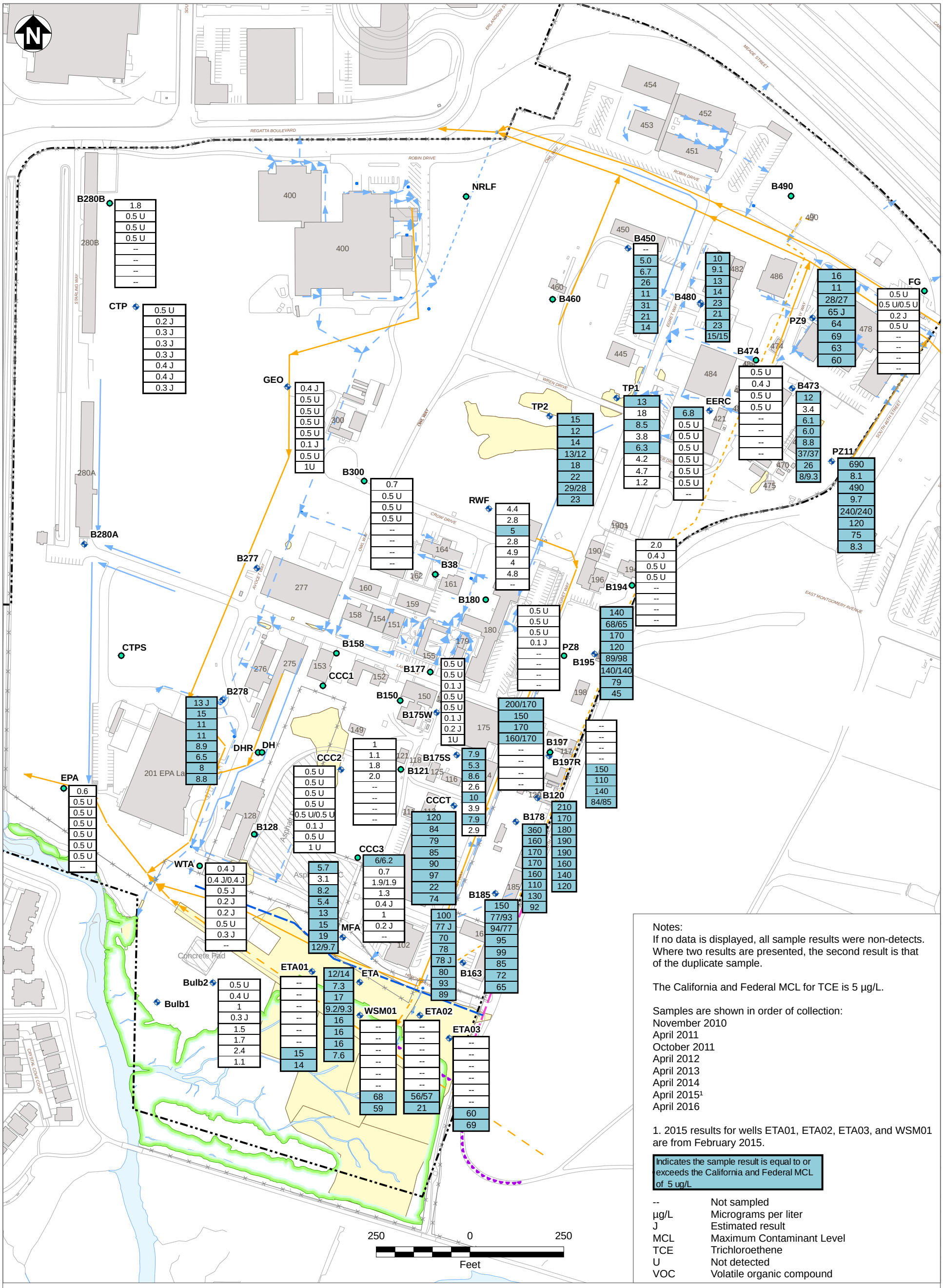
Richmond Field Station Site
University of California, Berkeley

FIGURE 19
CARBON TETRACHLORIDE GROUNDWATER CONCENTRATIONS

2016 Groundwater Sampling Results



Notes:
If no data is displayed, all sample results were non-detects.
Where two results are presented, the second result is that of the duplicate sample.

The California and Federal MCL for TCE is 5 µg/L.

Samples are shown in order of collection:
November 2010
April 2011
October 2011
April 2012
April 2013
April 2014
April 2015[1]
April 2016

1. 2015 results for wells ETA01, ETA02, ETA03, and WSM01 are from February 2015.

Indicates the sample result is equal to or exceeds the California and Federal MCL of 5 ug/L

--	Not sampled
µg/L	Micrograms per liter
J	Estimated result
MCL	Maximum Contaminant Level
TCE	Trichloroethene
U	Not detected
VOC	Volatile organic compound

- Groundwater Sampling Locations
- Shallow Piezometers Not Sampled for VOCs in April 2016
- Existing Buildings
- Asphalt/Concrete Pads
- Remediated Areas
- Surface Water
- Marsh Boundary
- Richmond Field Station Site Boundary
- Roads and Other Landscape Features
- Fenceline
- Biologically Active Permeable Barrier Wall
- Former Seawall (Approximate)
- Slurry Wall

Storm Drain Lines:
- Open Swale
- Underground Culvert
- Underground Culvert, Abandoned (Grouted at Manholes)

Sanitary Sewer Lines:
- Existing Sewer Line
- Removed Sewer Line
- Abandoned Sewer Line

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Richmond Field Station Site
University of California, Berkeley

FIGURE 20
TCE GROUNDWATER CONCENTRATIONS

2016 Groundwater Sampling Results

TABLES

Table 1: Groundwater Sampling Registry
2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

Sample Information				Analysis	
Point Location ID	Sample ID	Sample Date	Depth (feet bgs)	VOCs (EPA Method 8260B)	Dissolved Metals (EPA Method 6020A/7470A series)
B120	20160405B120	4/5/2016	4-14	X	
B150	20160407B150	4/7/2016	5.5-15.5		X
B163	20160405B163	4/5/2016	7-17	X	X
B175S	20160407B175S	4/7/2016	5-15	X	
B175W	20160407B175W	4/7/2016	5-15	X	
B178	20160405B178	4/5/2016	4.5-14.5	X	
B185	20160405B185	4/5/2016	4-14	X	
B195	20160411B195	4/11/2016	6-16	X	X
B197R	20160405B197R	4/5/2016	4-14	X	X
B277	20160411B277	4/11/2016	7-17	X	
B278	20160408B278	4/8/2016	6-16	X	
B280A	20160411B280A	4/11/2016	4-14	X	
B450	20160407B450	4/7/2016	6-16	X	X
B473	20160408B473	4/8/2016	7-17	X	
B474	20160411B474	4/11/2016	6-16		X
B480	20160407B480	4/7/2016	6-16	X	
Bulb1	20160408BULB1	4/8/2016	8-18		X
Bulb2	20160408BULB2	4/8/2016	9-19	X	X
CCC2	20160407CCC2	4/7/2016	4-14	X	X
CCCT	20160407CCCT	4/7/2016	5.5-15.5	X	
CTP	20160411CTP	4/11/2016	7-17	X	X
DHR	20160408DHR	4/8/2016	3.5-13.5		X
EERC	20160411EERC	4/11/2016	7-17		X
ETA	20160405ETA	4/5/2016	3.5-13.5	X	X
ETA01	20160405ETA01	4/5/2016	5-15	X	X
ETA02	20160405ETA02	4/5/2016	15-20	X	X
ETA03	20160405ETA03	4/5/2016	15-20	X	X
FG	20160407FG	4/7/2016	6-16		X
GEO	20160411GEO	4/11/2016	6.5-16.5	X	
MFA	20160408MFA	4/8/2016	3.5-13.5	X	
NRLF	20160408NRLF	4/8/2016	9-19		X
PZ11	20160408PZ11	4/8/2016	9-19	X	X
PZ9	20160407PZ9	4/7/2016	9-20	X	
RWF	20160408RWF	4/8/2016	8-18	X	
TP1	20160407TP1	4/7/2016	7-17	X	X
TP2	20160408TP2	4/8/2016	6-16	X	
WSM01	20160405WSM01	4/5/2016	5-15	X	X

Notes:

bgs	Below ground surface	VOA	Volatile organic analysis
EPA	U.S. Environmental Protection Agency	VOC	Volatile organic compounds
ID	Identification		

Table 2: Groundwater Elevation Data

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

Piezometer Name	Sample Date	TOC Elevation (feet NGVD)	Depth to Water (feet below TOC)	Groundwater Elevation (feet NGVD)
B120	11/1/10	11.72	6.75	4.97
B120	2/10/11	11.72	4.96	6.76
B120	4/11/11	11.72	3.60	8.12
B120	10/3/11	11.72	6.51	5.21
B120	4/2/12	11.72	2.78	8.94
B120	10/1/12	11.72	6.71	5.01
B120	4/1/13	11.72	5.45	6.27
B120	10/7/13	11.72	7.10	4.62
B120	3/28/14	11.72	5.54	6.18
B120	10/1/14	11.72	7.25	4.47
B120	4/1/15	11.72	6.50	5.22
B120	10/5/15	11.72	7.57	4.15
B120	4/4/16	11.72	4.19	7.53
B121	11/1/10	14.77	10.21	4.56
B121	2/10/11	14.77	8.83	5.94
B121	4/11/11	14.77	7.34	7.43
B121	10/3/11	14.77	10.05	4.72
B121	4/2/12	14.77	6.95	7.82
B121	10/1/12	14.77	10.25	4.52
B121	4/1/13	14.77	9.24	5.53
B121	10/7/13	14.77	10.51	4.26
B121	3/28/14	14.77	9.22	5.55
B121	10/1/14	14.77	10.62	4.15
B121	4/1/15	14.77	3.64	11.13
B121	10/5/15	14.77	10.85	3.92
B121	4/4/16	14.77	8.03	6.74
B128	11/1/10	11.62	7.86	3.76
B128	2/10/11	11.62	6.95	4.67
B128	4/11/11	11.62	6.82	4.80
B128	10/3/11	11.62	7.76	3.86
B128	4/2/12	11.62	4.33	7.29
B128	10/1/12	11.62	7.91	3.71
B128	4/2/13	11.62	7.20	4.42
B128	10/7/13	11.62	8.09	3.53
B128	3/28/14	11.62	7.15	4.47
B128	10/5/15	11.62	8.23	3.39
B128	4/4/16	11.62	5.72	5.90

Table 2: Groundwater Elevation Data

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

Piezometer Name	Sample Date	TOC Elevation (feet NGVD)	Depth to Water (feet below TOC)	Groundwater Elevation (feet NGVD)
B128deep	11/1/10	12.15	8.82	3.33
B128deep	2/10/11	12.15	7.33	4.82
B128deep	4/11/11	12.15	6.71	5.44
B128deep	10/3/11	12.15	8.56	3.59
B128deep	4/2/12	12.15	6.12	6.03
B128deep	10/1/12	12.15	8.35	3.80
B128deep	4/2/13	12.15	6.68	5.47
B128deep	10/7/13	12.15	7.47	4.68
B128deep	3/28/14	12.15	7.61	4.54
B128deep	10/1/14	12.15	7.63	4.52
B128deep	4/1/15	12.15	8.17	3.98
B128deep	10/5/15	12.15	8.64	3.51
B128deep	4/4/16	12.15	6.86	5.29
B150	11/1/10	17.24	6.22	11.02
B150	2/10/11	17.24	6.04	11.20
B150	4/11/11	17.24	3.46	13.78
B150	10/3/11	17.24	8.52	8.72
B150	4/2/12	17.24	1.74	15.50
B150	10/1/12	17.24	9.81	7.43
B150	4/1/13	17.24	6.25	10.99
B150	10/7/13	17.24	8.21	9.03
B150	3/28/14	17.24	5.71	11.53
B150	10/1/14	17.24	11.72	5.52
B150	4/1/15	17.24	6.71	10.53
B150	10/5/15	17.24	11.92	5.32
B150	4/4/16	17.24	4.02	13.22
B158	11/1/10	15.88	11.08	4.80
B158	2/10/11	15.88	9.81	6.07
B158	4/11/11	15.88	8.45	7.43
B158	10/3/11	15.88	10.92	4.96
B158	4/2/12	15.88	8.20	7.68
B158	10/1/12	15.88	11.10	4.78
B158	4/1/13	15.88	10.26	5.62
B158	10/7/13	15.88	11.32	4.56
B158	3/28/14	15.88	10.14	5.74
B158	10/1/14	15.88	11.48	4.40
B158	4/1/15	15.88	10.50	5.38
B158	10/5/15	15.88	11.67	4.21
B158	4/4/16	15.88	8.98	6.90

Table 2: Groundwater Elevation Data

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

Piezometer Name	Sample Date	TOC Elevation (feet NGVD)	Depth to Water (feet below TOC)	Groundwater Elevation (feet NGVD)
B163	11/1/10	10.37	6.30	4.07
B163	2/10/11	10.37	5.07	5.30
B163	4/11/11	10.37	3.97	6.40
B163	10/3/11	10.37	6.04	4.33
B163	4/2/12	10.37	3.27	7.10
B163	10/1/12	10.37	6.31	4.06
B163	4/1/13	10.37	5.35	5.02
B163	10/7/13	10.37	6.57	3.80
B163	3/28/14	10.37	5.24	5.13
B163	10/1/14	10.37	6.61	3.76
B163	4/1/15	10.37	5.89	4.48
B163	10/5/15	10.37	6.77	3.60
B163	4/4/16	10.37	4.51	5.86
B175S	11/1/10	15.16	10.31	4.85
B175S	2/10/11	15.16	8.71	6.45
B175S	4/11/11	15.16	7.03	8.13
B175S	10/3/11	15.16	10.11	5.05
B175S	4/2/12	15.16	6.62	8.54
B175S	10/1/12	15.16	10.34	4.82
B175S	4/1/13	15.16	9.09	6.07
B175S	10/7/13	15.16	10.61	4.55
B175S	3/28/14	15.16	9.16	6.00
B175S	10/1/14	15.16	10.81	4.35
B175S	4/1/15	15.16	9.61	5.55
B175S	10/5/15	15.16	11.06	4.10
B175S	4/4/16	15.16	7.91	7.25
B175W	11/1/10	16.57	9.96	6.61
B175W	2/10/11	16.57	8.20	8.37
B175W	4/11/11	16.57	5.10	11.47
B175W	10/3/11	16.57	10.24	6.33
B175W	4/2/12	16.57	3.62	12.95
B175W	10/1/12	16.57	10.47	6.10
B175W	4/1/13	16.57	9.29	7.28
B175W	10/7/13	16.57	10.72	5.85
B175W	3/28/14	16.57	8.94	7.63
B175W	10/1/14	16.57	11.09	5.48
B175W	4/1/15	16.57	9.48	7.09
B175W	10/5/15	16.57	11.33	5.24
B175W	4/4/16	16.57	6.93	9.64

Table 2: Groundwater Elevation Data

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Piezometer Name	Sample Date	TOC Elevation (feet NGVD)	Depth to Water (feet below TOC)	Groundwater Elevation (feet NGVD)
B177	11/1/10	17.57	11.66	5.91
B177	2/10/11	17.57	9.69	7.88
B177	4/11/11	17.57	7.49	10.08
B177	10/3/11	17.57	11.43	6.14
B177	4/2/12	17.57	7.41	10.16
B177	10/1/12	17.57	11.71	5.86
B177	4/1/13	17.57	10.31	7.26
B177	10/7/13	17.57	11.98	5.59
B177	3/28/14	17.57	10.34	7.23
B177	10/1/14	17.57	12.29	5.28
B177	4/1/15	17.57	10.91	6.66
B177	10/5/15	17.57	12.68	4.89
B177	4/4/16	17.57	8.21	9.36
B178	11/1/10	10.67	5.61	5.06
B178	2/10/11	10.67	3.94	6.73
B178	4/11/11	10.67	2.22	8.45
B178	10/3/11	10.67	5.38	5.29
B178	4/2/12	10.67	1.60	9.07
B178	10/1/12	10.67	5.61	5.06
B178	4/1/13	10.67	4.28	6.39
B178	10/7/13	10.67	NA	NA
B178	3/28/14	10.67	4.36	6.31
B178	10/1/14	10.67	6.16	4.51
B178	4/1/15	10.67	4.86	5.81
B178	10/5/15	10.67	6.45	4.22
B178	4/4/16	10.67	3.04	7.63
B180	11/1/10	15.02	9.11	5.91
B180	2/10/11	15.02	7.03	7.99
B180	4/11/11	15.02	4.93	10.09
B180	10/3/11	15.02	8.82	6.20
B180	4/2/12	15.02	4.99	10.03
B180	10/1/12	15.02	9.11	5.91
B180	4/1/13	15.02	7.59	7.43
B180	10/7/13	15.02	9.38	5.64
B180	3/28/14	15.02	7.76	7.26
B180	10/1/14	15.02	9.71	5.31
B180	4/1/15	15.02	8.19	6.83
B180	10/5/15	15.02	10.13	4.89
B180	4/4/16	15.02	5.87	9.15

Table 2: Groundwater Elevation Data

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Piezometer Name	Sample Date	TOC Elevation (feet NGVD)	Depth to Water (feet below TOC)	Groundwater Elevation (feet NGVD)
B185	11/1/10	10.01	5.38	4.63
B185	2/10/11	10.01	3.90	6.11
B185	4/11/11	10.01	2.53	7.48
B185	10/3/11	10.01	5.18	4.83
B185	4/2/12	10.01	1.72	8.29
B185	10/1/12	10.01	5.37	4.64
B185	4/1/13	10.01	4.08	5.93
B185	10/7/13	10.01	5.69	4.32
B185	3/28/14	10.01	4.14	5.87
B185	10/1/14	10.01	5.76	4.25
B185	4/1/15	10.01	4.81	5.20
B185	10/5/15	10.01	5.94	4.07
B185	4/4/16	10.01	3.18	6.83
B194	11/1/10	18.30	11.75	6.55
B194	2/10/11	18.30	9.19	9.11
B194	4/11/11	18.30	7.28	11.02
B194	10/3/11	18.30	11.32	6.98
B194	4/2/12	18.30	6.75	11.55
B194	10/1/12	18.30	11.56	6.74
B194	4/1/13	18.30	6.48	11.82
B194	10/7/13	18.30	12.07	6.23
B194	3/28/14	18.30	10.24	8.06
B194	10/6/14	18.30	12.48	5.82
B194	4/1/15	18.30	10.96	7.34
B194	10/5/15	18.30	13.85	4.45
B194	4/4/16	18.30	8.26	10.04
B195	11/1/10	14.28	8.66	5.62
B195	2/10/11	14.28	6.50	7.78
B195	4/11/11	14.28	6.57	7.71
B195	10/3/11	14.28	8.37	5.91
B195	4/2/12	14.28	4.23	10.05
B195	10/1/12	14.28	8.65	5.63
B195	4/1/13	14.28	7.07	7.21
B195	10/7/13	14.28	9.00	5.28
B195	3/28/14	14.28	7.30	6.98
B195	10/1/14	14.28	9.26	5.02
B195	4/1/15	14.28	7.76	6.52
B195	10/5/15	14.28	9.56	4.72
B195	4/4/16	14.28	5.53	8.75

Table 2: Groundwater Elevation Data

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Piezometer Name	Sample Date	TOC Elevation (feet NGVD)	Depth to Water (feet below TOC)	Groundwater Elevation (feet NGVD)
B197	11/1/10	13.01	7.94	5.07
B197	2/10/11	13.01	6.16	6.85
B197	4/11/11	13.01	4.25	8.76
B197	10/3/11	13.01	7.70	5.31
B197	4/2/12	13.01	3.83	9.18
B197	10/1/12	13.01	NA	NA
B197	10/7/13	13.01	9.47	NA
B197R	4/1/13	13.19	6.85	6.34
B197R	3/28/14	13.19	6.84	6.35
B197R	10/1/14	13.19	8.65	4.54
B197R	4/1/15	13.19	7.35	5.84
B197R	10/5/15	13.19	8.89	4.30
B197R	4/4/16	13.19	5.41	7.78
B277	11/1/10	14.82	10.46	4.36
B277	2/10/11	14.82	10.10	4.72
B277	4/11/11	14.82	9.77	5.05
B277	10/3/11	14.82	10.41	4.41
B277	4/2/12	14.82	9.70	5.12
B277	10/1/12	14.82	10.49	4.33
B277	4/1/13	14.82	10.14	4.68
B277	10/7/13	14.82	10.68	4.14
B277	3/28/14	14.82	10.13	4.69
B277	10/5/15	14.82	10.78	4.04
B277	4/4/16	14.82	9.78	5.04
B278	11/1/10	12.75	9.14	3.61
B278	2/10/11	12.75	8.90	3.85
B278	4/11/11	12.75	8.44	4.31
B278	10/3/11	12.75	9.13	3.62
B278	4/2/12	12.75	8.19	4.56
B278	10/1/12	12.75	9.35	3.40
B278	4/1/13	12.75	8.90	3.85
B278	10/7/13	12.75	9.38	3.37
B278	3/28/14	12.75	8.84	3.91
B278	10/1/14	12.75	9.44	3.31
B278	4/1/15	12.75	8.85	3.90
B278	10/5/15	12.75	9.41	3.34
B278	4/4/16	12.75	8.46	4.29

Table 2: Groundwater Elevation Data

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Piezometer Name	Sample Date	TOC Elevation (feet NGVD)	Depth to Water (feet below TOC)	Groundwater Elevation (feet NGVD)
B280A	11/1/10	14.04	10.99	3.05
B280A	2/10/11	14.04	10.84	3.20
B280A	4/11/11	14.04	10.40	3.64
B280A	10/3/11	14.04	11.07	2.97
B280A	4/2/12	14.04	10.04	4.00
B280A	10/1/12	14.04	11.15	2.89
B280A	4/1/13	14.04	10.69	3.35
B280A	10/7/13	14.04	11.20	2.84
B280A	3/28/14	14.04	10.63	3.41
B280A	10/1/14	14.04	11.21	2.83
B280A	4/1/15	14.04	10.84	3.20
B280A	10/5/15	14.04	11.00	3.04
B280A	4/4/16	14.04	10.55	3.49
B280B	11/1/10	19.59	12.98	6.61
B280B	2/10/11	19.59	12.66	6.93
B280B	4/11/11	19.59	9.98	9.61
B280B	10/3/11	19.59	13.00	6.59
B280B	4/2/12	19.59	9.55	10.04
B280B	10/1/12	19.59	13.21	6.38
B280B	4/1/13	19.59	12.80	6.79
B280B	10/7/13	19.59	13.16	6.43
B280B	3/28/14	19.59	12.64	6.95
B280B	10/1/14	19.59	13.14	6.45
B280B	4/1/15	19.59	13.04	6.55
B280B	10/5/15	19.59	13.24	6.35
B280B	4/4/16	19.59	12.17	7.42
B300	11/1/10	18.16	12.95	5.21
B300	2/10/11	18.16	11.50	6.66
B300	4/11/11	18.16	9.97	8.19
B300	10/3/11	18.16	12.40	5.76
B300	4/2/12	18.16	10.73	7.43
B300	10/1/12	18.16	12.94	5.22
B300	4/1/13	18.16	11.87	6.29
B300	10/7/13	18.16	13.10	5.06
B300	3/28/14	18.16	9.25	8.91
B300	10/1/14	18.16	13.39	4.77
B300	4/1/15	18.16	12.07	6.09
B300	10/5/15	18.16	13.62	4.54
B300	4/4/16	18.16	10.52	7.64

Table 2: Groundwater Elevation Data

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Piezometer Name	Sample Date	TOC Elevation (feet NGVD)	Depth to Water (feet below TOC)	Groundwater Elevation (feet NGVD)
B38	11/1/10	15.78	9.95	5.83
B38	2/10/11	15.78	7.93	7.85
B38	4/11/11	15.78	5.85	9.93
B38	10/3/11	15.78	9.80	5.98
B38	4/2/12	15.78	5.93	9.85
B38	10/1/12	15.78	9.93	5.85
B38	4/1/13	15.78	8.51	7.27
B38	10/7/13	15.78	10.19	5.59
B38	3/28/14	15.78	8.60	7.18
B38	10/1/14	15.78	10.55	5.23
B38	4/1/15	15.78	9.01	6.77
B38	10/5/15	15.78	10.93	4.85
B38	4/4/16	15.78	9.42	6.36
B38deep	11/1/10	15.84	9.81	6.03
B38deep	2/10/11	15.84	8.10	7.74
B38deep	4/11/11	15.84	6.50	9.34
B38deep	10/3/11	15.84	9.66	6.18
B38deep	4/2/12	15.84	6.78	9.06
B38deep	10/1/12	15.84	9.71	6.13
B38deep	4/1/13	15.84	8.57	7.27
B38deep	10/7/13	15.84	10.09	5.75
B38deep	3/28/14	15.84	8.67	7.17
B38deep	10/1/14	15.84	10.22	5.62
B38deep	4/1/15	15.84	8.95	6.89
B38deep	10/5/15	15.84	11.05	4.79
B38deep	4/4/16	15.84	7.22	8.62
B450	11/1/10	21.34	14.50	6.84
B450	2/10/11	21.34	12.36	8.98
B450	4/11/11	21.34	10.20	11.14
B450	10/3/11	21.34	14.05	7.29
B450	4/2/12	21.34	11.51	9.83
B450	10/1/12	21.34	14.35	6.99
B450	4/1/13	21.34	12.94	8.40
B450	10/7/13	21.34	14.57	6.77
B450	3/28/14	21.34	13.17	8.17
B450	10/1/14	21.34	14.83	6.51
B450	4/1/15	21.34	13.38	7.96
B450	10/5/15	21.34	15.20	6.14
B450	4/4/16	21.34	11.04	10.30

Table 2: Groundwater Elevation Data

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Piezometer Name	Sample Date	TOC Elevation (feet NGVD)	Depth to Water (feet below TOC)	Groundwater Elevation (feet NGVD)
B460	11/1/10	21.42	15.45	5.97
B460	2/10/11	21.42	12.58	8.84
B460	4/11/11	21.42	9.87	11.55
B460	10/3/11	21.42	14.82	6.60
B460	4/2/12	21.42	11.44	9.98
B460	10/1/12	21.42	15.49	5.93
B460	4/1/13	21.42	13.10	8.32
B460	10/7/13	21.42	15.76	5.66
B460	3/28/14	21.42	13.64	7.78
B460	10/1/14	21.42	16.25	5.17
B460	4/1/15	21.42	13.56	7.86
B460	10/5/15	21.42	15.72	5.70
B460	4/4/16	21.42	11.00	10.42
B473	11/1/10	22.29	13.78	8.51
B473	2/10/11	22.29	11.65	10.64
B473	4/11/11	22.29	9.21	13.08
B473	10/3/11	22.29	13.23	9.06
B473	4/2/12	22.29	9.75	12.54
B473	10/1/12	22.29	13.40	8.89
B473	4/1/13	22.29	12.39	9.90
B473	10/7/13	22.29	14.71	7.58
B473	3/28/14	22.29	12.33	9.96
B473	10/1/14	22.29	14.51	7.78
B473	4/1/15	22.29	12.99	9.30
B473	10/5/15	22.29	15.03	7.26
B473	4/4/16	22.29	10.30	11.99
B474	11/1/10	23.67	15.52	8.15
B474	2/10/11	23.67	13.70	9.97
B474	4/11/11	23.67	11.55	12.12
B474	10/3/11	23.67	13.00	10.67
B474	4/2/12	23.67	11.88	11.79
B474	10/1/12	23.67	15.65	8.02
B474	4/1/13	23.67	11.94	11.73
B474	10/7/13	23.67	16.09	7.58
B474	3/28/14	23.67	11.95	11.72
B474	10/6/14	23.67	12.48	11.19
B474	4/1/15	23.67	14.65	9.02
B474	10/5/15	23.67	16.78	6.89
B474	4/4/16	23.67	12.41	11.26

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Piezometer Name	Sample Date	TOC Elevation (feet NGVD)	Depth to Water (feet below TOC)	Groundwater Elevation (feet NGVD)
B480	11/1/10	20.84	14.01	6.83
B480	2/10/11	20.84	11.78	9.06
B480	4/11/11	20.84	9.45	11.39
B480	10/3/11	20.84	13.56	7.28
B480	4/2/12	20.84	10.81	10.03
B480	10/1/12	20.84	13.98	6.86
B480	4/1/13	20.84	12.42	8.42
B480	10/7/13	20.84	14.20	6.64
B480	3/28/14	20.84	12.64	8.20
B480	10/1/14	20.84	14.50	6.34
B480	4/1/15	20.84	12.88	7.96
B480	10/5/15	20.84	14.85	5.99
B480	4/4/16	20.84	10.35	10.49
B480deep	11/1/10	21.07	9.55	11.52
B480deep	2/10/11	21.07	8.60	12.47
B480deep	4/11/11	21.07	7.16	13.91
B480deep	10/3/11	21.07	9.54	11.53
B480deep	4/2/12	21.07	7.44	13.63
B480deep	10/1/12	21.07	10.04	11.03
B480deep	4/1/13	21.07	9.06	12.01
B480deep	10/7/13	21.07	10.29	10.78
B480deep	3/28/14	21.07	9.02	12.05
B480deep	10/1/14	21.07	10.51	10.56
B480deep	4/1/15	21.07	9.55	11.52
B480deep	10/5/15	21.07	10.88	10.19
B480deep	4/4/16	21.07	7.86	13.21
B490	11/1/10	24.41	15.20	9.21
B490	2/10/11	24.41	14.08	10.33
B490	4/11/11	24.41	13.11	11.30
B490	10/3/11	24.41	15.24	9.17
B490	4/2/12	24.41	13.34	11.07
B490	10/1/12	24.41	15.34	9.07
B490	4/1/13	24.41	14.53	9.88
B490	10/7/13	24.41	16.60	7.81
B490	3/28/14	24.41	13.44	10.97
B490	10/1/14	24.41	15.71	8.70
B490	4/1/15	24.41	14.83	9.58
B490	10/5/15	24.41	16.13	8.28
B490	4/4/16	24.41	13.41	11.00

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Piezometer Name	Sample Date	TOC Elevation (feet NGVD)	Depth to Water (feet below TOC)	Groundwater Elevation (feet NGVD)
Bulb1	11/1/10	7.19	4.76	2.43
Bulb1	2/10/11	7.19	4.12	3.07
Bulb1	4/11/11	7.19	4.11	3.08
Bulb1	10/3/11	7.19	5.09	2.10
Bulb1	4/2/12	7.19	3.94	3.25
Bulb1	10/1/12	7.19	5.13	2.06
Bulb1	4/2/13	7.19	4.27	2.92
Bulb1	10/7/13	7.19	4.78	2.41
Bulb1	3/28/14	7.19	4.19	3.00
Bulb1	10/1/14	7.19	4.33	2.86
Bulb1	4/1/15	7.19	4.47	2.72
Bulb1	10/5/15	7.19	4.25	2.94
Bulb1	4/4/16	7.19	4.08	3.11
Bulb2	11/1/10	7.46	4.60	2.86
Bulb2	2/10/11	7.46	3.94	3.52
Bulb2	4/11/11	7.46	3.61	3.85
Bulb2	10/3/11	7.46	3.74	3.72
Bulb2	4/2/12	7.46	3.08	4.38
Bulb2	10/1/12	7.46	4.57	2.89
Bulb2	4/2/13	7.46	4.15	3.31
Bulb2	10/7/13	7.46	4.73	2.73
Bulb2	3/28/14	7.46	4.03	3.43
Bulb2	10/1/14	7.46	4.58	2.88
Bulb2	4/1/15	7.46	4.38	3.08
Bulb2	10/5/15	7.46	4.72	2.74
Bulb2	4/4/16	7.46	3.65	3.81
CCC1	11/1/10	15.38	10.89	4.49
CCC1	2/10/11	15.38	7.36	8.02
CCC1	4/11/11	15.38	8.65	6.73
CCC1	10/3/11	15.38	10.67	4.71
CCC1	4/2/12	15.38	7.94	7.44
CCC1	10/1/12	15.38	10.86	4.52
CCC1	4/1/13	15.38	10.10	5.28
CCC1	10/7/13	15.38	11.05	4.33
CCC1	3/28/14	15.38	9.81	5.57
CCC1	10/1/14	15.38	11.22	4.16
CCC1	4/1/15	15.38	10.22	5.16
CCC1	10/5/15	15.38	11.45	3.93
CCC1	4/4/16	15.38	8.57	6.81

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Piezometer Name	Sample Date	TOC Elevation (feet NGVD)	Depth to Water (feet below TOC)	Groundwater Elevation (feet NGVD)
CCC2	11/1/10	14.60	10.14	4.46
CCC2	2/10/11	14.60	8.88	5.72
CCC2	4/11/11	14.60	7.31	7.29
CCC2	10/3/11	14.60	9.90	4.70
CCC2	4/2/12	14.60	7.00	7.60
CCC2	10/1/12	14.60	10.11	4.49
CCC2	4/1/13	14.60	9.20	5.40
CCC2	10/7/13	14.60	10.37	4.23
CCC2	3/28/14	14.60	9.15	5.45
CCC2	10/1/14	14.60	11.20	3.40
CCC2	4/1/15	14.60	9.53	5.07
CCC2	10/5/15	14.60	11.66	2.94
CCC2	4/4/16	14.60	7.89	6.71
CCC3	11/1/10	11.67	7.56	4.11
CCC3	2/10/11	11.67	6.33	5.34
CCC3	4/11/11	11.67	6.21	5.46
CCC3	10/3/11	11.67	7.35	4.32
CCC3	4/2/12	11.67	4.60	7.07
CCC3	10/1/12	11.67	7.54	4.13
CCC3	4/1/13	11.67	6.64	5.03
CCC3	10/7/13	11.67	7.81	3.86
CCC3	3/28/14	11.67	6.57	5.10
CCC3	10/1/14	11.67	8.50	3.17
CCC3	4/1/15	11.67	6.71	4.96
CCC3	10/5/15	11.67	7.99	3.68
CCC3	4/4/16	11.67	5.61	6.06
CCCT	11/1/10	12.13	8.42	3.71
CCCT	2/10/11	12.13	5.86	6.27
CCCT	4/11/11	12.13	4.25	7.88
CCCT	10/3/11	12.13	7.23	4.90
CCCT	4/2/12	12.13	3.78	8.35
CCCT	10/1/12	12.13	7.42	4.71
CCCT	4/1/13	12.13	6.27	5.86
CCCT	10/7/13	12.13	NA	NA
CCCT	3/28/14	12.13	6.28	5.85
CCCT	10/1/14	12.13	7.91	4.22
CCCT	4/1/15	12.13	6.76	5.37
CCCT	10/5/15	12.13	8.14	3.99
CCCT	4/4/16	12.13	5.00	7.13

Table 2: Groundwater Elevation Data

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University of California, Berkeley, Richmond Field Station Site

Piezometer Name	Sample Date	TOC Elevation (feet NGVD)	Depth to Water (feet below TOC)	Groundwater Elevation (feet NGVD)
CTP	11/1/10	17.27	11.77	5.50
CTP	2/10/11	17.27	11.22	6.05
CTP	4/11/11	17.27	10.40	6.87
CTP	10/3/11	17.27	11.72	5.55
CTP	4/2/12	17.27	10.17	7.10
CTP	10/1/12	17.27	11.99	5.28
CTP	4/1/13	17.27	11.40	5.87
CTP	10/7/13	17.27	12.99	4.28
CTP	3/28/14	17.27	11.32	5.95
CTP	10/1/14	17.27	12.00	5.27
CTP	4/1/15	17.27	11.50	5.77
CTP	10/5/15	17.27	12.02	5.25
CTP	4/4/16	17.27	10.78	6.49
CTPdeep	11/1/10	17.67	12.67	5.00
CTPdeep	2/10/11	17.67	11.46	6.21
CTPdeep	4/11/11	17.67	11.68	5.99
CTPdeep	10/3/11	17.67	12.20	5.47
CTPdeep	4/2/12	17.67	10.45	7.22
CTPdeep	10/1/12	17.67	12.33	5.34
CTPdeep	4/1/13	17.67	11.66	6.01
CTPdeep	10/7/13	17.67	12.34	5.33
CTPdeep	3/28/14	17.67	11.59	6.08
CTPdeep	10/1/14	17.67	12.41	5.26
CTPdeep	4/1/15	17.67	11.76	5.91
CTPdeep	10/5/15	17.67	12.43	5.24
CTPdeep	4/4/16	17.67	10.95	6.72
CTPS	11/1/10	15.25	11.95	3.30
CTPS	2/10/11	15.25	9.61	5.64
CTPS	4/11/11	15.25	7.64	7.61
CTPS	10/3/11	15.25	12.05	3.20
CTPS	4/2/12	15.25	7.24	8.01
CTPS	10/1/12	15.25	12.17	3.08
CTPS	4/1/13	15.25	9.11	6.14
CTPS	10/7/13	15.25	12.21	3.04
CTPS	3/28/14	15.25	8.61	6.64
CTPS	10/1/14	15.25	12.29	2.96
CTPS	4/1/15	15.25	10.92	4.33
CTPS	10/5/15	15.25	12.19	3.06
CTPS	4/4/16	15.25	--	--

Table 2: Groundwater Elevation Data

2016 Groundwater Sampling Results, Technical Memorandum
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Piezometer Name	Sample Date	TOC Elevation (feet NGVD)	Depth to Water (feet below TOC)	Groundwater Elevation (feet NGVD)
DH	11/1/10	13.25	10.12	3.13
DH	2/10/11	13.25	8.88	4.37
DH	4/11/11	13.25	7.59	5.66
DH	10/3/11	13.25	9.90	3.35
DH	4/2/12	13.25	7.84	5.41
DH	10/1/12	13.25	10.07	3.18
DH	10/7/13	13.25	9.25	4.00
DHR	4/1/13	13.54	9.41	4.13
DHR	3/28/14	13.54	8.88	4.66
DHR	10/1/14	13.54	10.36	3.18
DHR	4/1/15	13.54	9.44	4.10
DHR	10/5/15	13.54	10.49	3.05
DHR	4/4/16	13.54	7.74	5.80
EERC	11/1/10	21.84	14.99	6.85
EERC	2/10/11	21.84	12.64	9.20
EERC	4/11/11	21.84	9.84	12.00
EERC	10/3/11	21.84	14.26	7.58
EERC	4/2/12	21.84	11.07	10.77
EERC	10/1/12	21.84	14.81	7.03
EERC	4/1/13	21.84	13.35	8.49
EERC	10/7/13	21.84	15.11	6.73
EERC	3/28/14	21.84	13.51	8.33
EERC	10/1/14	21.84	15.46	6.38
EERC	10/5/15	21.84	16.03	5.81
EERC	4/4/16	21.84	11.11	10.73
EPA	11/1/10	10.59	8.65	1.94
EPA	2/10/11	10.59	8.56	2.03
EPA	4/11/11	10.59	7.92	2.67
EPA	10/3/11	10.59	8.61	1.98
EPA	4/2/12	10.59	7.94	2.65
EPA	10/1/12	10.59	8.71	1.88
EPA	4/1/13	10.59	8.64	1.95
EPA	10/7/13	10.59	9.79	0.80
EPA	3/28/14	10.59	8.43	2.16
EPA	10/1/14	10.59	8.63	1.96
EPA	4/1/15	10.59	8.61	1.98
EPA	10/5/15	10.59	8.57	2.02
EPA	4/4/16	10.59	8.21	2.38

Table 2: Groundwater Elevation Data

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

Piezometer Name	Sample Date	TOC Elevation (feet NGVD)	Depth to Water (feet below TOC)	Groundwater Elevation (feet NGVD)
ETA	11/1/10	7.54	4.12	3.42
ETA	2/10/11	7.54	3.10	4.44
ETA	4/11/11	7.54	2.49	5.05
ETA	10/3/11	7.54	4.62	2.92
ETA	4/2/12	7.54	1.90	5.64
ETA	10/1/12	7.54	4.10	3.44
ETA	4/2/13	7.54	3.61	3.93
ETA	10/7/13	7.54	4.32	3.22
ETA	3/28/14	7.54	3.28	4.26
ETA	10/1/14	7.54	4.25	3.29
ETA	4/1/15	7.54	3.54	4.00
ETA	10/5/15	7.54	4.34	3.20
ETA	4/4/16	7.54	2.71	4.83
ETA01	4/1/15	5.93	2.52	3.41
ETA01	10/5/15	5.93	2.96	2.97
ETA01	4/4/16	5.93	1.45	4.48
ETA02	4/1/15	9.53	5.92	3.61
ETA02	10/5/15	9.53	6.58	2.95
ETA02	4/4/16	9.53	4.95	4.58
ETA03	4/1/15	10.48	7.12	3.36
ETA03	10/5/15	10.48	7.59	2.89
ETA03	4/4/16	10.48	6.15	4.33
FG	11/1/10	25.31	13.92	11.39
FG	2/10/11	25.31	13.48	11.83
FG	4/11/11	25.31	12.75	12.56
FG	10/3/11	25.31	13.85	11.46
FG	4/2/12	25.31	11.77	13.54
FG	10/1/12	25.31	14.10	11.21
FG	4/1/13	25.31	13.77	11.54
FG	10/7/13	25.31	14.32	10.99
FG	3/28/14	25.31	13.48	11.83
FG	10/1/14	25.31	14.52	10.79
FG	4/1/15	25.31	13.91	11.40
FG	10/5/15	25.31	14.82	10.49
FG	4/4/16	25.31	12.90	12.41

Table 2: Groundwater Elevation Data

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Piezometer Name	Sample Date	TOC Elevation (feet NGVD)	Depth to Water (feet below TOC)	Groundwater Elevation (feet NGVD)
GEO	11/1/10	16.37	10.79	5.58
GEO	2/10/11	16.37	9.04	7.33
GEO	4/2/11	16.37	8.35	8.02
GEO	4/11/11	16.37	9.74	6.63
GEO	10/3/11	16.37	10.42	5.95
GEO	10/1/12	16.37	10.71	5.66
GEO	4/1/13	16.37	9.76	6.61
GEO	10/7/13	16.37	11.92	4.45
GEO	3/28/14	16.37	9.84	6.53
GEO	10/1/14	16.37	11.21	5.16
GEO	4/1/15	16.37	9.93	6.44
GEO	10/5/15	16.37	11.45	4.92
GEO	4/4/16	16.37	8.40	7.97
MFA	11/1/10	8.23	4.55	3.68
MFA	2/10/11	8.23	3.59	4.64
MFA	4/11/11	8.23	2.67	5.56
MFA	10/3/11	8.23	4.41	3.82
MFA	4/2/12	8.23	1.98	6.25
MFA	10/1/12	8.23	4.57	3.66
MFA	4/2/13	8.23	3.70	4.53
MFA	10/7/13	8.23	4.85	3.38
MFA	3/28/14	8.23	3.68	4.55
MFA	10/1/14	8.23	3.68	4.55
MFA	4/1/15	8.23	4.71	3.52
MFA	10/5/15	8.23	4.91	3.32
MFA	4/4/16	8.23	3.08	5.15
NRLF	11/1/10	22.62	16.11	6.51
NRLF	2/10/11	22.62	13.45	9.17
NRLF	4/11/11	22.62	11.99	10.63
NRLF	10/3/11	22.62	15.83	6.79
NRLF	4/2/12	22.62	12.96	9.66
NRLF	10/1/12	22.62	16.30	6.32
NRLF	4/1/13	22.62	13.70	8.92
NRLF	10/7/13	22.62	NA	NA
NRLF	3/28/14	22.62	14.16	8.46
NRLF	10/1/14	22.62	17.06	5.56
NRLF	4/1/15	22.62	14.21	8.41
NRLF	10/5/15	22.62	17.42	5.20
NRLF	4/4/16	22.62	12.75	9.87

Table 2: Groundwater Elevation Data

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Piezometer Name	Sample Date	TOC Elevation (feet NGVD)	Depth to Water (feet below TOC)	Groundwater Elevation (feet NGVD)
PZ11	11/1/10	21.48	12.41	9.07
PZ11	2/10/11	21.48	NA	NA
PZ11	4/11/11	21.48	8.08	13.40
PZ11	10/3/11	21.48	12.10	9.38
PZ11	4/2/12	21.48	7.74	13.74
PZ11	10/1/12	21.48	11.81	9.67
PZ11	10/7/13	21.48	12.55	8.93
PZ11	3/28/14	21.48	10.80	10.68
PZ11	10/1/14	21.48	13.14	8.34
PZ11	4/1/15	21.48	11.45	10.03
PZ11	10/5/15	21.48	13.59	7.89
PZ11	4/4/16	21.48	8.55	12.93
PZ8	11/1/10	14.12	8.45	5.67
PZ8	2/10/11	14.12	NA	NA
PZ8	4/11/11	14.12	4.56	9.56
PZ8	10/3/11	14.12	8.21	5.91
PZ8	4/2/12	14.12	4.20	9.92
PZ8	10/1/12	14.12	8.44	5.68
PZ8	4/1/13	14.12	6.74	7.38
PZ8	10/7/13	14.12	8.78	5.34
PZ8	3/28/14	14.12	7.12	7.00
PZ8	10/1/14	14.12	9.04	5.08
PZ8	4/1/15	14.12	7.58	6.54
PZ8	10/5/15	14.12	9.42	4.70
PZ8	4/4/16	14.12	5.37	8.75
PZ9	11/1/10	23.29	13.75	9.54
PZ9	2/10/11	23.29	NA	NA
PZ9	4/11/11	23.29	11.21	12.08
PZ9	10/3/11	23.29	13.52	9.77
PZ9	4/2/12	23.29	11.20	12.09
PZ9	10/1/12	23.29	13.42	9.87
PZ9	4/1/13	23.29	12.87	10.42
PZ9	10/7/13	23.29	14.25	9.04
PZ9	3/28/14	23.29	12.67	10.62
PZ9	10/1/14	23.29	14.49	8.80
PZ9	4/1/15	23.29	13.24	10.05
PZ9	10/5/15	23.29	15.00	8.29
PZ9	4/4/16	23.29	11.39	11.90

Table 2: Groundwater Elevation Data

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Piezometer Name	Sample Date	TOC Elevation (feet NGVD)	Depth to Water (feet below TOC)	Groundwater Elevation (feet NGVD)
RWF	11/1/10	16.46	10.53	5.93
RWF	2/10/11	16.46	8.42	8.04
RWF	4/11/11	16.46	6.26	10.20
RWF	10/3/11	16.46	10.21	6.25
RWF	4/2/12	16.46	6.70	9.76
RWF	10/1/12	16.46	10.52	5.94
RWF	4/1/13	16.46	9.09	7.37
RWF	10/7/13	16.46	10.81	5.65
RWF	3/28/14	16.46	12.01	4.45
RWF	10/1/14	16.46	11.22	5.24
RWF	4/1/15	16.46	9.58	6.88
RWF	10/5/15	16.46	11.65	4.81
RWF	4/4/16	16.46	7.34	9.12
TP1	11/1/10	19.33	13.11	6.22
TP1	2/10/11	19.33	10.90	8.43
TP1	4/11/11	19.33	8.59	10.74
TP1	10/3/11	19.33	12.61	6.72
TP1	4/2/12	19.33	9.72	9.61
TP1	10/1/12	19.33	13.00	6.33
TP1	4/1/13	19.33	11.48	7.85
TP1	10/7/13	19.33	13.25	6.08
TP1	3/28/14	19.33	11.66	7.67
TP1	10/1/14	19.33	13.52	5.81
TP1	4/1/15	19.33	11.93	7.40
TP1	10/5/15	19.33	13.95	5.38
TP1	4/4/16	19.33	9.49	9.84
TP2	11/1/10	18.91	12.77	6.14
TP2	2/10/11	18.91	10.57	8.34
TP2	4/11/11	18.91	8.15	10.76
TP2	10/3/11	18.91	12.28	6.63
TP2	4/2/12	18.91	9.28	9.63
TP2	10/1/12	18.91	12.67	6.24
TP2	4/1/13	18.91	11.16	7.75
TP2	10/7/13	18.91	12.87	6.04
TP2	3/28/14	18.91	11.31	7.60
TP2	10/1/14	18.91	13.22	5.69
TP2	4/1/15	18.91	11.68	7.23
TP2	10/5/15	18.91	13.60	5.31
TP2	4/4/16	18.91	9.25	9.66

Table 2: Groundwater Elevation Data

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Piezometer Name	Sample Date	TOC Elevation (feet NGVD)	Depth to Water (feet below TOC)	Groundwater Elevation (feet NGVD)
WSM01	4/1/15	7.83	4.92	2.91
WSM01	10/5/15	7.83	5.95	1.88
WSM01	4/4/16	7.83	4.01	3.82
WTA	11/1/10	8.61	6.01	2.60
WTA	2/10/11	8.61	5.84	2.77
WTA	4/11/11	8.61	5.73	2.88
WTA	10/3/11	8.61	6.01	2.60
WTA	4/2/12	8.61	5.22	3.39
WTA	10/1/12	8.61	6.18	2.43
WTA	4/2/13	8.61	5.97	2.64
WTA	10/7/13	8.61	6.27	2.34
WTA	3/28/14	8.61	5.69	2.92
WTA	10/1/14	8.61	6.02	2.59
WTA	4/1/15	8.61	6.01	2.60
WTA	10/5/15	8.61	5.86	2.75
WTA	4/4/16	8.61	5.43	3.18

Notes:

NA	Not available
NGVD	National Geodetic Vertical Datum of 1929
TOC	Top of casing

Table 3: Groundwater Sampling Parameters Summary
2016 Groundwater Sampling Results, Technical Memorandum
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Point Location ID	Date	Temperature (C)	pH	ORP (mV)	Specific Conductance (µmhos/cm)	Turbidity (NTU)	DO (mg/L)	TDS (g/L)	Salinity (ppt)
B120	4/5/2016	18.69	7.3	-35	3.36	2.0	3.08	2.15	1.8
B150	4/7/2016	18.14	6.63	136	0.324	10.2	4.42	0.21	0.2
B163	4/5/2016	17.31	6.29	160	3.66	3.4	4.47	2.34	1.9
B175S	4/7/2016	17.31	6.43	117	0.902	6.0	3.41	0.577	0.4
B175W	4/7/2016	22.59	5.89	157	0.002	233.0	8.53	0.001	0.0
B178	4/5/2016	17.48	7.24	-144	3.28	4.8	3.95	2.09	1.7
B185	4/5/2016	17.07	6.71	154	2.15	6.2	3.49	1.37	1.1
B195	4/11/2016	15.19	6.71	174	0.735	0.0	4.20	0.471	0.4
B197R	4/5/2016	20.79	7.28	-121	3.38	0.4	2.64	2.16	1.8
B280A	4/11/2016	16.14	6.94	142	0.741	0.1	3.90	0.474	0.4
B277	4/11/2016	16.72	6.78	170	0.774	6.5	2.29	0.495	0.4
B278	4/8/2016	16.49	6.82	41	3.19	1.1	0.97	2.04	1.7
B450	4/7/2016	18.01	6.66	166	0.701	0.0	5.87	0.451	0.3
B473	4/8/2016	16.1	6.59	190	0.450	1.8	5.81	0.293	0.2
B474	4/11/2016	15.98	6.78	170	0.354	0.0	4.22	0.230	0.2
B480	4/7/2016	18.87	6.83	154	0.934	2.3	4.81	0.598	0.5
BULB1	4/8/2016	16.25	7.81	-10	44.4	2.7	0.87	27.1	28.4
BULB2	4/8/2016	16.33	7.27	-68	3.60	6.0	1.63	2.25	1.8
CCC2	4/7/2016	16.72	6	183	2.62	22.2	6.45	1.68	1.3
CCCT	4/7/2016	15.85	6.62	-25	2.53	21.4	0.91	1.62	1.3
CTP	4/11/2016	16.15	6.75	130	0.892	7.8	3.86	0.572	0.4
DHR	4/8/2016	16.35	5.84	19	8.44	0.0	1.32	5.32	4.7
EERC	4/11/2016	15.77	6.78	105	4.71	0.0	3.14	3.01	2.5
ETA	4/5/2016	28.86	6.91	51	2.22	90.1	0.70	1.42	1.1
ETA01	4/5/2016	18.47	6.92	78	2.06	44.6	0.99	1.32	1.0
ETA02	4/5/2016	17.03	6.73	-6	5.32	13.6	1.09	3.35	2.9
ETA03	4/5/2016	16.76	5.64	95	6.01	46.5	1.20	3.78	1.4
FG	4/7/2016	17.53	6.38	204	0.551	40.0	5.60	0.353	0.3
GEO	4/11/2016	16.1	7.04	165	1.04	0.0	4.83	0.664	0.5
MFA	4/8/2016	16.59	6.92	71	1.09	7.2	1.01	0.696	0.5
NRLF	4/8/2016	15.99	6.53	-102	0.84	0.6	2.76	0.536	0.4
PZ9	4/7/2016	18.09	6.58	136	0.804	1.4	3.53	0.515	0.4

Table 3: Groundwater Sampling Parameters Summary
2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

Point Location ID	Date	Temperature (C)	pH	ORP (mV)	Specific Conductance (µmhos/cm)	Turbidity (NTU)	DO (mg/L)	TDS (g/L)	Salinity (ppt)
PZ11	4/8/2016	15.84	5.22	274	2.70	1.9	3.22	1.73	1.4
RWF	4/14/2015	16.44	6.61	113	1.04	12.0	2.58	0.669	0.5
TP1	4/7/2016	17.69	6.9	-118	2.48	0.0	3.70	1.59	1.3
TP2	4/8/2016	17.08	6.53	132	1.12	4.2	3.35	0.717	0.6
WSM01	4/5/2016	17.54	6.67	70	2.45	30.7	1.07	1.57	1.3

Notes:

--	Not sampled
µmhos/cm	Micromhms per centimeter
C	Celsius
DO	Dissolved Oxygen
g/L	Grams per liter
ID	Identification
mg/L	Milligrams per liter
mV	Millivolts
NTU	Nephelometric Turbidity Units
ORP	Oxidation reduction potential
ppt	Parts per thousand
TDS	Total dissolved solids

Table 4: Piezometer Completion Summary
2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site, Richmond, California

Piezometer Name	Well Installation Date	Total Depth (ft bgs)	Casing Diameter (inches)	Screen Interval (ft bgs)	Development Date	Development Gallons Purged	Round 1 Sampling Date	Round 2 Sampling Date	Round 3 Sampling Date	Round 4 Sampling Date	Round 5 Sampling Date	Round 6 Sampling Date	Round 7 Sampling Date	Round 8 Sampling Date	TOC (a)	Approximate Ground Surface Elevation (a)
B120	8/2/10	14	2.0 PVC	4-14	8/19/10	26	9/9/10	4/15/11	10/4/11	4/3/12	4/2/13	4/1/14	4/10/15	4/5/16	11.72	12.12
B121	8/3/10	18	2.0 PVC	8-18	8/16/10	53	9/8/10	4/13/11	10/4/11	4/4/12	NS	NS	NS	NS	14.77	15.55
B128	8/12/10	16	2.0 PVC	6-16	8/31/10	33	9/23/10	4/18/11	10/4/11	4/2/12	4/5/13	4/10/14	4/13/15	NS	11.62	12.21
B128deep	8/12/10	40	2.0 PVC	30-40	9/1/10	65	10/15/10	--	--	NS	NS	NS	NS	NS	12.15	12.26
B150	8/3/10	15.5	2.0 PVC	5.5-15.5	8/17/10	28	9/8/10	4/13/11	10/5/11	4/4/12	4/2/13	4/1/14	4/15/15	4/7/16	17.24	17.51
B158	8/11/10	15	2.0 PVC	5-15	8/18/10	19	9/8/10	4/15/11	10/5/11	4/6/12	4/8/13	4/2/14	4/16/15	NS	15.88	16.33
B163	7/26/10	17.5	2.0 PVC	7-17	8/16/10	53	9/2/10	4/12/11	10/3/11	4/2/12	4/3/13	4/1/14	4/14/15	4/5/16	10.37	10.60
B175S	8/3/10	15	2.0 PVC	5-15	8/17/10	22	9/3/10	4/13/11	10/4/11	4/4/12	4/2/13	4/1/14	4/15/15	4/7/16	15.16	15.45
B175W	8/3/10	15	2.0 PVC	5-15	8/17/10	32	9/8/10	4/13/11	10/4/11	4/4/12	4/2/13	4/1/14	4/15/15	4/7/16	16.57	17.21
B177	8/11/10	19	2.0 PVC	9-19	8/31/10	32	9/23/10	4/18/11	10/5/11	4/4/12	NS	NS	NS	NS	17.57	17.81
B178	8/2/10	14.5	2.0 PVC	4.5-14.5	8/19/10	32	9/2/10	4/15/11	10/4/11	4/3/12	4/2/13	4/8/14	4/10/15	4/5/16	10.67	11.33
B180	8/11/10	16	2.0 PVC	6-16	8/24/10	24	9/15/10	4/13/11	10/6/11	4/4/12	4/8/13	4/8/14	4/17/15	NS	15.02	15.30
B185	8/2/10	14	2.0 PVC	4-14	8/20/10	31	9/2/10	4/15/11	10/3/11	4/2/12	4/2/13	4/8/14	4/10/15	4/5/16	10.01	10.08
B194	7/30/10	17	2.0 PVC	7-17	8/23/10	34	9/9/10	4/13/11	10/4/11	4/4/12	NS	NS	NS	NS	18.30	18.84
B195	7/30/10	16	2.0 PVC	6-16	8/20/10	29	9/9/10	4/13/11	10/4/11	4/3/12	4/2/13	4/2/14	4/14/15	4/11/16	14.28	14.91
B197	7/30/10	14	2.0 PVC	4-14	8/19/10	25	9/9/10	4/13/11	10/4/11	4/3/12	--	--	--	NS	13.01	13.37
B197R	3/26/13	14	2.0 PVC	3-13	4/1/13	65	--	--	--	--	4/8/13	4/8/14	4/14/15	4/5/16	13.19	13.49
B277	7/29/10	17.5	2.0 PVC	7-17	8/19/10	25	9/15/10	4/18/11	10/5/11	4/3/12	4/4/13	4/2/14	4/16/15	4/11/16	14.82	15.69
B278	7/29/10	16.5	2.0 PVC	6-16	8/18/10	26	9/16/10	4/19/11	10/5/11	4/5/12	4/4/13	4/9/14	4/17/15	4/8/16	12.75	13.17
B280A	7/29/10	14.5	2.0 PVC	4-14	8/19/10	13	9/16/10	4/14/11	10/6/11	4/3/12	4/4/13	4/9/14	4/17/15	4/11/16	14.04	14.21
B280B	8/6/10	16	2.0 PVC	6-16	8/26/10	6	10/1/10	4/14/11	10/6/11	4/3/12	NS	NS	NS	NS	19.59	19.89
B300	7/29/10	17	2.0 PVC	7-17	8/24/10	21	9/9/10	4/15/11	10/6/11	4/9/12	NS	NS	NS	NS	18.16	18.72
B38	8/10/10	17	2.0 PVC	7-17	8/24/10	24	9/15/10	4/19/11	10/6/11	4/4/12	NS	NS	NS	NS	15.78	16.08
B38deep	8/10/10	41	2.0 PVC	31-41	8/24/10	47	10/18/10	--	--	NS	NS	NS	NS	NS	15.84	16.09
B450	8/5/10	16	2.0 PVC	6-16	8/25/10	10	NS	4/19/11	10/10/11	4/6/12	4/3/13	4/3/14	4/14/15	4/7/16	21.34	21.76
B460	8/5/10	18	2.0 PVC	8-18	8/25/10	12	9/15/10	4/20/11	10/7/11	4/6/12	NS	NS	NS	NS	21.42	21.96
B473	8/9/10	17	2.0 PVC	7-17	8/31/10	12.5	9/24/10	4/20/11	10/7/11	4/6/12	4/3/13	4/3/14	4/16/15	4/8/16	22.29	22.50
B474	8/9/10	16	2.0 PVC	6-16	8/27/10	17.5	9/23/10	4/20/11	10/7/11	4/9/12	4/3/13	4/3/14	4/16/15	4/11/16	23.67	21.85
B480	8/5/10	16	2.0 PVC	6-16	8/27/10	10	9/24/10	4/19/11	10/7/11	4/9/12	4/3/13	4/3/14	4/17/15	4/7/16	20.84	21.04
B480deep	8/12/10	40	2.0 PVC	35-40	8/27/10	52	10/15/10	--	--	NS	NS	NS	NS	NS	21.07	21.19
B490	8/6/10	18	2.0 PVC	8-18	8/30/10	27	9/16/10	4/20/11	10/10/11	4/9/12	NS	NS	NS	NS	24.41	24.95
Bulb1	9/29/10	18	2.0 PVC	8-18	10/19/10	30	10/19/10	4/12/11	9/30/11	4/5/12	4/5/13	4/10/14	4/13/15	4/8/16	7.19	7.83
Bulb2	9/29/10	19	2.0 PVC	9-19	10/19/10	35	10/19/10	4/12/11	9/30/11	4/5/12	4/5/13	4/10/14	4/13/15	4/8/16	7.46	7.91
CCC1	7/27/10	14	2.0 PVC	3.5-13.5	8/18/10	11.5	9/8/10	4/14/11	10/5/11	4/10/12	NS	NS	NS	NS	15.38	15.67
CCC2	7/27/10	14	2.0 PVC	4-14	8/16/10	19	9/8/10	4/14/11	10/4/11	4/10/12	4/2/13	4/2/14	4/15/15	4/7/16	14.60	14.75
CCC3	7/27/10	15	2.0 PVC	4-14	8/16/10	27	9/3/10	9/3/10	10/4/11	4/10/12	4/2/13	4/2/14	4/15/15	NS	11.67	12.13
CCCT	8/2/10	15.5	2.0 PVC	5.5-15.5	8/20/10	31	9/3/10	4/18/11	10/3/11	4/4/12	4/2/13	4/8/14	4/15/15	4/7/16	12.13	13.19

Table 4: Piezometer Completion Summary
2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site, Richmond, California

Piezometer Name	Well Installation Date	Total Depth (ft bgs)	Casing Diameter (inches)	Screen Interval (ft bgs)	Development Date	Development Gallons Purged	Round 1 Sampling Date	Round 2 Sampling Date	Round 3 Sampling Date	Round 4 Sampling Date	Round 5 Sampling Date	Round 6 Sampling Date	Round 7 Sampling Date	Round 8 Sampling Date	TOC (a)	Approximate Ground Surface Elevation (a)
CTP	7/30/10	17	2.0 PVC	7-17	8/26/10	20	9/30/10	4/14/11	10/6/11	4/3/12	4/4/13	4/3/14		4/11/16	17.27	18.26
CTPdeep	8/12/10	40	2.0 PVC	30-40	8/26/10	47	10/15/10	--	--	NS	NS	NS	NS	NS	17.67	18.16
CTPS	7/28/10	14	2.0 PVC	4-14	8/19/10	7	9/30/2010, 10/1/10, 10/18/10	4/19/11	10/10/11	4/5/12	NS	NS	NS	NS	15.25	15.43
DH	7/27/10	13.5	2.0 PVC	3.5-13.5	8/18/10	13	9/30/10	4/14/11	10/5/11	4/6/12	--	--	--	NS	13.25	13.55
DHR	3/26/13	14	2.0 PVC	3.5-13.5	4/1/13	12	--	--	--	--	4/4/13	4/10/14	4/13/15	4/8/16	13.54	13.80
EERC	8/9/10	17	2.0 PVC	7-17	8/31/10	7.5	10/1/2010, 10/15/10	4/20/11	10/7/11	4/6/12	4/8/13	4/3/14	4/16/15	4/11/16	21.84	22.01
EPA	7/28/10	14	2.0 PVC	4-14	8/19/10	13.5	9/16/10	4/19/11	10/6/11	4/6/12	4/4/13	4/10/14	4/17/15	NS	10.59	11.20
ETA	7/28/10	14	2.0 PVC	3.5-13.5	9/2/10	32	9/24/10	4/12/11	9/30/11	4/10/12	4/5/13	4/8/14	4/13/15	4/5/16	7.54	7.72
ETA01	1/28/15	15	2.0 PVC	5-15	1/30/15	115	--	--	--	--	--	--	2/2/15 (b)	4/5/16	5.93	NR
ETA02	1/28/15	20	2.0 PVC	15-20	1/30/15	75	--	--	--	--	--	--	2/2/15 (b)	4/5/16	9.53	NR
ETA03	1/28/15	20	2.0 PVC	15-20	1/30/15	15	--	--	--	--	--	--	2/2/15 (b)	4/5/16	10.48	NR
FG	8/6/10	16	2.0 PVC	6-16	8/30/10	7	9/23/10	4/19/11	10/10/11	4/9/12	4/3/13	4/9/14	4/16/15	4/7/16	25.31	25.79
GEO	7/26/10	17.5	2.0 PVC	6.5-16.5	9/1/10	20	9/3/10	4/20/11	10/6/11	4/6/12	4/4/13	4/9/14	4/16/15	4/11/16	16.37	16.73
MFA	7/28/10	13.5	2.0 PVC	3.5-13.5	9/2/10	37	9/24/10	4/12/11	10/3/11	4/5/12	4/5/13	4/8/14	4/13/15	4/8/16	8.23	8.51
NRLF	7/26/10	19.5	2.0 PVC	9-19	8/26/10	10	9/16/10	4/20/11	10/6/11	4/9/12	4/3/13	4/9/14	4/16/15	4/8/16	22.62	22.99
PZ11	10/6/09	19	2.0 PVC	9-19	unk	unk	10/15/10	4/20/11	10/10/11	4/5/12	4/5/13	4/9/14	4/16/15	4/8/16	21.48	21.73
PZ8	4/12/07	21	2.0 PVC	8-21	unk	unk	10/1/10	4/18/11	10/4/11	4/3/12	4/8/13	4/8/14	4/14/15	NS	14.12	14.52
PZ9	4/12/07	20	2.0 PVC	9-20	unk	unk	9/24/10	4/20/11	10/7/11	4/6/12	4/3/13	4/9/14	4/16/15	4/7/16	23.29	23.72
RWF	8/4/10	18	2.0 PVC	8-18	8/23/10	30	9/15/10	4/18/11	10/6/11	4/4/12	4/8/13	4/9/14	4/14/15	4/8/16	16.46	16.78
TP1	8/5/10	17	2.0 PVC	7-17	8/23/10	13	9/29/10	4/18/11	10/7/11	4/5/12	4/4/13	4/2/14	4/10/15	4/7/16	19.33	19.91
TP2	8/4/10	16	2.0 PVC	6-16	8/23/10	20	9/29/10	4/18/11	10/7/11	4/9/12	4/4/13	4/2/14	4/10/15	4/8/16	18.91	19.24
WSM01	1/28/15	15	2.0 PVC	5-15	1/30/15	35	--	--	--	--	--	--	2/2/15 (b)	4/5/16	7.83	NR
WTA	7/27/10	14	2.0 PVC	4-14	8/18/10	28	9/30/10	4/14/11	10/5/11	4/5/12	4/5/13	4/10/14	4/13/15	NS	8.61	8.93

Notes:
Total depth of boring assumed to be bottom of screen unless otherwise specified on boring log or well completion form.
(a) Ground surface elevation and TOC given in feet NGVD29.
(b) Piezometer was not sampled during the April 2015 sampling event; sampling results for February 2015 samples are presented in the Phase IV Sampling Results Technical Memorandum (Tetra Tech 2015).
-- Piezometer not sampled because piezometer was either abandoned or had not yet been constructed.
ft bgs Feet below ground surface
NGVD National Geodetic Vertical Datum
NR Not recorded; piezometers ETA01, ETA02, and ETA03 are flush mounted, and piezometer WSM01 is elevated from the ground surface.
NS Not Sampled
PVC Polyvinyl chloride
TOC Top of casing
unk Unknown

Table 5: State and Federal Water Quality Criteria

2016 Groundwater Sampling Results, Technical Memorandum

University of California, Berkeley, Richmond Field Station Site

Chemical	Berkeley Global Campus Risk-Based Concentrations (1,2)		MCL (1,3)		
	Commercial Workers via Vapor Intrusion to Indoor Air	Construction Workers in a Construction Trench	California	EPA	Secondary
VOCs					
1,1-Dichloroethene	7,860	257	6	7	
1,2-Dichloroethane	360	2,900	0.5	5	
1,2-Dichloropropane	94	5.71	5	5	
2-Butanone (MEK)	762,000	11,700			
Acetone	43,700,000	82,000			
Benzene	610	440	1	5	
Carbon tetrachloride	2.63	2.68	0.5	5	
Chlorobenzene	14,300	69.8		100	
Chloroform	25.5	4.43			
cis-1,2-Dichloroethene	34,000	270,000	6	70	
Dibromomethane					
tert-Butyl methyl ether (MTBE)	7,200		13		
Tetrachloroethene (PCE)	110	22	5	5	
Toluene	45,100	374	150	1,000	
trans-1,2-Dichloroethene	7,600	77.9	10	100	
Trichloroethene (TCE)	270	890	5	5	
Vinyl chloride	3.60	300	0.5	2	
SVOCs					
1-Methylnaphthalene		148			
1,4-Dioxane		14,000			2.5
Acenaphthene		3,640			
Bis(2-ethylhexyl)phthalate		294		6	
Fluoranthene		712			
Naphthalene	93.6	3.42			
Pyrene		594			
Metals					
Aluminum			1,000		200
Antimony			6	6	
Arsenic		66.1	10	10	
Barium			1,000	2,000	
Beryllium			4	4	
Boron					
Cadmium		8,960	5	5	
Calcium					
Chromium			50	100	
Cobalt					
Copper		359,000	1,300	1,300	1,000
Iron					300
Lead			15	15	
Magnesium					
Manganese					50

Table 5: State and Federal Water Quality Criteria

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

Chemical	Berkeley Global Campus Risk-Based Concentrations (1,2)		MCL (1,3)		
	Commercial Workers via Vapor Intrusion to Indoor Air	Construction Workers in a Construction Trench	California	EPA	Secondary
Mercury			2	2	
Molybdenum					
Nickel			100		
Potassium					
Selenium		44,800	50	50	
Silver					100
Sodium					
Thallium			2	2	
Vanadium					
Zinc					5,000

Notes:

(1) All values are presented in µg/L.

(2) Risk-based concentrations are calculated and presented in Appendix C of the Final SCR (Tetra Tech 2013). Commercial vapor intrusion risk-based concentrations for 1,2-dichloroethane, benzene, cis-1,2-dichloroethene, PCE, TCE, and vinyl chloride are SSGs for an on-site commercial/industrial worker, and for an on-site resident, as established by DTSC for the Campus Bay site (Terraphase 2008, 2012).Commercial vapor intrusion RBCs for 1,2-dichloroethane, benzene, cis-1,2-dichloroethene, PCE, TCE, and vinyl chloride are SSGs for an on-site groundskeeper/maintenance worker, as established by DTSC for the Campus Bay site (Terraphase 2008, 2012).

(3) MCLs are based on CDPH (2008) and EPA (2009).

µg/L Micrograms per liter
CDPH California Department of Public Health
EPA U.S. Environmental Protection Agency
MCL Maximum contaminant level
mg/L Milligrams per liter
PRG Preliminary remediation goal
RBC Risk-based concentrations
RDX Cyclotrimethylenetrinitramine
RSL Regional Screening Level
SCR Site Characterization Report
SVOC Semivolatile organic compound
SWRCB State Water Resources Control Board
VOC Volatile organic compound

References:

CDPH. 2008. "Maximum Contaminant Levels and Regulatory Dates for Drinking Water U.S EPA vs. California, November 2008."

EPA. 2009. "National Primary Drinking Water Regulations - List of Contaminants and their MCLs." Available on-line at: <http://water.epa.gov/drink/contaminants/index.cfm#List>.

Tetra Tech. 2013. Final Site Characterization Report, Proposed Richmond Bay Campus, Research, Education, and Support Area and Groundwater within the Richmond Field Station Site. May 28.

TABLE 6: STATISTICAL SUMMARY OF CHEMICALS DETECTED IN APRIL 2016

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

Analyte	Detection Frequency [a]	Maximum Detected Result	Average Detected Result	Location of Maximum Detected Result	Number of Locations with Detected Results	California MCL [b]	Number of Samples with Results Greater than or Equal to California MCL	Federal MCL [c]	Number of Samples with Results Greater than or Equal to Federal MCL
Metals (µg/L)									
Filtered (Dissolved)									
ANTIMONY	8/21	11	5.09	EERC	8	6	3	6	3
ARSENIC	4/21	15	8.15	BULB1	4	10	1	10	1
BARIUM	21/21	350	56.7	BULB2	21	1,000	0	2,000	0
BERYLLIUM	3/21	1.1 J	0.800	BULB1	3	4	0	4	0
CADMIUM	3/21	6.2	3.73	PZ11	3	5	1	5	1
CHROMIUM	11/21	16	5.75	B163	11	50	0	100	0
COBALT	8/21	130	20.4	ETA03	8	NC	0	NC	0
COPPER	6/21	200	38.0	PZ11	6	1,300	0	1,300	0
LEAD	1/21	1.6 J	1.60	CCC2	1	15	0	15	0
MERCURY	7/21	15	2.52	ETA01	7	2	2	2	2
MOLYBDENUM	18/21	15	3.40	B474	18	NC	0	NC	0
NICKEL	17/21	770	109	DHR	17	100	4	NC	0
SELENIUM	13/21	38	12.7	B150	13	50	0	50	0
SILVER	19/21	10	4.06	BULB1	19	NC	0	NC	0
THALLIUM	5/21	8.8 J	5.42	ETA02	5	2	5	2	5
VANADIUM	8/21	7.1	3.44	ETA01	8	NC	0	NC	0
ZINC	11/21	3,500	654	PZ11	11	NC	0	NC	0
Volatile Organic Compounds (µg/L)									
1,1,2-TRICHLOROETHANE	1/30	0.2 J	0.200	ETA03	1	NC	0	5	0
1,1-DICHLOROETHENE	11/30	1.2	0.509	ETA03	11	6	0	7	0
1,2-DICHLOROETHANE	5/30	20	9.18	ETA03	5	0.5	5	5	3
BENZENE	3/30	0.3 J	0.233	B163	3	1	0	5	0
CARBON TETRACHLORIDE	4/30	7.8	2.43	CTP	4	0.5	4	5	1
CHLOROBENZENE	6/30	26	6.47	WSM01	6	NC	0	100	0
CHLOROFORM	9/30	3.5	0.767	CTP	9	NC	0	NC	0
CIS-1,2-DICHLOROETHENE	20/30	14	3.46	ETA02	20	6	3	70	0

TABLE 6: STATISTICAL SUMMARY OF CHEMICALS DETECTED IN APRIL 2016 (Continued)

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

Analyte	Detection Frequency [a]	Maximum Detected Result	Average Detected Result	Location of Maximum Detected Result	Number of Locations with Detected Results	California MCL [b]	Number of Samples with Results Greater than or Equal to California MCL	Federal MCL [c]	Number of Samples with Results Greater than or Equal to Federal MCL
Volatile Organic Compounds (µg/L)									
METHYL TERT-BUTYL ETHER	2/30	0.2 J	0.150	BULB2	2	13	0	NC	0
TETRACHLOROETHENE	14/30	25	3.61	ETA03	14	5	3	5	3
TRANS-1,2-DICHLOROETHENE	7/30	2.7	0.814	ETA	7	10	0	100	0
TRICHLOROETHENE	25/30	120	35.9	B120	25	5	20	5	20
VINYL CHLORIDE	4/30	0.9 J	0.350	B163	4	0.5	1	2	0

Notes: Data shown includes duplicate samples.

a Total number of samples does not include duplicates.
b California MCLs are from CDPH (2008).
c Federal MCLs are from EPA (2009).

\- Not applicable
CDPH California Department of Public Health
EPA U.S. Environmental Protection Agency
J Estimated value
MCL Maximum contaminant level
NC No criteria
µg/L Micrograms per liter

California Department of Public Health (CDPH). 2008. "Maximum Contaminant Levels and regulatory Dates for Drinking Water U.S EPA vs. California, November 2008." Available on-line at: http://www.cdph.ca.gov/certlic/drinkingwater/Documents/DWdocuments/EPAandCDPH-11-28-2008.pdf. Updated November 28.
U.S. Environmental Protection Agency (EPA). 2009. "National Primary Drinking Water Regulations - List of Contaminants and their MCLs." Available on-line at: <http://water.epa.gov/drink/contaminants/index.cfm#List>.

Table 7: VOC Detected Results Summary
2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

Piezometer ID	Sample ID	1,1,2-TRICHLOROETHANE	1,1-DICHLOROETHENE	1,2-DICHLOROETHANE	BENZENE	CARBON TETRACHLORIDE	CHLOROBENZENE	CHLOROFORM	CIS-1,2-DICHLOROETHENE	METHYL TERT-BUTYL ETHER	TETRACHLOROETHENE	TRANS-1,2-DICHLOROETHENE	TRICHLOROETHENE	VINYL CHLORIDE
California MCLs			6	0.5	1	0.5			6	13	5	10	5	0.5
Federal MCLs		5	7	5	5	5	100		70		5	100	5	2
B120	20160405B120	2 U	2 U	0.4 UJ	2 U	2 U	2 U	2 U	***3.1***	2 U	0.5 J	0.4 J	**120**	2 U
B163	20160405B163	1 U	0.8 J	**9.3**	0.3 J	1 U	5.9	1.3	***4.4***	1 U	**8.6**	0.5 J	**89**	**0.9 J**
B175S	20160407B175S	1 U	1 U	1 U	1 U	1 U	1 U	0.2 J	1 U	1 U	1 U	1 U	***2.9***	1 U
B175W	20160407B175W	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1.4	1 U	1 U	1 U
B178	20160405B178	2 U	0.8 J	2 U	2 U	2 U	2 U	2 U	**11**	2 U	2 U	0.5 J	**92**	2 U
B185	20160405B185	1 U	0.3 J	**0.8 J**	1 U	***0.5 J***	0.4 J	0.4 J	1.5	1 U	1 U	1 U	**65**	1 U
B195	20160411B195	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.9 J	1 U	1.6	1 U	**45**	1 U
B197R	20160405B197R	2 U	0.4 J	2 U	2 U	2 U	2 U	2 U	***3.2***	2 U	0.9 J	2 U	**84**	2 U
B197RD	20160405B197RD	2 U	0.4 J	2 U	2 U	2 U	2 U	2 U	***3.1***	2 U	0.8 J	2 U	**85**	2 U
B277	20160411B277	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
B278	20160408B278	1 U	1 U	1 U	1 U	1 U	1 U	0.2 J	1 U	1 U	1 U	1 U	**8.8**	1 U
B280A	20160411B280A	1 U	1 U	1 U	1 U	**0.6 J**	1 U	0.2 J	1 U	1 U	1 U	1 U	1 U	1 U
B450	20160407B450	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.1 J	1 U	0.4 J	1 U	**14**	1 U
B473	20160408B473	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.4 J	1 U	0.3 J	1 U	**8**	1 U
B473D	20160408B473D	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.4 J	1 U	0.1 J	1 U	**9.3**	1 U
B480	20160407B480	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.1 J	1 U	0.3 J	1 U	**15**	1 U
B480D	20160407B480D	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.2 J	1 U	0.2 J	1 U	**15**	1 U
BULB2	20160408BULB2	1 U	1 U	1 U	1 U	1 U	0.1 J	1 U	0.3 J	0.2 J	1 U	1 U	1.1	1 U
CCC2	20160407CCC2	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CCCT	20160407CCCT	1 U	0.4 J	0.2 UJ	1 U	1 U	1 U	1 U	2.7	1 U	1 U	1 U	**74**	1 U
CTP	20160411CTP	1 U	1 U	1 U	1 U	**7.8**	1 U	3.5	1 U	1 U	1 U	1 U	0.3 J	1 U
ETA	20160405ETA	1 U	0.2 J	0.2 UJ	1 U	1 U	1 U	1 U	***5.6***	1 U	1 U	2.7	**7.6**	1 U
ETA01	20160405ETA01	1 U	0.2 J	0.2 UJ	1 U	1 U	1 U	1 U	2	0.1 J	1 U	1 U	**14**	0.1 J
ETA02	20160405ETA02	1 U	0.7 J	**13**	1 U	1 U	1.4	1 U	**14**	1 U	***3.8***	0.3 J	**21**	1 U
ETA03	20160405ETA03	0.2 J	1.2	**20**	0.2 J	1 U	5	0.3 J	**10**	1 U	**25**	1	**69**	1 U
GEO	20160411GEO	1 U	1 U	1 U	1 U	**0.8 J**	1 U	0.6 J	1 U	1 U	1 U	1 U	1 U	1 U
MFA	20160408MFA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1.3	1 U	1 U	1 U	**12**	0.2 J
MFADUP	20160408MFADUP	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1.1	1 U	1 U	1 U	**9.7**	0.1 J
PZ11	20160408PZ11	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2.8	1 U	0.6 J	0.3 J	**8.3**	0.2 J
PZ9	20160407PZ9	1 U	0.2 J	1 U	1 U	1 U	1 U	1 U	1.5	1 U	0.8 J	1 U	**60**	1 U
RWF	20160408RWF	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	***2.8***	1 U
TP1	20160407TP1	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1.2	1 U
TP2	20160408TP2	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.6 J	1 U	0.4 J	1 U	**23**	1 U
WSM01	20160405WSM01	1 U	0.4 J	**2.8**	0.2 J	1 U	26	0.2 J	***3.6***	1 U	**6**	1 U	**59**	1 U

Notes:

Indicates the value equals or exceeds both the California and Federal MCL	µg/L	Micrograms per liter		MCL	Maximum contaminant level
Indicates the value equals or exceeds the California MCL	ID	Identification		U	Not detected
Indicates the value equals or exceeds one-half of the California or Federal MCL	J	Estimated value		VOC	Volatile organic compound

Table 8: Metals Detected Results Summary
2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

Piezometer ID	Sample ID	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	CADMIUM	CHROMIUM	COBALT	COPPER	LEAD	MERCURY	MOLYBDENUM	NICKEL	SELENIUM	SILVER	THALLIUM	VANADIUM	ZINC
California MCLs		6	10	1,000	4	5	50		1,300	15	2		100	50		2		
Federal MCLs		6	10	2,000	4	5	100		1,300	15	2			50		2		
Secondary MCLs									1,000									5,000
B150	20160407B150	10 U	5 U	39	2 U	5 U	1.1 J	5 U	2.1 UJ	5 U	0.2 U	1 J	1.9 J	***38***	1.7 J	1 U	1.1 J	20 U
B150DUP	20160407B150DUP	10 U	5 U	40	2 U	5 U	5 U	5 U	1.7 UJ	5 U	0.2 U	5 U	1.7 J	***40***	1.9 J	1 U	5 U	20 U
B163	20160405B163	10 U	5 U	12	2 U	***3.5 J***	16	4.9 J	5 U	2.7 UJ	0.15 J	1.8 J	**170**	12	2.8 J	10 UJ	5 U	6.4 J
B195	20160411B195	10 U	4.9 J	15	2 U	5 U	5 U	5 U	5 U	5 U	**2.1**	1.9 J	1.9 J	10 U	5 U	**2 J**	4.8 J	20 U
B197R	20160405B197R	**7.4 J**	5 U	28	2 U	5 U	3.3 J	5 U	1.7 J	5 U	0.077 J	3 J	1.7 J	10 U	5.4	10 U	5 U	20 U
B197RD	20160405B197RD	**9.5 J**	5 U	29	2 U	5 U	1.4 J	5 U	1.6 J	5 U	0.2 U	2 J	0.89 J	10 U	3.2 J	10 U	5 U	4.5 J
B450	20160407B450	***4.2 J***	5 U	56	2 U	5 U	5 U	5 U	1.8 UJ	5 U	0.2 U	1.5 J	5 U	10 U	1.9 J	1 U	3 J	20 U
B474	20160411B474	10 U	5 U	55	2 U	5 U	5 U	5 U	18	5 U	0.2 U	15	5 U	4 J	4.6 J	10 U	5.8 UJ	20 U
BULB1	20160408BULB1	**6.7 J**	**15**	110	1.1 J	5 U	5 U	5 U	5 U	5 U	0.2 U	4.3 J	1.7 J	15	10	1 U	5 U	20 U
BULB2	20160408BULB2	2.3 J	5 U	350	0.7 J	5 U	5 U	5 U	1.2 UJ	5 U	0.2 U	5.9	10	16	4.1 J	1 U	3.2 J	20 U
CCC2	20160407CCC2	10 U	5 U	61	2 U	5 U	1.9 J	5 U	5 U	1.6 J	0.2 U	5 U	24	10 U	2.8 J	1 U	5 U	20 J
CTP	20160411CTP	10 U	5 U	77	2 U	1.5 J	1 J	5 U	5 U	5 U	0.2 U	2.6 J	2.6 J	5.3 J	5 U	**5.9 J**	3.3 J	34
DHR	20160408DHR	10 U	5 U	82	2 U	5 U	11	9.7	5 U	5 U	0.2 U	1.1 J	**770**	14	4.2 J	10 U	5 U	17 J
EERC	20160411EERC	**11**	***6 J***	31	2 U	5 U	5 U	5 U	4.3 UJ	5 U	0.2 U	2.5 J	1.9 J	10 U	6.6	**7 J**	7.2 UJ	5.7 J
ETA	20160405ETA	10 U	5 U	22	2 U	5 U	4.8 J	2.2 J	3.1 J	5 U	0.071 J	4.8 J	1.3 J	4.4 J	5.3	10 U	5 U	34
ETA01	20160405ETA01	10 U	5 U	38	2 U	5 U	5 U	2 J	3.2 J	5 U	**15**	6.1	9.9	5.4 J	2.9 J	**3.4 J**	7.1	14 J
ETA02	20160405ETA02	2.6 J	5 U	18	2 U	5 U	4.2 J	3.1 J	5 U	5 U	0.2 U	1.2 J	13	8.7 J	7.8	**8.8 J**	5 U	4.9 J
ETA03	20160405ETA03	10 U	5 U	11	2 U	5 U	14	130	5 U	5 U	0.069 J	5 U	**110**	10 U	1.2 J	10 U	5 U	3,300
FG	20160407FG	10 U	5 U	25	2 U	5 U	5 U	5 U	1.3 UJ	5 U	0.2 U	5 U	5 U	3.4 J	1.5 J	1 U	1.9 J	20 U
NRLF	20160408NRLF	2.4 J	***6.7***	92	2 U	5 U	5 U	5 U	5 U	5 U	0.2 U	1.2 J	5 U	9.8 J	2.1 J	1 U	5 U	20 U
PZ11	20160408PZ11	10 U	5 U	16	0.6 J	**6.2**	4.3 J	1.8 J	200	5 U	0.2 U	2.5 J	**730**	10 U	2.6 J	10 U	5 U	3,500
TP1	20160407TP1	***4.1 J***	5 U	34	2 U	5 U	5 U	5 U	1.8 UJ	5 U	0.2 J	1.9 J	1.5 J	***29***	4 J	10 U	5 U	20 U
WSM01	20160405WSM01	10 U	5 U	19	2 U	5 U	1.7 J	9.8	2.2 J	5 U	0.2 U	2.9 J	9.8	10 U	5.6	10 U	3.1 J	260

Notes:

Indicates the value equals or exceeds both the California and Federal MCL

Indicates the value equals or exceeds the California MCL

Indicates the value equals or exceeds one-half of the California or Federal MCL

All results are presented in µg/L.

µg/L	Micrograms per liter	MCL	Maximum Contaminant Level
ID	Identification	U	Not detected
J	Estimated value		

APPENDIX A
WELL SAMPLING FORMS

Tetra Tech. Inc.

MONITORING WELL SAMPLING FORM

Date/Time of Sample Collection: 4/5/14, 1400 Project Site/Subsite: Richmond Field Station

Well ID: B120 Sample ID: 20160405B120

Depth to Water Level: 4.21 ft below PVC cap prior to sampling 4.23 after sampling

Depth to Well Bottom: 13.12 ft. below top of casing (PVC cap)

Method of Purging: Bladder Pump (Peristaltic Pump)

Well Diameter: (2 inch) 4 inch

Total Purged 4.2 Liters (Max 20 L) Purge Rate goal = 0.15 Liters/Min. Actual purge rate 0.2 Liters/Min

PHYSIO-CHEMICAL PARAMETERS DURING PURGING

Measure - ment Number	Time	Temperature (°C)	pH	ORP (mV	Specific Conductance (S/m)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Total Dissolved Solids (g/L)	Salinity (ppt)	Each Volume/Total Purged (L)
Stabilization Criteria		+/- 2.0	+/- 0.2	+/- 10	+/- 3%	+/- 2.0	+/- 15%			
1	1325	20.65	7.44	24	4.12	11.2	5.00	2.64	2.2	—
2	1329	19.99	7.34	1	4.14	9.5	3.61	2.65	2.2	0.8
3	1334	18.57	7.33	-19	4.10	6.5	3.48	2.62	2.2	0.8/1.6
4	1338	18.38	7.33	-27	3.93	4.3	3.40	2.51	2.1	0.8/2.4
5	1342	18.25	7.32	-30	3.77	3.6	3.33	2.41	2.0	0.8/3.2
6	1346	18.51	7.32	-34	3.64	3.4	3.26	2.33	1.9	0.8/4.0
7	1351	18.49	7.31	-37	3.52	2.5	3.19	2.25	1.8	0.8/4.8
8	1355	18.54	7.33	-32	3.43	2.2	3.29	2.19	1.8	0.8/5.6
9	1359	18.69	7.30	-35	3.36	2.0	3.08	2.15	1.8	0.8/6.2
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

Duplicate Sample Collected? (No) Yes (Sample ID of Duplicate) _____

MS/MSD Sample Collected? (No) Yes _____

Sample Remarks (odors, colors, sediment): Clear, no odor

Comments _____

Sample(s) Collected By: Cynthia Breaux

MONIWELL.FRM

Tetra Tech. Inc.

MONITORING WELL SAMPLING FORM

Date/Time of Sample Collection: 04.07.16 / 1410 Project Site/Subsite: Richmond Field Station

Well ID: B150 Sample ID: 20160407B150

Depth to Water Level: 4.30 ft below PVC cap prior to sampling 4.50 after sampling

Depth to Well Bottom: 15.08 ft. below top of casing (PVC cap)

Method of Purging: Bladder Pump Peristaltic Pump

Well Diameter: ~~2 inch~~ 4 inch

Total Purged 8.5 Liters (Max 20 L) Purge Rate goal = 0.15 Liters/Min. Actual purge rate 0.20 Liters/Min

PHYSIO-CHEMICAL PARAMETERS DURING PURGING

Measure - ment Number	Time	Temperature (°C)	pH	ORP (mV	Specific Conductance ~~(S/m)~~ (ms/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Total Dissolved Solids (g/L)	Salinity (ppt)	Each Volume/Total Purged (L)
Stabilization Criteria		+/- 2.0	+/- 0.2	+/- 10	+/- 3%	+/- 2.0	+/- 15%			
1	1330	22.22	6.79	118	0.300	0.0	3.93	0.195	0.1	0.5
2	1334	21.25	6.70	124	0.314	37.2	3.85	0.205	0.2	1.3
3	1338	19.74	6.68	127	0.324	39.5	4.16	0.211	0.2	2.1
4	1342	19.15	6.67	129	0.325	33.4	4.27	0.212	0.2	2.9
5	1346	18.84	6.66	131	0.324	23.1	4.34	0.212	0.2	3.7
6	1350	18.62	6.65	132	0.326	21.0	4.35	0.212	0.2	4.5
7	1354	18.51	6.65	132	0.326	14.6	4.33	0.212	0.2	5.3
8 1358	~~1400~~	18.37	6.65	133	0.326	11.9	4.37	0.210	0.2	6.1
9	1402	18.17	6.64	135	0.323	9.40	4.41	0.210	0.2	6.9
10	1406	18.14	6.63	135	0.324	9.0	4.42	0.210	0.2	7.7
11	1410	18.14	6.63	136	0.324	10.2	4.42	0.210	0.2	8.5
12										
13										
14										
15										
16										
17										
18										
19										
20										

Duplicate Sample Collected? No (Yes) (Sample ID of Duplicate) 20160407B150DUP @ ~~1412~~ 1412

MS/MSD Sample Collected? (No) Yes _____

Sample Remarks (odors, colors, sediment): _____

Comments _____

Sample(s) Collected By: QUINN JOHNSON

Tetra Tech. Inc.

MONITORING WELL SAMPLING FORM

Date/Time of Sample Collection: 4/5/16, 1070 Project Site/Subsite: Richmond Field Station

Well ID: B163 Sample ID: 2016040 5 B163

Depth to Water Level: 5.56 ft below PVC cap prior to sampling 5.59 after sampling

Depth to Well Bottom: 16.58 ft. below top of casing (PVC cap)

Method of Purging: Bladder Pump (Peristaltic Pump)

Well Diameter: (2 inch) 4 inch

Total Purged 6.4 Liters (Max 20 L) Purge Rate goal = 0.15 Liters/Min. Actual purge rate 0.2 Liters/Min

PHYSIO-CHEMICAL PARAMETERS DURING PURGING

Measure - ment Number	Time	Temperature (°C)	pH	ORP (mV	Specific Conductance (S/m)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Total Dissolved Solids (g/L)	Salinity (ppt)	Each Volume/Tota l Purged (L)
Stabilization Criteria		+/- 2.0	+/- 0.2	+/- 10	+/- 3%	+/- 2.0	+/- 15%			
1	0946	16.97	6.28	161	4.07	9.1	7.78	2.61	2.2	—
2	0950	17.03	6.39	140	4.02	12.5	5.64	2.57	2.1	0.8
3	0954	17.08	6.36	139	3.95	12.3	5.13	2.53	2.1	0.8/1.6
4	0958	17.12	6.36	143	3.87	11.4	4.86	2.48	2.0	0.8/2.4
5	1002	17.19	6.33	147	3.80	9.4	4.69	2.43	2.0	0.8/3.2
6	1006	17.19	6.33	149	3.76	6.4	4.58	2.41	2.0	0.8/4.0
7	1010	17.24	6.31	153	3.71	4.1	4.47	2.37	1.9	0.8/4.8
8	1014	17.27	6.31	156	3.69	4.0	4.46	2.36	1.9	0.8/5.6
9	1018	17.31	6.29	160	3.66	3.4	4.47	2.34	1.9	0.8/6.4
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

Duplicate Sample Collected? (No) Yes (Sample ID of Duplicate) _____

MS/MSD Sample Collected? (No) Yes _____

Sample Remarks (odors, colors, sediment): clear, no odor

Comments _____

Sample(s) Collected By: Cynthia Bveene

MONIWELL.FRM

Tetra Tech. Inc.

MONITORING WELL SAMPLING FORM

Date/Time of Sample Collection: 04.07.16 / 1148 Project Site/Subsite: Richmond Field Station

Well ID: B175S Sample ID: 20160407B175S

Depth to Water Level: 7.87 ft below PVC cap prior to sampling ~~4.77~~ 7.86 after sampling

Depth to Well Bottom: 14.75 ft. below top of casing (PVC cap)

Method of Purging: Bladder Pump Peristaltic Pump

Well Diameter: 2 inch 4 inch

Total Purged 7.7 Liters (Max 20 L) Purge Rate goal = 0.15 Liters/Min. Actual purge rate 0.20 Liters/Min

PHYSIO-CHEMICAL PARAMETERS DURING PURGING

Measure - ment Number	Time	Temperature (°C)	pH	ORP (mV	Specific Conductance ~~(S/m)~~ mS/cm	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Total Dissolved Solids (g/L)	Salinity (ppt)	Each Volume/Total Purged (L)
Stabilization Criteria		+/- 2.0	+/- 0.2	+/- 10	+/- 3%	+/- 2.0	+/- 15%			
1	1112	17.07	6.55	76	0.888	21.5	4.66	0.568	0.4	0.5
2	1116	17.20	6.51	84	0.885	28.3	4.43	0.567	0.4	1.3
3	1120	17.06	6.49	91	0.888	27.6	4.31	0.568	0.4	2.1
4	1124	17.04	6.48	97	0.895	22.0	4.06	0.578	0.4	2.9
5	1128	17.15	6.46	103	0.902	15.9	3.77	0.577	0.4	3.7
6	1132	17.26	6.46	106	0.899	14.6	3.73	0.576	0.4	4.5
7	1136	17.28	6.45	108	0.902	9.3	3.59	0.578	0.4	5.3
8	1140	17.26	6.45	112	0.900	7.3	3.57	0.576	0.4	6.1
9	1144	17.31	6.44	115	0.904	6.3	3.46	0.579	0.4	6.9
10	1148	17.31	6.43	117	0.902	6.0	3.41	0.577	0.4	7.7
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

Duplicate Sample Collected? (No) Yes (Sample ID of Duplicate) _____

MS/MSD Sample Collected? (No) Yes _____

Sample Remarks (odors, colors, sediment): _____

Comments _____

Sample(s) Collected By: QUINN JOHNSON

Tetra Tech. Inc.

MONITORING WELL SAMPLING FORM

Date/Time of Sample Collection: 04.07.16 1256 Project Site/Subsite: Richmond Field Station

Well ID: B175W Sample ID: 20160407B175W

Depth to Water Level: 6.81 ft below PVC cap prior to sampling 6.89 after sampling

Depth to Well Bottom: 14.74 ft. below top of casing (PVC cap)

Method of Purging: Bladder Pump Peristaltic Pump

Well Diameter: 2 inch 4 inch

Total Purged 2.1 Liters (Max 20 L) Purge Rate goal = 0.15 Liters/Min. Actual purge rate 0.20 Liters/Min

PHYSIO-CHEMICAL PARAMETERS DURING PURGING

Measure - ment Number	Time	Temperature (°C)	pH	ORP (mV	Specific Conductance ~~(S/m)~~ mS/cm	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Total Dissolved Solids (g/L)	Salinity (ppt)	Each Volume/Tota l Purged (L)
Stabilization Criteria		+/- 2.0	+/- 0.2	+/- 10	+/- 3%	+/- 2.0	+/- 15%			
1	1248	22.23	5.77	162	0.002	232	9.09	0.001	0.0	0.5
2	1252	22.37	5.88	152	0.002	232	8.74	0.001	0.0	1.3
3	1256	22.59	5.89	157	0.002	233	8.53	0.001	0.0	2.1
4										
5										
6										
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20										

Duplicate Sample Collected? (No) Yes (Sample ID of Duplicate) _____

MS/MSD Sample Collected? (No) Yes _____

Sample Remarks (odors, colors, sediment): _____

Comments _____

Sample(s) Collected By: QUINN JOHNSON

Tetra Tech. Inc.

MONITORING WELL SAMPLING FORM

Date/Time of Sample Collection: 4/5/16, 1057 Project Site/Subsite: Richmond Field Station

Well ID: B178 Sample ID: 20160405B178

Depth to Water Level: 3.10 ft below PVC cap prior to sampling 3.11 after sampling

Depth to Well Bottom: 13.45 ft. below top of casing (PVC cap)

Method of Purging: Bladder Pump (Peristaltic Pump)

Well Diameter: (2 inch) 4 inch

Total Purged 3.2 Liters (Max 20 L) Purge Rate goal = 0.15 Liters/Min. Actual purge rate 0.2 Liters/Min

PHYSIO-CHEMICAL PARAMETERS DURING PURGING

Measure - ment Number	Time	Temperature (°C)	pH	ORP (mV	Specific Conductance (S/m)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Total Dissolved Solids (g/L)	Salinity (ppt)	Each Volume/Total Purged (L)
Stabilization Criteria		+/- 2.0	+/- 0.2	+/- 10	+/- 3%	+/- 2.0	+/- 15%			
1	1238	17.71	7.50	-66	4.21	8.5	10.64	2.69	2.2	—
2	1242	17.50	7.25	-110	3.57	5.3	4.60	2.28	1.9	0.8
3	1246	17.56	7.24	-119	3.39	6.1	4.14	2.17	1.8	0.8/1.6
4	1251	17.46	7.24	-115	3.33	4.9	3.99	2.13	1.7	0.8/2.4
5	1255	17.48	7.24	-114	3.28	4.8	3.95	2.09	1.7	0.8/3.2
6										
7										
8										
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20										

Duplicate Sample Collected? (No) Yes (Sample ID of Duplicate) _____

MS/MSD Sample Collected? (No) Yes _____

Sample Remarks (odors, colors, sediment): clear, no odor, some debris

Comments _____

Sample(s) Collected By: Cynthia Breneman

Tetra Tech. Inc.

MONITORING WELL SAMPLING FORM

Date/Time of Sample Collection: 4/5/16, 1125 Project Site/Subsite: Richmond Field Station

Well ID: B185 Sample ID: 20160405B185

Depth to Water Level: 3.23 ft below PVC cap prior to sampling 3.49 after sampling

Depth to Well Bottom: 13.85 ft. below top of casing (PVC cap)

Method of Purging: Bladder Pump (Peristaltic Pump)

Well Diameter: (2 inch) 4 inch

Total Purged 3.2 Liters (Max 20 L) Purge Rate goal = 0.15 Liters/Min. Actual purge rate 0.2 Liters/Min

PHYSIO-CHEMICAL PARAMETERS DURING PURGING

Measure - ment Number	Time	Temperature (°C)	pH	ORP (mV	Specific Conductance (S/m)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Total Dissolved Solids (g/L)	Salinity (ppt)	Each Volume/Tota l Purged (L)
Stabilization Criteria		+/- 2.0	+/- 0.2	+/- 10	+/- 3%	+/- 2.0	+/- 15%			
1	1106	16.88	6.92	134	2.17	11.8	4.79	1.39	1.1	—
2	1110	16.66	6.71	143	2.18	9.0	3.74	1.40	1.1	0.8
3	1114	17.00	6.71	147	2.17	6.9	3.58	1.39	1.1	0.8/1.6
4	1118	16.84	6.71	152	2.18	7.7	3.57	1.39	1.1	0.8/2.4
5	1122	17.07	6.71	154	2.15	6.2	3.49	1.37	1.1	0.8/3.2
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Duplicate Sample Collected? (No) Yes (Sample ID of Duplicate) _____

MS/MSD Sample Collected? (No) Yes _____

Sample Remarks (odors, colors, sediment): clear, no odor

Comments _____

Sample(s) Collected By: Cynthia Breene

Tetra Tech. Inc.

MONITORING WELL SAMPLING FORM

Date/Time of Sample Collection: 4/11/16, 1127 Project Site/Subsite: Richmond Field Station

Well ID: B195 Sample ID: ~~20160411B195~~ 20160416B19

Depth to Water Level: 4.94 ft below PVC cap prior to sampling 4.95 after sampling

Depth to Well Bottom: 16.15 ft. below top of casing (PVC cap)

Method of Purging: Bladder Pump (Peristaltic Pump)

Well Diameter: (2 inch) 4 inch

Total Purged 5.6 Liters (Max 20 L) Purge Rate goal = 0.15 Liters/Min. Actual purge rate 0.2 Liters/Min

PHYSIO-CHEMICAL PARAMETERS DURING PURGING

Measure - ment Number	Time	Temperature (°C)	pH	ORP (mV	Specific Conductance ~~(S/m)~~ mS/cm	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Total Dissolved Solids (g/L)	Salinity (ppt)	Each Volume/Total Purged (L)
Stabilization Criteria		+/- 2.0	+/- 0.2	+/- 10	+/- 3%	+/- 2.0	+/- 15%			
1	1057	15.14	7.27	192	0.767	5.9	8.87	0.492	0.4	—
2	1101	15.12	6.64	193	0.772	6.9	5.07	0.495	0.4	0.8
3	1105	15.10	6.58	188	0.764	2.1	4.55	0.489	0.4	0.8/1.6
4	1109	15.13	6.61	184	0.750	0.5	4.41	0.480	0.4	0.8/2.4
5	1113	15.14	6.65	180	0.741	3.8	4.30	0.474	0.4	0.8/3.2
6	1117	15.15	6.73	175	0.733	0.6	4.26	0.469	0.4	0.8/4.0
7	1121	15.17	6.57	184	0.737	0.0	4.23	0.472	0.4	0.8/4.8
8	1125	15.19	6.71	174	0.735	0.0	4.20	0.471	0.4	0.8/5.6
9	Sample	1127								
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Duplicate Sample Collected? (No) Yes (Sample ID of Duplicate) _____

MS/MSD Sample Collected? (No) Yes _____

Sample Remarks (odors, colors, sediment): clear no Odor

Comments _____

Sample(s) Collected By: C Breen

Tetra Tech. Inc.

MONITORING WELL SAMPLING FORM

Date/Time of Sample Collection: 4/5/16 / 1500 Project Site/Subsite: Richmond Field Station

Well ID: B197R Sample ID: 2016045B197R

Depth to Water Level: 5.43 ft below PVC cap prior to sampling 5.48 after sampling

Depth to Well Bottom: 13.21 ft. below top of casing (PVC cap)

Method of Purging: Bladder Pump (Peristaltic Pump)

Well Diameter: (2 inch) 4 inch

Total Purged 3.2 Liters (Max 20 L) Purge Rate goal = 0.15 Liters/Min. Actual purge rate 0.2 Liters/Min

PHYSIO-CHEMICAL PARAMETERS DURING PURGING

Measure - ment Number	Time	Temperature (°C)	pH	ORP (mV	Specific Conductance (S/m)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Total Dissolved Solids (g/L)	Salinity (ppt)	Each Volume/Tota l Purged (L)
Stabilization Criteria		+/- 2.0	+/- 0.2	+/- 10	+/- 3%	+/- 2.0	+/- 15%			
1	1440	23.25	7.46	-63	3.09	2.1	3.49	1.97	1.6	—
2	1444	21.08	7.28	-96	3.21	1.1	2.91	2.05	1.7	0.8
3	1448	21.14	7.27	-112	3.26	0.3	2.72	2.09	1.7	0.8/1.6
4	1452	21.04	7.28	-119	3.33	0.3	2.65	2.13	1.7	0.8/2.4
5	1456	20.79	7.28	-121	3.38	0.4	2.64	2.16	1.8	0.8/3.2
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Duplicate Sample Collected? No (Yes) (Sample ID of Duplicate) 2016045B197RDup

MS/MSD Sample Collected? (No) Yes

Sample Remarks (odors, colors, sediment): clear, no odor

Comments

Sample(s) Collected By: Cynthia Breeze

MONIWELL.FRM

Tetra Tech. Inc.

MONITORING WELL SAMPLING FORM

Date/Time of Sample Collection: 4-11-16 / 1450 Project Site/Subsite: Richmond Field Station

Well ID: B277 Sample ID: 20160411B277

Depth to Water Level: 9.67 ft below PVC cap prior to sampling 9.97 after sampling

Depth to Well Bottom: 17.59 ft. below top of casing (PVC cap)

Method of Purging: Bladder Pump (Peristaltic Pump)

Well Diameter: (2 inch) 4 inch

Total Purged 4.0 Liters (Max 20 L) Purge Rate goal = 0.15 Liters/Min. Actual purge rate 0.2 Liters/Min

PHYSIO-CHEMICAL PARAMETERS DURING PURGING

Measure - ment Number	Time	Temperature (°C)	pH	ORP (mV	Specific Conductance ~~(S/m)~~ mS/cm	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Total Dissolved Solids (g/L)	Salinity (ppt)	Each Volume/Total Purged (L)
Stabilization Criteria		+/- 2.0	+/- 0.2	+/- 10	+/- 3%	+/- 2.0	+/- 15%			
1	1428	17.26	6.78	173	0.775	47.2	3.26	0.496	0.4	0.0
2	1432	16.89	6.89	171	0.780	32.7	2.75	0.500	0.4	0.8
3	1436	16.70	6.90	170	0.777	21.1	2.53	0.497	0.4	1.6
4	1440	16.62	6.89	168	0.776	17.7	2.41	0.497	0.4	2.4
5	1444	16.59	6.82	170	0.775	7.2	2.33	0.496	0.4	3.2
6	1448	16.72	6.78	170	0.774	6.5	2.29	0.495	0.4	4.0
7	1450	Collect samples								
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20										

Duplicate Sample Collected? (No) Yes (Sample ID of Duplicate) _____

MS/MSD Sample Collected? (No) Yes _____

Sample Remarks (odors, colors, sediment): _____

Comments _____

Sample(s) Collected By: Mark Duffy ; Cayshia Breene

Tetra Tech. Inc.

MONITORING WELL SAMPLING FORM

Date/Time of Sample Collection: 04.08.16/ 1443 Project Site/Subsite: Richmond Field Station

Well ID: B278 Sample ID: 20160408B278

Depth to Water Level: 8.41 ft below PVC cap prior to sampling 8.60 after sampling

Depth to Well Bottom: 16.16 ft. below top of casing (PVC cap)

Method of Purging: Bladder Pump ~~Peristaltic Pump~~

Well Diameter: ~~2 inch~~ 4 inch

Total Purged 9.0 Liters (Max 20 L) Purge Rate goal = 0.15 Liters/Min. Actual purge rate 0.20 Liters/Min

PHYSIO-CHEMICAL PARAMETERS DURING PURGING

Measure - ment Number	Time	Temperature (°C)	pH	ORP (mV	Specific Conductance (S/m)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Total Dissolved Solids (g/L)	Salinity (ppt)	Each Volume/Tota l Purged (L)
Stabilization Criteria		+/- 2.0	+/- 0.2	+/- 10	+/- 3%	+/- 2.0	+/- 15%			
1	1411	16.02	6.84	38	1.64	2.3	2.42	1.05	0.8	1/1
2	1415	15.96	6.91	29	1.65	8.9	2.11	1.06	0.8	1/2
3	1419	15.90	6.92	27	1.66	4.8	1.94	1.06	0.8	1/3
4	1423	15.98	6.91	30	1.81	3.4	1.57	1.16	0.9	1/4
5	1427	16.09	6.85	33	2.33	2.1	1.21	1.52	1.2	1/5
6	1431	16.28	6.80	37	2.87	2.9	1.10	1.86	1.5	1/6
7	1435	16.44	6.80	39	3.16	1.0	1.00	2.03	1.6	1/7
8	1439	16.49	6.82	41	3.19	1.0	0.99	2.05	1.7	1/8
9	1443	16.49	6.82	41	3.19	1.1	0.97	2.04	1.7	1/9
10										
11										
12										
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15										
16										
17										
18										
19										
20										

Duplicate Sample Collected? (No) Yes (Sample ID of Duplicate) _____

MS/MSD Sample Collected? (No) Yes _____

Sample Remarks (odors, colors, sediment): _____

Comments Replaced well cap (rubber) missing one screw on well lid

Sample(s) Collected By: Quinn Johnson

MONIWELL.FRM

Tetra Tech. Inc.

MONITORING WELL SAMPLING FORM

Date/Time of Sample Collection: 4/11/16 / 0955 Project Site/Subsite: Richmond Field Station

Well ID: B280A Sample ID: ~~041116 B280A~~ 20160411B280A

Depth to Water Level: 10.17 ft below PVC cap prior to sampling 10.20 after sampling

Depth to Well Bottom: 13.62 ft. below top of casing (PVC cap)

Method of Purging: Bladder Pump (Peristaltic Pump)

Well Diameter: (2 inch) 4 inch

Total Purged 4.8 Liters (Max 20 L) Purge Rate goal = 0.15 Liters/Min. Actual purge rate 0.2 Liters/Min

PHYSIO-CHEMICAL PARAMETERS DURING PURGING

Measure - ment Number	Time	Temperature (°C)	pH	ORP (mV	Specific Conductance ~~(S/m)~~ mS/cm	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Total Dissolved Solids (g/L)	Salinity (ppt)	Each Volume/Tota l Purged (L)
Stabilization Criteria		+/- 2.0	+/- 0.2	+/- 10	+/- 3%	+/- 2.0	+/- 15%			
1	0925	15.43	6.91	167	0.912	22.1	5.93	0.580	0.4	—
2	0929	15.99	6.76	146	0.877	12.6	4.44	0.561	0.4	0.8
3	0933	16.12	6.82	135	0.839	8.7	4.16	0.535	0.4	0.8/1.6
4	0937	16.18	6.93	131	0.752	2.3	4.20	0.480	0.4	0.8/2.4
5	0943	16.26	6.93	137	0.733	0.16	4.09	0.469	0.4	0.8/3.2
6	0947	16.15	6.95	139	0.737	0.9	3.98	0.472	0.4	0.8/4.0
7	0951	16.14	6.94	142	0.741	0.1	3.90	0.474	0.4	0.8/4.8
8	sample	0955								
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18										
19										
20										

Duplicate Sample Collected? (No) Yes (Sample ID of Duplicate) _____

MS/MSD Sample Collected? (No) Yes _____

Sample Remarks (odors, colors, sediment): clear, no odor

Comments no screws for lid; cap not on tight

Sample(s) Collected By: Cynthia Brena

MONIWELL.FRM

Tetra Tech. Inc.

MONITORING WELL SAMPLING FORM

Date/Time of Sample Collection: 4/7/16 , 1438 Project Site/Subsite: Richmond Field Station

Well ID: B45Ø Sample ID: 2Ø16Ø4Ø7B45Ø

Depth to Water Level: 11.11 ft below PVC cap prior to sampling 11.16 after sampling

Depth to Well Bottom: 15.61 ft. below top of casing (PVC cap)

Method of Purging: Bladder Pump (Peristaltic Pump)

Well Diameter: (2 inch) 4 inch

Total Purged 5 Liters (Max 20 L) Purge Rate goal = 0.15 Liters/Min. Actual purge rate 0.2 Liters/Min

PHYSIO-CHEMICAL PARAMETERS DURING PURGING

Measure - ment Number	Time	Temperature (°C)	pH	ORP (mV	Specific Conductance (S/m)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Total Dissolved Solids (g/L)	Salinity (ppt)	Each Volume/Tota l Purged (L)
Stabilization Criteria		+/- 2.0	+/- 0.2	+/- 10	+/- 3%	+/- 2.0	+/- 15%			
1	1414	18.20	7.21	133	0.770	1.4	10.08	0.492	0.4	1/1
2	1419	18.05	6.77	148	0.746	0.0	6.33	0.478	0.4	1/2
3	1424	18.03	6.73	156	0.739	0.0	6.01	0.473	0.4	1/3
4	1429	17.93	6.69	161	0.727	0.0	5.97	0.465	0.4	1/4
5	1434	18.01	6.66	166	0.701	0.0	5.87	0.451	0.3	1/5
6										
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15										
16										
17										
18										
19										
20										

Duplicate Sample Collected? (No) Yes (Sample ID of Duplicate) _____

MS/MSD Sample Collected? No (Yes) _____

Sample Remarks (odors, colors, sediment): _____

Comments _____

Sample(s) Collected By: Dayna Aragon

Tetra Tech. Inc.

MONITORING WELL SAMPLING FORM

Date/Time of Sample Collection: 4/8/16 / 1050 Project Site/Subsite: Richmond Field Station

Well ID: B473 Sample ID: 20160408 B473D

Depth to Water Level: 10.51 ft below PVC cap prior to sampling 11.25 after sampling

Depth to Well Bottom: 16.99 ft. below top of casing (PVC cap)

Method of Purging: Bladder Pump (Peristaltic) Pump

Well Diameter: (2 inch) 4 inch

Total Purged _____ Liters (Max 20 L) Purge Rate goal = 0.15 Liters/Min. Actual purge rate 0.2 Liters/Min

PHYSIO-CHEMICAL PARAMETERS DURING PURGING

Measure - ment Number	Time	Temperature (°C)	pH	ORP (mV	Specific Conductance (S/m)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Total Dissolved Solids (g/L)	Salinity (ppt)	Each Volume/Tota l Purged (L)
Stabilization Criteria		+/- 2.0	+/- 0.2	+/- 10	+/- 3%	+/- 2.0	+/- 15%			
1	1004	15.91	6.29	207	0423	3.4	7.37	0.273	0.2	1/1
2	1008	15.84	5.99	217	0.413	3.6	6.38	0.268	0.2	1/2
3	1013	15.85	~~6.62~~ 6.72	181	0.411	3.0	6.26	0.267	0.2	1/3
4	1018	15.88	5.95	220	0.412	2.1	6.06	0.268	0.2	1/4
5	1022	15.86	5.97	221	0.415	3.5	5.96	0.270	0.2	1/5
6	1027	15.88	6.34	201	0.424	2.1	6.05	0.276	0.2	1/6
7	1032	15.94	6.31	206	0.437	2.7	8.34	0.284	0.2	1/7
8	1038	15.96	6.62	186	0.440	2.4	6.01	0.286	0.2	1/8
9	1043	16.09	6.66	186	0.447	1.9	5.83	0.291	0.2	1/9
10	1048	16.10	6.59	190	0.450	1.8	5.81	0.293	0.2	1/10
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

Duplicate Sample Collected? No (Yes) (Sample ID of Duplicate) 20160408B473D, 1055

MS/MSD Sample Collected? (No) Yes _____

Sample Remarks (odors, colors, sediment): _____

Comments _____

Sample(s) Collected By: Dayna Aragon

Tetra Tech. Inc.

MONITORING WELL SAMPLING FORM

Date/Time of Sample Collection: 4-11-16, ~~1355~~ 1410 Project Site/Subsite: Richmond Field Station

Well ID: B474 Sample ID: 20160411B474

Depth to Water Level: 12.17 ft below PVC cap prior to sampling 12.21 after sampling

Depth to Well Bottom: 19.11 ft. below top of casing (PVC cap)

Method of Purging: Bladder Pump (Peristaltic Pump)

Well Diameter: (2 inch) 4 inch

Total Purged ~~4.0~~ 6.4 Liters (Max 20 L) Purge Rate goal = 0.15 Liters/Min. Actual purge rate 0.2 Liters/Min

PHYSIO-CHEMICAL PARAMETERS DURING PURGING

Measurement Number	Time	Temperature (°C)	pH	ORP (mV	Specific Conductance ~~(S/m)~~ mS/cm	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Total Dissolved Solids (g/L)	Salinity (ppt)	Each Volume/Total Purged (L)
Stabilization Criteria		+/- 2.0	+/- 0.2	+/- 10	+/- 3%	+/- 2.0	+/- 15%			
1	1334	17.11	7.48	205	0.438	1.5	5.25	0.284	0.2	0.0
2	1338	16.15	6.78	192	0.381	0.0	4.71	0.244	0.2	0.8
3	1342	16.10	6.74	187	0.365	0.0	4.58	0.237	0.2	1.6
4	1346	16.07	6.73	183	0.354	0.0	4.48	0.230	0.2	2.4
5	1350	16.03	6.74	181	0.348	0.0	4.42	0.226	0.2	3.2
6	1354	15.97	6.47	194	0.344	0.0	4.36	0.224	0.2	4.0
7	~~1355~~	Collect Samples								
8	1358	15.97	6.58	185	0.346	0.0	4.43	0.225	0.2	4.8
9	1402	15.96	6.81	171	0.348	0.0	4.33	0.226	0.2	5.6
10	1406	15.98	6.78	170	0.354	0.0	4.22	0.230	0.2	6.4
11	1410	Collects Samples								
12										
13										
14										
15										
16										
17										
18										
19										
20										

Duplicate Sample Collected? (No) Yes (Sample ID of Duplicate) _____

MS/MSD Sample Collected? (No) Yes _____

Sample Remarks (odors, colors, sediment): _____

Comments _____

Sample(s) Collected By: Mark Duffy, Cynthia Breene

Tetra Tech. Inc.

MONITORING WELL SAMPLING FORM

Date/Time of Sample Collection: 4/7/16, 1246 Project Site/Subsite: Richmond Field Station

Well ID: B480 Sample ID: 20160407B480

Depth to Water Level: 10.48 ft below PVC cap prior to sampling 10.87 after sampling

Depth to Well Bottom: 15.90 ft. below top of casing (PVC cap)

Method of Purging: Bladder Pump (Peristaltic Pump)

Well Diameter: ~~2 inch~~ 4 inch

Total Purged 10 Liters (Max 20 L) Purge Rate goal = 0.15 Liters/Min. Actual purge rate 0.2 Liters/Min

PHYSIO-CHEMICAL PARAMETERS DURING PURGING

Measure - ment Number	Time	Temperature (°C)	pH	ORP (mV	Specific Conductance (S/m)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Total Dissolved Solids (g/L)	Salinity (ppt)	Each Volume/Tota l Purged (L)
Stabilization Criteria		+/- 2.0	+/- 0.2	+/- 10	+/- 3%	+/- 2.0	+/- 15%			
1	1159	20.43	7.25	127	0.933	2.8	7.13	0.596	0.5	1/1
2	1204	19.86	7.03	133	0.925	2.4	6.24	0.592	0.5	1/2
3	1209	20.98	6.95	140	0.939	2.7	5.26	0.601	0.5	1/3
4	1215	21.37	6.96	143	0.949	3.5	5.05	0.608	0.5	1/4
5	1220	20.09	6.93	147	0.915	3.1	5.46	0.586	0.4	1/5
6	1225	19.91	6.93	147	0.918	3.0	5.44	0.587	0.5	1/6
7	1230	19.32	6.89	150	0.925	3.5	6.63	0.592	0.5	1/7
8	1235	19.05	6.89	152	0.928	3.0	5.13	0.594	0.5	1/8
9	1240	18.97	6.87	152	0.931	2.7	4.92	0.596	0.5	1/9
10	1245	18.87	6.83	154	0.934	2.3	4.81	0.598	0.5	1/10
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

Duplicate Sample Collected? No (Yes) (Sample ID of Duplicate) 20160407B480D 1250

MS/MSD Sample Collected? (No) Yes

Sample Remarks (odors, colors, sediment):

Comments

Sample(s) Collected By: Dayna Aragon

Tetra Tech. Inc.

MONITORING WELL SAMPLING FORM

Date/Time of Sample Collection: 04.08.16 / 1047 Project Site/Subsite: Richmond Field Station

Well ID: BULB1 Sample ID: 20160408BULB1

Depth to Water Level: 4.11 ft below PVC cap prior to sampling 4.12 after sampling

Depth to Well Bottom: 18.08 ft. below top of casing (PVC cap)

Method of Purging: Bladder Pump Peristaltic Pump

Well Diameter: 2 inch 4 inch

Total Purged 4.20 Liters (Max 20 L) Purge Rate goal = 0.15 Liters/Min. Actual purge rate 0.2 Liters/Min

PHYSIO-CHEMICAL PARAMETERS DURING PURGING

Measure - ment Number	Time	Temperature (°C)	pH	ORP (mV	Specific Conductance (S/m)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Total Dissolved Solids (g/L)	Salinity (ppt)	Each Volume/Tota l Purged (L)
Stabilization Criteria		+/- 2.0	+/- 0.2	+/- 10	+/- 3%	+/- 2.0	+/- 15%			
1	1027	16.24	7.70	-34	44.0	5.9	1.06	26.8	28.2	1.0
2	1035	16.52	7.73	-86	44.1	4.3	0.88	26.9	28.2	1.80
3	1039	16.20	7.80	-93	44.0	3.5	0.87	26.9	28.2	2.60
4	1043	16.25	7.81	-98	44.2	3.5	0.88	27.0	28.3	3.40
5	1047	16.25	7.81	-10	44.4	2.7	0.87	27.1	28.4	4.20
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

Duplicate Sample Collected? (No) Yes (Sample ID of Duplicate) _____

MS/MSD Sample Collected? (No) Yes _____

Sample Remarks (odors, colors, sediment): _____

Comments * PUMP stopped.

Sample(s) Collected By: QUINN JOHNSON

Tetra Tech. Inc.

MONITORING WELL SAMPLING FORM

Date/Time of Sample Collection: 04.08.16 / 0946 Project Site/Subsite: Richmond Field Station

Well ID: BULB2 Sample ID: 20160408 BULB2

Depth to Water Level: 3.76 ft below PVC cap prior to sampling 3.77 after sampling

Depth to Well Bottom: 18.42 ft. below top of casing (PVC cap)

Method of Purging: Bladder Pump Peristaltic Pump

Well Diameter: 2 inch 4 inch

Total Purged 5.10 Liters (Max 20 L) Purge Rate goal = 0.15 Liters/Min. Actual purge rate 0.15 Liters/Min

PHYSIO-CHEMICAL PARAMETERS DURING PURGING

Measure - ment Number	Time	Temperature (°C)	pH	ORP (mV	Specific Conductance ~~(S/m)~~ mS/cm	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Total Dissolved Solids (g/L)	Salinity (ppt)	Each Volume/Total Purged (L)
Stabilization Criteria		+/- 2.0	+/- 0.2	+/- 10	+/- 3%	+/- 2.0	+/- 15%			
1	0914 ~~16.63~~	16.63	6.77	-30	10.8	21.7	1.13	6.70	6.1	0.30
2	0918	16.50	6.85	-45	10.6	28.9	1.11	6.54	5.9	0.90
3	0922	16.47	6.91	-55	9.60	23.2	1.18	5.97	5.3	1.50
4	0926	16.40	7.05	-62	6.50	12.0	1.74	3.97	3.4	2.10
5	0930	16.38	7.14	-63	5.03	10.0	1.85	3.15	2.6	2.70
6	0934	16.37	7.21	-65	4.20	6.5	1.88	2.71	2.2	3.30
7	0938	16.37	7.22	-64	3.95	7.2	1.89	2.51	2.1	3.90
8	0942	16.35	7.26	-67	3.63	6.9	1.71	2.33 ~~1.97~~		4.50
9	0946	16.33	7.27	-68	3.60	6.0	1.63	2.25	1.8	5.10
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

Duplicate Sample Collected? (No) Yes (Sample ID of Duplicate) _____

MS/MSD Sample Collected? (No) Yes _____

Sample Remarks (odors, colors, sediment): _____

Comments _____

Sample(s) Collected By: QUINN JOHNSON

Tetra Tech. Inc.

MONITORING WELL SAMPLING FORM

Date/Time of Sample Collection: 04.07.16/ 1543 Project Site/Subsite: Richmond Field Station

Well ID: CCC2 Sample ID: 20160407CCC2

Depth to Water Level: 7.91 ft below PVC cap prior to sampling _____ after sampling

Depth to Well Bottom: 14.17 ft. below top of casing (PVC cap)

Method of Purging: Bladder Pump Peristaltic Pump

Well Diameter: 2 inch 4 inch

Total Purged _____ Liters (Max 20 L) Purge Rate goal = 0.15 Liters/Min. Actual purge rate 0.15 Liters/Min

PHYSIO-CHEMICAL PARAMETERS DURING PURGING

Measure - ment Number	Time	Temperature (°C)	pH	ORP (mV	Specific Conductance (~~S/m~~) mS/cm	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Total Dissolved Solids (g/L)	Salinity (ppt)	Each Volume/Total Purged (L)
Stabilization Criteria		+/- 2.0	+/- 0.2	+/- 10	+/- 3%	+/- 2.0	+/- 15%			
1	1447	21.17	6.03	152	2.46	260	5.43	5.38	1.3	0.15
2	1451	19.54	5.93	163	2.55	164	8.31	1.63	1.3	0.95
3	1455	18.91	5.92	167	2.58	144	8.29	1.65	1.3	1.75
4	1459	18.13	5.91	170	2.58	114	8.26	1.65	1.3	2.55
5	1503	17.85	5.91	172	2.59	82	8.19	1.66	1.3	3.35
6	1507	16.84	5.91	174	2.64	75	8.04	1.69	1.4	4.15
7	1511	16.83	5.91	175	2.64	60.1	7.91	1.69	1.4	4.95
8	1515	16.86	5.92	177	2.65	32.8	7.48	1.70	1.4	5.75
9	1519	16.79	5.94	178	2.65	38.9	7.43	1.69	1.4	6.55
10	1523	16.79	5.95	179	2.64	34.1	7.24	1.69	1.4	7.35
11	1527	16.76	5.95	179	2.64	31.4	7.09	1.69	1.4	8.15
12	1531	16.64	5.96	180	2.63	28.2	6.99	1.68	0.14	8.95
13	1535	16.70	5.97	182	2.62	24.1	6.75	1.68	1.4	9.75
14	1539	16.66	5.98	182	2.62	24.6	6.60	1.68	1.3	10.55
15	1543	16.72	6.00	183	2.62	22.2	6.45	1.68	1.3	
16										
17										
18										
19										
20										

Duplicate Sample Collected? (No) Yes (Sample ID of Duplicate) _____

MS/MSD Sample Collected? No Yes _____

Sample Remarks (odors, colors, sediment): _____

Comments _____

Sample(s) Collected By: QUINN JOHNSON

Tetra Tech. Inc.

MONITORING WELL SAMPLING FORM

Date/Time of Sample Collection: 04.07.16 / 1028 Project Site/Subsite: Richmond Field Station

Well ID: CCCT Sample ID: 20160407CCCT

Depth to Water Level: 5.04 ft below PVC cap prior to sampling 5.16 after sampling

Depth to Well Bottom: 15.06 ft. below top of casing (PVC cap)

Method of Purging: Bladder Pump Peristaltic Pump

Well Diameter: ~~2 inch~~ 4 inch

Total Purged 8.35 Liters (Max 20 L) Purge Rate goal = 0.15 Liters/Min. Actual purge rate 0.20 Liters/Min

PHYSIO-CHEMICAL PARAMETERS DURING PURGING

Measure - ment Number	Time	Temperature (°C)	pH	ORP (mV	Specific Conductance ~~(S/m)~~ mS/cm	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Total Dissolved Solids (g/L)	Salinity (ppt)	Each Volume/Tota l Purged (L)
Stabilization Criteria		+/- 2.0	+/- 0.2	+/- 10	+/- 3%	+/- 2.0	+/- 15%			
1	0952	15.66	6.47	68	2.75	64.0	1.21	1.76	1.4	1.15
2	09:56	15.57	6.51	41	2.76	56.1	1.08	1.76	1.4	1.95
3	1000	15.47	6.54	26	2.75	51.3	1.02	1.76	1.4	2.75
4	1004	15.52	6.57	7	2.71	40.3	0.97	1.73	1.4	3.55
5	1008	15.53	6.58	1	2.69	33.4	0.95	1.72	1.4	4.35
6	1012	15.54	6.59	-6	2.65	28.8	0.94	1.69	1.4	5.15
7	1016	15.57	6.60	-13	2.58	21.3	0.92	1.65	1.3	5.95
8	1020	15.63	6.60	-19	2.58	20.6	0.95	1.65	1.3	6.75
9	1024	15.73	6.61	-23	2.55	20.4	0.90	1.63	1.3	7.55
10	1028	15.85	6.62	-25	2.53	21.4	0.91	1.62	1.3	8.35
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

Duplicate Sample Collected? (No) Yes (Sample ID of Duplicate) _____

MS/MSD Sample Collected? (No) Yes _____

Sample Remarks (odors, colors, sediment): _____

Comments PRESSURIZED, opened other wells while it equalized (+15mins)

Sample(s) Collected By: QUINN JOHNSON

Tetra Tech. Inc.

MONITORING WELL SAMPLING FORM

Date/Time of Sample Collection: 4-11-16 / 1025 Project Site/Subsite: Richmond Field Station

Well ID: CTP Sample ID: 20160411CTP

Depth to Water Level: 10.67 ft below PVC cap prior to sampling 10.71 after sampling

Depth to Well Bottom: 17.02 ft. below top of casing (PVC cap)

Method of Purging: Bladder Pump (Peristaltic Pump)

Well Diameter: (2 inch) 4 inch

Total Purged 4.8 Liters (Max 20 L) Purge Rate goal = 0.15 Liters/Min. Actual purge rate 0.2 Liters/Min

PHYSIO-CHEMICAL PARAMETERS DURING PURGING

Measure - ment Number	Time	Temperature (°C)	pH	ORP (mV	Specific Conductance ~~(S/m)~~ mS/cm	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Total Dissolved Solids (g/L)	Salinity (ppt)	Each Volume/Total Purged (L)
Stabilization Criteria		+/- 2.0	+/- 0.2	+/- 10	+/- 3%	+/- 2.0	+/- 15%			
1	1000	16.82	7.55	155	0.756	31.0	2.21	0.486	0.4	0.0
2	1004	16.20	7.11	164	0.769	23.5	1.66	0.493	0.4	0.8
3	1008	16.11	6.96	158	0.825	17.0	1.84	0.530	0.4	1.6
4	1012	16.12	6.84	142	0.868	9.8	3.11	0.556	0.4	2.4
5	1016	16.12	6.80	136	0.881	11.5	3.51	0.563	0.4	3.2
6	1020	16.12	6.78	133	0.891	8.6	3.78	0.571	0.4	4.0
7	1024	16.15	6.75	130	0.892	7.8	3.86	0.572	0.4	4.8
8	1025	collect		Sample						
9										
10										
11										
12										
13										
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15										
16										
17										
18										
19										
20										

Duplicate Sample Collected? (No) Yes (Sample ID of Duplicate) _____

MS/MSD Sample Collected? (No) Yes _____

Sample Remarks (odors, colors, sediment): _____

Comments _____

Sample(s) Collected By: Mark Duffy

Tetra Tech. Inc.

MONITORING WELL SAMPLING FORM

Date/Time of Sample Collection: 04.08.16/ 1336 Project Site/Subsite: Richmond Field Station

Well ID: DHR Sample ID: ~~DHR~~ 20160408DHR

Depth to Water Level: 8.80 ft below PVC cap prior to sampling 8.50 after sampling

Depth to Well Bottom: 14.60 ft. below top of casing (PVC cap)

Method of Purging: Bladder Pump Peristaltic Pump (underlined)

Well Diameter: 2 inch (underlined) 4 inch

Total Purged 8.00 Liters (Max 20 L) Purge Rate goal = 0.15 Liters/Min. Actual purge rate 0.20 Liters/Min

PHYSIO-CHEMICAL PARAMETERS DURING PURGING										
Measure - ment Number	Time	Temperature (°C)	pH	ORP (mV	Specific Conductance (S/m)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Total Dissolved Solids (g/L)	Salinity (ppt)	Each Volume/Total Purged (L)
Stabilization Criteria		+/- 2.0	+/- 0.2	+/- 10	+/- 3%	+/- 2.0	+/- 15%			
1	1300	17.03	5.97	14	8.26	1.2	1.69	5.21	4.6	0.80
2	1304	16.79	5.91	20	8.26	0.0	1.45	5.20	4.6	1.60
3	1308	16.78	5.88	23	8.23	0.0	1.22	5.20	4.6	2.40
4	1312	16.65	5.86	25	8.25	0.0	1.13	5.20	4.6	3.20
5	1316	16.56	5.84	25	8.25	0.0	1.04	5.20	4.6	4.00
6	1320	16.52	5.86	27	8.25	0.0	1.03	5.20	4.6	4.80
* 7	1328	16.44	5.94	15	8.55	0.4	1.48	5.39	4.7	6.40
8	1332	16.38	5.90	15	8.47	0.6	1.41	5.33	4.7	7.20
9	1336	16.35	5.84	19	8.44	0.0	1.32	5.32	4.7	8.00
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

Duplicate Sample Collected? (No) Yes (Sample ID of Duplicate)

MS/MSD Sample Collected? (No) Yes

Sample Remarks (odors, colors, sediment):

Comments * ~~Readings~~ parameter readings jump before I ~~pu~~ turned off pump; continued to collect ~~par~~ parameters. need to replace lock

Sample(s) Collected By: QUINN JOHNSON

MONIWELL.FRM

Tetra Tech. Inc.

MONITORING WELL SAMPLING FORM

Date/Time of Sample Collection: 4-11-16 / 1300 Project Site/Subsite: Richmond Field Station

Well ID: EERC Sample ID: 2016 0411 EERC

Depth to Water Level: 10.99 ft below PVC cap prior to sampling 11.03 after sampling

Depth to Well Bottom: 16.91 ft. below top of casing (PVC cap)

Method of Purging: Bladder Pump (Peristaltic Pump)

Well Diameter: (2 inch) 4 inch

Total Purged 4.0 Liters (Max 20 L) Purge Rate goal = 0.15 Liters/Min. Actual purge rate 0.2 Liters/Min

PHYSIO-CHEMICAL PARAMETERS DURING PURGING

Measure - ment Number	Time	Temperature (°C)	pH	ORP (mV	Specific Conductance ~~(S/m)~~ mS/cm	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Total Dissolved Solids (g/L)	Salinity (ppt)	Each Volume/Total Purged (L)
Stabilization Criteria		+/- 2.0	+/- 0.2	+/- 10	+/- 3%	+/- 2.0	+/- 15%			
1	1238	15.70	6.80	106	4.88	0.0	4.45	3.11	2.6	0.0
2	1242	15.65	6.78	89	4.79	0.0	3.80	3.06	2.5	0.8
3	1246	15.62	6.78	95	4.74	0.0	4.74	3.50	2.5	1.6
4	1250	15.63	6.77	100	4.72	0.0	3.32	3.02	2.5	2.4
5	1254	15.65	6.77	103	4.71	0.0	3.26	3.02	2.5	3.2
6	1258	15.77	6.78	105	4.71	0.0	3.14	3.01	2.5	4.0
7	1300	Collect Samples								
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

Duplicate Sample Collected? (No) Yes (Sample ID of Duplicate) _____

MS/MSD Sample Collected? (No) Yes _____

Sample Remarks (odors, colors, sediment): _____

Comments _____

Sample(s) Collected By: Mark Duffy, Cynthia Breaux

MONIWELL.FRM

Tetra Tech. Inc.

MONITORING WELL SAMPLING FORM

Date/Time of Sample Collection: 4-5-16, 1415 Project Site/Subsite: Richmond Field Station

Well ID: ETA Sample ID: 20160405ETA

Depth to Water Level: 2.76 ft below PVC cap prior to sampling 2.81 after sampling

Depth to Well Bottom: 13.40 ft. below top of casing (PVC cap)

Method of Purging: Bladder Pump (Peristaltic Pump)

Well Diameter: (2 inch) 4 inch

Total Purged 4.8 Liters (Max 20 L) Purge Rate goal = 0.15 Liters/Min. Actual purge rate 0.2 Liters/Min

PHYSIO-CHEMICAL PARAMETERS DURING PURGING

Measure - ment Number	Time	Temperature (°C)	pH	ORP (mV	Specific Conductance (S/m)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Total Dissolved Solids (g/L)	Salinity (ppt)	Each Volume/Tota l Purged (L)
Stabilization Criteria		+/- 2.0	+/- 0.2	+/- 10	+/- 3%	+/- 2.0	+/- 15%			
1	1346	31.82	7.07	80	2.27	91.6	2.10	1.46	1.2	0.0
2	1350	30.67	6.99	82	2.24	76.1	0.90	1.43	1.1	0.8
3	1354	29.97	6.95	78	2.23	85.9	0.77	1.43	1.1	1.6
4	1358	29.37	6.93	76	2.23	94.2	0.73	1.43	1.1	2.4
5	1402	28.97	6.92	61	2.22	92.2	0.70	1.42	1.1	3.2
6	1406	28.91	6.91	56	2.22	91.0	0.70	1.42	1.1	4.0
7	~~1410~~	~~Collect Sample~~								
8	1410	28.86	6.91	51	2.22	90.1	0.70	1.42	1.1	4.8
9	1415	collect samples								
10										
11										
12										
13										
14										
15										
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17										
18										
19										
20										

Duplicate Sample Collected? (No) Yes (Sample ID of Duplicate) _____

MS/MSD Sample Collected? (No) Yes _____

Sample Remarks (odors, colors, sediment): _____

Comments _____

Sample(s) Collected By: Mark Duffy

Tetra Tech. Inc.

MONITORING WELL SAMPLING FORM

Date/Time of Sample Collection: 4-5-16, 1255 Project Site/Subsite: Richmond Field Station

Well ID: ETA01 Sample ID: 20160405 ETA01

Depth to Water Level: 1.50 ft below PVC cap prior to sampling 1.72 after sampling

Depth to Well Bottom: 15.20 ft. below top of casing (PVC cap)

Method of Purging: Bladder Pump (Peristaltic Pump)

Well Diameter: (2 inch) 4 inch

Total Purged _____ Liters (Max 20 L) Purge Rate goal = 0.15 Liters/Min. Actual purge rate 0.2 Liters/Min

PHYSIO-CHEMICAL PARAMETERS DURING PURGING

Measure - ment Number	Time	Temperature (°C)	pH	ORP (mV	Specific Conductance (S/m)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Total Dissolved Solids (g/L)	Salinity (ppt)	Each Volume/Tota l Purged (L)
Stabilization Criteria		+/- 2.0	+/- 0.2	+/- 10	+/- 3%	+/- 2.0	+/- 15%			
1	1230	22.26	7.65	34	2.00	37.3	3.20	1.28	1.0	0.0
2	1234	19.74	7.09	61	2.42	35.0	1.40	1.31	1.0	0.8
3	1238	19.08	7.03	68	2.22	38.4	1.21	1.31	1.0	1.6
4	1242	18.65	6.97	74	2.08	39.8	1.07	1.32	1.1	2.4
5	1246	18.53	6.93	77	2.06	44.8	1.02	1.32	1.1	3.2
6	1250	18.47	6.92	78	2.06	44.6	0.99	1.32	1.0	4.0
7	1255	Collect Sample								
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

Duplicate Sample Collected? (No) Yes (Sample ID of Duplicate) _____

MS/MSD Sample Collected? (No) Yes _____

Sample Remarks (odors, colors, sediment): _____

Comments _____

Sample(s) Collected By: Mark Duffy

Tetra Tech. Inc.

MONITORING WELL SAMPLING FORM

Date/Time of Sample Collection: 4-5-14 1110 Project Site/Subsite: Richmond Field Station

Well ID: ETA02 Sample ID: 20160405ETA02

Depth to Water Level: 4.89 ft below PVC cap prior to sampling 6.83 after sampling

Depth to Well Bottom: 20.57 ft. below top of casing (PVC cap)

Method of Purging: Bladder Pump (Peristaltic Pump)

Well Diameter: (2 inch) 4 inch

Total Purged 4.8 Liters (Max 20 L) Purge Rate goal = 0.15 Liters/Min. Actual purge rate 0.2 Liters/Min

PHYSIO-CHEMICAL PARAMETERS DURING PURGING

Measure - ment Number	Time	Temperature (°C)	pH	ORP (mV	Specific Conductance ~~(S/m)~~ mS/cm	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Total Dissolved Solids (g/L)	Salinity (ppt)	Each Volume/Tota l Purged (L)
Stabilization Criteria		+/- 2.0	+/- 0.2	+/- 10	+/- 3%	+/- 2.0	+/- 15%			
1	1043	17.76	6.87	23	5.24	58.3	2.79	3.32	2.8	0.0
2	1047	17.11	6.76	18	5.28	46.1	1.69	3.33	2.8	0.8
3	1051	17.01	6.76	10	5.29	39.3	1.35	3.33	2.8	1.6
4	1055	17.02	6.75	3	5.30	26.1	1.23	3.34	2.8	2.4
5	1059	17.05	6.73	-4	5.31	14.3	1.12	3.35	2.9	3.2
6	1103	17.05	6.73	-5	5.31	16.1	1.16	3.35	2.9	~~3.94~~
7	1107	17.03	6.73	-6	5.32	13.6	1.09	3.35	2.9	4.8
8	1110	Collect Sample								
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

Duplicate Sample Collected? (No) Yes (Sample ID of Duplicate) _____

MS/MSD Sample Collected? (No) Yes _____

Sample Remarks (odors, colors, sediment): _____

Comments _____

Sample(s) Collected By: Mark Duffy

Tetra Tech. Inc.

MONITORING WELL SAMPLING FORM

Date/Time of Sample Collection: 4-05-16 / 1000 Project Site/Subsite: Richmond Field Station

Well ID: ETA03 Sample ID: 20160405 ETA03

Depth to Water Level: 6.25 ft below PVC cap prior to sampling 6.27 after sampling

Depth to Well Bottom: 20.26 ft. below top of casing (PVC cap)

Method of Purging: Bladder Pump (Peristaltic Pump)

Well Diameter: (2 inch) 4 inch

Total Purged 4.8 Liters (Max 20 L) Purge Rate goal = 0.15 Liters/Min. Actual purge rate 0.20 Liters/Min

PHYSIO-CHEMICAL PARAMETERS DURING PURGING

Measure - ment Number	Time	Temperature (°C)	pH	ORP (mV	Specific Conductance ~~(S/m)~~ mS/cm	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Total Dissolved Solids (g/L)	Salinity (ppt)	Each Volume/Total Purged (L)
Stabilization Criteria		+/- 2.0	+/- 0.2	+/- 10	+/- 3%	+/- 2.0	+/- 15%		-	
1	932	16.82	5.62	167	6.11	235	3.17	3.87	3.3	0.0
2	936	16.61	5.59	111	6.19	149	2.01	3.90	3.4	0.8
3	940	16.63	5.60	102	6.16	117	1.45	3.88	1.5	1.6
4	944	16.67	5.61	99	6.12	91.2	1.31	3.85	1.5	2.4
5	948	16.68	5.63	97	6.06	63.1	1.26	3.82	1.5	3.2
6	952	16.72	5.63	95	6.02	50.4	1.22	3.79	1.4	4.0
7	956	16.76	5.64	95	6.01	46.5	1.20	3.78	1.4	4.8
8	1000	Collect Sample								
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

Duplicate Sample Collected? (No) Yes (Sample ID of Duplicate) _____

MS/MSD Sample Collected? (No) Yes _____

Sample Remarks (odors, colors, sediment): _____

Comments _____

Sample(s) Collected By: Mark Duffy

MONIWELL.FRM

Tetra Tech. Inc.

MONITORING WELL SAMPLING FORM

Date/Time of Sample Collection: 4/7/16, 1020 Project Site/Subsite: Richmond Field Station

Well ID: FG Sample ID: 20160407 FG

Depth to Water Level: 12.98 ft below PVC cap prior to sampling 14.45 after sampling

Depth to Well Bottom: 16.23 ft. below top of casing (PVC cap)

Method of Purging: Bladder Pump (Peristaltic Pump)

Well Diameter: (2 inch) 4 inch

Total Purged 12 Liters (Max 20 L) Purge Rate goal = 0.15 Liters/Min. Actual purge rate 0.2 Liters/Min

PHYSIO-CHEMICAL PARAMETERS DURING PURGING

Measure - ment Number	Time	Temperature (°C)	pH	ORP (mV	Specific Conductance (S/m)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Total Dissolved Solids (g/L)	Salinity (ppt)	Each Volume/Tota l Purged (L)
Stabilization Criteria		+/- 2.0	+/- 0.2	+/- 10	+/- 3%	+/- 2.0	+/- 15%			
1	0925	17.04	6.13	202	0.522	0.0	11.62	0.334	0.3	1/1
2	0930	17.03	6.30	202	0.525	1.8	7.19	0.336	0.3	1/2
3	0935	17.06	6.31	205	0.530	3.0	6.93	0.339	0.3	1/3
4	0940	17.11	6.32	206	0.534	7.6	6.58	0.342	0.3	1/4
5	0945	17.16	6.34	207	0.536	12.0	6.34	0.343	0.3	1/5
6	0950	17.11	6.50	196	0.528	11.5	6.47	0.341	0.3	1/6 *
7	0955	17.25	6.30	208	0.540	23.5	7.03	0.345	0.3	1/7
8	1000	17.30	6.34	207	0.543	28.5	5.86	0.347	0.3	1/8
9	1007	17.42	6.36	206	0.548	33.9	5.72	0.351	0.3	1/9
10	1010	17.47	6.37	205	0.550	38.0	5.64	0.352	0.3	1/10
11	1015	17.50	6.38	204	0.551	39.5	5.63	0.353	0.3	1/11
12	1020	17.53	6.38	204	0.551	40.0	5.60	0.353	0.3	1/12
13										
14										
15										
16										
17										
18										
19										
20										

Duplicate Sample Collected? (No) Yes (Sample ID of Duplicate) _____

MS/MSD Sample Collected? (No) Yes _____

Sample Remarks (odors, colors, sediment): _____

Comments * cleaned Horiba chamber to reset NTU reading, which keeps increasing

Sample(s) Collected By: Dayna Aragon

Tetra Tech. Inc.

MONITORING WELL SAMPLING FORM

Date/Time of Sample Collection: 4/11/16, 920 Project Site/Subsite: Richmond Field Station

Well ID: GEO Sample ID: 20160411 GEO

Depth to Water Level: 8.60 ft below PVC cap prior to sampling 8.63 after sampling

Depth to Well Bottom: 16.14 ft. below top of casing (PVC cap)

Method of Purging: Bladder Pump (Peristaltic Pump)

Well Diameter: (2 inch) 4 inch

Total Purged 4.8 Liters (Max 20 L) Purge Rate goal = 0.15 Liters/Min. Actual purge rate 0.2 Liters/Min

PHYSIO-CHEMICAL PARAMETERS DURING PURGING

Measure - ment Number	Time	Temperature (°C)	pH	ORP (mV	Specific Conductance ~~(S/m)~~ mS/cm	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Total Dissolved Solids (g/L)	Salinity (ppt)	Each Volume/Total Purged (L)
Stabilization Criteria		+/- 2.0	+/- 0.2	+/- 10	+/- 3%	+/- 2.0	+/- 15%			
1	854	16.74	7.36	139	1.03	9.3	5.56	0.661	0.5	0.0
2	858	16.32	7.19	149	1.04	10.0	4.92	0.663	0.5	0.8
3	902	16.17	7.14	156	1.04	4.3	4.87	0.667	0.5	1.6
4	906	16.14	7.10	160	1.04	1.5	4.91	0.666	0.5	2.4
5	910	16.14	7.07	162	1.04	0.3	4.93	0.663	0.5	3.2
6	914	16.11	7.05	164	1.04	0.1	4.80	0.664	0.5	4.0
7	918	16.10	7.04	165	1.04	0.0	4.83	0.664	0.5	4.8
8	920	collect	Samples							
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

Duplicate Sample Collected? (No) Yes (Sample ID of Duplicate) _____

MS/MSD Sample Collected? (No) Yes _____

Sample Remarks (odors, colors, sediment): _____

Comments _____

Sample(s) Collected By: Mark Duffy

Tetra Tech. Inc.

MONITORING WELL SAMPLING FORM

Date/Time of Sample Collection: 04.08.16 1154 Project Site/Subsite: Richmond Field Station

Well ID: MFA Sample ID: 20160408MFA

Depth to Water Level: 3.08 ft below PVC cap prior to sampling 3.09 after sampling

Depth to Well Bottom: 13.68 ft. below top of casing (PVC cap)

Method of Purging: Bladder Pump Peristaltic Pump

Well Diameter: 2 inch 4 inch

Total Purged 5.80 Liters (Max 20 L) Purge Rate goal = 0.15 Liters/Min. Actual purge rate 0.20 Liters/Min

PHYSIO-CHEMICAL PARAMETERS DURING PURGING

Measure - ment Number	Time	Temperature (°C)	pH	ORP (mV	Specific Conductance (S/m)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Total Dissolved Solids (g/L)	Salinity (ppt)	Each Volume/Tota l Purged (L)
Stabilization Criteria		+/- 2.0	+/- 0.2	+/- 10	+/- 3%	+/- 2.0	+/- 15%			
1	1126	17.75	7.24	63	1.10	30.7	1.54	0.707	0.5	0.20
2	1130	17.17	7.13	62	1.11	25.5	1.24	0.708	0.5	1.00
3	1134	16.70	7.06	62	1.11	20.1	1.13	0.711	0.5	1.80
4	1138	16.66	7.02	64	1.11	13.7	1.07	0.707	0.5	2.60
5	1142	16.64	7.00	65	1.10	13.0	1.04	0.703	0.5	3.40
6	1146	16.60	6.97	66	1.10	8.4	1.01	0.703	0.5	4.20
7	1150	16.58	6.95	68	1.09	7.4	0.98	0.699	0.5	5.00
8	1154	16.59	6.92	71	1.09	7.2	1.01	0.696	0.5	5.80
9										
10										
11										
12										
13										
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19										
20										

Duplicate Sample Collected? No (Yes) (Sample ID of Duplicate) 20160408MFADUP @ 1158

MS/MSD Sample Collected? (No) Yes

Sample Remarks (odors, colors, sediment):

Comments

Sample(s) Collected By: QUINN JOHNSON

Tetra Tech. Inc.

MONITORING WELL SAMPLING FORM

Date/Time of Sample Collection: 4/8/16, 1210 Project Site/Subsite: Richmond Field Station

Well ID: NRLF Sample ID: 20160408NRLF

Depth to Water Level: 12.71 ft below PVC cap prior to sampling 13.62 after sampling

Depth to Well Bottom: 18.83 ft. below top of casing (PVC cap)

Method of Purging: Bladder Pump (Peristaltic Pump)

Well Diameter: (2 inch) 4 inch

Total Purged 4 Liters (Max 20 L) Purge Rate goal = 0.15 Liters/Min. Actual purge rate _____ Liters/Min

PHYSIO-CHEMICAL PARAMETERS DURING PURGING

Measure - ment Number	Time	Temperature (°C)	pH	ORP (mV	Specific Conductance (S/m)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Total Dissolved Solids (g/L)	Salinity (ppt)	Each Volume/Tota l Purged (L)
Stabilization Criteria		+/- 2.0	+/- 0.2	+/- 10	+/- 3%	+/- 2.0	+/- 15%			
1	1151	16.36	6.73	-104	0.866	1.4	3.73	0.553	0.4	1/1
2	1156	16.01	6.53	-113	0.838	1.0	3.06	0.537	0.4	1/2
3	1201	15.98	6.52	-108	0.835	0.9	2.88	0.535	0.4	1/3
4	1206	15.99	6.53	-102	0.837	0.6	2.76	0.536	0.4	1/4
5										
6										
7										
8										
9										
10										
11										
12										
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14										
15										
16										
17										
18										
19										
20										

Duplicate Sample Collected? (No) Yes (Sample ID of Duplicate) _____

MS/MSD Sample Collected? (No) Yes _____

Sample Remarks (odors, colors, sediment): _____

Comments _____

Sample(s) Collected By: Dayna Aragon

Tetra Tech. Inc.

MONITORING WELL SAMPLING FORM

Date/Time of Sample Collection: 4/7/16, 1115 Project Site/Subsite: Richmond Field Station

Well ID: PZ9 Sample ID: 20160407PZ9

Depth to Water Level: 11.60 ft below PVC cap prior to sampling 11.61 after sampling

Depth to Well Bottom: ~~19.54~~ 19.54 ft. below top of casing (PVC cap)

Method of Purging: Bladder Pump Peristaltic Pump

Well Diameter: 2 inch 4 inch

Total Purged 6 Liters (Max 20 L) Purge Rate goal = 0.15 Liters/Min. Actual purge rate 0.2 Liters/Min

PHYSIO-CHEMICAL PARAMETERS DURING PURGING

Measure - ment Number	Time	Temperature (°C)	pH	ORP (mV	Specific Conductance (S/m)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Total Dissolved Solids (g/L)	Salinity (ppt)	Each Volume/Tota l Purged (L)
Stabilization Criteria		+/- 2.0	+/- 0.2	+/- 10	+/- 3%	+/- 2.0	+/- 15%			
1	1045	17.51	6.69	145	0.762	1.8	6.68	0.488	0.4	1/1
2	1050	17.82	6.48	136	0.752	2.6	3.93	0.481	0.4	1/2
3	1055	17.75	6.50	131	0.755	2.2	3.84	0.483	0.4	1/3
4	1100	17.97	6.56	129	0.765	1.4	3.69	0.501	0.4	1/4
5	1105	18.07	6.57	134	0.798	1.4	3.59	0.511	0.4	1/5
6	1110	18.09	6.58	136	0.804	1.4	3.53	0.515	0.4	1/6
7										
8										
9										
10										
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12										
13										
14										
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17										
18										
19										
20										

Duplicate Sample Collected? (No) Yes (Sample ID of Duplicate) _____

MS/MSD Sample Collected? (No) Yes _____

Sample Remarks (odors, colors, sediment): none

Comments _____

Sample(s) Collected By: Dayna Aragon

Tetra Tech. Inc.

MONITORING WELL SAMPLING FORM

Date/Time of Sample Collection: 4/8/16, 0925 Project Site/Subsite: Richmond Field Station

Well ID: PZ11 Sample ID: 20160408PZ11

Depth to Water Level: 8.73 ft below PVC cap prior to sampling 8.79 after sampling

Depth to Well Bottom: 18.74 ft. below top of casing (PVC cap)

Method of Purging: Bladder Pump Peristaltic Pump

Well Diameter: 2 inch 4 inch

Total Purged 7 Liters (Max 20 L) Purge Rate goal = 0.15 Liters/Min. Actual purge rate 0.25 Liters/Min

PHYSIO-CHEMICAL PARAMETERS DURING PURGING

Measure - ment Number	Time	Temperature (°C)	pH	ORP (mV	Specific Conductance (S/m)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Total Dissolved Solids (g/L)	Salinity (ppt)	Each Volume/Tota l Purged (L)
Stabilization Criteria		+/- 2.0	+/- 0.2	+/- 10	+/- 3%	+/- 2.0	+/- 15%			
1	0857	16.50	5.05	330	2.50	~~20.9~~ 28.2	~~225~~ 5.18	~~5~~ 1.61	1.3	1 / 1
2	0903	16.55	5.20	295	2.60	10.0	3.96	1.66	1.3	~~2~~ 1 1/2
3	0907	16.25	5.04	301	2.63	6.0	3.86	1.68	1.4	2/3
4	0911	15.87	5.18	287	2.67	3.9	3.61	1.71	1.4	1/4
5	0915	15.81	5.20	281	2.68	2.5	3.40	1.71	1.4	1/5
6	0919	15.72	5.17	277	2.69	2.2	3.32	1.72	1.4	1/6
7	0923	15.84	5.22	274	2.70	1.9	3.22	1.73	1.4	1/7
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

Duplicate Sample Collected? ~~No~~ Yes (Sample ID of Duplicate) _____

MS/MSD Sample Collected? No Yes _____

Sample Remarks (odors, colors, sediment): None

Comments _____

Sample(s) Collected By: Dayna Aragon

Tetra Tech. Inc.

MONITORING WELL SAMPLING FORM

Date/Time of Sample Collection: 4/8/16, 1335 Project Site/Subsite: Richmond Field Station

Well ID: RWF Sample ID: 20160408RWF

Depth to Water Level: 7.51 ft below PVC cap prior to sampling 7.51 after sampling

Depth to Well Bottom: 17.63 ft. below top of casing (PVC cap)

Method of Purging: Bladder Pump (Peristaltic Pump)

Well Diameter: (2 inch) 4 inch

Total Purged 4 Liters (Max 20 L) Purge Rate goal = 0.15 Liters/Min. Actual purge rate _____ Liters/Min

PHYSIO-CHEMICAL PARAMETERS DURING PURGING

Measure - ment Number	Time	Temperature (°C)	pH	ORP (mV	Specific Conductance (S/m)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Total Dissolved Solids (g/L)	Salinity (ppt)	Each Volume/Tota l Purged (L)
Stabilization Criteria		+/- 2.0	+/- 0.2	+/- 10	+/- 3%	+/- 2.0	+/- 15%			
1	1315	16.56	6.75	146	1.05	13.7	4.81	0.669	0.5	1/1
2	1320	16.45	6.66	123	1.04	14.1	2.96	0.669	0.5	1/2
3	1325	16.41	6.66	116	1.05	13.1	2.69	0.669	0.5	1/3
4	1330	16.44	6.61	113	1.04	12.0	2.58	0.669	0.5	1/4
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

Duplicate Sample Collected? (No) Yes (Sample ID of Duplicate) _____

MS/MSD Sample Collected? (No) Yes _____

Sample Remarks (odors, colors, sediment): _____

Comments _____

Sample(s) Collected By: Dayna Aragon

Tetra Tech. Inc.

MONITORING WELL SAMPLING FORM

Date/Time of Sample Collection: 4/7/16 ~~1105~~ 1205 Project Site/Subsite: Richmond Field Station

Well ID: TP1 Sample ID: 20160407TP1

Depth to Water Level: 9.62 ft below PVC cap prior to sampling 9.68 after sampling

Depth to Well Bottom: 16.03 ft. below top of casing (PVC cap)

Method of Purging: Bladder Pump (Peristaltic Pump)

Well Diameter: ~~2 inch~~ 4 inch

Total Purged 4 Liters (Max 20 L) Purge Rate goal = 0.15 Liters/Min. Actual purge rate 0.2 Liters/Min

PHYSIO-CHEMICAL PARAMETERS DURING PURGING

Measure - ment Number	Time	Temperature (°C)	pH	ORP (mV	Specific Conductance (S/m)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Total Dissolved Solids (g/L)	Salinity (ppt)	Each Volume/Tota l Purged (L)
Stabilization Criteria		+/- 2.0	+/- 0.2	+/- 10	+/- 3%	+/- 2.0	+/- 15%			
1	1145 1045	18.36	6.98	-86	2.52	10.9	9.08	1.60	1.3	1/1
2	1150 1050	17.78	6.94	-116	2.36	0.0	4.23	1.50	1.2	1/2
3	1155 1055	17.65	6.91	-119	2.38	0.0	~~3.89~~ 3.87	1.53	1.2	1/3
4	1200 1100	17.69	6.90	-118	2.48	0.0	3.70	1.59	1.3	1/4
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

Duplicate Sample Collected? (No) Yes (Sample ID of Duplicate) _____

MS/MSD Sample Collected? (No) Yes _____

Sample Remarks (odors, colors, sediment): clear

Comments _____

Sample(s) Collected By: Deyna Aragon

Tetra Tech. Inc.

MONITORING WELL SAMPLING FORM

Date/Time of Sample Collection: 4/8/16 / 1250 Project Site/Subsite: Richmond Field Station

Well ID: ~~TP1~~ TP2 Sample ID: 20160408TP2

Depth to Water Level: 9.46 ft below PVC cap prior to sampling 9.42 after sampling

Depth to Well Bottom: 17.11 ft. below top of casing (PVC cap)

Method of Purging: Bladder Pump (Peristaltic) Pump

Well Diameter: (2 inch) 4 inch

Total Purged 4 Liters (Max 20 L) Purge Rate goal = 0.15 Liters/Min. Actual purge rate _____ Liters/Min

PHYSIO-CHEMICAL PARAMETERS DURING PURGING

Measure - ment Number	Time	Temperature (°C)	pH	ORP (mV	Specific Conductance (S/m)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Total Dissolved Solids (g/L)	Salinity (ppt)	Each Volume/Tota l Purged (L)
Stabilization Criteria		+/- 2.0	+/- 0.2	+/- 10	+/- 3%	+/- 2.0	+/- 15%			
1	1230	16.98	6.81	102	1.13	7.2	6.20	0.724	0.6	1/1
2	1235	16.99	6.52	120	1.12	5.4	3.64	0.718	0.6	1/2
3	1240	17.05	6.48	131	1.12	4.2	3.42	0.718	0.6	1/3
4	1245	17.08	6.53	132	1.12	4.2	3.35	0.717	0.6	1/4
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

Duplicate Sample Collected? (No) Yes (Sample ID of Duplicate) _____

MS/MSD Sample Collected? (No) Yes _____

Sample Remarks (odors, colors, sediment): _____

Comments _____

Sample(s) Collected By: Dayra Aragon

Tetra Tech. Inc.

MONITORING WELL SAMPLING FORM

Date/Time of Sample Collection: 4-5-16 / 1515 Project Site/Subsite: Richmond Field Station

Well ID: WSM01 Sample ID: 20160405WSM01

Depth to Water Level: 4.15 ft below PVC cap prior to sampling 4.18 after sampling

Depth to Well Bottom: 17.48 ft. below top of casing (PVC cap)

Method of Purging: Bladder Pump (Peristaltic Pump)

Well Diameter: (2 inch) 4 inch

Total Purged _____ Liters (Max 20 L) Purge Rate goal = 0.15 Liters/Min. Actual purge rate 0.2 Liters/Min

PHYSIO-CHEMICAL PARAMETERS DURING PURGING

Measure - ment Number	Time	Temperature (°C)	pH	ORP (mV	Specific Conductance ~~(S/m)~~ mS/cm	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Total Dissolved Solids (g/L)	Salinity (ppt)	Each Volume/Total Purged (L)
Stabilization Criteria		+/- 2.0	+/- 0.2	+/- 10	+/- 3%	+/- 2.0	+/- 15%			
1	1450	21.90	7.09	97	2.44	133	2.64	1.57	1.3	0.0
2	1454	20.42	6.88	55	2.45	123	1.39	1.57	1.3	0.8
3	1458	19.83	6.80	77	2.43	103	1.18	1.57	1.3	1.6
4	1502	17.97	6.72	73	2.49	44.3	1.14 ~~1.09~~	1.59	1.3	2.4
5	1506	17.66	6.69	71	2.47	36.6	1.09	1.58	1.3	3.2
6	1510	17.54	6.67	70	2.45	30.7	1.07	1.57	~~1.3~~ 1.3	4.0
7	1515	collect	SAmples							
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

Duplicate Sample Collected? (No) Yes (Sample ID of Duplicate) _____

MS/MSD Sample Collected? (No) Yes _____

Sample Remarks (odors, colors, sediment): _____

Comments _____

Sample(s) Collected By: Mark Duffy

APPENDIX B
COMPLETE ANALYTICAL RESULTS

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

METALS (µg/L)

Location ID	Sample Date	Aluminum	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Analysis Group
California MCLs		1000	6	10	1000	4		5		50		1300		15	
Federal MCLs			6	10	2000	4		5		100		1300		15	
B120	09/09/2010	33	1 U	2.2	26	0.5 U	100	1 U	170000	1.2	0.4 J	2.2	59 J	2 U	METAL
B120	04/15/2011	75 UJ	1 U	1.6 J	20	1 UJ	NA	2 U	210000	0.34 J	1 U	4.3	16 J	0.43 J	DMETAL
B120	10/04/2011	50 U	2.4	4.2	19	0.23 J	NA	1 U	190000	0.48 J	0.38 J	1.6 U	100 U	1 U	DMETAL
B120	04/03/2012	50 U	1 U	2.6 UJ	25	1 U	NA	0.25 J	160000	0.44 J	1 U	1.6 J	50 U	1 U	DMETAL
B121	09/08/2010	33	1 U	1.8	57	0.5 U	86 J	1 U	49000	1.5	0.31 J	2 U	100 U	2 U	METAL
B121	04/13/2011	50 UJ	0.2 J	1.2	55	1 U	NA	1 U	42000	1.3	0.14 J	0.5 J	50 U	0.31 J	DMETAL
B121	10/04/2011	50 U	1 U	3.2	62	0.22 J	NA	0.44 J	48000	0.88 J	1 U	1.6 U	100 U	1 U	DMETAL
B121	04/04/2012	50 U	0.45 J	0.97 J	59	1 U	NA	1 U	47000	1.1	1 U	2.3 U	15 UJ	1 U	DMETAL
B128	09/23/2010	55	1 U	5.7	23	0.5 U	320	1 U	69000	1.1	0.58	1.3 J	250	2 U	METAL
B128	09/23/2010	41	1 U	3.5	24	0.5 U	280	1 U	64000	1.1	0.28 J	1.6 J	72 J	2 U	METAL
B128	04/18/2011	50 U	0.7 J	0.95 J	41	1 UJ	NA	2 U	27000	1 U	1 U	8.4 J	50 UJ	0.71 J	DMETAL
B128	10/04/2011	50 U	0.62 J	5.8	22	1 U	NA	1 U	30000	1 U	0.47 J	1.6 U	59 UJ	1 U	DMETAL
B128	04/02/2012	9.6 J	0.33 UJ	0.89 UJ	57	1 U	NA	0.94 J	24000	0.54 J	1 U	2.3 U	50 U	1 U	DMETAL
B128	04/05/2013	50 U	1.4	0.77 J	44	1 U	NA	1 U	22000	1 U	0.17 J	2.3 U	31 J	1 U	DMETAL
B128	04/10/2014	50 U	0.76 J	0.8 J	52	1 U	NA	1 U	26000	0.41 J	1 U	3.4 U	71 U	1 U	DMETAL
B128	04/13/2015	50 U	1 U	1.2	72	1 U	NA	0.19 J	27000	1.2	0.057 J	1 U	42 J	1 U	DMETAL
B128	04/13/2015	50 U	1 U	1.4	68	1 U	NA	1 U	27000	1.3	1 U	1 U	41 J	1 U	DMETAL

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Location ID	Sample Date	Aluminum	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Analysis Group
California MCLs		1000	6	10	1000	4		5		50		1300		15	
Federal MCLs			6	10	2000	4		5		100		1300		15	
B150	09/08/2010	14 J	1 U	0.89 J	12	0.5 U	95 J	1 U	27000	1 U	0.5 U	1.6 J	100 U	2 U	METAL
B150	04/13/2011	50 UJ	0.19 J	0.57 J	26	1 U	NA	0.44 J	18000	0.73 J	1 U	4.2 J	50 U	0.46 J	DMETAL
B150	10/05/2011	34 J	0.34 J	0.67 J	20	1 UJ	NA	1 U	21000	0.37 J	1 U	3.4	50 U	0.25 J	DMETAL
B150	10/05/2011	49 J	0.14 J	1 U	14	1 UJ	NA	1 U	19000	0.32 J	1 U	1 U	50 U	1 U	DMETAL
B150	04/04/2012	6.5 J	1 U	0.39 J	35	1 U	NA	1 U	16000	0.98 J	1 U	2.3 U	50 U	1 U	DMETAL
B150	04/04/2012	18 J	1 U	0.5 J	35	0.28 J	NA	0.099 J	16000	0.89 J	1 U	2.3 U	15 UJ	1 U	DMETAL
B150	04/02/2013	50 U	1 U	1 U	44	1 U	NA	1 U	18000	1.6	1 U	9.8	50 U	0.17 J	DMETAL
B150	04/01/2014	50 U	1	0.52 J	39	4.3 U	NA	1.3 U	15000	1.6	1 U	1 U	71 U	1 U	DMETAL
B150	04/15/2015	13 UJ	0.74 J	0.7 J	49	1 U	NA	1 U	18000	4.7	1 U	0.46 UJ	42 J	1 U	DMETAL
B150	04/15/2015	20 UJ	0.38 J	0.45 J	45	1 U	NA	1 U	16000	4.3	1 U	0.89 UJ	50 U	0.1 UJ	DMETAL
B150	04/07/2016	NA	10 U	5 U	40	2 U	NA	5 U	NA	5 U	5 U	1.7 UJ	NA	5 U	DMETAL
B150	04/07/2016	NA	10 U	5 U	39	2 U	NA	5 U	NA	1.1 J	5 U	2.1 UJ	NA	5 U	DMETAL
B158	09/08/2010	590	1 U	6.3	13	0.5 U	64 J	1 U	4200	2.8	0.5 U	1.4 J	500	2 U	METAL
B158	04/15/2011	120 J	0.3 J	4.5	6	1 UJ	NA	2 U	3600	1.3	1 U	6.8	66	0.47 J	DMETAL
B158	10/05/2011	99 J	0.82 J	6.2	4.4 J	1 U	NA	1 U	3200	2	0.22 J	0.94 J	50 UJ	1 U	DMETAL
B158	04/06/2012	21 UJ	1 U	4.9	7.4	0.57 J	NA	0.35 UJ	4000	2.1	1 U	2.3 U	50 U	1 U	DMETAL
B158	04/08/2013	15 J	1 U	4.6	8.5	1 U	NA	1 U	2400	2	1 U	2.3 U	25 J	1 U	DMETAL
B158	04/02/2014	79 J	1 U	4.6	8.9	1 U	NA	1 U	3200	1.9	1 U	3.4 U	65 J	1 U	DMETAL
B158	04/16/2015	9 J	1 U	4.7	9.8	1 U	NA	1 U	3200	1.3	0.074 J	0.32 UJ	50 U	0.092 UJ	DMETAL

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California MCLs		1000	6	10	1000	4		5		50		1300		15	
Federal MCLs			6	10	2000	4		5		100		1300		15	
B163	09/02/2010	44	1 U	1.6	17	0.5 U	240	5.2	260000	5 U	6	2.5	70 J	2 U	METAL
B163	04/12/2011	50 U	0.18 J	1.3	12	1 U	NA	5.5	230000	0.14 J	4.6	0.35 J	50 U	0.38 J	DMETAL
B163	04/12/2011	58	0.17 J	0.74 J	13	1 U	NA	6.2	240000	0.23 J	4.8	1 U	89 UJ	1 U	METAL
B163	10/03/2011	50 U	0.17 J	4.2	13	1 U	NA	5.2	290000	0.34 UJ	4.6	1.6 U	45 J	1 U	DMETAL
B163	10/03/2011	72	0.18 J	1.2	13 J	1 U	NA	5.9 J	300000	1 U	4.8	1.6 U	91	1 U	METAL
B163	04/02/2012	33 J	0.63 UJ	2.3 UJ	12	1 U	NA	6.2	240000	1 U	4.2	2.3 U	71	1 U	DMETAL
B163	04/02/2012	500	3.5	1.3	14 J	0.8 J	NA	7	240000	0.92 J	5	2.3 U	570	1 U	METAL
B163	04/03/2013	13 J	0.38 UJ	1.8	12 J	1 U	NA	5.2	220000	1	4.7	2.3 U	5000 U	1 U	DMETAL
B163	04/01/2014	50 U	3.3	1.3	14	4.3 U	NA	5.4	270000	1 U	4.9	1 U	71 U	1 U	DMETAL
B163	04/14/2015	50 U	1 U	1.8	14	1 U	NA	5.8	280000	0.23 J	5.5	1 U	330	1 U	DMETAL
B163	04/05/2016	NA	10 U	5 U	12	2 U	NA	3.5 J	NA	16	4.9 J	5 U	NA	2.7 UJ	DMETAL
B175S	09/03/2010	17 J	1 U	1.6	56	0.5 U	97 J	1 U	53000	0.81 J	0.36 J	1.4 J	100 U	2 U	METAL
B175S	04/13/2011	50 U	1 U	0.69 J	33	1 U	NA	0.43 J	38000	0.8 J	1 U	1 UJ	50 U	0.4 J	DMETAL
B175S	10/04/2011	50 U	0.12 J	7	55	1 U	NA	1 U	46000	1.4	1 U	1.6 U	100 U	1 U	DMETAL
B175S	04/04/2012	50 U	0.36 J	1.5	43	1 U	NA	1 U	42000	0.29 J	1 U	2.3 U	50 U	1 U	DMETAL
B175S	04/02/2013	7.3 J	1 U	0.81 J	57	1 U	NA	1 U	55000	0.48 J	1 U	2.3 U	50 U	1 U	DMETAL
B175S	04/01/2014	50 U	1 U	1.1	62	4.3 U	NA	1.3 U	63000	0.77 J	1 U	1 U	71 U	1 U	DMETAL
B175S	04/15/2015	50 U	2	1.2	52	1 U	NA	1 U	52000	0.77 UJ	1 U	0.33 UJ	19 J	0.088 UJ	DMETAL
B175W	09/08/2010	99	1 U	1.7	26	0.5 U	130	1 U	17000	1.3	0.5 U	1 J	120	2 U	METAL
B175W	04/13/2011	50 U	0.18 J	2.1	11	1 U	NA	0.26 J	15000	0.43 J	1 U	4.7 J	50 U	0.54 J	DMETAL
B175W	10/04/2011	50 U	1 U	3	21	0.32 J	NA	1 U	18000	3.9	0.33 J	1.6 U	3400	1 U	DMETAL
B175W	04/04/2012	130	1 U	1.1	11 J	0.36 J	NA	1 U	12000	0.63 J	1 U	2.3 U	63 UJ	1 U	DMETAL
B177	09/23/2010	22	1 U	1.1	32	0.5 U	77 J	1 U	12000	0.91 J	0.5 U	1.7 J	100 U	2 U	METAL
B177	04/18/2011	9.9 J	0.41 J	0.48 J	63	1 UJ	NA	2 U	15000	0.55 J	1 U	2.6 J	50 UJ	0.41 J	DMETAL
B177	10/05/2011	50 UJ	1 U	0.83 J	37 J	1 UJ	NA	1 U	13000	0.61 J	1 U	1 U	50 UJ	1 U	DMETAL
B177	04/04/2012	9.2 J	1 U	0.49 J	71	1 U	NA	1 U	19000	1 U	1 U	2.3 U	50 U	1 U	DMETAL

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California MCLs		1000	6	10	1000	4		5		50		1300		15	
Federal MCLs			6	10	2000	4		5		100		1300		15	
B178	09/02/2010	20 U	1 U	1.8	25	0.5 U	130	1 U	170000	1 U	0.87	2.2	100 U	2 U	METAL
B178	04/15/2011	75 UJ	1.1 U	1.6 J	20	3.2 UJ	NA	2 U	170000	1.3 U	0.44 J	2.7	89 U	1.9 U	DMETAL
B178	10/04/2011	50 U	4.1	9.1	23	0.34 J	NA	1 U	170000	1 U	1 U	1.6 U	100 U	1 U	DMETAL
B178	04/03/2012	20 J	0.21 UJ	3.2 UJ	25 J	1 U	NA	0.51 J	150000	1 U	0.29 J	2.3 U	180 U	1 U	DMETAL
B178	04/02/2013	50 U	1 U	0.87 J	22	0.18 J	NA	1 U	150000	0.31 J	2.3	2.3 U	280	1 U	DMETAL
B178	04/08/2014	50 U	2.6	4.9	23	1 U	NA	1 U	180000	1 U	1.5	3.4 U	1100 J	1 U	DMETAL
B178	04/10/2015	9 J	0.21 J	1.7	17	1 U	NA	1 U	170000	0.26 UJ	0.82 J	1 U	800	1 U	DMETAL
B180	09/15/2010	380	1 U	3.8	22	0.5 U	74 J	1 U	5600	2.9	0.5	3.6	400	2 U	METAL
B180	04/13/2011	50 UJ	0.22 J	2.9	6.5	1 U	NA	0.46 J	5500	2.9	1 U	36 J	50 U	2.7	DMETAL
B180	10/06/2011	58	0.34 UJ	3.2	17	1 U	NA	1 U	4900 J	3.1	1 U	1 U	50 U	1 U	DMETAL
B180	10/06/2011	50 U	0.63 UJ	3.6	16	1 U	NA	1 U	5200 J	3	1 U	1 U	50 U	1 U	DMETAL
B180	04/04/2012	50 U	0.31 J	3.6	6.4	1 U	NA	1 U	4900	1.2	1 U	2.3 U	50 U	1 U	DMETAL
B185	09/02/2010	10 J	1 U	1.7	15	0.5 U	120	1 U	160000	0.57 J	0.63	1.6 J	100 U	2 U	METAL
B185	04/15/2011	75 UJ	1.1 U	1.1 J	13	3.2 UJ	NA	2 U	150000	0.39 J	1 U	6.4	16 J	1.9 U	DMETAL
B185	04/15/2011	75 UJ	1.1 U	0.8 J	14	3.2 UJ	NA	2 U	160000	0.22 J	0.18 J	4.3	34 J	1.9 U	DMETAL
B185	10/03/2011	50 U	1 U	3	14	1 U	NA	0.25 J	170000	0.74 UJ	0.14 J	1.9 J	50 U	1 U	DMETAL
B185	10/03/2011	50 U	0.13 J	2.7	14	1 U	NA	0.14 J	170000	0.75 UJ	0.18 J	1.6 U	500 U	1 U	DMETAL
B185	04/02/2012	14 J	0.18 UJ	2 UJ	19	1 U	NA	0.48 J	150000	0.44 J	1 U	2.3 U	71	1 U	DMETAL
B194	09/09/2010	64	1 U	2.6	55	0.5 U	160	1 U	55000	0.97 J	0.42 J	1.7 J	84 J	2 U	METAL
B194	04/13/2011	50 U	0.19 J	1.8	100	1 U	NA	1.2	51000	0.99 J	1 U	1.5 J	50 U	0.41 J	DMETAL
B194	10/04/2011	50 U	0.21 J	2.7	110	0.11 J	NA	1 U	52000	0.99 J	0.11 J	1.6 U	100 U	1 U	DMETAL
B194	04/04/2012	50 U	0.23 J	0.87 J	95	1 U	NA	1 U	48000	0.65 J	1 U	2.3 U	50 U	1 U	DMETAL

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Location ID	Sample Date	Aluminum	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Analysis Group
California MCLs		1000	6	10	1000	4		5		50		1300		15	
Federal MCLs			6	10	2000	4		5		100		1300		15	
B195	09/09/2010	53	1 U	2	34	0.5 U	110	1 U	150000	0.73 J	0.45 J	1.8 J	73 J	2 U	METAL
B195	04/13/2011	50 U	0.21 J	1.5	18	1 U	NA	0.28 J	51000	0.78 J	1 U	75 J	50 U	4.6	DMETAL
B195	04/13/2011	64	0.19 J	0.77 J	20	1 U	NA	0.28 J	55000	0.8 J	0.13 J	1 U	50 UJ	1 U	METAL
B195	04/13/2011	50 U	0.2 J	1.3	17	1 U	NA	0.21 J	49000	0.62 J	1 U	7.5 J	50 U	0.83 J	DMETAL
B195	04/13/2011	68	0.17 J	1.6 J	20	1 U	NA	0.27 J	55000	0.82 J	1 U	1 U	50 UJ	1 U	METAL
B195	10/04/2011	50 U	0.72 J	2.9	47	0.2 J	NA	0.4 J	160000	1.2	0.19 J	1.6 U	100 U	1 U	DMETAL
B195	10/04/2011	44 J	1 U	1.4	52	1 U	NA	1 U	180000	1 U	1 U	1.6 U	41 J	1 U	METAL
B195	04/03/2012	50 U	1 U	1.3 UJ	19	1 U	NA	0.16 J	68000	1.2	1 U	1.6 J	50 U	1 U	DMETAL
B195	04/03/2012	7.9 J	1 U	1.4 UJ	16	1 U	NA	1 U	61000	0.68 J	0.1 J	2.3 U	180 U	1 U	METAL
B195	04/02/2013	12 J	8.1	2.2	35	1 U	NA	1 U	97000	0.66 J	1 U	0.8 J	19 UJ	1 U	DMETAL
B195	04/02/2013	11 J	0.64 J	0.97 J	32	1 U	NA	1 U	95000	0.46 J	1 U	5.4	50 U	1 U	DMETAL
B195	04/02/2014	17 J	1 U	1.2	21	1 U	NA	1 U	110000	0.62 J	1 U	1.5 J	45 J	0.11 J	DMETAL
B195	04/02/2014	14 J	1.2	1.3	20	1 U	NA	1 U	110000	0.61 J	1 U	3.4 U	53 J	0.1 J	DMETAL
B195	04/14/2015	50 U	0.14 J	1.3	23	0.17 J	NA	1 U	76000	0.62 J	1 U	0.69 J	50 U	0.085 J	DMETAL
B195	04/11/2016	NA	10 U	4.9 J	15	2 U	NA	5 U	NA	5 U	5 U	5 U	NA	5 U	DMETAL
B197	09/09/2010	17 J	1 U	1.8	26	0.5 U	98 J	1 U	140000	1.1	0.3 J	1.7 J	100 U	2 U	METAL
B197	09/09/2010	20 U	1 U	1.8	25	0.5 U	93 J	1 U	140000	1.2	0.29 J	1.6 J	100 U	2 U	METAL
B197	04/13/2011	50 U	0.17 J	2	28	1 U	NA	1 U	160000	1 U	1.6	1 UJ	50 U	0.31 J	DMETAL
B197	10/04/2011	50 U	0.42 J	4.5	22	0.11 J	NA	0.24 J	140000	0.97 J	0.81 J	1.6 U	1300	1 U	DMETAL
B197	04/03/2012	50 U	1 U	10	35	1 U	NA	1 U	180000	1 U	1	1.2 J	980	1 U	DMETAL
B197	04/03/2012	50 U	1 U	9	33	1 U	NA	1 U	180000	1 U	0.97 J	1.3 J	920	1 U	DMETAL
B197R	04/08/2013	22 J	1 U	1.8	20	1 U	NA	1 U	150000	0.79 J	1 U	0.81 J	17 J	0.29 J	DMETAL
B197R	04/08/2014	50 U	0.82 J	10	61	1 U	NA	1 U	220000	1 U	1.3	3.4 U	2500 J	1 U	DMETAL
B197R	04/14/2015	30 J	0.16 J	2.3	24	0.19 J	NA	1 U	180000	1 U	0.35 J	1 U	1300 J	1 U	DMETAL
B197R	04/05/2016	NA	7.4 J	5 U	28	2 U	NA	5 U	NA	3.3 J	5 U	1.7 J	NA	5 U	DMETAL
B197R	04/05/2016	NA	9.5 J	5 U	29	2 U	NA	5 U	NA	1.4 J	5 U	1.6 J	NA	5 U	DMETAL

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Location ID	Sample Date	Aluminum	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Analysis Group
California MCLs		1000	6	10	1000	4		5		50		1300		15	
Federal MCLs			6	10	2000	4		5		100		1300		15	
B277	09/15/2010	35	1 U	1.9	34	0.5 U	110	1 U	54000	1.8	0.5 U	2 U	100 U	2 U	METAL
B277	04/18/2011	50 U	1 U	2.2	73	1 UJ	NA	2 U	57000	1.8	1 U	3.3 J	50 UJ	0.54 J	DMETAL
B277	10/05/2011	50 U	0.13 J	0.52 J	61	1 UJ	NA	1 U	54000	0.31 J	1 U	1 U	50 U	1 U	DMETAL
B277	04/03/2012	50 U	0.32 UJ	1.9 UJ	61	1 U	NA	0.34 J	56000	1.5	1 U	2.3 U	50 U	1 U	DMETAL
B278	09/16/2010	23 J	1 U	2	56	0.5 U	140	1 U	280000	1.6	0.57	1.8 J	100 U	2 U	METAL
B278	04/19/2011	50 U	0.78 J	1.5 J	59	1 U	NA	2 U	230000	1.4	1 U	1.1 J	89 UJ	0.94 J	DMETAL
B278	10/05/2011	50 U	1 U	1 U	51	1 U	NA	1 U	260000	0.49 J	1 U	1 U	50 U	1 U	DMETAL
B278	04/05/2012	50 U	1 U	2	62	1 U	NA	1 U	270000	1.4	1 U	2.3 U	50 U	1 U	DMETAL
B280A	09/16/2010	20 U	1 U	1.4	66	0.5 U	94 J	1 U	68000	0.93 J	0.5 U	1.1 J	100 U	2 U	METAL
B280A	04/14/2011	75 U	1.1 U	1 J	84	1 UJ	NA	2 U	50000	0.25 J	1 U	1.9 J	24 J	1.9 U	DMETAL
B280A	10/06/2011	50 U	0.42 UJ	0.55 J	110	1 U	NA	0.33 J	57000 J	0.54 J	1 U	0.52 J	120	1 U	DMETAL
B280A	04/03/2012	50 U	1 U	1.7	110	1 U	NA	1 U	64000	0.53 J	1 U	2.3 U	50 U	1 U	DMETAL
B280B	10/01/2010	19 J	1 U	3.4	8	0.5 U	280	1 U	51000	1.5	0.5 U	2 U	100 U	2 U	METAL
B280B	04/14/2011	50 U	1.1 U	1.7 J	6.4	1 UJ	NA	2 U	53000	2.1	1 U	5.8	23 J	1.9 U	DMETAL
B280B	10/06/2011	50 U	0.33 UJ	2.8	6.5	1 U	NA	1 U	52000 J	1 U	1 U	1 U	50 U	1 U	DMETAL
B280B	04/03/2012	11 J	0.2 UJ	3.3 UJ	5.2	1 U	NA	1 U	55000	1.3	1 U	0.87 J	50 U	1 U	DMETAL
B300	09/09/2010	23	1 U	2	90	0.5 U	150	1 U	150000	1.7	0.48 J	1.3 J	100 U	2 U	METAL
B300	04/15/2011	50 UJ	1 U	1.4 J	250	1 UJ	NA	2 U	280000	1 U	8.9	6	1200	0.5 J	DMETAL
B300	10/06/2011	2000 U	5 UJ	26 U	23	20 U	NA	20 U	18000 J	20 U	20 U	21 U	2000 U	20 U	DMETAL
B300	04/09/2012	50 U	1 U	2.3	150	1 U	NA	0.11 J	210000	1 U	2.1	2.3 U	4600	1 U	DMETAL
B38	09/15/2010	44	1 U	1.2	50	0.5 U	150	1 U	31000	2.3	0.5 U	3.3	72 J	2 U	METAL
B38	04/19/2011	50 U	0.22 J	1 J	47	1 U	NA	2 U	24000	0.93 J	1 U	2.2	89 U	0.57 J	DMETAL
B38	04/19/2011	50 U	0.3 J	1.3 J	51	1 U	NA	2 U	26000	1.3	1 U	65	89 U	3.6	DMETAL
B38	10/06/2011	50 U	0.33 UJ	1.5	40	1 U	NA	0.32 J	14000 J	0.14 J	1 U	1 U	150	1 U	DMETAL
B38	04/04/2012	14 J	1 U	0.99 J	37	1 U	NA	1 U	18000	0.6 J	1 U	2 J	19 UJ	1 U	DMETAL

METALS (µg/L)

Location ID	Sample Date	Aluminum	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Analysis Group
California MCLs		1000	6	10	1000	4		5		50		1300		15	
Federal MCLs			6	10	2000	4		5		100		1300		15	
B450	04/19/2011	50 U	2.6	1.7 J	50	0.4 J	NA	2 U	59000	1 J	1 U	1.8 J	89 U	0.43 J	DMETAL
B450	04/19/2011	110	1.2	2.3	53	1 U	NA	2 U	65000	2	1 U	2.2 U	180	1.9 U	METAL
B450	10/10/2011	50 U	1.1	1	71	1 U	NA	0.21 J	36000	0.85 J	1 U	1 U	50 U	1 U	DMETAL
B450	04/06/2012	6.8 UJ	3.3	1.8	78	0.38 J	NA	1 U	73000	0.94 J	1 U	1 J	50 U	1 U	DMETAL
B450	04/03/2013	50 U	0.23 UJ	1.3	50	1 U	NA	1 U	46000	0.51 J	1 U	2.3 U	50 U	0.17 J	DMETAL
B450	04/03/2014	50 U	0.19 J	1.5	120	1 U	NA	1 U	80000	0.74 J	1 U	1 U	63 U	1 U	DMETAL
B450	04/14/2015	9.8 J	0.18 J	1.6	91	0.14 J	NA	1 U	64000	1	1 U	0.53 UJ	50 U	1 U	DMETAL
B450	04/07/2016	NA	4.2 J	5 U	56	2 U	NA	5 U	NA	5 U	5 U	1.8 UJ	NA	5 U	DMETAL
B460	09/15/2010	160	1 U	3.2	13	0.5 U	82 J	1 U	31000	0.53 J	1.2	1.9 J	280	2 U	METAL
B460	04/20/2011	75 U	0.38 J	2.4	8.8 J	3.2 U	NA	2 U	43000	1.3 U	1 U	21	89 U	0.96 J	DMETAL
B460	10/07/2011	50 U	0.39 J	3.4	8.4	1 U	NA	0.31 J	40000	0.38 J	0.46 J	1 U	210	1 U	DMETAL
B460	04/06/2012	8.5 UJ	0.18 J	2.7	5.4	1 U	NA	1 U	30000	0.67 J	1 U	2.3 U	50 U	1 U	DMETAL
B473	09/24/2010	180	1 U	2	64	0.5 U	140	1 U	25000	3.9	0.31 J	4.7	330	2 U	METAL
B473	04/20/2011	75 U	1.1 U	2.2	22 J	3.2 U	NA	2 U	44000	1.6	1 U	9.1	89 UJ	0.8 J	DMETAL
B473	10/07/2011	50 U	0.35 J	1.9	19	1 U	NA	1 U	19000	1.3	1 U	1 U	50 U	1 U	DMETAL
B473	04/06/2012	14 UJ	0.4 J	2.3	12	0.32 J	NA	0.18 UJ	17000	1.4	1 U	0.97 J	50 U	1 U	DMETAL
B474	09/23/2010	450	1 U	9.8	25	0.5 U	200	1 U	24000	1.7	1.6	2	1400	2 U	METAL
B474	04/20/2011	75 U	1.1 U	3.9	6.2 J	3.2 U	NA	2 U	35000	1.3 U	1 U	5.1	89 U	1.9 U	DMETAL
B474	04/20/2011	31 J	0.45 J	4.3	7.4	3.2 U	NA	2 U	35000	1.3 U	1 U	4.7	89 UJ	1.9 U	METAL
B474	10/07/2011	50 U	1.7	1.6	8.1	1 U	NA	1 U	12000	1.7	1 U	12	240	0.72 J	DMETAL
B474	10/07/2011	240	1.5	2.8	36	0.69 J	NA	1 U	17000	1.2	1.2	21	990	7.3	METAL
B474	04/09/2012	67	3.1	2.6	34	1 U	NA	0.57 J	28000	0.84 J	0.89 J	6.8	150	0.97 J	METAL
B474	04/09/2012	50 U	0.49 J	2.7	46	1 U	NA	0.42 J	32000	0.74 J	0.96 J	2.3 U	47 J	1 U	DMETAL
B474	04/03/2013	40 J	2.8	3.4	52	1 U	NA	1 U	21000	1 U	0.59 J	4.4	92	0.16 J	DMETAL
B474	04/03/2014	15 J	1.2	2.2	74	1 U	NA	1 U	34000	1.5	0.56 J	22	40 J	2.2	DMETAL
B474	04/16/2015	16 J	0.41 J	3.8	52	1 U	NA	1 U	25000	1.5	0.55 J	0.9 UJ	220	0.14 UJ	DMETAL
B474	04/11/2016	NA	10 U	5 U	55	2 U	NA	5 U	NA	5 U	5 U	18	NA	5 U	DMETAL

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

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University of California, Berkeley, Richmond Field Station Site

METALS (µg/L)

Location ID	Sample Date	Aluminum	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Analysis Group
California MCLs		1000	6	10	1000	4		5		50		1300		15	
Federal MCLs			6	10	2000	4		5		100		1300		15	
B480	09/24/2010	22	1 U	6.5	41	0.5 U	110	1 U	53000	0.68 J	1.5	2 U	420	2 U	METAL
B480	04/19/2011	32 J	1 J	3.1	42	1 U	NA	2 U	51000	1.2 J	1 U	7.8	89 U	0.54 J	DMETAL
B480	10/07/2011	50 U	0.52 J	2.6	39	1 U	NA	0.81 J	34000	0.34 J	0.2 J	0.28 J	50 U	1 U	DMETAL
B480	04/09/2012	50 U	0.23 J	2.8	75	1 U	NA	0.65 J	51000	1.8	1 U	2.3 U	50 U	1 U	DMETAL
B480	04/03/2013	8.1 J	0.41 UJ	2.5	93	1 U	NA	1 U	50000	1.3	1 U	2.3 U	50 U	1 U	DMETAL
B480	04/03/2014	50 U	0.25 J	3	130	1 U	NA	1 U	54000	1.8	0.24 J	3.4 U	63 U	1 U	DMETAL
B480	04/17/2015	50 U	1 U	2.1	140	1 U	NA	1 U	54000	1.5	1 U	1 U	50 U	1 U	DMETAL
B490	09/16/2010	21	1 U	2.2	53	0.5 U	130	1 U	52000	2.6	0.5 U	1.1 J	100 U	2 U	METAL
B490	04/20/2011	75 U	1.1 U	1.6 J	79 J	3.2 U	NA	2 U	52000	4.4	1 U	11	89 U	1.5 J	DMETAL
B490	10/10/2011	50 U	5 U	1.8	90	1 U	NA	1 U	45000	2.7	1 U	5.2 U	50 U	0.37 J	DMETAL
B490	04/09/2012	50 U	2.8	2.4	93	1 U	NA	1 U	46000	3.2	1 U	2.3 U	37 J	1 U	DMETAL
BULB1	10/19/2010	70	10 U	17	230	1 U	1700	10 U	370000	2.1	18	6.6	100	20 U	METAL
BULB1	04/12/2011	140	0.24 J	12 J	140	1 U	NA	0.99 J	420000	0.99 J	4.7 J	1 U	660	0.47 J	METAL
BULB1	04/12/2011	50 UJ	1.4	12	110	1 U	NA	1 U	330000	0.13 J	2.3	14 J	50 UJ	0.91 J	DMETAL
BULB1	09/30/2011	81	0.45 J	9.7	170 J	1 U	NA	1 U	440000	1 U	0.24 J	1.6 U	340 J	13	METAL
BULB1	09/30/2011	50 U	0.31 J	12	150	1 U	NA	0.09 J	380000	1.2 UJ	1.3	1.6 U	50 U	1 U	DMETAL
BULB1	04/05/2012	17 J	1.2	9	120	0.25 J	NA	0.2 J	320000	0.49 J	0.52 J	2.3 U	320	1 U	DMETAL
BULB1	04/05/2012	34 UJ	3.2	9.3	120	0.22 J	NA	0.31 UJ	290000	2.5	0.38 J	2.3 U	380	1 U	METAL
BULB1	04/05/2013	14 J	0.36 J	5.9	110	1 U	NA	0.39 J	310000	0.17 J	1 U	1.3 J	220	1 U	DMETAL
BULB1	04/10/2014	50 U	2.4	8.6	120	1 U	NA	1 U	380000	0.28 J	0.23 J	3.4 U	600	0.12 J	DMETAL
BULB1	04/13/2015	50 U	1 U	6.4	100	1 U	NA	0.28 J	220000	0.5 J	1 U	1 U	240	1 U	DMETAL
BULB1	04/13/2015	16 J	1 U	6.6	99	1 U	NA	0.25 J	210000	0.25 J	1 U	1 U	240	1 U	DMETAL
BULB1	04/08/2016	NA	6.7 J	15	110	1.1 J	NA	5 U	NA	5 U	5 U	5 U	NA	5 U	DMETAL

METALS (µg/L)

Location ID	Sample Date	Aluminum	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Analysis Group
California MCLs		1000	6	10	1000	4		5		50		1300		15	
Federal MCLs			6	10	2000	4		5		100		1300		15	
BULB2	10/19/2010	770	1 U	8.9	540	0.5 U	850	1 U	130000	3	8.1	5.6 J	2800	3.9	METAL
BULB2	04/12/2011	240	1.8	5 J	230	1 U	NA	1.4	75000	1.4	4.3	0.94 J	1500	0.71 J	METAL
BULB2	04/12/2011	50 UJ	2.5	3	55	1 U	NA	0.55 J	19000	0.23 J	1.1	28 J	50 UJ	1.3	DMETAL
BULB2	09/30/2011	220	0.52 J	2.6	66 J	1 U	NA	0.14 J	31000	1 U	1.4	1.6 U	880 J	0.67 J	METAL
BULB2	09/30/2011	50 U	0.13 J	3.8	53	1 U	NA	1 U	31000	1.8 UJ	1.1	1.6 U	1200	0.18 J	DMETAL
BULB2	04/05/2012	17 J	0.21 J	3.1	370 J	1 U	NA	1 U	180000 J	0.56 J	1.8	1.7 J	3100 J	1 U	DMETAL
BULB2	04/05/2012	40 UJ	0.38 J	3.4	370 J	0.21 J	NA	0.54 UJ	180000	0.34 J	1.7	5.2	3100	0.91 J	METAL
BULB2	04/05/2013	12 J	1 U	2	65	1 U	NA	1 U	41000	1 U	1.3	2.3 U	220	1 U	DMETAL
BULB2	04/10/2014	50 U	1 U	2.4	74	4.3 U	NA	1.3 U	43000	0.2 J	1.4	1 U	520	0.14 J	DMETAL
BULB2	04/13/2015	50 U	1 U	3.3	53	1 U	NA	1 U	29000	1 U	0.72 J	1 U	720	1 U	DMETAL
BULB2	04/08/2016	NA	2.3 J	5 U	350	0.7 J	NA	5 U	NA	5 U	5 U	1.2 UJ	NA	5 U	DMETAL
CCC1	09/08/2010	72	1 U	3	6.3	0.5 U	91 J	1 U	27000	0.84 J	0.5 U	1.5 J	88 J	2 U	METAL
CCC1	04/14/2011	75 U	1.2	2.4	6.4	3.2 UJ	NA	2 U	34000	1.9	1 U	4.6	43 J	1.9 U	DMETAL
CCC1	10/05/2011	50 U	1 U	0.45 J	3.2	1 UJ	NA	1 U	37000	1 U	1 U	1 U	50 U	1 U	DMETAL
CCC1	04/10/2012	50 U	1 U	2.5	6.8	1 U	NA	0.27 J	44000	0.34 J	1 U	2.3 U	50 U	1 U	DMETAL
CCC2	09/08/2010	20 U	1 U	2.3	24	0.5 U	140	1 U	48000	32	0.5 U	1.5 J	100 U	2 U	METAL
CCC2	04/14/2011	17 J	1 U	0.96 J	39	1 U	NA	0.66 J	210000	2.3	1 U	1 U	50 UJ	1 U	METAL
CCC2	04/14/2011	75 U	0.51 J	0.85 J	36	3.2 UJ	NA	2 U	210000	2.1	1 U	20	47 J	2.6	DMETAL
CCC2	10/04/2011	50 U	0.54 J	3.6	21	1 U	NA	1 U	65000	13	0.25 J	1.6 U	540	1 U	DMETAL
CCC2	10/04/2011	130	4	1.8	19	1 U	NA	0.13 J	62000	12	1 U	1.6 U	140	0.3 J	METAL
CCC2	04/10/2012	50 U	1 U	1.2	35	1 U	NA	0.34 J	120000	4.5	1 U	2.3 U	12 J	1 U	DMETAL
CCC2	04/10/2012	50 U	0.2 J	1.1	29	1 U	NA	0.24 J	96000	9.4	1 U	2.3 U	17 J	1 U	METAL
CCC2	04/02/2013	50 U	0.29 J	0.9 J	23	1 U	NA	1 U	66000	18	1 U	2.3 U	50 U	1 U	DMETAL
CCC2	04/02/2013	50 U	1 U	0.86 J	21	1 U	NA	1 U	63000	16	1 U	2.3 U	50 U	1 U	DMETAL
CCC2	04/02/2014	50 U	0.51 J	1.3	23	1 U	NA	1 U	59000	28	1 U	3.4 U	63 U	1 U	DMETAL
CCC2	04/15/2015	50 U	1 U	1.6	45	1 U	NA	1 U	65000	26 J	1 U	0.68 UJ	110 U	1 U	DMETAL
CCC2	04/07/2016	NA	10 U	5 U	61	2 U	NA	5 U	NA	1.9 J	5 U	5 U	NA	1.6 J	DMETAL

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

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University of California, Berkeley, Richmond Field Station Site

METALS (µg/L)

Location ID	Sample Date	Aluminum	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Analysis Group
California MCLs		1000	6	10	1000	4		5		50		1300		15	
Federal MCLs			6	10	2000	4		5		100		1300		15	
CCC3	09/03/2010	390	1 U	5.9	27	0.5 U	190	1 U	68000	2.8	2.1	2.4	550	2 U	METAL
CCC3	09/03/2010	29	1 U	4.6	22	0.5 U	130	1 U	64000	1.1	1.8	1.3 J	91 J	2 U	METAL
CCC3	04/12/2011	50 U	0.19 J	2.9	9.6	1 U	NA	1 U	45000	0.86 J	1 U	12 J	50 U	0.55 J	DMETAL
CCC3	10/04/2011	50 U	0.45 J	6.7	18	1 U	NA	1 U	61000	1 U	0.48 J	1.6 U	100 U	1 U	DMETAL
CCC3	10/04/2011	50 U	0.15 J	2.4	17	1 U	NA	1 U	59000	0.67 J	0.68 J	1.6 U	100 U	1 U	DMETAL
CCC3	04/10/2012	50 U	1 U	4.4	13	1 U	NA	1 U	61000	0.28 J	0.73 J	2.3 U	14 J	1 U	DMETAL
CCC3	04/02/2013	100	1.8	2	13	1 U	NA	1 U	55000	0.46 J	1 U	0.83 J	63	0.35 J	DMETAL
CCC3	04/02/2014	50 U	1 U	2.6	14	1 U	NA	1 U	61000	1 U	0.2 J	3.4 U	32 J	1 U	DMETAL
CCC3	04/15/2015	50 U	0.22 J	2.7	15	1 U	NA	1 U	50000	1 U	0.15 J	0.63 UJ	50 U	1 U	DMETAL
CCCT	09/03/2010	55	1 U	3.9	28	0.5 U	210	1 U	100000	1 U	2	1.8 J	260	2 U	METAL
CCCT	04/18/2011	50 U	0.6 J	1.7 J	24	1 UJ	NA	2 U	100000	1.3 U	1 U	12 J	50 UJ	0.69 J	DMETAL
CCCT	10/03/2011	50 U	0.11 J	3.5	22	1 U	NA	1 U	98000	0.53 UJ	0.44 J	1.6 U	98	1 U	DMETAL
CCCT	04/04/2012	50 U	1.4	2.6	24	1 U	NA	1 U	110000	1 U	0.26 J	2.3 U	70 UJ	1 U	DMETAL
CTP	09/30/2010	23	1 U	2.6	38	0.5 U	120	1 U	50000	1.1	0.54	2 U	150	2 U	METAL
CTP	09/30/2010	17 J	1 U	2.5	39	0.5 U	110	1 U	50000	1.1	0.52	2 U	140	2 U	METAL
CTP	04/14/2011	75 U	1.1 U	1.3 J	55	1 UJ	NA	9.3	50000	0.47 J	0.61 J	5.4	44 J	1.9 U	DMETAL
CTP	10/06/2011	50 U	0.32 UJ	0.81 J	65	1 U	NA	0.52 J	47000 J	0.45 J	1 U	1 U	50 U	1 U	DMETAL
CTP	04/03/2012	50 U	0.27 UJ	2.1 UJ	57	1 U	NA	0.62 J	57000	1	1 U	2.3 U	50 U	1 U	DMETAL
CTP	04/04/2013	50 U	1 U	0.81 J	66	1 U	NA	1	57000	0.34 J	0.22 J	2.3 U	19 UJ	0.12 UJ	DMETAL
CTP	04/03/2014	50 U	0.12 J	0.92 J	85	1 U	NA	2	62000	1.4	0.2 J	3.4 U	25 J	1 U	DMETAL
CTP	04/03/2014	50 U	0.13 J	0.98 J	81	1 U	NA	2.1	61000	1.4	0.23 J	3.4 U	63 U	1 U	DMETAL
CTP	04/17/2015	50 U	1 U	1.2	80	1 U	NA	2.6	58000	1.4	0.32 J	1 U	28 J	0.088 UJ	DMETAL
CTP	04/11/2016	NA	10 U	5 U	77	2 U	NA	1.5 J	NA	1 J	5 U	5 U	NA	5 U	DMETAL
CTPS	09/30/2010	36	1 U	3.6	82	0.5 U	260	1 U	130000	1.4	1.6	1.8 J	240	2 U	METAL
CTPS	04/19/2011	50 U	0.39 J	0.96 J	13	0.14 J	NA	2 U	47000	1.3 U	1 U	5	89 U	1.1	DMETAL
CTPS	10/07/2011	50 U	0.52 J	1.5	20	1 U	NA	0.82 J	55000	1 U	1 U	1 U	50 U	1 U	DMETAL
CTPS	04/05/2012	50 U	1 U	1.1	17	0.26 J	NA	1 U	36000	0.37 J	1 U	1.2 J	50 U	1 U	DMETAL

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METALS (µg/L)

Location ID	Sample Date	Aluminum	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Analysis Group
California MCLs		1000	6	10	1000	4		5		50		1300		15	
Federal MCLs			6	10	2000	4		5		100		1300		15	
DH	09/30/2010	20 U	1 U	3.5	41	0.5 U	320	0.75 J	530000	1 U	1.2	2.8	100 U	2 U	METAL
DH	04/14/2011	75 U	1.1 U	1.3 J	89	1 UJ	NA	1.9 J	590000	0.28 J	0.33 J	3.5	89 U	1.9 U	DMETAL
DH	10/05/2011	50 U	0.18 J	1.6	100	1 UJ	NA	1 U	810000	1 U	2.7	53	50 U	1.3	DMETAL
DH	04/06/2012	34 UJ	0.21 J	18	88	1 U	NA	0.46 UJ	510000	1.5	12	2.3 U	10000	1 U	DMETAL
DHR	04/04/2013	50 U	1 U	2.4	46	1 U	NA	0.43 J	690000	1 U	1.1	17	50 U	1 U	DMETAL
DHR	04/10/2014	50 U	0.32 J	2.6	82	1 U	NA	0.28 J	860000	1 U	3.9	3.4 U	330	1 U	DMETAL
DHR	04/13/2015	50 U	1 U	9.8	71	1 U	NA	0.16 J	710000	0.41 J	5.8	1 U	7200	1 U	DMETAL
DHR	04/08/2016	NA	10 U	5 U	82	2 U	NA	5 U	NA	11	9.7	5 U	NA	5 U	DMETAL
EERC	10/01/2010	10 J	1 U	11	39	0.5 U	480	1 U	450000	1 U	11	2.9	840	2 U	METAL
EERC	04/20/2011	75 U	0.52 J	1.7 J	22	3.2 U	NA	2 U	460000	1.3 U	0.37 J	0.96 J	89 UJ	1.9 U	METAL
EERC	04/20/2011	75 U	1.1 U	2.9	19 J	3.2 U	NA	2 U	420000	1.3 U	0.54 J	6.2	89 U	1.9 U	DMETAL
EERC	10/07/2011	50 U	0.56 J	3.1	20	1 U	NA	1 U	350000	1 U	5.1	1 U	32 J	1 U	DMETAL
EERC	10/07/2011	420	0.87 J	5.2	27	0.16 J	NA	0.29 J	350000	0.81 J	5.6	2.4	1000	0.41 J	METAL
EERC	04/06/2012	7 UJ	0.34 J	2.6	23	0.28 J	NA	1 U	330000	0.62 J	1 U	0.86 J	50 U	1 U	DMETAL
EERC	04/06/2012	19 J	2.9	2.4	25	1 U	NA	0.13 J	320000	0.74 J	1 U	0.96 J	36 UJ	1 U	METAL
EERC	04/08/2013	6.5 J	1 U	5.2	26	1 U	NA	1 U	420000	1 U	6.3	2.3 U	380	1 U	DMETAL
EERC	04/03/2014	50 U	0.25 J	4.2	28	1 U	NA	1 U	440000	0.19 J	3.3	3.4 U	980	1 U	DMETAL
EERC	04/16/2015	24 J	0.14 J	4.2	30	1 U	NA	1 U	310000	1 U	5.1	0.49 UJ	960	1 U	DMETAL
EERC	04/11/2016	NA	11	6 J	31	2 U	NA	5 U	NA	5 U	5 U	4.3 UJ	NA	5 U	DMETAL
EPA	09/16/2010	130	1 U	3.2	50	0.5 U	190	1 U	88000	2.1	0.74	2.7	230	2 U	METAL
EPA	04/19/2011	50 U	0.48 J	1.6 J	42	0.14 J	NA	2 U	120000	1.4	1 U	2.1 J	89 U	0.57 J	DMETAL
EPA	10/06/2011	50 U	0.41 UJ	2.3	38	1 U	NA	0.3 J	89000 J	1 U	1 U	7.5	50 U	1 U	DMETAL
EPA	04/06/2012	50 U	1 U	1.9	45	1 U	NA	1 U	100000	1 U	0.44 J	2.3 U	66 UJ	1 U	DMETAL
EPA	04/06/2012	50 U	1 U	1.8	51	0.44 J	NA	1 U	120000	0.86 J	0.91 J	1.2 J	50 U	1 U	DMETAL

METALS (µg/L)

Location ID	Sample Date	Aluminum	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Analysis Group
California MCLs		1000	6	10	1000	4		5		50		1300		15	
Federal MCLs			6	10	2000	4		5		100		1300		15	
ETA	09/24/2010	1600	1 U	22	39	0.5 U	150	0.93 J	110000	5.8	3.8	22	3300	9.8	METAL
ETA	09/24/2010	630	1 U	13	28	0.5 U	140	1 U	110000	2.6	2.4	8	1800	3.2	METAL
ETA	04/12/2011	50 U	0.26 J	7.4	18	1 U	NA	0.37 J	120000	0.093 J	1.3	2.1 J	120	0.36 J	DMETAL
ETA	04/12/2011	870	0.56 J	17 J	34	1 U	NA	2.4	120000	3.1	2.4	8.3	2100	4.1	METAL
ETA	09/30/2011	430	1.3	5.9	21 J	1 U	NA	0.46 J	96000	0.69 J	3.4	2.9	1900 J	2.4	METAL
ETA	09/30/2011	50 U	0.38 J	5.3	16	1 U	NA	0.28 J	99000	0.75 UJ	3	1.6 U	380	1 U	DMETAL
ETA	04/10/2012	50 U	1 U	5.5	20	1 U	NA	0.45 J	150000	0.23 J	2.4	2.3 U	410	1 U	DMETAL
ETA	04/10/2012	140	0.4 J	5.7	21	0.64 J	NA	0.7 J	120000	0.4 J	2.7	2.9	930	0.94 J	METAL
ETA	04/10/2012	50 U	1 U	5.9	20	1 U	NA	0.73 J	140000	0.23 J	2.2	2.3 U	390	1 U	DMETAL
ETA	04/10/2012	120	0.37 J	5.3	20	1 U	NA	0.47 J	110000	0.35 J	2.7	2.6	880	0.56 J	METAL
ETA	04/05/2013	50 U	1 U	3.3	17 J	1 U	NA	1 U	100000	1 U	2.6	2.3 U	930	1 U	DMETAL
ETA	04/08/2014	56	0.15 J	4.4	24	1 U	NA	1 U	130000	1 U	3.7	3.4 U	1000 J	0.29 J	DMETAL
ETA	04/13/2015	14 J	0.18 J	5.7	25	0.098 UJ	NA	0.16 J	150000	0.14 J	2.7	1 U	1300	0.17 J	DMETAL
ETA	04/05/2016	NA	10 U	5 U	22	2 U	NA	5 U	NA	4.8 J	2.2 J	3.1 J	NA	5 U	DMETAL
ETA01	02/02/2015	12 J	1 U	2	31	1 U	NA	0.2 J	56000	1 U	1.3	3.7 U	29 J	1 U	METAL
ETA01	04/05/2016	NA	10 U	5 U	38	2 U	NA	5 U	NA	5 U	2 J	3.2 J	NA	5 U	DMETAL
ETA02	02/02/2015	50 U	1 U	2.7	19	1 U	NA	0.54 J	480000	1 U	1.6	3.7 U	200	1 U	METAL
ETA02	02/02/2015	50 U	1 U	3.1	19	1 U	NA	0.52 J	450000	1 U	1.5	3.7 U	250	1 U	METAL
ETA02	04/05/2016	NA	2.6 J	5 U	18	2 U	NA	5 U	NA	4.2 J	3.1 J	5 U	NA	5 U	DMETAL
ETA03	02/02/2015	30 J	0.41 J	0.63 J	22	0.16 J	NA	2.5	580000	1 U	110	3.7 U	12000	1 U	METAL
ETA03	04/05/2016	NA	10 U	5 U	11	2 U	NA	5 U	NA	14	130	5 U	NA	5 U	DMETAL
EXT	09/30/2011	50 U	0.32 J	0.46 J	55	1 U	NA	1 U	14000	0.72 UJ	1 U	1.6 U	50 U	1 U	DMETAL
EXT	09/30/2011	50 U	1 U	0.32 J	54	1 U	NA	1 U	12000	1 U	1 U	1 U	100	1 U	METAL

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METALS (µg/L)

Location ID	Sample Date	Aluminum	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Analysis Group
California MCLs		1000	6	10	1000	4		5		50		1300		15	
Federal MCLs			6	10	2000	4		5		100		1300		15	
FG	09/23/2010	30000	1 U	9.7	190	2.6	120	1.9	120000	50	49	56	34000	33	METAL
FG	04/19/2011	50 U	0.47 J	1.2 J	21	0.25 J	NA	2 U	33000	1.3 U	1 U	24	89 U	2.8	DMETAL
FG	04/19/2011	1500	0.63 J	2.2	33	0.31 J	NA	2 U	34000	3.8	0.98 J	2.5	1600	0.87 J	METAL
FG	04/19/2011	50 U	0.4 J	1.2 J	21	0.14 J	NA	2 U	33000	0.61 J	1 U	35	89 U	2.2	DMETAL
FG	04/19/2011	760	0.58 J	1.7 J	29	0.25 J	NA	2 U	34000	2.2	1.7	2.4	1100	0.72 J	METAL
FG	10/10/2011	75	0.22 J	1 J	29	1 U	NA	0.25 J	50000	0.61 J	1 U	0.71 J	180	0.17 J	METAL
FG	10/10/2011	50 U	0.35 UJ	1.4	23	1 U	NA	0.19 J	48000	1 U	1 U	5.2	50 U	0.2 J	DMETAL
FG	04/09/2012	50 U	1 U	1.4	15 J	1 U	NA	1 U	25000	0.48 J	1 U	2.3 U	35 J	1 U	DMETAL
FG	04/09/2012	150	1 U	1.4	16	1 U	NA	0.11 J	25000	0.73 J	0.24 J	1 J	200	1 U	METAL
FG	04/03/2013	77	6.4	1.1	24	1 U	NA	1 U	28000	1 U	1 U	2.3 U	22 J	1 U	DMETAL
FG	04/09/2014	50 U	2.7	1.3	19	1 U	NA	1 U	18000	0.37 J	0.15 J	2.3 J	58 UJ	1 U	DMETAL
FG	04/16/2015	45 J	0.16 J	1.7	31	1 U	NA	1 U	26000	0.41 J	1 U	0.36 UJ	50 J	0.11 UJ	DMETAL
FG	04/07/2016	NA	10 U	5 U	25	2 U	NA	5 U	NA	5 U	5 U	1.3 UJ	NA	5 U	DMETAL
GEO	09/03/2010	12 J	1 U	1.8	56	0.5 U	120	1 U	59000	1.6	0.5 U	1.1 J	100 U	2 U	METAL
GEO	04/20/2011	75 U	1.1 U	1.7 J	88 J	3.2 U	NA	2 U	69000	1.3 U	0.63 J	27	89 UJ	1.7 J	DMETAL
GEO	10/06/2011	50 U	0.27 UJ	2.5	67	1 U	NA	1 U	51000 J	1.7	1 U	1 U	50 U	1 U	DMETAL
GEO	04/06/2012	15 UJ	1 U	1.6	94	0.26 J	NA	0.17 UJ	67000	0.62 J	1 U	2.3 U	50 U	1 U	DMETAL
MFA	09/24/2010	160	1 U	2.3	33	0.5 U	140	1 U	75000	0.65 J	1.1	1.8 J	220	2 U	METAL
MFA	04/12/2011	50 UJ	0.98 J	1.4	28	1 U	NA	1 U	45000	0.28 J	0.81 J	9.5 J	50 U	0.62 J	DMETAL
MFA	10/03/2011	50 U	0.11 J	0.47 J	48	1 U	NA	0.15 J	74000	0.8 UJ	0.71 J	6.2	500 U	1 U	DMETAL
MFA	04/05/2012	50 U	0.79 J	2.3	31	1 U	NA	0.57 J	47000	1 U	0.92 J	1.6 J	5.8 UJ	1 U	DMETAL
MFA	04/08/2014	50 U	0.15 J	1.5	38	1 U	NA	1 U	72000	1 U	0.99 J	3.4 U	45 J	1 U	DMETAL

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METALS (µg/L)

Location ID	Sample Date	Aluminum	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Analysis Group
California MCLs		1000	6	10	1000	4		5		50		1300		15	
Federal MCLs			6	10	2000	4		5		100		1300		15	
NRLF	09/16/2010	25	1 U	3.3	13	0.5 U	110	1 U	50000	1 U	0.57	2 U	300	2 U	METAL
NRLF	04/20/2011	75 U	0.41 J	5.2	15 J	3.2 U	NA	2 U	63000	1.3 U	0.86 J	82	150 UJ	4.1	DMETAL
NRLF	10/06/2011	50 U	0.38 UJ	1.4	30	1 U	NA	1 U	34000 J	1 U	1 U	1 U	50 U	1 U	DMETAL
NRLF	04/09/2012	50 U	0.61 J	2.9	58	1 U	NA	1 U	47000	1 U	0.64 J	2.3 U	180	1 U	DMETAL
NRLF	04/03/2013	50 U	1 U	7	60	1 U	NA	1 U	48000	1 U	0.37 J	2.3 U	3100	1 U	DMETAL
NRLF	04/09/2014	50 U	0.21 J	2	81	1 U	NA	1 U	50000	0.2 J	0.34 J	3.4 U	110 UJ	1 U	DMETAL
NRLF	04/16/2015	50 U	1 U	4.5	87	1 U	NA	1 U	51000	1 U	0.33 J	1 U	900	0.085 UJ	DMETAL
NRLF	04/08/2016	NA	2.4 J	6.7	92	2 U	NA	5 U	NA	5 U	5 U	5 U	NA	5 U	DMETAL
OBS6	09/30/2011	33 J	0.21 J	3.6	100	1 U	NA	1 U	40000	1.5 UJ	1 U	1.6 U	50 U	1 U	DMETAL
OBS6	09/30/2011	50 U	1 U	1.7	110	1 U	NA	1 U	37000	0.15 J	1 U	2.7	22 J	2.4	METAL
PZ11	10/01/2010	20 U	1 U	2.5	11	0.5 U	77 J	2.7	200000	1 U	1	22	100 U	2 U	METAL
PZ11	04/20/2011	1200	1.1 U	0.67 J	12 J	2.1 J	NA	30	240000	1 J	3.7	1200	89 UJ	2.6	DMETAL
PZ11	04/20/2011	1200	0.56 J	0.82 J	13	1.8 J	NA	35	260000	0.74 J	3.4	1300	95 UJ	0.67 J	METAL
PZ11	10/10/2011	50 U	0.17 J	1.4	10	1 U	NA	3.4	230000	1 U	1.3	34	38 J	1 U	METAL
PZ11	10/10/2011	50 U	0.37 UJ	1.6	10	1 U	NA	4.9	230000	1 U	1.2	12	50 U	1 U	DMETAL
PZ11	04/05/2012	740	0.18 J	0.5 J	10	0.98 J	NA	19	130000	68 U	1.4	770	50 U	1 U	METAL
PZ11	04/05/2012	600	1 U	1.1	11	1.1	NA	22	160000	1.9	1.5	800	17 UJ	1 U	DMETAL
PZ11	04/05/2013	32 J	5.3	1.1	15	1 U	NA	5.9	210000	1 U	3.3	21	83	1 U	DMETAL
PZ11	04/05/2013	34 J	1 U	1.2	14	1 U	NA	6.5	240000	1 U	3.6	23	67	1 U	DMETAL
PZ11	04/09/2014	50 U	0.36 J	1.6	22	1 U	NA	1 U	320000	1 U	5.7	2.7 J	400	1 U	DMETAL
PZ11	04/16/2015	50 U	0.13 J	1.7	17	1 U	NA	4.9	190000	1 U	2.6	8.4	29 J	1 U	DMETAL
PZ11	04/08/2016	NA	10 U	5 U	16	0.6 J	NA	6.2	NA	4.3 J	1.8 J	200	NA	5 U	DMETAL

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METALS (µg/L)

Location ID	Sample Date	Aluminum	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Analysis Group
California MCLs		1000	6	10	1000	4		5		50		1300		15	
Federal MCLs			6	10	2000	4		5		100		1300		15	
PZ8	10/15/2010	68	1 U	1.6	96	0.5 U	97 J	1 U	44000	1.3	0.29 J	1.5 J	110	2 U	METAL
PZ8	04/18/2011	50 U	0.32 J	2	84	1 UJ	NA	2 U	40000	1.1 J	1 U	3.7 J	50 UJ	0.45 J	DMETAL
PZ8	10/04/2011	50 U	0.36 J	7.7	99	1 U	NA	1 U	44000	1.2	1 U	1.6 U	100 U	1 U	DMETAL
PZ8	04/03/2012	50 U	1 U	2.1 UJ	88	1 U	NA	0.48 J	44000	1	1 U	1.6 J	50 U	1 U	DMETAL
PZ8	04/08/2013	15 J	1 U	1.1	84	1 U	NA	1 U	45000	0.89 J	1 U	1.1 J	50 U	1 U	DMETAL
PZ8	04/08/2014	30 J	0.17 J	1.3	95	1 U	NA	1 U	53000	0.97 J	0.24 J	3.4 U	41 J	0.14 J	DMETAL
PZ8	04/14/2015	50 U	0.26 J	1.5	84	0.1 J	NA	1 U	48000	1	1 U	1 U	50 U	0.076 J	DMETAL
PZ8	04/14/2015	50 U	0.18 J	1.3	84	1 U	NA	1 U	47000	1.2	1 U	1 U	50 U	1 U	DMETAL
PZ9	09/24/2010	20 U	1 U	2.7	79	0.5 U	62 J	1 U	36000	1 U	0.29 J	2 U	100 U	2 U	METAL
PZ9	04/20/2011	75 U	1.1 U	1.9	84 J	3.2 U	NA	2 U	37000	1.3 U	0.8 J	5.8	89 UJ	1.9 U	DMETAL
PZ9	10/07/2011	50 U	0.4 J	2.3	67	1 U	NA	1 U	29000	1 U	1 U	1 U	50 U	1 U	DMETAL
PZ9	10/07/2011	50 U	0.45 J	3.2	66	1 U	NA	0.19 J	30000	1 U	0.17 J	1 U	50 U	1 U	DMETAL
PZ9	04/06/2012	26 UJ	0.32 J	3	130 J	1 U	NA	1 U	47000	1 U	1	2.3 U	92 UJ	1 U	DMETAL
RWF	09/15/2010	54	1 U	1.3	120	0.5 U	100	1 U	72000	1.6	0.5 U	1.6 J	83 J	2 U	METAL
RWF	04/18/2011	10 J	0.26 J	0.63 J	79	1 UJ	NA	2 U	72000	0.58 J	1 U	3.7 J	50 UJ	0.49 J	DMETAL
RWF	10/06/2011	50 U	0.43 UJ	1.3	120	1 U	NA	1 U	63000 J	0.78 J	1 U	1 U	50 U	1 U	DMETAL
RWF	04/04/2012	50 U	0.18 J	2.2	150	0.21 J	NA	1.1	71000	0.47 J	0.52 J	1 J	28 UJ	1 U	DMETAL
TP1	09/29/2010	22	1 U	1.9	29	0.5 U	90 J	1 U	67000	1 U	0.28 J	1.3 J	100 U	2 U	METAL
TP1	04/18/2011	50 U	0.24 J	2.2	42	1 UJ	NA	2 U	160000	1.3 U	1.3	7.8 J	310	0.55 J	DMETAL
TP1	10/07/2011	50 U	0.52 J	1.4	23	1 U	NA	1 U	59000	1 U	0.86 J	1 U	50 U	1 U	DMETAL
TP1	04/05/2012	50 U	1 U	8.4	54	1 U	NA	1 U	180000	1 U	6.5	1.1 J	1200	1 U	DMETAL
TP1	04/04/2013	12 J	1 U	1.5	30	1 U	NA	1 U	100000	1 U	0.22 J	2.3 U	1500	1 U	DMETAL
TP1	04/02/2014	50 U	1 U	11	35	1 U	NA	1 U	160000	0.17 J	2.3	3.4 U	3000	1 U	DMETAL
TP1	04/10/2015	9.1 J	0.23 J	3.8	26	0.11 J	NA	1 U	140000	0.16 UJ	0.29 J	0.3 J	3000 J	0.076 J	DMETAL
TP1	04/07/2016	NA	4.1 J	5 U	34	2 U	NA	5 U	NA	5 U	5 U	1.8 UJ	NA	5 U	DMETAL

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METALS (µg/L)

Location ID	Sample Date	Aluminum	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Analysis Group
California MCLs		1000	6	10	1000	4		5		50		1300		15	
Federal MCLs			6	10	2000	4		5		100		1300		15	
TP2	09/29/2010	90	1 U	1.3	110	0.5 U	110	1 U	87000	1.9	0.39 J	2 U	150	2 U	METAL
TP2	04/18/2011	50 U	0.22 J	0.74 J	97	1 UJ	NA	2 U	75000	1.2 J	1 U	2.2 UJ	50 UJ	0.16 J	DMETAL
TP2	10/07/2011	50 U	1	2.4	81	1 U	NA	0.38 J	76000	0.7 J	1 U	1 U	50 U	0.27 J	DMETAL
TP2	04/09/2012	50 U	0.28 J	1.3	89	1 U	NA	0.42 J	77000	1.7	1 U	2.3 U	5.3 J	1 U	DMETAL
TP2	04/09/2012	50 U	1 U	1.9	91	1 U	NA	0.22 J	78000	1.7	1 U	2.3 U	50 U	1 U	DMETAL
WSM01	02/02/2015	34 J	1 U	4	16	1 U	NA	1 U	120000	1 U	14	3.7 U	1300	1 U	METAL
WSM01	04/05/2016	NA	10 U	5 U	19	2 U	NA	5 U	NA	1.7 J	9.8	2.2 J	NA	5 U	DMETAL
WTA	09/30/2010	30	1 U	2.2	36	0.5 U	150	1 U	110000	9.5	0.33 J	2 U	100 U	2 U	METAL
WTA	04/14/2011	86	1 U	1.5 J	39	1 U	NA	0.34 J	100000	6	0.17 J	1 U	100 UJ	1 U	METAL
WTA	04/14/2011	75 U	0.51 J	1.3 J	36	3.2 UJ	NA	2 U	99000	6	1 U	11	89 U	1.9 U	DMETAL
WTA	04/14/2011	75 U	1.1 U	1.6 J	37	3.2 UJ	NA	2 U	93000	6.1	1 U	3	89 U	1.9 U	DMETAL
WTA	04/14/2011	66	1 U	1.7 J	39	1 U	NA	0.47 J	110000	6.1	0.16 J	1 U	80 UJ	1 U	METAL
WTA	10/05/2011	50 U	1 U	0.55 J	41	1 UJ	NA	1 U	100000	4.5	1 U	1 U	50 U	1 U	DMETAL
WTA	10/05/2011	150	1 U	1.6	47	1 U	NA	0.25 J	98000	5.1	0.49 J	5.2 U	270	0.17 J	METAL
WTA	04/05/2012	87 UJ	0.23 J	2.3	48	1 U	NA	0.35 UJ	90000	5.2	1 U	2.3 U	68 UJ	1 U	METAL
WTA	04/05/2012	17 J	1 U	2.4	55	1 U	NA	1 U	100000	5.8	1 U	2.3 U	8.1 UJ	1 U	DMETAL

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METALS (µg/L)

Location ID	Sample Date	Magnesium	Manganses	Mercury	Molybdenum	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Analysis Group
California MCLs				2		100		50			2			
Federal MCLs				2				50			2			
B120	09/09/2010	150000	92	0.03 U	2.7	7.1	1600 J	2 U	0.5 U	170000	2 U	4.6	15	METAL
B120	04/15/2011	180000	140	0.2 U	2.2 UJ	1 U	1300	1 U	1.7 U	160000	1 U	5.2	3.3 J	DMETAL
B120	10/04/2011	170000	290	0.2 U	0.79 UJ	11	1900	0.97 J	1 U	160000	0.13 J	7.6	9 U	DMETAL
B120	04/03/2012	160000	330	0.079 J	0.9 J	6.5	1700 U	1 U	1 U	180000	1 U	4.7	9 U	DMETAL
B121	09/08/2010	39000	320	0.02 J	1.7	4.3	1600 J	2 U	0.5 U	75000	2 U	2.5 J	6.4	METAL
B121	04/13/2011	34000	7.7	0.2 U	0.33 J	1.2	850	1 U	1 U	59000	1 U	4	20	DMETAL
B121	10/04/2011	40000	8.2	0.2 U	1 U	1 U	640	1 U	0.14 J	64000	1 U	5.9	9.8	DMETAL
B121	04/04/2012	40000	7.6	0.2 U	0.89 J	1 U	470	0.34 UJ	1 U	68000	1 U	4.4	3.8 J	DMETAL
B128	09/23/2010	46000	360	0.048	2.8	2.7	6400	2 U	0.5 U	180000	2 U	4 U	2.8 J	METAL
B128	09/23/2010	39000	56	0.015 J	1.7	2	7700	2 U	0.5 U	170000	2 U	4 U	6.9	METAL
B128	04/18/2011	16000	69	0.11 J	0.91 J	10	730	0.4 J	1.7 U	93000	0.11 J	1.5 UJ	9 U	DMETAL
B128	10/04/2011	22000	170	0.052 UJ	0.36 UJ	7.1	1300	1 U	0.095 J	130000	1 U	2.5	21	DMETAL
B128	04/02/2012	17000	15	0.089 J	1 U	7.2	170 U	0.58 UJ	0.6 J	83000	1 U	1.9	9 U	DMETAL
B128	04/05/2013	17000	86	0.025 J	0.6 UJ	5.8	510	1 U	1 U	110000	1 U	1.2	20 U	DMETAL
B128	04/10/2014	17000	3.6	0.2 U	0.45 J	6	600	1 U	1 U	120000	1 U	1.2	5 U	DMETAL
B128	04/13/2015	18000	35	0.2 U	0.5 UJ	11	210 J	1 U	1 U	98000	1 U	1.8 UJ	12 U	DMETAL
B128	04/13/2015	18000	37	0.2 U	0.46 UJ	10	270 J	0.21 UJ	1 U	100000	1 U	2 UJ	12 U	DMETAL

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METALS (µg/L)

Location ID	Sample Date	Magnesium	Manganses	Mercury	Molybdenum	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Analysis Group
California MCLs				2		100		50			2			
Federal MCLs				2				50			2			
B150	09/08/2010	19000	30	0.03 U	0.36 J	5.3	1300 J	3.2	0.5 U	36000	2 U	4 U	3.1 J	METAL
B150	04/13/2011	14000	2.2	0.2 U	1 U	2.7	560	37	1 U	26000	1 U	1.4	18	DMETAL
B150	10/05/2011	16000 UJ	5 U	0.2 U	1 U	1 U	580	14	1 U	29000	1 U	6	5 U	DMETAL
B150	10/05/2011	16000 J	5 U	0.2 U	1 U	1 U	590	10	1 U	29000	1 U	2.8	5 U	DMETAL
B150	04/04/2012	13000	1 U	0.2 U	0.22 J	0.58 J	170 U	67	1 U	30000	1 U	2.3	4.6 J	DMETAL
B150	04/04/2012	14000	0.9 J	0.2 U	0.53 J	0.71 J	170 U	66	1 U	30000	1 U	3.1	9 U	DMETAL
B150	04/02/2013	14000	0.76 UJ	0.2 U	1 U	3.4	50 U	29	1 U	26000	1 U	1.2	17 J	DMETAL
B150	04/01/2014	12000	4.6	0.2 U	3.2 U	3.7	250	82	1 U	26000	1 U	0.6 J	5.6 J	DMETAL
B150	04/15/2015	14000	0.16 UJ	0.2 U	0.56 UJ	3.9	170	36	1 U	31000	1 U	3 UJ	12 U	DMETAL
B150	04/15/2015	12000	0.16 UJ	0.2 U	0.52 UJ	3.3	140	31	1 U	27000	1 U	2.8 UJ	12 U	DMETAL
B150	04/07/2016	NA	NA	0.2 U	5 U	1.7 J	NA	40	1.9 J	NA	1 U	5 U	20 U	DMETAL
B150	04/07/2016	NA	NA	0.2 U	1 J	1.9 J	NA	38	1.7 J	NA	1 U	1.1 J	20 U	DMETAL
B158	09/08/2010	2600	13	0.03 U	0.87	1.8	1100 J	2 U	0.5 U	52000	2 U	6.4	3 J	METAL
B158	04/15/2011	1900	1.8	0.2 U	1.9 U	1 U	380	0.3 J	1.7 U	36000	0.068 J	5.9	9 U	DMETAL
B158	10/05/2011	2500	2.3 J	0.2 U	1 U	1 U	350 J	1 U	1 U	50000	1 U	8	5 U	DMETAL
B158	04/06/2012	2900	1.3	0.2 U	0.52 J	1 U	170 U	1 U	0.18 J	53000	1 U	7.3	35	DMETAL
B158	04/08/2013	2200	5.5	0.2 U	0.38 UJ	1 U	340	0.31 J	1 U	50000	1 U	7.3	20 U	DMETAL
B158	04/02/2014	2400	9.5	0.2 U	0.72 J	4.2 U	320	1 U	1 U	48000	1 U	7.1	2.4 J	DMETAL
B158	04/16/2015	2200	54	0.2 U	0.61 UJ	2.2	170	1 U	1 U	49000	1 U	7.1	12 U	DMETAL

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METALS (µg/L)

Location ID	Sample Date	Magnesium	Manganses	Mercury	Molybdenum	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Analysis Group
California MCLs				2		100		50			2			
Federal MCLs				2				50			2			
B163	09/02/2010	200000	17000	0.083	0.95	170	2800	2 U	0.5 U	230000	2 U	4 U	9.2	METAL
B163	04/12/2011	180000	15000	0.2 UJ	0.23 J	180	1500	1 UJ	1 U	190000	0.08 J	1.9	27	DMETAL
B163	04/12/2011	190000	19000	0.19 J	1 UJ	200	1600	0.39 J	1 U	190000	0.063 J	2.2	27	METAL
B163	10/03/2011	330000	20000	0.17 UJ	0.71 UJ	200	1800	0.65 J	1 U	240000	1 U	0.68 J	15	DMETAL
B163	10/03/2011	240000	20000	0.18 J	0.35 UJ	200	2200 J	0.36 UJ	1 U	250000	1 U	2.2	4.1 J	METAL
B163	04/02/2012	200000	16000	0.23	2.4	180	1800	1.2 UJ	1 U	210000	1 U	3.3	9.1	DMETAL
B163	04/02/2012	200000 J	17000	0.22	1.2 UJ	200	990	1.3 J	1 U	220000	1 U	2.7	7.9 J	METAL
B163	04/03/2013	230000 J	19000	0.095 J	1.7 UJ	200 J	1800 J	1 U	1 U	190000	1 U	1.9	30	DMETAL
B163	04/01/2014	220000	19000	0.2 U	3.2 U	200	1600	0.39 J	1 U	230000	1 U	2.6	8.8 J	DMETAL
B163	04/14/2015	220000	20000	0.053 J	1.1 UJ	210	13000	0.22 J	1 U	200000	1 U	2.5	6.9 J	DMETAL
B163	04/05/2016	NA	NA	0.15 J	1.8 J	170	NA	12	2.8 J	NA	10 UJ	5 U	6.4 J	DMETAL
B175S	09/03/2010	43000	250	0.072	1.3	3.3	2100	2 U	0.5 U	91000	2 U	4 U	2.5 J	METAL
B175S	04/13/2011	30000	12	0.2 U	0.23 J	2.3	740	0.86 J	1 U	67000	0.062 J	2.3	14	DMETAL
B175S	10/04/2011	38000	39	0.054 UJ	0.27 UJ	1 U	630	0.26 J	1 U	67000	1 U	2.7	7.1 J	DMETAL
B175S	04/04/2012	35000	4.6	0.2 U	1 U	1 U	110 J	0.76 UJ	1 U	74000	1 U	2.3	9 U	DMETAL
B175S	04/02/2013	45000	8.2	0.06 J	0.52 UJ	0.59 UJ	450	0.28 J	1 U	84000	1 U	2.9	14 J	DMETAL
B175S	04/01/2014	49000	4.1	0.2 U	3.2 U	1.8 J	490	1.5	1 U	100000	1 U	3.5	16 U	DMETAL
B175S	04/15/2015	42000	3.7	0.033 J	1.6 UJ	1.4	500	1.2	1 U	82000	0.12 J	3.3 UJ	12 U	DMETAL
B175W	09/08/2010	12000	17	0.03 U	0.54	2.5	2700	2 U	0.5 U	56000	2 U	4 U	3.8 J	METAL
B175W	04/13/2011	9700	3.2	0.2 U	0.78 J	0.96 J	1600	1 UJ	1 U	45000	1 U	2.4	15	DMETAL
B175W	10/04/2011	13000	39	0.065 UJ	0.93 UJ	1 U	890	1 U	1 U	45000	1 U	4.7	18	DMETAL
B175W	04/04/2012	11000	4	0.2 U	3	1 U	280	1.1 UJ	1 U	45000	1 U	2	9 U	DMETAL
B177	09/23/2010	9900	3.9	0.03 U	0.27 J	1.8	2000 U	1.1 J	0.5 U	32000	2 U	4 U	4 J	METAL
B177	04/18/2011	14000	0.95 J	0.038 J	0.52 J	1 U	280	1.8	1.7 U	34000	1 U	1.7 UJ	5 U	DMETAL
B177	10/05/2011	11000 J	9.8	0.2 U	1 U	1 U	250 J	1 U	1 U	29000	0.28 J	3	5.8	DMETAL
B177	04/04/2012	21000	0.44 J	0.2 U	0.23 J	7.1	170 U	2.6	1 U	45000	1 U	2	9.3	DMETAL

METALS (µg/L)

Location ID	Sample Date	Magnesium	Manganses	Mercury	Molybdenum	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Analysis Group
California MCLs				2		100		50			2			
Federal MCLs				2				50			2			
B178	09/02/2010	140000	570	0.03 U	2.4	7.5	2800	2 U	0.5 U	150000	2 U	2.9 J	4.7 J	METAL
B178	04/15/2011	140000	430	0.2 U	2.4 UJ	1 U	1400	2.5 U	1.7 U	160000	1 U	4.7	3.4 J	DMETAL
B178	10/04/2011	150000	810	0.2 U	2.3 UJ	12	1400	1.5	0.16 J	130000	0.37 J	6.5	6 J	DMETAL
B178	04/03/2012	150000	1100	0.2 U	1.7	12 J	1500	0.41 UJ	1 U	250000	1 U	3.6	3.7 J	DMETAL
B178	04/02/2013	160000	1800	0.2 U	2.9 UJ	7.7	1200	0.51 J	1 U	160000	1 U	2.1	20 U	DMETAL
B178	04/08/2014	190000	2400	0.2 U	1.8	5.1	1600	0.63 J	1 U	250000	0.054 J	0.46 J	3.2 J	DMETAL
B178	04/10/2015	160000	2200	0.2 U	1.6	4.2	1200	1 U	1 U	160000	1 U	1.6 UJ	12 U	DMETAL
B180	09/15/2010	5200	20	0.03 U	1.2	2.2	2000 U	2 U	0.5 U	92000	2 U	9.6	4.2 J	METAL
B180	04/13/2011	4200	2.7	0.2 U	0.91 J	0.53 J	640	1 UJ	1 U	83000	1 U	6.2	54	DMETAL
B180	10/06/2011	5500 J	0.5 J	0.2 U	1.1 UJ	1 U	340	0.66 J	1 U	76000	1 U	9.6	9.6	DMETAL
B180	10/06/2011	5600 J	0.29 J	0.2 U	1 UJ	1 U	320	0.34 J	1 U	76000	1 U	8.5	28	DMETAL
B180	04/04/2012	4700	0.8 J	0.2 U	1.7	1 U	98 J	0.55 UJ	1 U	78000	1 U	6.7	9 U	DMETAL
B185	09/02/2010	130000	330	0.03 U	1	7.1	2400	2 U	0.5 U	130000	2 U	4 U	3.6 J	METAL
B185	04/15/2011	120000	130	0.2 U	1.9 U	1 U	990	2.5 U	1.7 U	92000	1 U	3.4	8.3	DMETAL
B185	04/15/2011	130000	120	0.2 U	1.9 U	1 U	1000	2.5 U	1.7 U	97000	1 U	3.6	5.8 J	DMETAL
B185	10/03/2011	140000	170	0.088 UJ	0.69 UJ	8.4	1200	0.28 J	1 U	120000	1 U	5.7	47	DMETAL
B185	10/03/2011	220000	170	0.088 UJ	1 U	1 U	1300	1 U	1 U	130000	1 U	5.2	29	DMETAL
B185	04/02/2012	140000	440	0.041 J	0.77 J	5.2	780	0.89 UJ	1 U	120000	1 U	4.8	9 U	DMETAL
B194	09/09/2010	39000	180	0.03 U	2.3	1.8	4400	2 U	0.5 U	120000	2 U	2.4 J	5 U	METAL
B194	04/13/2011	35000	1.8	0.2 U	0.74 J	0.79 J	1100	1 UJ	1 U	99000	1 U	3.9	27	DMETAL
B194	10/04/2011	36000	8.7	0.2 U	1 U	1 U	1000	0.51 J	1 U	110000	0.24 J	4.7	9 U	DMETAL
B194	04/04/2012	35000	0.36 J	0.2 U	1 U	1 U	350 U	1 U	1 U	110000	1 U	4.4	5.4 J	DMETAL

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METALS (µg/L)

Location ID	Sample Date	Magnesium	Manganses	Mercury	Molybdenum	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Analysis Group
California MCLs				2		100		50			2			
Federal MCLs				2				50			2			
B195	09/09/2010	110000	63	10	1.1	3.1	2900	2 U	0.5 U	130000	2 U	4 U	4.3 J	METAL
B195	04/13/2011	36000	5	1.2	0.36 J	1.1	570	1 UJ	1 U	57000	1 U	4	57	DMETAL
B195	04/13/2011	39000	11	2.4	1 UJ	1.1	660	0.43 J	1 U	59000	1 U	4.1	5 UJ	METAL
B195	04/13/2011	35000	5.1	1.1	0.39 J	1	560	0.44 J	1 U	56000	1 U	3.6	27	DMETAL
B195	04/13/2011	40000	8.1	2.2	1 UJ	2.9 U	690	0.41 J	1 U	60000	1 U	3.9	8 UJ	METAL
B195	10/04/2011	120000	15	10	1.2 UJ	3.3	820	1 U	1 U	110000	1.6	5	9 J	DMETAL
B195	10/04/2011	150000	16	15	2.5	1.5	870	1 U	1 U	140000	0.45 J	4	9 U	METAL
B195	04/03/2012	50000	8.3	2	0.71 J	1 U	390	1.1 UJ	1 U	69000	1 U	6.2	9 U	DMETAL
B195	04/03/2012	43000	7 J	2.7	1 U	0.41 J	740	1.3	1 U	65000	1 U	1.9	9 U	METAL
B195	04/02/2013	78000	1.3 UJ	9.9	1.8 UJ	0.96 UJ	740	0.37 J	0.91 J	99000	1 U	3.9	20 U	DMETAL
B195	04/02/2013	76000	1.2 UJ	11	0.33 UJ	0.89 UJ	650	0.4 J	0.51 J	100000	1 U	3.8	20 U	DMETAL
B195	04/02/2014	84000	5	4.51	0.94 J	2.6 J	790	0.47 J	1 U	100000	0.075 J	3.8	9.2	DMETAL
B195	04/02/2014	78000	3.6	4.59	0.97 J	1.5 J	550	0.61 J	1 U	91000	0.068 J	3.7	4.9 J	DMETAL
B195	04/14/2015	57000	0.3 J	4.8	2.6 UJ	1.1	580	0.54 J	1 U	89000	1 U	5	12 U	DMETAL
B195	04/11/2016	NA	NA	2.1	1.9 J	1.9 J	NA	10 U	5 U	NA	2 J	4.8 J	20 U	DMETAL
B197	09/09/2010	120000	36	0.03 U	1.5	2.8	2000	2 U	0.5 U	130000	2 U	2.7 J	5.8	METAL
B197	09/09/2010	120000	34	0.03 U	1.4	2.6	1800 J	2 U	0.5 U	130000	2 U	2.8 J	3.8 J	METAL
B197	04/13/2011	150000	1300	0.2 U	1.3	8.4	1300	1 U	1 U	140000	1 U	2.4	10	DMETAL
B197	10/04/2011	120000	530	0.2 U	0.73 UJ	8	1300	0.68 J	0.21 J	110000	1 U	6.7	14	DMETAL
B197	04/03/2012	170000	2500	0.049 J	1 U	3.3	1700 U	0.44 UJ	1 U	170000	1 U	1 U	9 U	DMETAL
B197	04/03/2012	160000	2400	0.062 J	1 U	2.2	1700 U	0.47 UJ	1 U	170000	1 U	1 U	9 U	DMETAL
B197R	04/08/2013	160000	16	0.2 U	2.3 UJ	1 U	6300	0.66 J	1 U	180000	1 U	3.4	9.5 J	DMETAL
B197R	04/08/2014	230000	7100	0.2 U	1.6	6.1	2500	1 U	1 U	260000	1 U	0.34 J	16	DMETAL
B197R	04/14/2015	170000	2700	0.2 U	0.8 UJ	2.2	1200 J	1.1 J	1 U	150000 J	0.042 J	1.5	12 U	DMETAL
B197R	04/05/2016	NA	NA	0.077 J	3 J	1.7 J	NA	10 U	5.4	NA	10 U	5 U	20 U	DMETAL
B197R	04/05/2016	NA	NA	0.2 U	2 J	0.89 J	NA	10 U	3.2 J	NA	10 U	5 U	4.5 J	DMETAL

METALS (µg/L)

Location ID	Sample Date	Magnesium	Manganses	Mercury	Molybdenum	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Analysis Group
California MCLs				2		100		50			2			
Federal MCLs				2				50			2			
B277	09/15/2010	23000	9.9	0.03 U	1	1 U	2000	2 U	0.5 U	58000	2 U	2.5 J	5 U	METAL
B277	04/18/2011	22000	37	0.07 J	1.4	1 U	1200	0.53 J	1.7 U	45000	1 U	4.5	7.8 J	DMETAL
B277	10/05/2011	23000 J	35	0.2 U	0.3 J	1 U	1100	1 U	1 U	55000	1 U	6.6	25	DMETAL
B277	04/03/2012	24000	4.8	0.2 U	1.1	1 U	1000	0.56 UJ	1 U	47000	1 U	6.2	12	DMETAL
B278	09/16/2010	150000	150	0.015 J	0.62	2.7	3900	2 U	0.5 U	190000	2 U	4 U	6.4	METAL
B278	04/19/2011	130000	35	0.15 J	1.9 UJ	2.3 J	2100	2.5 U	1.7 U	170000	1 U	3	38 J	DMETAL
B278	10/05/2011	150000	46	0.2 U	1 U	1 U	2500	1 U	1 U	170000	1 U	5.1	29	DMETAL
B278	04/05/2012	150000	19	0.036 UJ	0.79 UJ	2.7	1700 U	1 U	1 U	200000	1 U	4.1	20 U	DMETAL
B280A	09/16/2010	29000	15	0.03 U	1.6	0.77 J	1200 J	2 U	0.5 U	66000	2 U	2.4 J	5 U	METAL
B280A	04/14/2011	22000	8.3	0.2 U	1.9 UJ	1 U	570	2.5 U	1.7 U	48000	1 U	3.7	9 U	DMETAL
B280A	10/06/2011	25000 J	14	0.2 U	1.6 UJ	0.37 J	840	0.31 J	1 U	54000	1 U	4.8	8.9	DMETAL
B280A	04/03/2012	27000	6.6	0.2 U	1 U	1 U	730	1 U	1 U	62000	1 U	6.3	9 U	DMETAL
B280B	10/01/2010	25000	7.2	0.03 U	3.8	0.62 J	8900	2 U	0.5 U	130000	2 U	4 U	3.2 J	METAL
B280B	04/14/2011	20000	0.86 J	0.2 U	1.9 UJ	1 U	3900	2.5 U	1.7 U	87000	1 U	2.7	6.5 J	DMETAL
B280B	10/06/2011	21000 J	22	0.2 U	2.8	1 U	3000	1 U	1 U	72000	1 U	2.3	7.3	DMETAL
B280B	04/03/2012	20000	3.8	0.066 J	1 U	1 U	2900	1 U	1 U	78000	1 U	5.1	9 U	DMETAL
B300	09/09/2010	82000	110	0.03 U	1	2.8	4100	2 U	0.5 U	110000	2 U	4 U	5 U	METAL
B300	04/15/2011	160000	12000	0.2 U	1.9 UJ	0.8 J	9100 J	0.4 J	1.7 U	190000	1 U	0.73 J	9 U	DMETAL
B300	10/06/2011	5300 J	1400	0.11 UJ	20 U	23 U	13000	20 U	20 U	6500	10 U	12 J	1000	DMETAL
B300	04/09/2012	130000	9200	0.06 UJ	1 U	7.6	3800	1 U	1 U	140000	1 U	0.51 J	53	DMETAL
B38	09/15/2010	23000	37	0.03 U	0.58	3.9	1600 J	2 U	0.5 U	57000	2 U	4 U	3.6 J	METAL
B38	04/19/2011	18000	4.3	0.2 U	1 UJ	2.2 J	520	2.5 U	1.7 U	47000	1 U	2.6	11	DMETAL
B38	04/19/2011	18000	4	0.089 J	1 UJ	2.6 J	590	2.5 U	1.7 U	51000	1 U	2.7	40	DMETAL
B38	10/06/2011	15000 J	31	0.2 U	0.36 UJ	3.1	480	1 U	1 U	37000	1 U	3.1	8.6	DMETAL
B38	04/04/2012	17000	11	0.2 U	0.32 J	0.67 J	170 U	0.46 UJ	1 U	42000	1 U	3.5	6.5 J	DMETAL

METALS (µg/L)

Location ID	Sample Date	Magnesium	Manganses	Mercury	Molybdenum	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Analysis Group
California MCLs				2		100		50			2			
Federal MCLs				2				50			2			
B450	04/19/2011	43000	5.1	0.055 J	1.4 UJ	2.9 U	1800	2.5 U	1.7 U	73000	0.36 J	3.2	3.3 J	DMETAL
B450	04/19/2011	51000	22	0.099 J	1.4 J	1 U	2200	2.5 U	1.7 U	84000	0.48 J	3.5	9 U	METAL
B450	10/10/2011	35000	73	0.2 U	0.69 J	1.5	1400	0.32 J	1 U	52000	0.16 J	3.6	38	DMETAL
B450	04/06/2012	61000	1.4	0.2 U	1.4	1 U	2100	1.7	1 U	79000	1 U	2.6	17 J	DMETAL
B450	04/03/2013	40000	5.8	0.2 U	0.27 UJ	1 U	1400	1 U	1 U	47000	1 U	2.5	39	DMETAL
B450	04/03/2014	66000	0.48 J	0.2 U	3.2 U	2.3 J	2800	0.27 J	1 U	72000	1 U	2.4	3.1 J	DMETAL
B450	04/14/2015	52000	1.4	0.2 U	1.3 UJ	1.6	1800	0.46 J	1 U	55000	1 U	3.9	12 U	DMETAL
B450	04/07/2016	NA	NA	0.2 U	1.5 J	5 U	NA	10 U	1.9 J	NA	1 U	3 J	20 U	DMETAL
B460	09/15/2010	17000	500	0.03 U	0.65	2.8	3300	2 U	0.5 U	44000	2 U	4 U	8.2	METAL
B460	04/20/2011	18000 J	7.2	0.08 J	1.9 UJ	1.3 J	2900	2.5 U	1.7 U	45000	1 U	1.7 J	23	DMETAL
B460	10/07/2011	18000	270	0.2 U	1.5 UJ	0.75 J	1800	1 U	1 U	37000	1 U	1.4	7.1	DMETAL
B460	04/06/2012	15000	35	0.2 U	0.64 J	1 U	1000	1 U	1 U	36000	1 U	2.1	17 J	DMETAL
B473	09/24/2010	26000	42	0.03 U	0.95	2	1900 J	2 U	0.5 U	100000	2 U	4.1	23	METAL
B473	04/20/2011	44000 J	1.2 J	0.067 J	1.9 UJ	1.2 J	4000	2.5 U	1.7 U	99000	1 U	3.7	14	DMETAL
B473	10/07/2011	22000	0.55 UJ	0.2 U	0.38 UJ	1 U	1400	1 U	1 U	67000	1 U	3.7	8.4	DMETAL
B473	04/06/2012	18000	2.8	0.2 U	0.89 J	1 U	1000	1 U	1 U	59000	1 U	3.1	12 J	DMETAL
B474	09/23/2010	24000	540	0.024 J	2.1	5.3	3500	2 U	0.5 U	120000	2 U	2.4 J	6.4	METAL
B474	04/20/2011	27000 J	42	0.066 J	2.5 UJ	1.5 J	3000	2.5 U	1.7 U	81000	1 U	4.2	36	DMETAL
B474	04/20/2011	26000	55	0.2 UJ	3.1	1.7 J	2900	2.5 U	1.7 U	78000	0.057 J	3.7	9 U	METAL
B474	10/07/2011	10000	4 UJ	0.11 UJ	18	3.5	1500	1 U	1 U	20000	1 U	3.5	98	DMETAL
B474	10/07/2011	14000	66	0.22	21	6	2000	0.31 J	1 U	17000	1 U	4.6	17	METAL
B474	04/09/2012	14000	140	0.038 J	9.5	6	2200	0.45 J	1 U	20000	1 U	1.7	16 J	METAL
B474	04/09/2012	16000	140	0.07 UJ	8.7	6.7	2300	1 U	1 U	16000	1 U	4.7	11 J	DMETAL
B474	04/03/2013	12000	82	0.027 J	7.8	5.3	1600	1 U	1 U	14000	1 U	2.5	8.4 J	DMETAL
B474	04/03/2014	14000	37	0.106 J	43	7.5	3000	1 U	0.12 J	9600	1 U	2.8	12	DMETAL
B474	04/16/2015	13000	43	0.022 J	14	5.2	2100	1 U	1 U	20000	1 U	2.9	12 U	DMETAL
B474	04/11/2016	NA	NA	0.2 U	15	5 U	NA	4 J	4.6 J	NA	10 U	5.8 UJ	20 U	DMETAL

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

METALS (µg/L)

Location ID	Sample Date	Magnesium	Manganses	Mercury	Molybdenum	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Analysis Group
California MCLs				2		100		50			2			
Federal MCLs				2				50			2			
B480	09/24/2010	46000	480	0.03 U	1.5	2	3900	2 U	0.5 U	110000	2 U	2 J	3.3 J	METAL
B480	04/19/2011	39000	37	0.1 J	1.9 UJ	1.3 J	2200	2.5 U	1.7 U	86000	0.082 J	4.1	11	DMETAL
B480	10/07/2011	32000	42 UJ	0.2 U	1.3 UJ	2	1500	0.37 J	1 U	61000	1 U	3.8	30	DMETAL
B480	04/09/2012	50000	3.8	0.06 UJ	1 U	3.3	1700	1 U	1 U	92000	1 U	6.8	21	DMETAL
B480	04/03/2013	49000	11	0.2 U	0.38 UJ	1 U	1100	1 U	1 U	83000	1 U	4.7	9.1 J	DMETAL
B480	04/03/2014	50000	7.9	0.2 U	0.66 J	2.7 J	1100	1 U	1 U	79000	1 U	6	3.7 J	DMETAL
B480	04/17/2015	48000	0.43 J	0.022 J	0.35 UJ	1.5 UJ	1000	1 U	1 U	93000	1 U	6.3	12 U	DMETAL
B490	09/16/2010	54000	86	0.03 U	0.66	2.1	1600 J	2 U	0.5 U	55000	2 U	3.2 J	5 U	METAL
B490	04/20/2011	52000	1.4 J	0.2 U	1.9 UJ	1.1 J	860	2.5 U	1.7 U	56000	1 U	5.2	16	DMETAL
B490	10/10/2011	42000	11	0.2 U	1.2 UJ	0.37 J	500 U	1 U	0.076 J	50000	0.42 J	5.3	18	DMETAL
B490	04/09/2012	50000	4.9	0.049 UJ	0.33 J	2.5	510	1 U	1 U	53000	1 U	6.7	9.8 J	DMETAL
BULB1	10/19/2010	850000	5600	0.09	33	46	150000	8.6	5 U	7700000	20 U	10 U	20	METAL
BULB1	04/12/2011	710000	2000	0.15 J	7.7	7.5	150000	0.6 J	1 U	6400000	0.39 J	1.3	38	METAL
BULB1	04/12/2011	670000	1300	0.2 UJ	5.5	4	190000	1 UJ	1 U	5700000	0.1 J	0.9 J	18	DMETAL
BULB1	09/30/2011	980000	750	0.09 J	4.7	1 U	300000	0.73 UJ	1 U	9700000	1 U	1.3	9 U	METAL
BULB1	09/30/2011	1400000	950	0.2 U	6.5	5	230000	1 J	0.19 J	8200000	1 U	10	19	DMETAL
BULB1	04/05/2012	970000	640	0.2 U	6.5	2.7	270000	0.87 J	1 U	8000000	1 U	0.64 J	20 U	DMETAL
BULB1	04/05/2012	860000	510	0.043 J	6.2	1.4	260000	1.1 UJ	1 U	7300000	1 U	4.5	20 U	METAL
BULB1	04/05/2013	810000	450	0.039 J	3.5 UJ	1 U	230000	1 U	1 U	7000000	1 U	1.2	6.5 J	DMETAL
BULB1	04/10/2014	950000	580	0.2 U	5.1	4.2 U	260000	0.64 J	1 U	8500000	0.086 J	1.1	5.8	DMETAL
BULB1	04/13/2015	920000	230	0.2 U	3.7	0.61 J	300000	0.97 UJ	1 U	8100000	1 U	2 UJ	12 U	DMETAL
BULB1	04/13/2015	930000	220	0.2 U	3.8	0.25 J	310000	0.96 UJ	1 U	8100000	1 U	1.6 UJ	12 U	DMETAL
BULB1	04/08/2016	NA	NA	0.2 U	4.3 J	1.7 J	NA	15	10	NA	1 U	5 U	20 U	DMETAL

METALS (µg/L)

Location ID	Sample Date	Magnesium	Manganses	Mercury	Molybdenum	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Analysis Group
California MCLs				2		100		50			2			
Federal MCLs				2				50			2			
BULB2	10/19/2010	190000	5600	2.5	7.9	25	40000	3	0.5 U	1900000	2 U	2.8 J	22	METAL
BULB2	04/12/2011	85000	2800	0.2 J	8.1	16	17000	0.36 J	1 U	740000	0.18 J	3.2	61	METAL
BULB2	04/12/2011	21000	460	0.2 U	6.6	3.2	10000	1 UJ	1 U	400000	0.22 J	2.1	48	DMETAL
BULB2	09/30/2011	44000	770	0.31	5.6	0.12 J	9100	1 U	1 U	240000	1 U	3.9	9 U	METAL
BULB2	09/30/2011	42000	760	0.2 U	7.3	2.5	7900	1 U	1 U	220000	1 U	4.9	15	DMETAL
BULB2	04/05/2012	190000	1600	0.047 UJ	4.2	13	37000	1.3	1 U	1500000	1 U	2.8	8.8 J	DMETAL
BULB2	04/05/2012	200000 J	1400 J	0.099 J	5.9	5.3	30000	0.46 UJ	1 U	1500000 J	1 U	2.5	15 J	METAL
BULB2	04/05/2013	43000	770	0.026 J	6.4	1 U	10000	1 U	1 U	220000	1 U	1.1	20 U	DMETAL
BULB2	04/10/2014	60000	1100	0.2 U	7	2.2 J	9900	0.28 J	1 U	260000	1 U	1.2	16 U	DMETAL
BULB2	04/13/2015	29000	390	0.2 U	6.1	1.8	11000	1 U	1 U	310000	1 U	2.1 UJ	12 U	DMETAL
BULB2	04/08/2016	NA	NA	0.2 U	5.9	10	NA	16	4.1 J	NA	1 U	3.2 J	20 U	DMETAL
CCC1	09/08/2010	17000	4.1	0.03 U	2.2	1.2	2500	2 U	0.5 U	98000	2 U	3.3 J	3.5 J	METAL
CCC1	04/14/2011	20000	18	0.047 J	2.4 UJ	1.4 J	1400	2.5 U	1.7 U	91000	0.11 J	3.6	9 UJ	DMETAL
CCC1	10/05/2011	23000 J	24	0.2 U	0.9 J	1 U	1300	1 U	1 U	89000	1 U	6.3	2.1 J	DMETAL
CCC1	04/10/2012	28000	7.7	0.043 UJ	0.24 J	3	1500	0.28 J	1 U	120000	1 U	3.9	17 J	DMETAL
CCC2	09/08/2010	32000	42	0.03 U	2.4	1.6	3600	6.6	0.5 U	120000	2 U	2 J	3.4 J	METAL
CCC2	04/14/2011	180000	100	0.2 U	1 U	40	2100	6.1	1 U	160000	1 U	1.2	5.7 UJ	METAL
CCC2	04/14/2011	160000	69	0.2 U	1.9 U	38	2000	5.4	1.7 U	140000	0.62 J	0.82 J	55	DMETAL
CCC2	10/04/2011	47000	110	0.05 UJ	0.85 UJ	1 U	1700	6.8	1 U	110000	1 U	2.4	13	DMETAL
CCC2	10/04/2011	46000	120	0.2 U	1.3 UJ	4	1700	6.6	1 U	99000	0.63 J	3	9 U	METAL
CCC2	04/10/2012	84000	200	0.059 UJ	1 U	11	1800	3.5	1 U	110000	1 U	2.3	49	DMETAL
CCC2	04/10/2012	72000	140	0.043 J	0.75 J	9	2000	4.8	1 U	89000	1 U	1.6	7 J	METAL
CCC2	04/02/2013	51000	5.7	0.2 U	0.34 UJ	4.2	1200	9.6	0.16 J	100000	1 U	2.2	8.7 J	DMETAL
CCC2	04/02/2013	50000	5.7	0.2 U	0.31 UJ	3	910	8.5	1 U	100000	1 U	2.3	11 J	DMETAL
CCC2	04/02/2014	43000	1.7	0.2 U	0.74 J	1.8 J	1100	7.8	1 U	90000	1 U	2.8	5 U	DMETAL
CCC2	04/15/2015	50000	35	0.2 U	0.93 UJ	5.4	2100 J	3.7	1 U	92000 J	0.042 J	1.5 UJ	5 U	DMETAL
CCC2	04/07/2016	NA	NA	0.2 U	5 U	24	NA	10 U	2.8 J	NA	1 U	5 U	20 J	DMETAL

METALS (µg/L)

Location ID	Sample Date	Magnesium	Manganses	Mercury	Molybdenum	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Analysis Group
California MCLs				2		100		50			2			
Federal MCLs				2				50			2			
CCC3	09/03/2010	47000	940	0.019 J	4	6.5	4200	2 U	0.5 U	110000	2 U	3.5 J	3.9 J	METAL
CCC3	09/03/2010	46000	1200	0.03 U	3.3	5.8	2800	2 U	0.5 U	99000	2 U	4 U	5 U	METAL
CCC3	04/12/2011	35000	31	0.2 U	1.1	1	2000	1 U	1 U	86000	1 U	3.1	13	DMETAL
CCC3	10/04/2011	45000	510	0.2 U	1.6 UJ	1 U	2000	1 U	1 U	91000	1 U	3.5	9 U	DMETAL
CCC3	10/04/2011	44000	520	0.058 UJ	2.3 UJ	1 U	1900	1 U	1 U	85000	1 U	3	9 U	DMETAL
CCC3	04/10/2012	46000	350	0.053 UJ	0.51 J	4.9	2500	1 U	1 U	95000	1 U	2.6	10 J	DMETAL
CCC3	04/02/2013	35000	24	0.024 J	1.6 UJ	1 U	1600	0.31 J	0.4 J	94000	1 U	3.4	20 U	DMETAL
CCC3	04/02/2014	46000	190	0.2 U	1.5	1.9 J	1300	1 U	1 U	86000	1 U	2.4	2.4 J	DMETAL
CCC3	04/15/2015	38000	47	0.2 U	1.1 UJ	1.8	1200	1 U	1 U	90000	1 U	4.3	12 U	DMETAL
CCCT	09/03/2010	81000	1400	0.015 J	2.5	6.6	5000	2 U	0.5 U	150000	2 U	4 U	3.3 J	METAL
CCCT	04/18/2011	68000	86	0.12 J	1.7	1 U	2300	0.47 J	1.7 U	120000	0.072 J	3.2 UJ	2.7 J	DMETAL
CCCT	10/03/2011	84000	210	0.091 UJ	1.6 UJ	1 U	1900	0.26 J	1 U	140000	1 U	1 U	53	DMETAL
CCCT	04/04/2012	91000	210	0.2 U	2.9	1.6	1500	0.5 UJ	1 U	140000	1 U	2.9	7.5 J	DMETAL
CTP	09/30/2010	27000	400	0.03 U	1.2	2.1	2000	2 U	0.5 U	76000	2 U	4 U	5 U	METAL
CTP	09/30/2010	28000	400	0.03 U	1.2	2.1	1700 J	2 U	0.5 U	76000	2 U	4 U	5 U	METAL
CTP	04/14/2011	28000	280	0.2 U	1.9 UJ	1 U	1500	2.5 U	1.7 U	52000	1 U	2.9	230	DMETAL
CTP	10/06/2011	26000 J	230	0.2 U	0.74 UJ	0.9 J	890	0.17 J	1 U	56000	1 U	2.9	63	DMETAL
CTP	04/03/2012	30000	110	0.2 U	1 U	1 U	1000	0.67 UJ	1 U	63000	1 U	1.9	57	DMETAL
CTP	04/04/2013	33000	37	0.2 U	0.78 UJ	2.3	760	0.23 UJ	1 U	67000	1 U	2.5	59	DMETAL
CTP	04/03/2014	34000	66	0.2 U	0.84 J	4.2 U	600	1 U	1 U	71000	1 U	2.8	42	DMETAL
CTP	04/03/2014	34000	66	0.2 U	0.78 J	2.1 J	650	0.41 J	1 U	67000	1 U	2.7	44	DMETAL
CTP	04/17/2015	31000	100	0.2 U	0.6 UJ	1.4 UJ	690	0.26 J	1 U	73000	1 U	4	44	DMETAL
CTP	04/11/2016	NA	NA	0.2 U	2.6 J	2.6 J	NA	5.3 J	5 U	NA	5.9 J	3.3 J	34	DMETAL
CTPS	09/30/2010	69000	1000	0.03 U	1.3	4.4	7500	2 U	0.5 U	150000	2 U	4 U	2.7 J	METAL
CTPS	04/19/2011	25000	6.8	0.2 U	1 UJ	1.7 J	1300	2.5 U	1.7 U	65000	1 U	0.94 J	11	DMETAL
CTPS	10/07/2011	30000	37 UJ	0.2 U	0.51 UJ	2.4	2000	0.3 J	1 U	78000	0.27 J	1.5	11	DMETAL
CTPS	04/05/2012	24000	1.7	0.023 UJ	0.57 UJ	3.1	430	1 U	0.37 J	62000	1 U	2.1	20 U	DMETAL

METALS (µg/L)

Location ID	Sample Date	Magnesium	Manganses	Mercury	Molybdenum	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Analysis Group
California MCLs				2		100		50			2			
Federal MCLs				2				50			2			
DH	09/30/2010	340000	1300	0.03 U	2.2	37	6700	2 U	0.5 U	520000	2 U	4 U	5	METAL
DH	04/14/2011	420000	980	0.2 U	1.9 UJ	39	5100	2.5 U	1.7 U	480000	1 U	2.8	17	DMETAL
DH	10/05/2011	560000 J	4500	0.2 U	0.21 J	14	4200	1 U	1 U	570000	1 U	2.4	41	DMETAL
DH	04/06/2012	390000	19000	0.066 J	1.6	56	7900	1 U	1 U	560000	1 U	2.2	25	DMETAL
DHR	04/04/2013	480000	970	0.025 J	0.95 UJ	7	25000	0.46 UJ	1 U	590000	1 U	1.1	29	DMETAL
DHR	04/10/2014	630000	4800	0.2 U	1.3	69	7600	0.26 J	1 U	810000	0.043 J	0.56 J	5.5	DMETAL
DHR	04/13/2015	510000	25000	0.2 U	0.78 UJ	21	3400	0.6 UJ	1 U	610000	1 U	1.2 UJ	12 U	DMETAL
DHR	04/08/2016	NA	NA	0.2 U	1.1 J	770	NA	14	4.2 J	NA	10 U	5 U	17 J	DMETAL
EERC	10/01/2010	350000	5500	0.015 J	2.9	18	9800	2 U	0.5 U	480000	2 U	4 U	7.5	METAL
EERC	04/20/2011	330000	190	0.2 UJ	1.8 J	9.7	4300	2.5 U	1.7 U	570000	0.07 J	3.3	9 U	METAL
EERC	04/20/2011	330000 J	320	0.044 J	1.9 UJ	9.5 J	5000	2.5 U	1.7 U	520000	1 U	3.1	11	DMETAL
EERC	10/07/2011	270000	2900	0.2 U	1.7 UJ	9.9	2900	0.71 J	1 U	400000	1 U	1.2	5.4	DMETAL
EERC	10/07/2011	270000	3500	0.2 U	2.4	13	2800	0.56 J	1 U	430000	1 U	2.9	11	METAL
EERC	04/06/2012	270000	23	0.2 U	1.5	1 U	3300	0.35 J	1 U	440000	1 U	3.6	7.6 J	DMETAL
EERC	04/06/2012	260000	45	0.2 U	2.9	2.7	3500	0.78 J	1 U	430000	1 U	3.1	20 U	METAL
EERC	04/08/2013	330000	3100	0.2 U	1.4 UJ	1 U	1900	1 U	1 U	420000	1 U	0.45 J	20 U	DMETAL
EERC	04/03/2014	350000	2100	0.2 U	1.1	6.6	2100	1 U	1 U	440000	1 U	1.6	5.3	DMETAL
EERC	04/16/2015	250000	1800	0.2 U	1 UJ	7.6	1800	1 U	1 U	350000	1 U	1.2 UJ	12 U	DMETAL
EERC	04/11/2016	NA	NA	0.2 U	2.5 J	1.9 J	NA	10 U	6.6	NA	7 J	7.2 UJ	5.7 J	DMETAL
EPA	09/16/2010	39000	700	0.017 J	2.5	2.1	5100	2 U	0.5 U	130000	2 U	4 U	6.2	METAL
EPA	04/19/2011	39000	130	0.2 U	2 UJ	1.3 J	2700	2.5 U	1.7 U	150000	1 U	1.8	4.5 J	DMETAL
EPA	10/06/2011	37000 J	390	0.2 U	1.8 UJ	1 U	2200	0.24 J	1 U	120000	1 U	2.5	11	DMETAL
EPA	04/06/2012	48000	520	0.2 U	1.4	1 U	1700	1 U	1 U	150000	1 U	1	15 J	DMETAL
EPA	04/06/2012	45000	410	0.2 U	1.4	1 U	1300	1 U	1 U	160000	1 U	1.3	8.1 J	DMETAL

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METALS (µg/L)

Location ID	Sample Date	Magnesium	Manganses	Mercury	Molybdenum	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Analysis Group
California MCLs				2		100		50			2			
Federal MCLs				2				50			2			
ETA	09/24/2010	86000	4600	2.3	2.7	10	1900 J	2 U	0.5 U	150000	2 U	5.4	110	METAL
ETA	09/24/2010	86000	4600	1.3	2.9	4.9	1600 J	2 U	0.5 U	150000	2 U	4 U	50	METAL
ETA	04/12/2011	81000	4000	0.2 U	4.3	2.8	1300	1 U	1 U	130000	0.3 J	0.55 J	47	DMETAL
ETA	04/12/2011	89000	4300	1.6	4.9	6.3	1800	0.15 J	1 U	130000	1 U	3.9	95	METAL
ETA	09/30/2011	84000	4800	1.6	1.8	4.3 J	980	1 U	1 U	160000	1 U	2.2	61	METAL
ETA	09/30/2011	81000	5000	0.2 U	2.1 UJ	3.6	900	0.8 J	0.06 J	150000	1 U	13	47	DMETAL
ETA	04/10/2012	130000	5100	0.083 UJ	1.8	3.8	1300	1 U	1 U	190000	1 U	0.99 J	57	DMETAL
ETA	04/10/2012	90000	4900	0.78	3	4	780	1 U	0.74 J	110000	0.28 J	1.1	54	METAL
ETA	04/10/2012	110000	4800	0.095 UJ	2	3.6	1200	1 U	1 U	170000	1 U	1.1	55	DMETAL
ETA	04/10/2012	87000	4900	0.64	3	3.9	1200	1 U	1 U	110000	1 U	0.96 J	49	METAL
ETA	04/05/2013	92000	5400	0.2 U	3.2 UJ	1 U	770	1 U	1 U	140000	1 U	0.52 J	40	DMETAL
ETA	04/08/2014	130000	6100	0.2 U	2.6	4.6	1200	1 U	1 U	190000	1 U	1	44	DMETAL
ETA	04/13/2015	120000	7100	0.2 U	2.3	3.1	1300	0.41 UJ	1 U	150000	1 U	1.7 UJ	30	DMETAL
ETA	04/05/2016	NA	NA	0.071 J	4.8 J	1.3 J	NA	4.4 J	5.3	NA	10 U	5 U	34	DMETAL
ETA01	02/02/2015	64000	930	4.7	5.6	1 U	13000	1 UJ	1 U	310000	1 U	4.4	15	METAL
ETA01	04/05/2016	NA	NA	15	6.1	9.9	NA	5.4 J	2.9 J	NA	3.4 J	7.1	14 J	DMETAL
ETA02	02/02/2015	290000	700	0.2 U	2.2	27	3800	0.36 J	1 U	260000	1 U	3.1	40	METAL
ETA02	02/02/2015	270000	660	0.2 U	3.3	27	3800	0.63 J	1 U	250000	1 U	2.9	27	METAL
ETA02	04/05/2016	NA	NA	0.2 U	1.2 J	13	NA	8.7 J	7.8	NA	8.8 J	5 U	4.9 J	DMETAL
ETA03	02/02/2015	340000	18000	0.2 U	1.1	140	7300	0.62 J	1 U	310000	0.24 J	0.5 J	1200	METAL
ETA03	04/05/2016	NA	NA	0.069 J	5 U	110	NA	10 U	1.2 J	NA	10 U	5 U	3300	DMETAL
EXT	09/30/2011	20000	3.4	0.2 U	3.3	0.085 J	2100	0.23 J	1 U	48000	1 U	14	11	DMETAL
EXT	09/30/2011	18000	8	0.2 U	2.3	1 U	1400	1 U	1 U	46000	1 U	0.18 J	7.6	METAL

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

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METALS (µg/L)

Location ID	Sample Date	Magnesium	Manganses	Mercury	Molybdenum	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Analysis Group
California MCLs				2		100		50			2			
Federal MCLs				2				50			2			
FG	09/23/2010	130000	4200	0.015 J	0.93	130	2700	8 U	0.5 U	130000	2 U	91	170	METAL
FG	04/19/2011	33000	28	0.063 J	1 UJ	2.7 J	800	2.5 U	1.7 U	83000	1 U	1.9	29	DMETAL
FG	04/19/2011	35000	70	0.14 J	1.1 J	7.3	1200	2.5 U	1.7 U	91000	0.21 J	5.8	9 U	METAL
FG	04/19/2011	31000	31	0.057 J	1 UJ	0.26 J	810	2.5 U	1.7 U	79000	1 U	1.8	29	DMETAL
FG	04/19/2011	35000	84	0.1 J	1.9 U	6.7	1000	2.5 U	1.7 U	87000	0.15 J	4.2	9 U	METAL
FG	10/10/2011	54000	160	0.2 U	0.66 J	4.9	1200	0.21 J	1 U	100000	1 U	1.8	10	METAL
FG	10/10/2011	50000	93	0.2 U	0.73 UJ	3.8	2100	0.19 J	1 U	94000	1 U	2	31	DMETAL
FG	04/09/2012	29000	1.8	0.032 UJ	1 U	1 U	420	0.28 J	1 U	75000	1 U	4.2	20 U	DMETAL
FG	04/09/2012	27000	13	0.2 U	0.8 UJ	2.1	810	1 U	1 U	73000	1 U	1.9	20 U	METAL
FG	04/03/2013	33000	4.8	0.2 U	2.4	2.8	1100	0.73 UJ	1 U	83000	1 U	1.7	13 J	DMETAL
FG	04/09/2014	21000	6.9	0.2 U	0.72 UJ	2 J	330	0.48 J	1 U	75000	0.044 J	2.2	16 U	DMETAL
FG	04/16/2015	28000	3.1	0.2 U	0.45 UJ	2.3	520	1 U	1 U	90000	1 U	3.8	12 U	DMETAL
FG	04/07/2016	NA	NA	0.2 U	5 U	5 U	NA	3.4 J	1.5 J	NA	1 U	1.9 J	20 U	DMETAL
GEO	09/03/2010	30000	43	0.03 U	2.6	1.5	2800	2 U	0.5 U	85000	2 U	2.5 J	5 U	METAL
GEO	04/20/2011	31000 J	440	0.071 J	4.5 UJ	6.2 J	3700	2.5 U	1.7 U	69000	0.17 J	3.2	58	DMETAL
GEO	10/06/2011	25000 J	230	0.2 U	3.4	1.5	1900	0.32 J	1 U	54000	1 U	4	26	DMETAL
GEO	04/06/2012	33000	27	0.2 U	1.6	1 U	810	1 U	1 U	71000	1 U	4.6	36	DMETAL
MFA	09/24/2010	61000	580	0.18	5.2	7.9	1400 J	2 U	0.5 U	150000	2 U	3.9 J	4.4 J	METAL
MFA	04/12/2011	37000	230	0.2 UJ	4.2	7.1	510	1 UJ	1 U	99000	1 U	4.6	39	DMETAL
MFA	10/03/2011	60000	410	0.82	4.1 J	16	450	0.23 J	1 U	120000	1 U	3.3	8.2 J	DMETAL
MFA	04/05/2012	43000	270	0.52	5.4	9.4	200	1 U	1 U	130000	0.21 J	6.4	20 U	DMETAL
MFA	04/08/2014	59000	330	0.505	5.4	11	590	0.54 J	1 U	120000	0.089 J	5.2	5 U	DMETAL

METALS (µg/L)

Location ID	Sample Date	Magnesium	Manganses	Mercury	Molybdenum	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Analysis Group
California MCLs				2		100		50			2			
Federal MCLs				2				50			2			
NRLF	09/16/2010	26000	440	0.03 U	1.1	1.9	2400	2 U	0.5 U	57000	2 U	4 U	5 U	METAL
NRLF	04/20/2011	30000 J	640	0.2 U	1.9 UJ	2.9 UJ	2700	2.5 U	1.7 U	81000	1 U	0.92 J	83	DMETAL
NRLF	10/06/2011	22000 J	110	0.2 U	1 UJ	0.31 J	920	1 U	1 U	42000	1 U	2.8	22	DMETAL
NRLF	04/09/2012	25000	210	0.053 UJ	1 U	4.9	1300	1 U	1 U	54000	1 U	0.89 J	11 J	DMETAL
NRLF	04/03/2013	27000	920	0.2 U	1 U	1.1	1200	1 U	1 U	58000	1 U	1 U	13 J	DMETAL
NRLF	04/09/2014	26000	80	0.2 U	0.97 UJ	1.6 J	970	1 U	1 U	56000	1 U	2.4	9 UJ	DMETAL
NRLF	04/16/2015	25000	160	0.2 U	0.42 UJ	1.3	970	1 U	1 U	55000	1 U	1.5	6.3 J	DMETAL
NRLF	04/08/2016	NA	NA	0.2 U	1.2 J	5 U	NA	9.8 J	2.1 J	NA	1 U	5 U	20 U	DMETAL
OBS6	09/30/2011	23000	1 U	0.2 U	2.1 UJ	1 U	1800	0.76 J	1 U	49000	1 U	3	4.3 J	DMETAL
OBS6	09/30/2011	21000	100	0.2 U	0.31 J	0.67 UJ	1300	1 U	1 U	45000	1 U	1.7	51	METAL
PZ11	10/01/2010	210000	1700	0.03 U	3.8	140	1100 J	2 U	0.5 U	170000	2 U	3.8 J	430	METAL
PZ11	04/20/2011	290000 J	11000	0.08 J	1.9 UJ	1700 J	350	2.5 U	1.7 U	180000	1 U	1.7 U	10000	DMETAL
PZ11	04/20/2011	290000	13000	0.23 UJ	1.9 U	2400	430	2.5 U	1.7 U	200000	0.1 J	1.7 U	13000	METAL
PZ11	10/10/2011	270000	3700	0.2 U	3.6	340	490	1 U	1 U	160000	1 U	3.8	810	METAL
PZ11	10/10/2011	250000	3200	0.2 U	3.4	300	730	0.22 J	1 U	150000	1 U	4.4	740	DMETAL
PZ11	04/05/2012	180000	5400	0.03 J	0.41 UJ	1200	170 U	0.48 UJ	1 U	160000	1 U	0.4 J	6600	METAL
PZ11	04/05/2012	200000	6600	0.049 UJ	1 U	1400	170 U	0.35 J	1 U	170000	1 U	1	7600	DMETAL
PZ11	04/05/2013	290000	4900	0.2 U	3.8 UJ	580	730	0.78 J	1 U	180000	1 U	2.1	1700	DMETAL
PZ11	04/05/2013	310000	5200	0.2 U	2 UJ	640	710	1 U	1 U	180000	1 U	2.5	1700	DMETAL
PZ11	04/09/2014	450000	13000	0.2 U	4.6	150	1100	0.42 J	1 U	270000	1 U	2.2	260	DMETAL
PZ11	04/16/2015	250000	8300	0.2 U	5.6	300	790	1 U	1 U	170000	1 U	5.5	880	DMETAL
PZ11	04/08/2016	NA	NA	0.2 U	2.5 J	730	NA	10 U	2.6 J	NA	10 U	5 U	3500	DMETAL

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METALS (µg/L)

Location ID	Sample Date	Magnesium	Manganses	Mercury	Molybdenum	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Analysis Group
California MCLs				2		100		50			2			
Federal MCLs				2				50			2			
PZ8	10/15/2010	40000	27	0.03 UJ	0.49 J	2.5	2000 U	2 U	0.5 U	66000	2 U	3.5 J	3.4 J	METAL
PZ8	04/18/2011	31000	2.9	0.04 J	0.56 J	1 U	800	0.26 J	1.7 U	53000	1 U	4.1	5 U	DMETAL
PZ8	10/04/2011	40000	0.73 J	0.07 UJ	0.56 UJ	0.87 J	490	0.26 J	0.099 J	62000	1 U	4.2	9 U	DMETAL
PZ8	04/03/2012	42000	4.5	0.2 U	1 U	1 U	130 J	0.44 J	1 U	56000	1 U	3.1	9 U	DMETAL
PZ8	04/08/2013	41000	2.3	0.2 U	1 U	1 U	700	0.29 J	1 U	59000	1 U	3.8	7.7 J	DMETAL
PZ8	04/08/2014	46000	37	0.2 U	0.46 J	3.6 J	770	0.34 J	1 U	64000	1 U	4.2	4.4 J	DMETAL
PZ8	04/14/2015	41000	0.73 J	0.2 U	0.45 UJ	0.96 J	690	0.92 J	1 U	64000	1 U	5	12 U	DMETAL
PZ8	04/14/2015	41000	0.41 J	0.2 U	0.63 UJ	0.8 J	890	0.67 J	1 U	64000	1 U	5	12 U	DMETAL
PZ9	09/24/2010	36000	260	0.17	0.95	3.5	2000 U	2 U	0.5 U	54000	2 U	2.3 J	4.9 J	METAL
PZ9	04/20/2011	34000 J	1900	0.2 U	1.9 UJ	5.3 J	330	2.5 U	1.7 U	45000	1 U	2.1	10	DMETAL
PZ9	10/07/2011	31000	190	0.022 UJ	0.54 UJ	2.7	560	1 U	1 U	42000	1 U	3.8	69	DMETAL
PZ9	10/07/2011	32000	200	0.2 U	0.64 UJ	1 U	570	1 U	1 U	43000	1 U	3.6	60	DMETAL
PZ9	04/06/2012	44000	2900 J	0.026 J	1.7	1 U	170 U	1 U	1 U	53000	1 U	0.47 J	8.3 J	DMETAL
RWF	09/15/2010	60000	88	0.03 U	0.71	2.8	2000	2 U	0.5 U	77000	2 U	2.1 J	3.8 J	METAL
RWF	04/18/2011	55000	3.1	0.2 U	1	1 U	1100	0.21 J	1.7 U	75000	1 U	2.6 UJ	9 U	DMETAL
RWF	10/06/2011	53000 J	19	0.2 U	0.52 UJ	0.78 J	1000	0.54 J	1 U	61000	1 U	3.7	29	DMETAL
RWF	04/04/2012	57000	290	0.029 J	0.86 J	2.9	2300	1 U	1 U	70000	1 U	3.9	120	DMETAL
TP1	09/29/2010	60000	260	0.33	1.3	5.8	2000	2 U	0.5 U	92000	2 U	2.3 J	7.2	METAL
TP1	04/18/2011	94000	980	0.17 J	1.9	1 U	3900	0.21 J	1.7 U	210000	1 U	1.7 UJ	5.5 J	DMETAL
TP1	10/07/2011	60000	420	0.056 UJ	0.65 UJ	11	980	1 U	1 U	71000	1 U	1.8	12	DMETAL
TP1	04/05/2012	120000	3400	0.2 UJ	2.7	20	1300	1 U	1 U	290000	1 U	1.1	20 U	DMETAL
TP1	04/04/2013	94000	3300	0.028 J	0.8 UJ	1 U	700	1 U	1 U	110000	1 U	1 U	12 J	DMETAL
TP1	04/02/2014	120000	3600	0.139 J	2.3	12	1100	1 U	1 U	230000	1 U	0.79 J	6.8	DMETAL
TP1	04/10/2015	120000	3700	0.026 J	1.1	2.4	1000 J	0.23 J	1 U	160000 J	0.087 J	1.1 UJ	12 U	DMETAL
TP1	04/07/2016	NA	NA	0.2 J	1.9 J	1.5 J	NA	29	4 J	NA	10 U	5 U	20 U	DMETAL

METALS (µg/L)

Location ID	Sample Date	Magnesium	Manganses	Mercury	Molybdenum	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Analysis Group
California MCLs				2		100		50			2			
Federal MCLs				2				50			2			
TP2	09/29/2010	72000	120	0.03 U	1.1	8.6	1600 J	2 U	0.5 U	88000	2 U	2.9 J	5 U	METAL
TP2	04/18/2011	56000	3.3	0.2 U	0.82 J	1 U	2300	0.78 J	1.7 U	75000	1 U	3.9	4.2 J	DMETAL
TP2	10/07/2011	67000	5.1 UJ	0.2 U	0.68 UJ	1 U	1300	0.17 J	1 U	73000	0.11 J	3.4	42	DMETAL
TP2	04/09/2012	66000	5.4	0.054 UJ	1 U	4.1	1800	1 U	1 U	75000	1 U	5.7	8.5 J	DMETAL
TP2	04/09/2012	67000	6.1	0.058 UJ	1 U	3.4	1500	0.28 J	1 U	79000	1 U	6.8	8.7 J	DMETAL
WSM01	02/02/2015	120000	6600	0.2 U	2.3	1 U	15000	1 UJ	1 U	220000	1 U	0.62 J	200	METAL
WSM01	04/05/2016	NA	NA	0.2 U	2.9 J	9.8	NA	10 U	5.6	NA	10 U	3.1 J	260	DMETAL
WTA	09/30/2010	66000	48	0.03 U	1.4	1.5	2100	2 U	0.5 U	150000	2 U	3 J	5 U	METAL
WTA	04/14/2011	63000	31	0.041 J	1 UJ	2.9 U	1200	1 U	1 U	130000	1 U	4.1	5 UJ	METAL
WTA	04/14/2011	61000	21	0.2 U	1.9 UJ	0.97 J	1100	2.5 U	1.7 U	120000	0.093 J	3.8	4.3 J	DMETAL
WTA	04/14/2011	61000	20	0.2 U	1.9 UJ	1 J	1100	2.5 U	1.7 U	120000	0.1 J	4.1	9 U	DMETAL
WTA	04/14/2011	64000	29	0.042 J	1 UJ	2.9 U	1200	1 U	1 U	130000	1 U	4.1	9 U	METAL
WTA	10/05/2011	64000 J	93	0.2 U	0.25 J	1 U	1300	1 U	1 U	140000	1 U	4.1	5 U	DMETAL
WTA	10/05/2011	67000 J	120 J	0.2 U	1.2	2.7 UJ	1100	0.66 J	1 U	130000	0.15 J	5.2	5.6	METAL
WTA	04/05/2012	55000	46	0.2 U	1.5 UJ	1 U	500	0.97 UJ	1 U	140000	1 U	3.9	6.7 J	METAL
WTA	04/05/2012	60000	26	0.03 UJ	1.3 UJ	1.1	990	1 U	1 U	150000	1 U	5.1	20 U	DMETAL

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VOCs (µg/L)

Location ID	Sample Date	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromo-3-Chloropropane	1,2-Dibromoethane	1,2-Dichlorobenzene	1,2-Dichloroethane	1,2-Dichloropropane
California MCLs			200				6									0.5	5
Federal MCLs			200		5		7				70					5	5
B120	09/09/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.6	0.5 U
B120	04/15/2011	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	5 U	1.3 U	1.3 U	0.5 J	1.3 U
B120	10/04/2011	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	8 U	2 U	2 U	0.6 J	2 U
B120	04/03/2012	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	5 U	1.3 U	1.3 U	0.6 J	1.3 U
B120	04/02/2013	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	8 U	2 U	2 U	2 U	2 U
B120	04/01/2014	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	5 U	1.3 U	1.3 U	0.5 J	1.3 U
B120	04/10/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.4 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.6	0.5 U
B120	04/05/2016	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.4 UJ	2 U
B121	09/08/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B121	04/13/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B121	10/04/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B121	04/04/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B128	09/23/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B128	09/23/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B128	04/18/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B128	10/04/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B128	04/02/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B150	09/08/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B150	04/13/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B150	10/05/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B150	10/05/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B150	04/04/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B150	04/04/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

VOCs (µg/L)

Location ID	Sample Date	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromo-3-Chloropropane	1,2-Dibromoethane	1,2-Dichlorobenzene	1,2-Dichloroethane	1,2-Dichloropropane
California MCLs			200				6									0.5	5
Federal MCLs			200		5		7				70					5	5
B158	09/08/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B158	04/15/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B158	10/05/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B158	04/06/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B163	09/02/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.3 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	8.5	0.5 U
B163	04/12/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.6	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	9	0.5 U
B163	10/03/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.4 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	7.1	0.5 U
B163	04/02/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.4 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	8.2	0.5 U
B163	04/03/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	8	0.5 U
B163	04/01/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	8	0.5 U
B163	04/14/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.8	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	7.6	0.5 U
B163	04/05/2016	1 U	1 U	1 U	1 U	1 U	0.8 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	9.3	1 U
B175S	09/03/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B175S	04/13/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B175S	10/04/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B175S	04/04/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B175S	04/02/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B175S	04/01/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B175S	04/15/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B175S	04/07/2016	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U

VOCs (µg/L)

Location ID	Sample Date	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromo-3-Chloropropane	1,2-Dibromoethane	1,2-Dichlorobenzene	1,2-Dichloroethane	1,2-Dichloropropane
California MCLs			200				6									0.5	5
Federal MCLs			200		5		7				70					5	5
B175W	09/08/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B175W	04/13/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B175W	10/04/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B175W	04/04/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B175W	04/02/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B175W	04/01/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B175W	04/15/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B175W	04/07/2016	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
B177	09/23/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B177	04/18/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B177	10/05/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B177	04/04/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B178	09/02/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5	0.5 U
B178	04/15/2011	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	5 U	1.3 U	1.3 U	0.4 J	1.3 U
B178	10/04/2011	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	5 U	1.3 U	1.3 U	0.5 J	1.3 U
B178	04/03/2012	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	6.7 U	1.7 U	1.7 U	0.5 J	1.7 U
B178	04/02/2013	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	5 U	1.3 U	1.3 U	0.6 J	1.3 U
B178	04/08/2014	1 U	1 U	1 U	1 U	1 U	0.4 J	1 U	1 U	1 U	1 U	1 U	4 U	1 U	1 U	0.4 J	1 U
B178	04/10/2015	1 U	1 U	1 U	1 U	1 U	0.4 J	1 U	1 U	1 U	1 U	1 U	4 U	1 U	1 U	0.5 J	1 U
B178	04/05/2016	2 U	2 U	2 U	2 U	2 U	0.8 J	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

VOCs (µg/L)

Location ID	Sample Date	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromo-3-Chloropropane	1,2-Dibromoethane	1,2-Dichlorobenzene	1,2-Dichloroethane	1,2-Dichloropropane
California MCLs			200				6									0.5	5
Federal MCLs			200		5		7				70					5	5
B180	09/15/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B180	04/13/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B180	10/06/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B180	10/06/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B180	04/04/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B185	09/02/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	1.4	0.5 U
B185	04/15/2011	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	2.9 U	0.7 U	0.7 U	1	0.7 U
B185	04/15/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	1.3	0.5 U
B185	10/03/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	1.6	0.5 U
B185	10/03/2011	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.3 J	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	2.9 U	0.7 U	0.7 U	1.1	0.7 U
B185	04/02/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	1.1	0.5 U
B185	04/02/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	1.8	0.5 U
B185	04/08/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	1.2	0.5 U
B185	04/10/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.4 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	1.8	0.5 U
B185	04/05/2016	1 U	1 U	1 U	1 U	1 U	0.3 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.8 J	1 U
B194	09/09/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B194	04/13/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B194	10/04/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B194	04/04/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

VOCs (µg/L)

Location ID	Sample Date	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromo-3-Chloropropane	1,2-Dibromoethane	1,2-Dichlorobenzene	1,2-Dichloroethane	1,2-Dichloropropane
California MCLs			200				6									0.5	5
Federal MCLs			200		5		7				70					5	5
B195	09/09/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	1	0.5 U
B195	04/13/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.3 J	0.5 U
B195	04/13/2011	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	2.9 U	0.7 U	0.7 U	0.2 J	0.7 U
B195	10/04/2011	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	5 U	1.3 U	1.3 U	0.7 J	1.3 U
B195	04/03/2012	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	4 U	1 U	1 U	0.6 J	1 U
B195	04/02/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.6	0.5 U
B195	04/02/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.6	0.5 U
B195	04/02/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.6	0.5 U
B195	04/02/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.6	0.5 U
B195	04/14/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.3 J	0.5 U
B195	04/11/2016	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
B197	09/09/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5	0.5 U
B197	09/09/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5	0.5 U
B197	04/13/2011	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	6.7 U	1.7 U	1.7 U	1.7 U	1.7 U
B197	10/04/2011	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	6.7 U	1.7 U	1.7 U	0.4 J	1.7 U
B197	04/03/2012	1 U	1 U	1 U	1 U	1 U	0.3 J	1 U	1 U	1 U	1 U	1 U	4 U	1 U	1 U	0.7 J	1 U
B197	04/03/2012	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	4 U	1 U	1 U	0.7 J	1 U
B197R	04/08/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.7	0.5 U
B197R	04/08/2014	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	4 U	1 U	1 U	0.4 J	1 U
B197R	04/14/2015	1 U	1 U	1 U	1 U	1 U	0.9 J	1 U	1 U	1 U	1 U	1 U	4 U	1 U	1 U	0.5 J	1 U
B197R	04/05/2016	2 U	2 U	2 U	2 U	2 U	0.4 J	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
B197R	04/05/2016	2 U	2 U	2 U	2 U	2 U	0.4 J	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

VOCs (µg/L)

Location ID	Sample Date	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromo-3-Chloropropane	1,2-Dibromoethane	1,2-Dichlorobenzene	1,2-Dichloroethane	1,2-Dichloropropane
California MCLs			200				6									0.5	5
Federal MCLs			200		5		7				70					5	5
B277	09/15/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B277	04/18/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B277	10/05/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B277	04/03/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B277	04/04/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B277	04/02/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B277	04/16/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B277	04/11/2016	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
B278	09/16/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B278	04/19/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B278	10/05/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B278	04/05/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B278	04/04/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B278	04/09/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B278	04/17/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B278	04/08/2016	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
B280A	09/16/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B280A	04/14/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B280A	10/06/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B280A	04/03/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B280A	04/04/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B280A	04/09/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B280A	04/17/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B280A	04/11/2016	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

VOCs (µg/L)

Location ID	Sample Date	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromo-3-Chloropropane	1,2-Dibromoethane	1,2-Dichlorobenzene	1,2-Dichloroethane	1,2-Dichloropropane
California MCLs			200				6									0.5	5
Federal MCLs			200		5		7				70					5	5
B280B	10/01/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B280B	04/14/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B280B	10/06/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B280B	04/03/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B300	09/09/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B300	04/15/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B300	10/06/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B300	04/09/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B38	09/15/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B38	04/19/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B38	04/19/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B38	10/06/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B38	04/04/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B450	04/19/2011	0.5 U	0.2 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B450	10/10/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B450	04/06/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B450	04/03/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B450	04/03/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B450	04/14/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B450	04/07/2016	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

VOCs (µg/L)

Location ID	Sample Date	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromo-3-Chloropropane	1,2-Dibromoethane	1,2-Dichlorobenzene	1,2-Dichloroethane	1,2-Dichloropropane
California MCLs			200				6									0.5	5
Federal MCLs			200		5		7				70					5	5
B460	09/15/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B460	04/20/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B460	10/07/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B460	04/06/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B473	09/24/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B473	04/20/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B473	10/07/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B473	04/06/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B473	04/03/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B473	04/03/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B473	04/03/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B473	04/16/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B473	04/08/2016	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
B473	04/08/2016	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
B474	09/23/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B474	04/20/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B474	10/07/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B474	04/09/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U

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University of California, Berkeley, Richmond Field Station Site

VOCs (µg/L)

Location ID	Sample Date	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromo-3-Chloropropane	1,2-Dibromoethane	1,2-Dichlorobenzene	1,2-Dichloroethane	1,2-Dichloropropane
California MCLs			200				6									0.5	5
Federal MCLs			200		5		7				70					5	5
B480	09/24/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B480	04/19/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B480	10/07/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B480	04/09/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B480	04/03/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B480	04/03/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B480	04/17/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B480	04/07/2016	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
B480	04/07/2016	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
B490	09/16/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B490	04/20/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B490	10/10/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
B490	04/09/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
BULB1	10/19/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
BULB1	04/12/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
BULB1	09/30/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
BULB1	04/05/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
BULB1	04/05/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
BULB1	04/10/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
BULB1	04/13/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
BULB1	04/13/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum

University of California, Berkeley, Richmond Field Station Site

VOCs (µg/L)

Location ID	Sample Date	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromo-3-Chloropropane	1,2-Dibromoethane	1,2-Dichlorobenzene	1,2-Dichloroethane	1,2-Dichloropropane
California MCLs			200				6									0.5	5
Federal MCLs			200		5		7				70					5	5
BULB2	10/19/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
BULB2	04/12/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
BULB2	09/30/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
BULB2	04/05/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
BULB2	04/05/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
BULB2	04/10/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
BULB2	04/13/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
BULB2	04/08/2016	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CCC1	09/08/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
CCC1	04/14/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
CCC1	10/05/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
CCC1	04/10/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
CCC2	09/08/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
CCC2	04/14/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
CCC2	10/04/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
CCC2	04/10/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
CCC2	04/02/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
CCC2	04/02/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
CCC2	04/02/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
CCC2	04/15/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
CCC2	04/07/2016	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

VOCs (µg/L)

Location ID	Sample Date	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromo-3-Chloropropane	1,2-Dibromoethane	1,2-Dichlorobenzene	1,2-Dichloroethane	1,2-Dichloropropane
California MCLs			200				6									0.5	5
Federal MCLs			200		5		7				70					5	5
CCC3	09/03/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
CCC3	09/03/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
CCC3	04/12/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
CCC3	10/04/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
CCC3	10/04/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
CCC3	04/10/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
CCC3	04/02/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
CCC3	04/02/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
CCC3	04/15/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
CCCT	09/03/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.2 J	0.5 U
CCCT	04/18/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.2 J	0.5 U
CCCT	10/03/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.2 J	0.5 U
CCCT	04/04/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.2 J	0.5 U
CCCT	04/02/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.2 J	0.5 U
CCCT	04/08/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.4 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.3 J	0.5 U
CCCT	04/15/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
CCCT	04/07/2016	1 U	1 U	1 U	1 U	1 U	0.4 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.2 UJ	1 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

VOCs (µg/L)

Location ID	Sample Date	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromo-3-Chloropropane	1,2-Dibromoethane	1,2-Dichlorobenzene	1,2-Dichloroethane	1,2-Dichloropropane
California MCLs			200				6									0.5	5
Federal MCLs			200		5		7				70					5	5
CTP	09/30/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
CTP	09/30/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
CTP	04/14/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
CTP	10/06/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
CTP	04/03/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
CTP	04/03/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
CTP	04/04/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
CTP	04/03/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
CTP	04/03/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
CTP	04/17/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
CTP	04/11/2016	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CTPDEEP	04/03/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
CTPS	09/30/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
CTPS	04/19/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
CTPS	10/07/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
CTPS	04/05/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
DH	09/30/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
DH	04/14/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
DH	10/05/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
DH	04/05/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

VOCs (µg/L)

Location ID	Sample Date	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromo-3-Chloropropane	1,2-Dibromoethane	1,2-Dichlorobenzene	1,2-Dichloroethane	1,2-Dichloropropane
California MCLs			200				6									0.5	5
Federal MCLs			200		5		7				70					5	5
EERC	10/01/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
EERC	04/20/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
EERC	10/07/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
EERC	04/06/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
EERC	04/08/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
EERC	04/03/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
EERC	04/16/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
EPA	09/16/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
EPA	04/19/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
EPA	10/06/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
EPA	04/06/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
EPA	04/06/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
EPA	04/04/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
EPA	04/10/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
EPA	04/17/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

VOCs (µg/L)

Location ID	Sample Date	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromo-3-Chloropropane	1,2-Dibromoethane	1,2-Dichlorobenzene	1,2-Dichloroethane	1,2-Dichloropropane
California MCLs			200				6									0.5	5
Federal MCLs			200		5		7				70					5	5
ETA	09/24/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
ETA	09/24/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
ETA	04/12/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.3 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
ETA	09/30/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.3 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.2 J	0.5 U
ETA	04/10/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.1 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
ETA	04/10/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
ETA	04/05/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.4 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.2 J	0.5 U
ETA	04/08/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.4 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.2 J	0.5 U
ETA	04/13/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.4 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.2 J	0.5 U
ETA	04/05/2016	1 U	1 U	1 U	1 U	1 U	0.2 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.2 UJ	1 U
ETA01	02/02/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.3 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.2 J	0.5 U
ETA01	04/05/2016	1 U	1 U	1 U	1 U	1 U	0.2 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.2 UJ	1 U
ETA02	02/02/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.8	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	12	0.5 U
ETA02	02/02/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.9	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	12	0.5 U
ETA02	04/05/2016	1 U	1 U	1 U	1 U	1 U	0.7 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	13	1 U
ETA03	02/02/2015	0.5 U	0.5 U	0.5 U	0.2 J	0.5 U	1.2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	15	0.5 U
ETA03	04/05/2016	1 U	1 U	1 U	0.2 J	1 U	1.2	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	20	1 U
EXT	09/30/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
FG	09/23/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
FG	04/19/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
FG	04/19/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
FG	10/10/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
FG	04/09/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

VOCs (µg/L)

Location ID	Sample Date	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromo-3-Chloropropane	1,2-Dibromoethane	1,2-Dichlorobenzene	1,2-Dichloroethane	1,2-Dichloropropane
California MCLs			200				6									0.5	5
Federal MCLs			200		5		7				70					5	5
GEO	09/03/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
GEO	04/20/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
GEO	10/06/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
GEO	04/06/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
GEO	04/04/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
GEO	04/09/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
GEO	04/16/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
GEO	04/11/2016	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
MFA	09/24/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
MFA	04/12/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
MFA	10/03/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
MFA	04/05/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
MFA	04/05/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
MFA	04/08/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
MFA	04/13/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.3 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
MFA	04/08/2016	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
MFA	04/08/2016	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
NRLF	09/16/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
NRLF	04/20/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
NRLF	10/06/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
NRLF	04/09/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
OBS6	09/30/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

VOCs (µg/L)

Location ID	Sample Date	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromo-3-Chloropropane	1,2-Dibromoethane	1,2-Dichlorobenzene	1,2-Dichloroethane	1,2-Dichloropropane
California MCLs			200				6									0.5	5
Federal MCLs			200		5		7				70					5	5
PZ11	10/01/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
PZ11	04/20/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
PZ11	10/10/2011	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	2.4 J	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	13 U	3.1 U	3.1 U	3.1 U	3.1 U
PZ11	04/05/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
PZ11	04/05/2013	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	2.2	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	5 U	1.3 U	1.3 U	1.3 U	1.3 U
PZ11	04/05/2013	2 U	2 U	2 U	2 U	2 U	2.1	2 U	2 U	2 U	2 U	2 U	8 U	2 U	2 U	2 U	2 U
PZ11	04/09/2014	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	1.6 J	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	10 U	2.5 U	2.5 U	2.5 U	2.5 U
PZ11	04/16/2015	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	1.6 J	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	10 U	2.5 U	2.5 U	2.5 U	2.5 U
PZ11	04/08/2016	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
PZ8	10/15/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
PZ8	04/18/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
PZ8	10/04/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
PZ8	04/03/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
PZ9	09/24/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
PZ9	04/20/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
PZ9	10/07/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.1 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
PZ9	10/07/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.1 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
PZ9	04/06/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
PZ9	04/03/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
PZ9	04/09/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
PZ9	04/16/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
PZ9	04/07/2016	1 U	1 U	1 U	1 U	1 U	0.2 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

VOCs (µg/L)

Location ID	Sample Date	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromo-3-Chloropropane	1,2-Dibromoethane	1,2-Dichlorobenzene	1,2-Dichloroethane	1,2-Dichloropropane
California MCLs			200				6									0.5	5
Federal MCLs			200		5		7				70					5	5
RWF	09/15/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
RWF	04/18/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
RWF	10/06/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
RWF	04/04/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
RWF	04/08/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
RWF	04/09/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
RWF	04/14/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
RWF	04/08/2016	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TP1	09/29/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
TP1	04/18/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
TP1	10/07/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
TP1	04/05/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
TP1	04/04/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
TP1	04/02/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
TP1	04/10/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
TP1	04/07/2016	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

VOCs (µg/L)

Location ID	Sample Date	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromo-3-Chloropropane	1,2-Dibromoethane	1,2-Dichlorobenzene	1,2-Dichloroethane	1,2-Dichloropropane
California MCLs			200				6									0.5	5
Federal MCLs			200		5		7				70					5	5
TP2	09/29/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
TP2	04/18/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
TP2	10/07/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
TP2	04/09/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
TP2	04/09/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
TP2	04/04/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
TP2	04/02/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
TP2	04/10/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
TP2	04/10/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
TP2	04/08/2016	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
WSM01	02/02/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	1.6	0.5 U
WSM01	04/05/2016	1 U	1 U	1 U	1 U	1 U	0.4 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2.8	1 U
WTA	09/30/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5
WTA	04/14/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.4 J
WTA	04/14/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.4 J
WTA	10/05/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 J
WTA	04/05/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
WTA	04/05/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.1 J
WTA	04/10/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
WTA	04/13/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

VOCs (µg/L)

Location ID	Sample Date	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	2,2-Dichloropropane	2-Butanone	2-Chlorotoluene	2-Hexanone	4-Chlorotoluene	4-Methyl-2-pentanone	Acetone	Benzene	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform
California MCLs													1				
Federal MCLs													5				
B120	09/09/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	4 U	0.5 U	NA	0.5 U	NA	4 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
B120	04/15/2011	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	25 U	1.3 U	25 U	1.3 U	25 U	25 U	1.3 U	1.3 U	1.3 U	1.3 U	2.5 U
B120	10/04/2011	2 U	2 U	2 U	2 U	2 U	40 U	2 U	40 U	2 U	40 U	40 U	2 U	2 U	2 U	2 U	4 U
B120	04/03/2012	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	25 U	1.3 U	25 U	1.3 U	25 U	25 U	1.3 U	1.3 U	1.3 U	1.3 U	2.5 U
B120	04/02/2013	2 U	2 U	2 U	2 U	2 U	40 U	2 U	40 U	2 U	40 U	40 U	2 U	2 U	2 U	2 U	4 U
B120	04/01/2014	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	25 U	1.3 U	25 U	1.3 U	25 U	25 UJ	1.3 U	1.3 U	1.3 U	1.3 U	2.5 U
B120	04/10/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B120	04/05/2016	2 U	2 U	2 U	2 U	2 U	20 U	2 U	20 U	2 U	20 U	20 U	2 U	2 U	2 U	2 U	2 U
B121	09/08/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	4 U	0.5 U	NA	0.5 U	NA	2 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
B121	04/13/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B121	10/04/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B121	04/04/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B128	09/23/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	43	0.5 U	NA	0.5 U	NA	11 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
B128	09/23/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	49	0.5 U	NA	0.5 U	NA	14 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
B128	04/18/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 UJ	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B128	10/04/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B128	04/02/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B150	09/08/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	4 U	0.5 U	NA	0.5 U	NA	4 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
B150	04/13/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B150	10/05/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B150	10/05/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B150	04/04/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 UJ	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B150	04/04/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 UJ	0.5 U	0.5 U	0.5 U	0.5 U	1 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

VOCs (µg/L)

Location ID	Sample Date	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	2,2-Dichloropropane	2-Butanone	2-Chlorotoluene	2-Hexanone	4-Chlorotoluene	4-Methyl-2-pentanone	Acetone	Benzene	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform
California MCLs													1				
Federal MCLs													5				
B158	09/08/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	4 U	0.5 U	NA	0.5 U	NA	4 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
B158	04/15/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B158	10/05/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B158	04/06/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 UJ	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B163	09/02/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	4 U	0.5 U	NA	0.5 U	NA	2.7 UJ	0.2 J	0.5 U	0.5 U	0.5 U	0.5 U
B163	04/12/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.3 J	0.5 U	0.5 U	0.5 U	1 U
B163	10/03/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.3 J	0.5 U	0.5 U	0.5 U	1 U
B163	04/02/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.4 J	0.5 U	0.5 U	0.5 U	1 U
B163	04/03/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.3 J	0.5 U	0.5 U	0.5 U	1 U
B163	04/01/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 UJ	0.3 J	0.5 U	0.5 U	0.5 U	1 U
B163	04/14/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.3 J	0.5 U	0.5 U	0.5 U	1 U
B163	04/05/2016	1 U	1 U	1 U	1 U	1 U	10 U	1 U	10 U	1 U	10 U	10 U	0.3 J	1 U	1 U	1 U	1 U
B175S	09/03/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	4 U	0.5 U	NA	0.5 U	NA	2.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
B175S	04/13/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B175S	10/04/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B175S	04/04/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B175S	04/02/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B175S	04/01/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 UJ	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B175S	04/15/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 UJ	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B175S	04/07/2016	1 U	1 U	1 U	1 U	1 U	10 U	1 U	10 U	1 U	10 U	10 U	1 U	1 U	1 U	1 U	1 U

VOCs (µg/L)

Location ID	Sample Date	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	2,2-Dichloropropane	2-Butanone	2-Chlorotoluene	2-Hexanone	4-Chlorotoluene	4-Methyl-2-pentanone	Acetone	Benzene	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform
California MCLs													1				
Federal MCLs													5				
B175W	09/08/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	4 U	0.5 U	NA	0.5 U	NA	4 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
B175W	04/13/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B175W	10/04/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B175W	04/04/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B175W	04/02/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B175W	04/01/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 UJ	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B175W	04/15/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 UJ	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B175W	04/07/2016	1 U	1 U	1 U	1 U	1 U	10 U	1 U	10 U	1 U	10 U	10 U	1 U	1 U	1 U	1 U	1 U
B177	09/23/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	4 U	0.5 U	NA	0.5 U	NA	4 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
B177	04/18/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B177	10/05/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B177	04/04/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B178	09/02/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	4 U	0.5 U	NA	0.5 U	NA	4 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
B178	04/15/2011	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	25 U	1.3 U	25 U	1.3 U	25 U	25 U	1.3 U	1.3 U	1.3 U	1.3 U	2.5 U
B178	10/04/2011	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	25 U	1.3 U	25 U	1.3 U	25 U	25 U	1.3 U	1.3 U	1.3 U	1.3 U	2.5 U
B178	04/03/2012	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	33 U	1.7 U	33 U	1.7 U	33 U	33 U	1.7 U	1.7 U	1.7 U	1.7 U	3.3 U
B178	04/02/2013	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	25 U	1.3 U	25 U	1.3 U	25 U	25 U	1.3 U	1.3 U	1.3 U	1.3 U	2.5 U
B178	04/08/2014	1 U	1 U	1 U	1 U	1 U	20 U	1 U	20 U	1 U	20 U	20 UJ	1 U	1 U	1 U	1 U	2 U
B178	04/10/2015	1 U	1 U	1 U	1 U	1 U	20 U	1 U	20 U	1 U	20 U	20 U	1 U	1 U	1 U	1 U	2 U
B178	04/05/2016	2 U	2 U	2 U	2 U	2 U	20 U	2 U	20 U	2 U	20 U	20 U	2 U	2 U	2 U	2 U	2 U
B180	09/15/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	4 U	0.5 U	NA	0.5 U	NA	4 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
B180	04/13/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B180	10/06/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B180	10/06/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B180	04/04/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U

VOCs (µg/L)

Location ID	Sample Date	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	2,2-Dichloropropane	2-Butanone	2-Chlorotoluene	2-Hexanone	4-Chlorotoluene	4-Methyl-2-pentanone	Acetone	Benzene	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform
California MCLs													1				
Federal MCLs													5				
B185	09/02/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	4 U	0.5 U	NA	0.5 U	NA	4 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
B185	04/15/2011	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	14 U	0.7 U	14 U	0.7 U	14 U	14 U	0.7 U	0.7 U	0.7 U	0.7 U	1.4 U
B185	04/15/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.1 J	0.5 U	0.5 U	0.5 U	1 U
B185	10/03/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.1 J	0.5 U	0.5 U	0.5 U	1 U
B185	10/03/2011	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	14 U	0.7 U	14 U	0.7 U	14 U	14 U	0.7 U	0.7 U	0.7 U	0.7 U	1.4 U
B185	04/02/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.1 J	0.5 U	0.5 U	0.5 U	1 U
B185	04/02/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.2 J	0.5 U	0.5 U	0.5 U	1 U
B185	04/08/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 UJ	0.1 J	0.5 U	0.5 U	0.5 U	1 U
B185	04/10/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.2 J	0.5 U	0.5 U	0.5 U	1 U
B185	04/05/2016	1 U	1 U	1 U	1 U	1 U	10 U	1 U	10 U	1 U	10 U	10 U	1 U	1 U	1 U	1 U	1 U
B194	09/09/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.1 J	0.5 U	NA	0.5 U	NA	4 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
B194	04/13/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B194	10/04/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B194	04/04/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B195	09/09/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	4 U	0.5 U	NA	0.5 U	NA	4 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
B195	04/13/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B195	04/13/2011	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	14 U	0.7 U	14 U	0.7 U	14 U	14 U	0.7 U	0.7 U	0.7 U	0.7 U	1.4 U
B195	10/04/2011	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	25 U	1.3 U	25 U	1.3 U	25 U	25 U	1.3 U	1.3 U	1.3 U	1.3 U	2.5 U
B195	04/03/2012	1 U	1 U	1 U	1 U	1 U	20 U	1 U	20 U	1 U	20 U	20 UJ	1 U	1 U	1 U	1 U	2 U
B195	04/02/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B195	04/02/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B195	04/02/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 UJ	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B195	04/02/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 UJ	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B195	04/14/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B195	04/11/2016	1 U	1 U	1 U	1 U	1 U	10 U	1 U	10 U	1 U	10 U	10 U	1 U	1 U	1 U	1 U	1 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum

University of California, Berkeley, Richmond Field Station Site

VOCs (µg/L)

Location ID	Sample Date	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	2,2-Dichloropropane	2-Butanone	2-Chlorotoluene	2-Hexanone	4-Chlorotoluene	4-Methyl-2-pentanone	Acetone	Benzene	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform
California MCLs													1				
Federal MCLs													5				
B197	09/09/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	4 U	0.5 U	NA	0.5 U	NA	4 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
B197	09/09/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	4 U	0.5 U	NA	0.5 U	NA	4 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
B197	04/13/2011	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	33 U	1.7 U	33 U	1.7 U	33 U	33 U	1.7 U	1.7 U	1.7 U	1.7 U	3.3 U
B197	10/04/2011	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	33 U	1.7 U	33 U	1.7 U	33 U	33 U	1.7 U	1.7 U	1.7 U	1.7 U	3.3 U
B197	04/03/2012	1 U	1 U	1 U	1 U	1 U	20 U	1 U	20 U	1 U	20 U	20 UJ	1 U	1 U	1 U	1 U	2 U
B197	04/03/2012	1 U	1 U	1 U	1 U	1 U	20 U	1 U	20 U	1 U	20 U	20 U	1 U	1 U	1 U	1 U	2 U
B197R	04/08/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B197R	04/08/2014	1 U	1 U	1 U	1 U	1 U	20 U	1 U	20 U	1 U	20 U	20 U	1 U	1 U	1 U	1 U	2 U
B197R	04/14/2015	1 U	1 U	1 U	1 U	1 U	20 U	1 U	20 U	1 U	20 U	20 U	1 U	1 U	1 U	1 U	2 U
B197R	04/05/2016	2 U	2 U	2 U	2 U	2 U	20 U	2 U	20 U	2 U	20 U	20 U	2 U	2 U	2 U	2 U	2 U
B197R	04/05/2016	2 U	2 U	2 U	2 U	2 U	20 U	2 U	20 U	2 U	20 U	20 U	2 U	2 U	2 U	2 U	2 U
B277	09/15/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	4 U	0.5 U	NA	0.5 U	NA	4 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
B277	04/18/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B277	10/05/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B277	04/03/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B277	04/04/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B277	04/02/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 UJ	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B277	04/16/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B277	04/11/2016	1 U	1 U	1 U	1 U	1 U	10 U	1 U	10 U	1 U	10 U	10 U	1 U	1 U	1 U	1 U	1 U

VOCs (µg/L)

Location ID	Sample Date	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	2,2-Dichloropropane	2-Butanone	2-Chlorotoluene	2-Hexanone	4-Chlorotoluene	4-Methyl-2-pentanone	Acetone	Benzene	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform
California MCLs													1				
Federal MCLs													5				
B278	09/16/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	12	0.5 U	NA	0.5 U	NA	4 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
B278	04/19/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B278	10/05/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B278	04/05/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B278	04/04/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B278	04/09/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B278	04/17/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B278	04/08/2016	1 U	1 U	1 U	1 U	1 U	10 U	1 U	10 U	1 U	10 U	10 U	1 U	1 U	1 U	1 U	1 U
B280A	09/16/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	4 U	0.5 U	NA	0.5 U	NA	4 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
B280A	04/14/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B280A	10/06/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B280A	04/03/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B280A	04/04/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B280A	04/09/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B280A	04/17/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B280A	04/11/2016	1 U	1 U	1 U	1 U	1 U	10 U	1 U	10 U	1 U	10 U	10 U	1 U	1 U	1 U	1 U	1 U
B280B	10/01/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	4 U	0.5 U	NA	0.5 U	NA	4 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
B280B	04/14/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B280B	10/06/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B280B	04/03/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B300	09/09/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	4 U	0.5 U	NA	0.5 U	NA	4 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
B300	04/15/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B300	10/06/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	1.5 J	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B300	04/09/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum

University of California, Berkeley, Richmond Field Station Site

VOCs (µg/L)

Location ID	Sample Date	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	2,2-Dichloropropane	2-Butanone	2-Chlorotoluene	2-Hexanone	4-Chlorotoluene	4-Methyl-2-pentanone	Acetone	Benzene	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform
California MCLs													1				
Federal MCLs													5				
B38	09/15/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	4 U	0.5 U	NA	0.5 U	NA	4 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
B38	04/19/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B38	04/19/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B38	10/06/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 UJ	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B38	04/04/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 UJ	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B450	04/19/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B450	10/10/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 UJ	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B450	04/06/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 UJ	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B450	04/03/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B450	04/03/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B450	04/14/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B450	04/07/2016	1 U	1 U	1 U	1 U	1 U	10 U	1 U	10 U	1 U	10 U	10 U	1 U	1 U	1 U	1 U	1 U
B460	09/15/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	27	0.5 U	NA	0.5 U	NA	22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
B460	04/20/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B460	10/07/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 UJ	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B460	04/06/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 UJ	0.5 U	0.5 U	0.5 U	0.5 U	1 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

VOCs (µg/L)

Location ID	Sample Date	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	2,2-Dichloropropane	2-Butanone	2-Chlorotoluene	2-Hexanone	4-Chlorotoluene	4-Methyl-2-pentanone	Acetone	Benzene	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform
California MCLs													1				
Federal MCLs													5				
B473	09/24/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	4 U	0.5 U	NA	0.5 U	NA	4 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
B473	04/20/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B473	10/07/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 UJ	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B473	04/06/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B473	04/03/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B473	04/03/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B473	04/03/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 UJ	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B473	04/16/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B473	04/08/2016	1 U	1 U	1 U	1 U	1 U	10 U	1 U	10 U	1 U	10 U	10 U	1 U	1 U	1 U	1 U	1 U
B473	04/08/2016	1 U	1 U	1 U	1 U	1 U	10 U	1 U	10 U	1 U	10 U	10 U	1 U	1 U	1 U	1 U	1 U
B474	09/23/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	180	0.5 U	NA	0.5 U	NA	40 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
B474	04/20/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B474	10/07/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 UJ	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B474	04/09/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B480	09/24/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	4 U	0.5 U	NA	0.5 U	NA	3.2 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
B480	04/19/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B480	10/07/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 UJ	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B480	04/09/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B480	04/03/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B480	04/03/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 UJ	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B480	04/17/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B480	04/07/2016	1 U	1 U	1 U	1 U	1 U	10 U	1 U	10 U	1 U	10 U	10 U	1 U	1 U	1 U	1 U	1 U
B480	04/07/2016	1 U	1 U	1 U	1 U	1 U	10 U	1 U	10 U	1 U	10 U	10 U	1 U	1 U	1 U	1 U	1 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

VOCs (µg/L)

Location ID	Sample Date	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	2,2-Dichloropropane	2-Butanone	2-Chlorotoluene	2-Hexanone	4-Chlorotoluene	4-Methyl-2-pentanone	Acetone	Benzene	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform
California MCLs													1				
Federal MCLs													5				
B490	09/16/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	4 U	0.5 U	NA	0.5 U	NA	4 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
B490	04/20/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B490	10/10/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 UJ	0.5 U	0.5 U	0.5 U	0.5 U	1 U
B490	04/09/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 UJ	0.5 U	0.5 U	0.5 U	0.5 U	1 U
BULB1	10/19/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	4 U	0.5 U	NA	0.5 U	NA	2.3 J	2.3	0.5 U	0.5 U	0.5 U	0.5 U
BULB1	04/12/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
BULB1	09/30/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
BULB1	04/05/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
BULB1	04/05/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
BULB1	04/10/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
BULB1	04/13/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
BULB1	04/13/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
BULB2	10/19/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	4 U	0.5 U	NA	0.5 U	NA	3.3 J	4.1	0.5 U	0.5 U	0.5 U	0.5 U
BULB2	04/12/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
BULB2	09/30/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
BULB2	04/05/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 UJ	0.5 U	0.5 U	0.5 U	0.5 U	1 U
BULB2	04/05/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
BULB2	04/10/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
BULB2	04/13/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
BULB2	04/08/2016	1 U	1 U	1 U	1 U	1 U	10 U	1 U	10 U	1 U	10 U	10 U	1 U	1 U	1 U	1 U	1 U
CCC1	09/08/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	4 U	0.5 U	NA	0.5 U	NA	2.3 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CCC1	04/14/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
CCC1	10/05/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
CCC1	04/10/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

VOCs (µg/L)

Location ID	Sample Date	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	2,2-Dichloropropane	2-Butanone	2-Chlorotoluene	2-Hexanone	4-Chlorotoluene	4-Methyl-2-pentanone	Acetone	Benzene	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform
California MCLs													1				
Federal MCLs													5				
CCC2	09/08/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	4 U	0.5 U	NA	0.5 U	NA	4 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CCC2	04/14/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
CCC2	10/04/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
CCC2	04/10/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
CCC2	04/02/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
CCC2	04/02/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
CCC2	04/02/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 UJ	0.5 U	0.5 U	0.5 U	0.5 U	1 U
CCC2	04/15/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
CCC2	04/07/2016	1 U	1 U	1 U	1 U	1 U	10 U	1 U	10 U	1 U	10 U	10 U	1 U	1 U	1 U	1 U	1 U
CCC3	09/03/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	30	0.5 U	NA	0.5 U	NA	4 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CCC3	09/03/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	32	0.5 U	NA	0.5 U	NA	4 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CCC3	04/12/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
CCC3	10/04/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
CCC3	10/04/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
CCC3	04/10/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 UJ	0.5 U	0.5 U	0.5 U	0.5 U	1 U
CCC3	04/02/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
CCC3	04/02/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 UJ	0.5 U	0.5 U	0.5 U	0.5 U	1 U
CCC3	04/15/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 UJ	0.5 U	0.5 U	0.5 U	0.5 U	1 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum

University of California, Berkeley, Richmond Field Station Site

VOCs (µg/L)

Location ID	Sample Date	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	2,2-Dichloropropane	2-Butanone	2-Chlorotoluene	2-Hexanone	4-Chlorotoluene	4-Methyl-2-pentanone	Acetone	Benzene	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform
California MCLs													1				
Federal MCLs													5				
CCCT	09/03/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	3.2 J	0.5 U	NA	0.5 U	NA	4 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CCCT	04/18/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
CCCT	10/03/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
CCCT	04/04/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 UJ	0.5 U	0.5 U	0.5 U	0.5 U	1 U
CCCT	04/02/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
CCCT	04/08/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
CCCT	04/15/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 UJ	0.5 U	0.5 U	0.5 U	0.5 U	1 U
CCCT	04/07/2016	1 U	1 U	1 U	1 U	1 U	10 U	1 U	10 U	1 U	10 U	10 U	1 U	1 U	1 U	1 U	1 U
CTP	09/30/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	35 J	0.5 U	NA	0.5 U	NA	7 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CTP	09/30/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	17 J	0.5 U	NA	0.5 U	NA	4.4 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CTP	04/14/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
CTP	10/06/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
CTP	04/03/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
CTP	04/03/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
CTP	04/04/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
CTP	04/03/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
CTP	04/03/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 UJ	0.5 U	0.5 U	0.5 U	0.5 U	1 U
CTP	04/17/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
CTP	04/11/2016	1 U	1 U	1 U	1 U	1 U	10 U	1 U	10 U	1 U	10 U	10 U	1 U	1 U	1 U	1 U	1 U
CTPDEEP	04/03/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
CTPS	09/30/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	4 U	0.5 U	NA	0.5 U	NA	4 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CTPS	04/19/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
CTPS	10/07/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 UJ	0.5 U	0.5 U	0.5 U	0.5 U	1 U
CTPS	04/05/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum

University of California, Berkeley, Richmond Field Station Site

VOCs (µg/L)

Location ID	Sample Date	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	2,2-Dichloropropane	2-Butanone	2-Chlorotoluene	2-Hexanone	4-Chlorotoluene	4-Methyl-2-pentanone	Acetone	Benzene	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform
California MCLs													1				
Federal MCLs													5				
DH	09/30/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	4 U	0.5 U	NA	0.5 U	NA	2.4 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
DH	04/14/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
DH	10/05/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
DH	04/05/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	15 UJ	0.5 U	0.5 U	0.5 U	0.5 U	1 U
EERC	10/01/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	4 U	0.5 U	NA	0.5 U	NA	4 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
EERC	04/20/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
EERC	10/07/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 UJ	0.5 U	0.5 U	0.5 U	0.5 U	1 U
EERC	04/06/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 UJ	0.5 U	0.5 U	0.5 U	0.5 U	1 U
EERC	04/08/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
EERC	04/03/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 UJ	0.5 U	0.5 U	0.5 U	0.5 U	1 U
EERC	04/16/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
EPA	09/16/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	4 U	0.5 U	NA	0.5 U	NA	4 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
EPA	04/19/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
EPA	10/06/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
EPA	04/06/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 UJ	0.5 U	0.5 U	0.5 U	0.5 U	1 U
EPA	04/06/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 UJ	0.5 U	0.5 U	0.5 U	0.5 U	1 U
EPA	04/04/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
EPA	04/10/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
EPA	04/17/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum

University of California, Berkeley, Richmond Field Station Site

VOCs (µg/L)

Location ID	Sample Date	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	2,2-Dichloropropane	2-Butanone	2-Chlorotoluene	2-Hexanone	4-Chlorotoluene	4-Methyl-2-pentanone	Acetone	Benzene	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform
California MCLs													1				
Federal MCLs													5				
ETA	09/24/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	4 U	0.5 U	NA	0.5 U	NA	4 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
ETA	09/24/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	4 U	0.5 U	NA	0.5 U	NA	4 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
ETA	04/12/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
ETA	09/30/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
ETA	04/10/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
ETA	04/10/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
ETA	04/05/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
ETA	04/08/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
ETA	04/13/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
ETA	04/05/2016	1 U	1 U	1 U	1 U	1 U	10 U	1 U	10 U	1 U	10 U	10 U	1 U	1 U	1 U	1 U	1 U
ETA01	02/02/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
ETA01	04/05/2016	1 U	1 U	1 U	1 U	1 U	10 U	1 U	10 U	1 U	10 U	10 U	1 U	1 U	1 U	1 U	1 U
ETA02	02/02/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
ETA02	02/02/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.1 J	0.5 U	0.5 U	0.5 U	1 U
ETA02	04/05/2016	1 U	1 U	1 U	1 U	1 U	10 U	1 U	10 U	1 U	10 U	10 U	1 U	1 U	1 U	1 U	1 U
ETA03	02/02/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.3 J	0.5 U	10 U	0.5 U	10 U	10 U	0.2 J	0.5 U	0.5 U	0.5 U	1 U
ETA03	04/05/2016	1 U	1 U	1 U	1 U	1 U	10 U	1 U	10 U	1 U	10 U	10 U	0.2 J	1 U	1 U	1 U	1 U
EXT	09/30/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
FG	09/23/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	4 U	0.5 U	NA	0.5 U	NA	2.7 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
FG	04/19/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
FG	04/19/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
FG	10/10/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
FG	04/09/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum

University of California, Berkeley, Richmond Field Station Site

VOCs (µg/L)

Location ID	Sample Date	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	2,2-Dichloropropane	2-Butanone	2-Chlorotoluene	2-Hexanone	4-Chlorotoluene	4-Methyl-2-pentanone	Acetone	Benzene	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform
California MCLs													1				
Federal MCLs													5				
GEO	09/03/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	4 U	0.5 U	NA	0.5 U	NA	4 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
GEO	04/20/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
GEO	10/06/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
GEO	04/06/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
GEO	04/04/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
GEO	04/09/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 UJ	0.5 U	0.5 U	0.5 U	0.5 U	1 U
GEO	04/16/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
GEO	04/11/2016	1 U	1 U	1 U	1 U	1 U	10 U	1 U	10 U	1 U	10 U	10 U	1 U	1 U	1 U	1 U	1 U
MFA	09/24/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	4 U	0.5 U	NA	0.5 U	NA	4 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MFA	04/12/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
MFA	10/03/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
MFA	04/05/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
MFA	04/05/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
MFA	04/08/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
MFA	04/13/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
MFA	04/08/2016	1 U	1 U	1 U	1 U	1 U	10 U	1 U	10 U	1 U	10 U	10 U	1 U	1 U	1 U	1 U	1 U
MFA	04/08/2016	1 U	1 U	1 U	1 U	1 U	10 U	1 U	10 U	1 U	10 U	10 U	1 U	1 U	1 U	1 U	1 U
NRLF	09/16/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	200	0.5 U	NA	0.5 U	NA	4 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
NRLF	04/20/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
NRLF	10/06/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
NRLF	04/09/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
OBS6	09/30/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

VOCs (µg/L)

Location ID	Sample Date	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	2,2-Dichloropropane	2-Butanone	2-Chlorotoluene	2-Hexanone	4-Chlorotoluene	4-Methyl-2-pentanone	Acetone	Benzene	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform
California MCLs													1				
Federal MCLs													5				
PZ11	10/01/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	4 U	0.5 U	NA	0.5 U	NA	4 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
PZ11	04/20/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
PZ11	10/10/2011	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	63 U	3.1 U	63 U	3.1 U	63 U	63 U	3.1 U	3.1 U	3.1 U	3.1 U	6.3 U
PZ11	04/05/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
PZ11	04/05/2013	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	25 U	1.3 U	25 U	1.3 U	25 U	25 U	1.3 U	1.3 U	1.3 U	1.3 U	2.5 U
PZ11	04/05/2013	2 U	2 U	2 U	2 U	2 U	40 U	2 U	40 U	2 U	40 U	40 U	2 U	2 U	2 U	2 U	4 U
PZ11	04/09/2014	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	50 U	2.5 U	50 U	2.5 U	50 U	50 U	2.5 U	2.5 U	2.5 U	2.5 U	5 U
PZ11	04/16/2015	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	50 U	2.5 U	50 U	2.5 U	50 U	50 U	2.5 U	2.5 U	2.5 U	2.5 U	5 U
PZ11	04/08/2016	1 U	1 U	1 U	1 U	1 U	10 U	1 U	10 U	1 U	10 U	10 U	1 U	1 U	1 U	1 U	1 U
PZ8	10/15/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	4 U	0.5 U	NA	0.5 U	NA	4 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
PZ8	04/18/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
PZ8	10/04/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
PZ8	04/03/2012	0.5 U	0.5 U	0.5 U	0.1 J	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
PZ9	09/24/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	4 U	0.5 U	NA	0.5 U	NA	4 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
PZ9	04/20/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
PZ9	10/07/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 UJ	0.5 U	0.5 U	0.5 U	0.5 U	1 U
PZ9	10/07/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 UJ	0.5 U	0.5 U	0.5 U	0.5 U	1 U
PZ9	04/06/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	10 U	0.5 U	10 U	0.5 U	10 U	10 UJ	0.5 U	0.5 U	0.5 U	0.5 U	1 U
PZ9	04/03/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
PZ9	04/09/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
PZ9	04/16/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
PZ9	04/07/2016	1 U	1 U	1 U	1 U	1 U	10 U	1 U	10 U	1 U	10 U	10 U	1 U	1 U	1 U	1 U	1 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum

University of California, Berkeley, Richmond Field Station Site

VOCs (µg/L)

Location ID	Sample Date	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	2,2-Dichloropropane	2-Butanone	2-Chlorotoluene	2-Hexanone	4-Chlorotoluene	4-Methyl-2-pentanone	Acetone	Benzene	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform
California MCLs													1				
Federal MCLs													5				
RWF	09/15/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	4 U	0.5 U	NA	0.5 U	NA	4 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
RWF	04/18/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
RWF	10/06/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
RWF	04/04/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 UJ	0.5 U	0.5 U	0.5 U	0.5 U	1 U
RWF	04/08/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
RWF	04/09/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
RWF	04/14/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
RWF	04/08/2016	1 U	1 U	1 U	1 U	1 U	10 U	1 U	10 U	1 U	10 U	10 U	1 U	1 U	1 U	1 U	1 U
TP1	09/29/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	4 U	0.5 U	NA	0.5 U	NA	4 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TP1	04/18/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
TP1	10/07/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 UJ	0.5 U	0.5 U	0.5 U	0.5 U	1 U
TP1	04/05/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
TP1	04/04/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
TP1	04/02/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 UJ	0.5 U	0.5 U	0.5 U	0.5 U	1 U
TP1	04/10/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
TP1	04/07/2016	1 U	1 U	1 U	1 U	1 U	10 U	1 U	10 U	1 U	10 U	10 U	1 U	1 U	1 U	1 U	1 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

VOCs (µg/L)

Location ID	Sample Date	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	2,2-Dichloropropane	2-Butanone	2-Chlorotoluene	2-Hexanone	4-Chlorotoluene	4-Methyl-2-pentanone	Acetone	Benzene	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform
California MCLs													1				
Federal MCLs													5				
TP2	09/29/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	4 U	0.5 U	NA	0.5 U	NA	4 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TP2	04/18/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
TP2	10/07/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 UJ	0.5 U	0.5 U	0.5 U	0.5 U	1 U
TP2	04/09/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
TP2	04/09/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
TP2	04/04/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
TP2	04/02/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 UJ	0.5 U	0.5 U	0.5 U	0.5 U	1 U
TP2	04/10/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
TP2	04/10/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
TP2	04/08/2016	1 U	1 U	1 U	1 U	1 U	10 U	1 U	10 U	1 U	10 U	10 U	1 U	1 U	1 U	1 U	1 U
WSM01	02/02/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	190	0.5 U	10 U	0.5 U	10 U	74	0.2 J	0.5 U	0.5 U	0.5 U	1 U
WSM01	04/05/2016	1 U	1 U	1 U	1 U	1 U	10 U	1 U	10 U	1 U	10 U	10 U	0.2 J	1 U	1 U	1 U	1 U
WTA	09/30/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	4 U	0.5 U	NA	0.5 U	NA	2 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
WTA	04/14/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
WTA	04/14/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
WTA	10/05/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
WTA	04/05/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
WTA	04/05/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
WTA	04/10/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U
WTA	04/13/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U

VOCs (µg/L)

Location ID	Sample Date	Bromomethane	Carbon disulfide	Carbon Tetrachloride	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	Cis-1,2-Dichloroethene	Cis-1,3-Dichloropropene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane	Ethyl tert-butyl ether	Ethylbenzene	Freon 113	Freon 12
California MCLs				0.5					6								
Federal MCLs				5					70								
B120	09/09/2010	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	3.1	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	NA
B120	04/15/2011	2.5 U	1.3 U	1.3 U	1.3 U	2.5 U	0.3 J	2.5 U	3.6	1.3 U	1.3 U	1.3 U	NA	1.3 U	1.3 U	5 U	2.5 U
B120	10/04/2011	4 U	2 U	2 U	2 U	4 U	2 U	4 U	3.5	2 U	2 U	2 U	NA	2 U	2 U	8 U	4 U
B120	04/03/2012	2.5 U	1.3 U	1.3 U	1.3 U	2.5 U	1.3 U	2.5 U	3	1.3 U	1.3 U	1.3 U	NA	1.3 U	1.3 U	5 U	2.5 U
B120	04/02/2013	4 U	2 U	2 U	2 U	4 U	2 U	4 U	3.4	2 U	2 U	2 U	NA	2 U	2 U	8 U	4 U
B120	04/01/2014	2.5 U	1.3 U	1.3 U	1.3 U	2.5 U	1.3 U	2.5 U	3.8	1.3 U	1.3 U	1.3 U	NA	1.3 U	1.3 U	5 U	2.5 U
B120	04/10/2015	1 U	0.5 U	0.5 U	0.1 J	1 U	0.2 J	1 U	4.5	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B120	04/05/2016	2 U	2 U	2 U	2 U	2 U	2 U	2 U	3.1	2 U	2 U	2 U	NA	NA	2 U	10 U	2 U
B121	09/08/2010	0.5 U	NA	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	NA	0.5 U	0.5 U	NA
B121	04/13/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 UJ	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B121	10/04/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B121	04/04/2012	1 U	0.5 U	0.5 U	0.5 U	1 U	0.1 J	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B128	09/23/2010	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.3 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	NA	0.5 U	0.5 U	NA
B128	09/23/2010	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	NA	0.5 U	0.5 U	NA
B128	04/18/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B128	10/04/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B128	04/02/2012	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 UJ
B150	09/08/2010	0.5 U	NA	0.5 U	0.5 U	0.5 UJ	1.4	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	NA	0.5 U	0.5 U	NA
B150	04/13/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 UJ	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B150	10/05/2011	1 UJ	0.5 U	0.5 U	0.5 U	1 U	0.6	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 UJ
B150	10/05/2011	1 UJ	0.5 U	0.5 U	0.5 U	1 U	0.5 J	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 UJ
B150	04/04/2012	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B150	04/04/2012	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

VOCs (µg/L)

Location ID	Sample Date	Bromomethane	Carbon disulfide	Carbon Tetrachloride	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	Cis-1,2-Dichloroethene	Cis-1,3-Dichloropropene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane	Ethyl tert-butyl ether	Ethylbenzene	Freon 113	Freon 12
California MCLs				0.5					6								
Federal MCLs				5					70								
B158	09/08/2010	0.5 U	NA	0.5 U	0.5 U	0.5 UJ	4	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	NA	0.5 U	0.5 U	NA
B158	04/15/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	1.6	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B158	10/05/2011	1 UJ	0.5 U	0.5 U	0.5 U	1 U	2	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 UJ
B158	04/06/2012	1 U	0.5 U	0.5 U	0.5 U	1 U	1.6 UJ	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 UJ
B163	09/02/2010	0.5 U	NA	0.5 U	6.5	0.5 U	2.1	0.5 U	3	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	NA
B163	04/12/2011	1 U	0.5 U	0.5 U	8.4	1 U	2.3	1 U	3.2	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B163	10/03/2011	1 U	0.5 U	0.5 U	7.6	1 U	2.4	1 U	3.6	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B163	04/02/2012	1 U	0.5 U	0.5 U	7.5	1 U	2.3	1 U	3	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 UJ
B163	04/03/2013	1 U	0.5 U	0.5 U	6.9	1 U	2.2	1 U	3.6	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B163	04/01/2014	1 U	0.5 U	0.5 U	6.9	1 U	1.9	1 U	4.2	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B163	04/14/2015	1 U	0.5 U	0.5 U	6.4	1 U	1.6	1 U	4	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B163	04/05/2016	1 U	1 U	1 U	5.9	1 U	1.3	1 U	4.4	1 U	1 U	1 U	NA	NA	1 U	5 U	1 U
B175S	09/03/2010	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	NA
B175S	04/13/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B175S	10/04/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.2 J	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B175S	04/04/2012	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B175S	04/02/2013	1 U	0.5 U	0.5 U	0.5 U	1 U	0.1 J	1 U	0.2 J	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B175S	04/01/2014	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B175S	04/15/2015	1 U	0.5 UJ	0.5 U	0.5 U	1 U	0.2 J	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B175S	04/07/2016	1 U	1 U	1 U	1 U	1 U	0.2 J	1 U	1 U	1 U	1 U	1 U	NA	NA	1 U	5 U	1 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

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University of California, Berkeley, Richmond Field Station Site

VOCs (µg/L)

Location ID	Sample Date	Bromomethane	Carbon disulfide	Carbon Tetrachloride	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	Cis-1,2-Dichloroethene	Cis-1,3-Dichloropropene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane	Ethyl tert-butyl ether	Ethylbenzene	Freon 113	Freon 12
California MCLs				0.5					6								
Federal MCLs				5					70								
B175W	09/08/2010	0.5 U	NA	0.5 U	0.5 U	0.5 UJ	0.4 J	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	NA	0.5 U	0.5 U	NA
B175W	04/13/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.2 J	1 UJ	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B175W	10/04/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.2 J	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B175W	04/04/2012	1 U	0.5 U	0.5 U	0.5 U	1 U	0.3 J	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B175W	04/02/2013	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B175W	04/01/2014	1 U	0.5 U	0.5 U	0.5 U	1 U	0.1 J	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B175W	04/15/2015	1 U	0.5 UJ	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B175W	04/07/2016	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	1 U	5 U	1 U
B177	09/23/2010	0.5 UJ	NA	0.5 U	0.5 U	0.5 U	9.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	NA	0.5 U	0.5 UJ	NA
B177	04/18/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	2.7	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B177	10/05/2011	1 UJ	0.5 U	0.5 U	0.5 U	1 U	6.5	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 UJ
B177	04/04/2012	1 U	0.5 U	0.5 U	0.5 U	1 U	0.9	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B178	09/02/2010	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.2 J	0.5 U	2.5	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	NA
B178	04/15/2011	2.5 U	1.3 U	1.3 U	1.3 U	2.5 U	0.4 J	2.5 U	2.7	1.3 U	1.3 U	1.3 U	NA	1.3 U	1.3 U	5 U	2.5 U
B178	10/04/2011	2.5 U	1.3 U	1.3 U	1.3 U	2.5 U	1.3 U	2.5 U	3.2	1.3 U	1.3 U	1.3 U	NA	1.3 U	1.3 U	5 U	2.5 U
B178	04/03/2012	3.3 U	1.7 U	1.7 U	1.7 U	3.3 U	1.7 U	3.3 U	2.3	1.7 U	1.7 U	1.7 U	NA	1.7 U	1.7 U	6.7 U	3.3 U
B178	04/02/2013	2.5 U	1.3 U	1.3 U	1.3 U	2.5 U	1.3 U	2.5 U	3.4	1.3 U	1.3 U	1.3 U	NA	1.3 U	1.3 U	5 U	2.5 U
B178	04/08/2014	2 U	0.5 J	1 U	1 U	2 U	1 U	2 U	3	1 U	1 U	1 U	NA	1 U	1 U	4 U	2 U
B178	04/10/2015	2 U	1 U	1 U	1 U	2 U	1 U	2 U	4.8	1 U	1 U	1 U	NA	1 U	1 U	4 U	2 U
B178	04/05/2016	2 U	2 U	2 U	2 U	2 U	2 U	2 U	11	2 U	2 U	2 U	NA	NA	2 U	10 U	2 U
B180	09/15/2010	0.5 U	NA	0.5 U	0.5 U	0.5 U	1.8	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	NA
B180	04/13/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.3 J	1 UJ	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B180	10/06/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.4 J	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B180	10/06/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.4 J	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B180	04/04/2012	1 U	0.5 U	0.5 U	0.5 U	1 U	0.1 J	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

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University of California, Berkeley, Richmond Field Station Site

VOCs (µg/L)

Location ID	Sample Date	Bromomethane	Carbon disulfide	Carbon Tetrachloride	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	Cis-1,2-Dichloroethene	Cis-1,3-Dichloropropene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane	Ethyl tert-butyl ether	Ethylbenzene	Freon 113	Freon 12
California MCLs				0.5					6								
Federal MCLs				5					70								
B185	09/02/2010	0.5 U	NA	4.3	1.2	0.5 U	1.3	0.5 U	1	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	NA
B185	04/15/2011	1.4 U	0.7 U	3.5	1	1.4 U	0.8	1.4 U	1	0.7 U	0.7 U	0.7 U	NA	0.7 U	0.7 U	2.9 U	1.4 U
B185	04/15/2011	1 U	0.5 U	4.7	1.1	1 U	1.2	1 U	1.5	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B185	10/03/2011	1 U	0.5 U	5.6	1.6	1 U	1.4	1 U	1.4	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B185	10/03/2011	1.4 U	0.7 U	4.1	1.1	1.4 U	1	1.4 U	1.3	0.7 U	0.7 U	0.7 U	NA	0.7 U	0.7 U	2.9 U	1.4 U
B185	04/02/2012	1 U	0.5 U	4.8	1.2	1 U	0.9	1 U	1.1	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 UJ
B185	04/02/2013	1 U	0.5 U	8.1	1.7	1 U	1.8	1 U	1.8	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B185	04/08/2014	1 U	0.5 U	4.4	1	1 U	1.1	1 U	1.5	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B185	04/10/2015	1 U	0.5 U	8.2	1.7	1 U	3.7	1 U	2	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B185	04/05/2016	1 U	1 U	0.5 J	0.4 J	1 U	0.4 J	1 U	1.5	1 U	1 U	1 U	NA	NA	1 U	5 U	1 U
B194	09/09/2010	0.5 U	NA	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	NA	0.5 U	0.5 U	NA
B194	04/13/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 UJ	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B194	10/04/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B194	04/04/2012	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B195	09/09/2010	0.5 U	NA	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 UJ	3.7	0.5 U	0.5 U	0.5 U	0.5 UJ	NA	0.5 U	0.5 U	NA
B195	04/13/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	1.4	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B195	04/13/2011	1.4 U	0.7 U	0.7 U	0.7 U	1.4 U	0.7 U	1.4 UJ	1	0.7 U	0.7 U	0.7 U	NA	0.7 U	0.7 U	2.9 U	1.4 U
B195	10/04/2011	2.5 U	1.3 UJ	1.3 U	0.9 J	2.5 U	1.3 U	2.5 UJ	4.1	1.3 U	1.3 U	1.3 U	NA	1.3 U	1.3 U	5 U	2.5 U
B195	04/03/2012	2 U	1 U	1 U	0.9 J	2 U	1 U	2 U	1.7	1 U	1 U	1 U	NA	1 U	1 U	4 U	2 U
B195	04/02/2013	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	3.1	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B195	04/02/2013	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	3	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B195	04/02/2014	1 U	0.5 U	0.5 U	2	1 U	0.1 J	1 U	3.9	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B195	04/02/2014	1 U	0.5 U	0.5 U	2.1	1 U	0.1 J	1 U	3.7	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B195	04/14/2015	1 U	0.5 U	0.5 U	0.5 U	1 U	0.1 J	1 U	2.2	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B195	04/11/2016	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	0.9 J	1 U	1 U	1 U	NA	NA	1 U	5 U	1 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

VOCs (µg/L)

Location ID	Sample Date	Bromomethane	Carbon disulfide	Carbon Tetrachloride	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	Cis-1,2-Dichloroethene	Cis-1,3-Dichloropropene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane	Ethyl tert-butyl ether	Ethylbenzene	Freon 113	Freon 12
California MCLs				0.5					6								
Federal MCLs				5					70								
B197	09/09/2010	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.8	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	NA
B197	09/09/2010	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.9	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	NA
B197	04/13/2011	3.3 U	1.7 U	1.7 U	1.7 U	3.3 U	1.7 U	3.3 UJ	2.2	1.7 U	1.7 U	1.7 U	NA	1.7 U	1.7 U	6.7 U	3.3 U
B197	10/04/2011	3.3 U	1.7 U	1.7 U	1.7 U	3.3 U	1.7 U	3.3 U	3.6	1.7 U	1.7 U	1.7 U	NA	1.7 U	1.7 U	6.7 U	3.3 U
B197	04/03/2012	2 U	1 U	1 U	1 U	2 U	1 U	2 U	2.3	1 U	1 U	1 U	NA	1 U	1 U	4 U	2 U
B197	04/03/2012	2 U	1 U	1 U	1 U	2 U	1 U	2 U	2.5	1 U	1 U	1 U	NA	1 U	1 U	4 U	2 U
B197R	04/08/2013	1 U	0.5 U	0.5 U	0.2 J	1 U	0.1 J	1 U	3.3	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B197R	04/08/2014	2 U	1 U	1 U	1 U	2 U	1 U	2 U	2.9	1 U	1 U	1 U	NA	1 U	1 U	4 U	2 U
B197R	04/14/2015	2 U	1 U	1 U	1 U	2 U	1 U	2 U	4.4	1 U	1 U	1 U	NA	1 U	1 U	4 U	2 U
B197R	04/05/2016	2 U	2 U	2 U	2 U	2 U	2 U	2 U	3.2	2 U	2 U	2 U	NA	NA	2 U	10 U	2 U
B197R	04/05/2016	2 U	2 U	2 U	2 U	2 U	2 U	2 U	3.1	2 U	2 U	2 U	NA	NA	2 U	10 U	2 U
B277	09/15/2010	0.5 U	NA	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	NA
B277	04/18/2011	1 U	0.5 U	1	0.5 U	1 U	0.3 J	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B277	10/05/2011	1 UJ	0.5 U	0.8	0.5 U	1 U	0.3 J	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 UJ
B277	04/03/2012	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B277	04/04/2013	1 U	0.5 U	0.5	0.5 U	1 U	0.3 J	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B277	04/02/2014	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B277	04/16/2015	1 U	0.5 U	0.4 J	0.5 U	1 U	0.1 J	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B277	04/11/2016	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	NA	NA	1 U	5 U	1 U

VOCs (µg/L)

Location ID	Sample Date	Bromomethane	Carbon disulfide	Carbon Tetrachloride	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	Cis-1,2-Dichloroethene	Cis-1,3-Dichloropropene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane	Ethyl tert-butyl ether	Ethylbenzene	Freon 113	Freon 12
California MCLs				0.5					6								
Federal MCLs				5					70								
B278	09/16/2010	0.5 U	NA	0.5 U	0.5 U	0.5 U	1.7	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	NA
B278	04/19/2011	1 U	0.5 U	0.3 J	0.5 U	1 U	2.1	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B278	10/05/2011	1 UJ	0.5 U	0.1 J	0.5 U	1 U	0.9	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 UJ
B278	04/05/2012	1 U	0.5 U	0.2 J	0.5 U	1 U	1	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B278	04/04/2013	1 U	0.5 U	0.5 U	0.5 U	1 U	0.4 J	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B278	04/09/2014	1 U	0.5 U	0.5 U	0.5 U	1 U	0.4 J	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B278	04/17/2015	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 J	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B278	04/08/2016	1 U	1 U	1 U	1 U	1 U	0.2 J	1 U	1 U	1 U	1 U	1 U	NA	NA	1 U	5 U	1 U
B280A	09/16/2010	0.5 U	NA	0.9	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	NA
B280A	04/14/2011	1 U	0.5 U	1.1	0.5 U	1 U	0.2 J	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B280A	10/06/2011	1 U	0.5 U	1.4	0.5 U	1 U	0.1 J	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B280A	04/03/2012	1 U	0.5 U	0.9	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B280A	04/04/2013	1 U	0.5 U	1.3	0.5 U	1 U	0.3 J	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B280A	04/09/2014	1 U	0.5 U	0.5	0.5 U	1 U	0.1 J	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B280A	04/17/2015	1 U	0.5 U	1.3	0.5 U	1 U	0.3 J	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B280A	04/11/2016	1 U	1 U	0.6 J	1 U	1 U	0.2 J	1 UJ	1 U	1 U	1 U	1 U	NA	NA	1 U	5 U	1 U
B280B	10/01/2010	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	NA
B280B	04/14/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.1 J	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B280B	10/06/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B280B	04/03/2012	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B300	09/09/2010	0.5 U	NA	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	NA	0.5 U	0.5 U	NA
B300	04/15/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B300	10/06/2011	0.3 J	0.5 U	0.5 U	0.5 U	1 U	0.5 U	5.1	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B300	04/09/2012	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

VOCs (µg/L)

Location ID	Sample Date	Bromomethane	Carbon disulfide	Carbon Tetrachloride	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	Cis-1,2-Dichloroethene	Cis-1,3-Dichloropropene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane	Ethyl tert-butyl ether	Ethylbenzene	Freon 113	Freon 12
California MCLs				0.5					6								
Federal MCLs				5					70								
B38	09/15/2010	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	NA
B38	04/19/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B38	04/19/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.1 J	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B38	10/06/2011	0.4 J	0.5 U	0.5 U	0.5 U	1 U	0.5 U	3.1	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B38	04/04/2012	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B450	04/19/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.2 J	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B450	10/10/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.2 J	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B450	04/06/2012	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 UJ	1 U	0.3 J	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 UJ
B450	04/03/2013	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B450	04/03/2014	1 U	0.5 U	0.5 U	0.5 U	1 U	0.1 J	1 U	1	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B450	04/14/2015	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.4 J	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B450	04/07/2016	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.1 J	1 U	1 U	1 U	NA	NA	1 U	5 U	1 U
B460	09/15/2010	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	NA
B460	04/20/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B460	10/07/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 UJ	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B460	04/06/2012	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 UJ

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VOCs (µg/L)

Location ID	Sample Date	Bromomethane	Carbon disulfide	Carbon Tetrachloride	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	Cis-1,2-Dichloroethene	Cis-1,3-Dichloropropene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane	Ethyl tert-butyl ether	Ethylbenzene	Freon 113	Freon 12
California MCLs				0.5					6								
Federal MCLs				5					70								
B473	09/24/2010	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	NA	0.5 U	0.5 U	NA
B473	04/20/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B473	10/07/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 UJ	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B473	04/06/2012	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 UJ
B473	04/03/2013	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B473	04/03/2014	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	2.6	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B473	04/03/2014	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	2.8	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B473	04/16/2015	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	1.7	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B473	04/08/2016	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.4 J	1 U	1 U	1 U	NA	NA	1 U	5 U	1 U
B473	04/08/2016	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.4 J	1 U	1 U	1 U	NA	NA	1 U	5 U	1 U
B474	09/23/2010	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	NA	0.5 U	0.5 U	NA
B474	04/20/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B474	10/07/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 UJ	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B474	04/09/2012	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B480	09/24/2010	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	NA	0.5 U	0.5 U	NA
B480	04/19/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B480	10/07/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.9	1 UJ	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B480	04/09/2012	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B480	04/03/2013	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B480	04/03/2014	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.2 J	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B480	04/17/2015	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.3 J	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B480	04/07/2016	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.1 J	1 U	1 U	1 U	NA	NA	1 U	5 U	1 U
B480	04/07/2016	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.2 J	1 U	1 U	1 U	NA	NA	1 U	5 U	1 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

VOCs (µg/L)

Location ID	Sample Date	Bromomethane	Carbon disulfide	Carbon Tetrachloride	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	Cis-1,2-Dichloroethene	Cis-1,3-Dichloropropene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane	Ethyl tert-butyl ether	Ethylbenzene	Freon 113	Freon 12
California MCLs				0.5					6								
Federal MCLs				5					70								
B490	09/16/2010	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	NA
B490	04/20/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B490	10/10/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
B490	04/09/2012	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
BULB1	10/19/2010	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	NA
BULB1	04/12/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
BULB1	09/30/2011	1 U	0.6	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
BULB1	04/05/2012	1 U	0.4 J	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
BULB1	04/05/2013	0.4 J	2.9	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
BULB1	04/10/2014	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
BULB1	04/13/2015	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
BULB1	04/13/2015	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
BULB2	10/19/2010	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	NA
BULB2	04/12/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
BULB2	09/30/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.4 J	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
BULB2	04/05/2012	1 U	0.5 U	0.5 U	0.3 J	1 U	0.5 U	1 U	0.3 J	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.1 J	2 U	1 U
BULB2	04/05/2013	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.4 J	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
BULB2	04/10/2014	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 J	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
BULB2	04/13/2015	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.6	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
BULB2	04/08/2016	1 U	1 U	1 U	0.1 J	1 U	1 U	1 U	0.3 J	1 U	1 U	1 U	NA	NA	1 U	5 U	1 U
CCC1	09/08/2010	0.5 U	NA	0.5 U	0.5 U	0.5 UJ	1.2	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	NA	0.5 U	0.5 U	NA
CCC1	04/14/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.4 J	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
CCC1	10/05/2011	1 UJ	0.5 U	0.5 U	0.5 U	1 U	0.2 J	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 UJ
CCC1	04/10/2012	1 U	0.5 U	0.5 U	0.5 U	1 U	0.1 J	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

VOCs (µg/L)

Location ID	Sample Date	Bromomethane	Carbon disulfide	Carbon Tetrachloride	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	Cis-1,2-Dichloroethene	Cis-1,3-Dichloropropene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane	Ethyl tert-butyl ether	Ethylbenzene	Freon 113	Freon 12
California MCLs				0.5					6								
Federal MCLs				5					70								
CCC2	09/08/2010	0.5 U	NA	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	NA	0.5 U	0.5 U	NA
CCC2	04/14/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
CCC2	10/04/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.1 J	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
CCC2	04/10/2012	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
CCC2	04/02/2013	1 U	0.5 U	0.5 U	0.5 U	1 U	0.2 J	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
CCC2	04/02/2013	1 U	0.5 U	0.5 U	0.5 U	1 U	0.1 J	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
CCC2	04/02/2014	1 U	0.5 U	0.5 U	0.5 U	1 U	0.3 J	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
CCC2	04/15/2015	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
CCC2	04/07/2016	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	1 U	5 U	1 U
CCC3	09/03/2010	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	NA
CCC3	09/03/2010	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	NA
CCC3	04/12/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
CCC3	10/04/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
CCC3	10/04/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
CCC3	04/10/2012	1 U	0.5 J	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
CCC3	04/02/2013	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
CCC3	04/02/2014	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
CCC3	04/15/2015	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U

VOCs (µg/L)

Location ID	Sample Date	Bromomethane	Carbon disulfide	Carbon Tetrachloride	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	Cis-1,2-Dichloroethene	Cis-1,3-Dichloropropene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane	Ethyl tert-butyl ether	Ethylbenzene	Freon 113	Freon 12
California MCLs				0.5					6								
Federal MCLs				5					70								
CCCT	09/03/2010	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	NA
CCCT	04/18/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	1.1	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
CCCT	10/03/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	1.3	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
CCCT	04/04/2012	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	1.4	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
CCCT	04/02/2013	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	1.7	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
CCCT	04/08/2014	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	2.2	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
CCCT	04/15/2015	1 U	0.5 UJ	0.5 U	0.5 U	1 U	0.5 U	1 U	0.9	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
CCCT	04/07/2016	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2.7	1 U	1 U	1 U	NA	NA	1 U	5 U	1 U
CTP	09/30/2010	0.5 U	NA	19	0.5 U	0.5 U	8.6	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	NA
CTP	09/30/2010	0.5 U	NA	20	0.5 U	0.5 U	8.7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	NA
CTP	04/14/2011	1 U	0.5 U	16	0.5 U	1 U	5.5	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
CTP	10/06/2011	1 U	0.5 U	25	0.5 U	1 U	7.6	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
CTP	04/03/2012	1 U	0.5 U	14	0.5 U	1 U	6.6	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
CTP	04/03/2012	1 U	0.5 U	22	0.5 U	1 U	7	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
CTP	04/04/2013	1 U	0.5 U	18	0.5 U	1 U	8.4	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
CTP	04/03/2014	1 U	0.5 U	14	0.5 U	1 U	6.5	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
CTP	04/03/2014	1 U	0.5 U	15	0.5 U	1 U	7.4	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
CTP	04/17/2015	1 U	0.5 U	11	0.5 U	1 U	5.2	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
CTP	04/11/2016	1 U	1 U	7.8	1 U	1 U	3.5	1 UJ	1 U	1 U	1 U	1 U	NA	NA	1 U	5 U	1 U
CTPDEEP	04/03/2012	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
CTPS	09/30/2010	0.5 U	NA	0.5 U	0.5 U	0.5 U	6.1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	NA
CTPS	04/19/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
CTPS	10/07/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 UJ	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
CTPS	04/05/2012	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U

VOCs (µg/L)

Location ID	Sample Date	Bromomethane	Carbon disulfide	Carbon Tetrachloride	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	Cis-1,2-Dichloroethene	Cis-1,3-Dichloropropene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane	Ethyl tert-butyl ether	Ethylbenzene	Freon 113	Freon 12
California MCLs				0.5					6								
Federal MCLs				5					70								
DH	09/30/2010	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	NA
DH	04/14/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
DH	10/05/2011	1 UJ	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 UJ
DH	04/05/2012	1 U	24	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
EERC	10/01/2010	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	NA	0.5 U	0.5 U	NA
EERC	04/20/2011	1 UJ	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
EERC	10/07/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 UJ	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
EERC	04/06/2012	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 UJ
EERC	04/08/2013	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
EERC	04/03/2014	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
EERC	04/16/2015	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 UJ
EPA	09/16/2010	0.5 U	NA	1.8	0.5 U	0.5 U	2.3	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	NA
EPA	04/19/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.2 J	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
EPA	10/06/2011	1 U	0.5 U	0.5 U	0.1 J	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
EPA	04/06/2012	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 UJ
EPA	04/06/2012	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 UJ
EPA	04/04/2013	1 U	0.5 U	0.5 U	0.2 J	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
EPA	04/10/2014	1 U	0.5 U	0.5 U	0.2 J	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
EPA	04/17/2015	1 U	0.5 U	0.5 U	0.2 J	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U

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University of California, Berkeley, Richmond Field Station Site

VOCs (µg/L)

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California MCLs				0.5					6								
Federal MCLs				5					70								
ETA	09/24/2010	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.9	0.5 U	0.5 U	0.5 U	0.5 UJ	NA	0.5 U	0.5 U	NA
ETA	09/24/2010	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.9	0.5 U	0.5 U	0.5 U	0.5 UJ	NA	0.5 U	0.5 U	NA
ETA	04/12/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.7	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
ETA	09/30/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	1.7	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
ETA	04/10/2012	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	2.1	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
ETA	04/10/2012	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	2	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
ETA	04/05/2013	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	2.4	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
ETA	04/08/2014	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	3.6	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
ETA	04/13/2015	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	4	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
ETA	04/05/2016	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5.6	1 U	1 U	1 U	NA	NA	1 U	5 U	1 U
ETA01	02/02/2015	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	2.3	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
ETA01	04/05/2016	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2	1 U	1 U	1 U	NA	NA	1 U	5 U	1 U
ETA02	02/02/2015	1 U	0.5 U	0.5 U	4.1	1 U	0.2 J	1 U	6.7	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
ETA02	02/02/2015	1 U	0.5 U	0.5 U	4.1	1 U	0.2 J	1 U	6.3	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
ETA02	04/05/2016	1 U	1 U	1 U	1.4	1 U	1 U	1 U	14	1 U	1 U	1 U	NA	NA	1 U	5 U	1 U
ETA03	02/02/2015	1 U	0.5 U	0.5 U	4.5	1 U	0.2 J	1 U	9	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
ETA03	04/05/2016	1 U	1 U	1 U	5	1 U	0.3 J	1 U	10	1 U	1 U	1 U	NA	NA	1 U	5 U	1 U
EXT	09/30/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
FG	09/23/2010	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	NA	0.5 U	0.5 U	NA
FG	04/19/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
FG	04/19/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
FG	10/10/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
FG	04/09/2012	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

VOCs (µg/L)

Location ID	Sample Date	Bromomethane	Carbon disulfide	Carbon Tetrachloride	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	Cis-1,2-Dichloroethene	Cis-1,3-Dichloropropene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane	Ethyl tert-butyl ether	Ethylbenzene	Freon 113	Freon 12
California MCLs				0.5					6								
Federal MCLs				5					70								
GEO	09/03/2010	0.5 U	NA	1.1	0.5 U	0.5 U	1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	NA	0.5 U	0.5 U	NA
GEO	04/20/2011	1 U	0.5 U	1.2	0.5 U	1 U	0.7	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
GEO	10/06/2011	1 U	0.5 U	1	0.5 U	1 U	0.5	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
GEO	04/06/2012	1 U	0.5 U	0.9	0.5 U	1 U	0.8 UJ	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 UJ
GEO	04/04/2013	1 U	0.5 U	1	0.5 U	1 U	0.7	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
GEO	04/09/2014	1 U	0.5 U	0.9	0.5 U	1 U	0.7	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
GEO	04/16/2015	1 U	0.5 U	1	0.5 U	1 U	0.7	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
GEO	04/11/2016	1 U	1 U	0.8 J	1 U	1 U	0.6 J	1 UJ	1 U	1 U	1 U	1 U	NA	NA	1 U	5 U	1 U
MFA	09/24/2010	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.9	0.5 U	0.5 U	0.5 U	0.5 UJ	NA	0.5 U	0.5 U	NA
MFA	04/12/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
MFA	10/03/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	1.7	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
MFA	04/05/2012	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	1	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
MFA	04/05/2013	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	2.2	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
MFA	04/08/2014	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	1.7	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
MFA	04/13/2015	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	2.3	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
MFA	04/08/2016	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1.3	1 U	1 U	1 U	NA	NA	1 U	5 U	1 U
MFA	04/08/2016	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1.1	1 U	1 U	1 U	NA	NA	1 U	5 U	1 U
NRLF	09/16/2010	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	NA
NRLF	04/20/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
NRLF	10/06/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
NRLF	04/09/2012	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
OBS6	09/30/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

VOCs (µg/L)

Location ID	Sample Date	Bromomethane	Carbon disulfide	Carbon Tetrachloride	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	Cis-1,2-Dichloroethene	Cis-1,3-Dichloropropene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane	Ethyl tert-butyl ether	Ethylbenzene	Freon 113	Freon 12
California MCLs				0.5					6								
Federal MCLs				5					70								
PZ11	10/01/2010	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	NA
PZ11	04/20/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
PZ11	10/10/2011	6.3 U	3.1 U	3.1 U	3.1 U	6.3 U	3.1 U	6.3 U	87	3.1 U	3.1 U	3.1 U	NA	3.1 U	3.1 U	13 U	6.3 U
PZ11	04/05/2012	1 U	0.5 U	0.5 U	0.5 U	1 U	0.3 J	1 U	0.3 J	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
PZ11	04/05/2013	2.5 U	1.3 U	1.3 U	1.3 U	2.5 U	1.3 U	2.5 U	200	1.3 U	1.3 U	1.3 U	NA	1.3 U	1.3 U	5 U	2.5 U
PZ11	04/05/2013	4 U	2 U	2 U	2 U	4 U	2 U	4 U	200	2 U	2 U	2 U	NA	2 U	2 U	8 U	4 U
PZ11	04/09/2014	5 U	2.5 U	2.5 U	2.5 U	5 U	2.5 U	5 U	410	2.5 U	2.5 U	2.5 U	NA	2.5 U	2.5 U	10 U	5 U
PZ11	04/16/2015	5 U	2.5 U	2.5 U	2.5 U	5 U	2.5 U	5 U	480	2.5 U	2.5 U	2.5 U	NA	2.5 U	2.5 U	10 U	5 U
PZ11	04/08/2016	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2.8	1 U	1 U	1 U	NA	NA	1 U	5 U	1 U
PZ8	10/15/2010	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	NA
PZ8	04/18/2011	0.1 J	0.5 U	0.5 U	0.5 U	1 U	0.4 J	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
PZ8	10/04/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.9	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
PZ8	04/03/2012	1 U	0.5 U	0.5 U	0.5 U	1 U	1.4	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
PZ9	09/24/2010	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.4 J	0.5 U	0.5 U	0.5 U	0.5 UJ	NA	0.5 U	0.5 U	NA
PZ9	04/20/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.3 J	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
PZ9	10/07/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 UJ	0.6	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
PZ9	10/07/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 UJ	0.7	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
PZ9	04/06/2012	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	1.2	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 UJ
PZ9	04/03/2013	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	1	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
PZ9	04/09/2014	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	1.6	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
PZ9	04/16/2015	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	1.5	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
PZ9	04/07/2016	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1.5	1 U	1 U	1 U	NA	NA	1 U	5 U	1 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

VOCs (µg/L)

Location ID	Sample Date	Bromomethane	Carbon disulfide	Carbon Tetrachloride	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	Cis-1,2-Dichloroethene	Cis-1,3-Dichloropropene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane	Ethyl tert-butyl ether	Ethylbenzene	Freon 113	Freon 12
California MCLs				0.5					6								
Federal MCLs				5					70								
RWF	09/15/2010	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	NA
RWF	04/18/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
RWF	10/06/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
RWF	04/04/2012	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
RWF	04/08/2013	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
RWF	04/09/2014	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
RWF	04/14/2015	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
RWF	04/08/2016	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	1 U	5 U	1 U
TP1	09/29/2010	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	NA	0.5 U	0.5 U	NA
TP1	04/18/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
TP1	10/07/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 UJ	0.2 J	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
TP1	04/05/2012	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
TP1	04/04/2013	1 U	1.3	0.5 U	0.5 U	1 U	0.5 U	1 U	0.3 J	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
TP1	04/02/2014	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
TP1	04/10/2015	1 U	0.1 J	0.5 U	0.5 U	1 U	0.5 U	1 U	0.4 J	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
TP1	04/07/2016	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	1 U	5 U	1 U

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VOCs (µg/L)

Location ID	Sample Date	Bromomethane	Carbon disulfide	Carbon Tetrachloride	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	Cis-1,2-Dichloroethene	Cis-1,3-Dichloropropene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane	Ethyl tert-butyl ether	Ethylbenzene	Freon 113	Freon 12
California MCLs				0.5					6								
Federal MCLs				5					70								
TP2	09/29/2010	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	NA	0.5 U	0.5 U	NA
TP2	04/18/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
TP2	10/07/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 UJ	0.2 J	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
TP2	04/09/2012	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
TP2	04/09/2012	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
TP2	04/04/2013	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.2 J	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
TP2	04/02/2014	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.2 J	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
TP2	04/10/2015	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.7	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
TP2	04/10/2015	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.7	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
TP2	04/08/2016	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.6 J	1 U	1 U	1 U	NA	NA	1 U	5 U	1 U
WSM01	02/02/2015	1 U	0.5 U	0.5 U	7.1	1 U	0.5 U	1 U	6.4	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
WSM01	04/05/2016	1 U	1 U	1 U	26	1 U	0.2 J	1 U	3.6	1 U	1 U	1 U	NA	NA	1 U	5 U	1 U
WTA	09/30/2010	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	NA
WTA	04/14/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
WTA	04/14/2011	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
WTA	10/05/2011	1 UJ	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 UJ
WTA	04/05/2012	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
WTA	04/05/2013	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
WTA	04/10/2014	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U
WTA	04/13/2015	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	2 U	1 U

VOCs (µg/L)

Location ID	Sample Date	Hexachlorobutadiene	Isopropyl ether	Isopropylbenzene	M,P-Xylene	Methyl Tert-Butyl Ether	Methylene Chloride	N-Butylbenzene	N-Propylbenzene	Naphthalene	O-Xylene	P-Isopropyltoluene	Sec-Butylbenzene	Styrene	Tert Butyl Alcohol	Tert-amyl methyl ether	Tert-Butylbenzene
California MCLs						13											
Federal MCLs					100000						100000			100			
B120	09/09/2010	0.5 U	NA	0.5 U	1 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U
B120	04/15/2011	5 U	1.3 U	1.3 U	1.3 U	1.3 U	25 U	1.3 U	1.3 U	5 U	1.3 U	1.3 U	1.3 U	1.3 U	25 U	1.3 U	1.3 U
B120	10/04/2011	8 U	2 U	2 U	2 U	2 U	40 U	2 U	2 U	8 U	2 U	2 U	2 U	2 U	40 U	2 U	2 U
B120	04/03/2012	5 U	1.3 U	1.3 U	1.3 U	1.3 U	25 U	1.3 U	1.3 U	5 U	1.3 U	1.3 U	1.3 U	1.3 U	25 U	1.3 U	1.3 U
B120	04/02/2013	8 U	2 U	2 U	2 U	2 U	40 U	2 U	2 U	8 U	2 U	2 U	2 U	2 U	40 U	2 U	2 U
B120	04/01/2014	5 U	1.3 U	1.3 U	1.3 U	1.3 U	25 U	1.3 U	1.3 U	5 U	1.3 U	1.3 U	1.3 U	1.3 U	25 U	1.3 U	1.3 U
B120	04/10/2015	2 U	0.5 U	0.5 U	0.5 U	0.1 J	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 UJ	0.5 U	0.5 U
B120	04/05/2016	2 U	NA	2 U	2 U	2 U	20 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	NA	NA	2 U
B121	09/08/2010	0.5 U	NA	0.5 U	1 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U
B121	04/13/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B121	10/04/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B121	04/04/2012	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B128	09/23/2010	0.5 U	NA	0.5 U	1 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U
B128	09/23/2010	0.5 U	NA	0.5 U	1 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U
B128	04/18/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B128	10/04/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B128	04/02/2012	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B150	09/08/2010	0.5 U	NA	0.5 U	1 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U
B150	04/13/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B150	10/05/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B150	10/05/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B150	04/04/2012	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B150	04/04/2012	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

VOCs (µg/L)

Location ID	Sample Date	Hexachlorobutadiene	Isopropyl ether	Isopropylbenzene	M,P-Xylene	Methyl Tert-Butyl Ether	Methylene Chloride	N-Butylbenzene	N-Propylbenzene	Naphthalene	O-Xylene	P-Isopropyltoluene	Sec-Butylbenzene	Styrene	Tert Butyl Alcohol	Tert-amyl methyl ether	Tert-Butylbenzene
California MCLs						13											
Federal MCLs					100000						100000			100			
B158	09/08/2010	0.5 U	NA	0.5 U	1 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U
B158	04/15/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B158	10/05/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B158	04/06/2012	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B163	09/02/2010	0.5 U	NA	0.5 U	1 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U
B163	04/12/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B163	10/03/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B163	04/02/2012	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B163	04/03/2013	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 UJ	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B163	04/01/2014	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B163	04/14/2015	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B163	04/05/2016	1 U	NA	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	1 U
B175S	09/03/2010	0.5 U	NA	0.5 U	1 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U
B175S	04/13/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B175S	10/04/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B175S	04/04/2012	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B175S	04/02/2013	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B175S	04/01/2014	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B175S	04/15/2015	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B175S	04/07/2016	1 U	NA	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	1 U

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VOCs (µg/L)

Location ID	Sample Date	Hexachlorobutadiene	Isopropyl ether	Isopropylbenzene	M,P-Xylene	Methyl Tert-Butyl Ether	Methylene Chloride	N-Butylbenzene	N-Propylbenzene	Naphthalene	O-Xylene	P-Isopropyltoluene	Sec-Butylbenzene	Styrene	Tert Butyl Alcohol	Tert-amyl methyl ether	Tert-Butylbenzene
California MCLs						13											
Federal MCLs					100000						100000			100			
B175W	09/08/2010	0.5 U	NA	0.5 U	1 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U
B175W	04/13/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B175W	10/04/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B175W	04/04/2012	2 U	0.5 U	0.5 U	0.5 U	0.5 UJ	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B175W	04/02/2013	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B175W	04/01/2014	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B175W	04/15/2015	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B175W	04/07/2016	1 U	NA	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	1 U
B177	09/23/2010	0.5 U	NA	0.5 U	1 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U
B177	04/18/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B177	10/05/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B177	04/04/2012	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B178	09/02/2010	0.5 U	NA	0.5 U	1 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U
B178	04/15/2011	5 U	1.3 U	1.3 U	1.3 U	1.3 U	25 U	1.3 U	1.3 U	5 U	1.3 U	1.3 U	1.3 U	1.3 U	25 U	1.3 U	1.3 U
B178	10/04/2011	5 U	1.3 U	1.3 U	1.3 U	1.3 U	25 U	1.3 U	1.3 U	5 U	1.3 U	1.3 U	1.3 U	1.3 U	25 U	1.3 U	1.3 U
B178	04/03/2012	6.7 U	1.7 U	1.7 U	1.7 U	1.7 U	33 U	1.7 U	1.7 U	6.7 U	1.7 U	1.7 U	1.7 U	1.7 U	33 U	1.7 U	1.7 U
B178	04/02/2013	5 U	1.3 U	1.3 U	1.3 U	1.3 U	25 U	1.3 U	1.3 U	5 U	1.3 U	1.3 U	1.3 U	1.3 U	25 U	1.3 U	1.3 U
B178	04/08/2014	4 U	1 U	1 U	1 U	1 U	20 U	1 U	1 U	4 U	1 U	1 U	1 U	1 U	20 U	1 U	1 U
B178	04/10/2015	4 U	1 U	1 U	1 U	1 U	20 U	1 U	1 U	4 U	1 U	1 U	1 U	1 U	20 UJ	1 U	1 U
B178	04/05/2016	2 U	NA	2 U	2 U	2 U	20 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	NA	NA	2 U
B180	09/15/2010	0.5 U	NA	0.5 U	1 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U
B180	04/13/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B180	10/06/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 UJ	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B180	10/06/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 UJ	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B180	04/04/2012	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U

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VOCs (µg/L)

Location ID	Sample Date	Hexachlorobutadiene	Isopropyl ether	Isopropylbenzene	M,P-Xylene	Methyl Tert-Butyl Ether	Methylene Chloride	N-Butylbenzene	N-Propylbenzene	Naphthalene	O-Xylene	P-Isopropyltoluene	Sec-Butylbenzene	Styrene	Tert Butyl Alcohol	Tert-amyl methyl ether	Tert-Butylbenzene
California MCLs						13											
Federal MCLs					100000						100000			100			
B185	09/02/2010	0.5 U	NA	0.5 U	1 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U
B185	04/15/2011	2.9 U	0.7 U	0.7 U	0.7 U	0.2 J	14 U	0.7 U	0.7 U	2.9 U	0.7 U	0.7 U	0.7 U	0.7 U	14 U	0.7 U	0.7 U
B185	04/15/2011	2 U	0.5 U	0.5 U	0.5 U	0.3 J	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B185	10/03/2011	2 U	0.5 U	0.5 U	0.5 U	0.2 J	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B185	10/03/2011	2.9 U	0.7 U	0.7 U	0.7 U	0.2 J	14 U	0.7 U	0.7 U	2.9 U	0.7 U	0.7 U	0.7 U	0.7 U	14 U	0.7 U	0.7 U
B185	04/02/2012	2 U	0.5 U	0.5 U	0.5 U	0.2 J	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B185	04/02/2013	2 U	0.5 U	0.5 U	0.5 U	0.3 J	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B185	04/08/2014	2 U	0.5 U	0.5 U	0.5 U	0.2 J	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B185	04/10/2015	2 U	0.5 U	0.5 U	0.5 U	0.2 J	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 UJ	0.5 U	0.5 U
B185	04/05/2016	1 U	NA	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	1 U
B194	09/09/2010	0.5 U	NA	0.5 U	1 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U
B194	04/13/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B194	10/04/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B194	04/04/2012	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B195	09/09/2010	0.5 U	NA	0.5 U	1 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U
B195	04/13/2011	2 UJ	0.5 U	0.5 U	0.5 U	0.5 U	10 UJ	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B195	04/13/2011	2.9 U	0.7 U	0.7 U	0.7 U	0.7 U	14 U	0.7 U	0.7 U	2.9 U	0.7 U	0.7 U	0.7 U	0.7 U	14 U	0.7 U	0.7 U
B195	10/04/2011	5 U	1.3 U	1.3 U	0.4 J	1.3 U	25 U	1.3 U	1.3 U	5 U	1.3 U	1.3 U	1.3 U	1.3 U	25 U	1.3 U	1.3 U
B195	04/03/2012	4 U	1 U	1 U	1 U	1 U	20 U	1 U	1 U	4 U	1 U	1 U	1 U	1 U	20 U	1 U	1 U
B195	04/02/2013	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B195	04/02/2013	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B195	04/02/2014	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 UJ	0.5 U	0.5 U
B195	04/02/2014	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 UJ	0.5 U	0.5 U
B195	04/14/2015	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B195	04/11/2016	1 U	NA	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	1 U

VOCs (µg/L)

Location ID	Sample Date	Hexachlorobutadiene	Isopropyl ether	Isopropylbenzene	M,P-Xylene	Methyl Tert-Butyl Ether	Methylene Chloride	N-Butylbenzene	N-Propylbenzene	Naphthalene	O-Xylene	P-Isopropyltoluene	Sec-Butylbenzene	Styrene	Tert Butyl Alcohol	Tert-amyl methyl ether	Tert-Butylbenzene
California MCLs						13											
Federal MCLs					100000						100000			100			
B197	09/09/2010	0.5 U	NA	0.5 U	1 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U
B197	09/09/2010	0.5 U	NA	0.5 U	1 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U
B197	04/13/2011	6.7 U	1.7 U	1.7 U	1.7 U	1.7 U	33 U	1.7 U	1.7 U	6.7 U	1.7 U	1.7 U	1.7 U	1.7 U	33 U	1.7 U	1.7 U
B197	10/04/2011	6.7 U	1.7 U	1.7 U	1.7 U	1.7 U	33 U	1.7 U	1.7 U	6.7 U	1.7 U	1.7 U	1.7 U	1.7 U	33 U	1.7 U	1.7 U
B197	04/03/2012	4 U	1 U	1 U	1 U	1 U	20 U	1 U	1 U	4 U	1 U	1 U	1 U	1 U	20 U	1 U	1 U
B197	04/03/2012	4 U	1 U	1 U	1 U	1 U	20 U	1 U	1 U	4 U	1 U	1 U	1 U	1 U	20 U	1 U	1 U
B197R	04/08/2013	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B197R	04/08/2014	4 U	1 U	1 U	1 U	1 U	20 U	1 U	1 U	4 U	1 U	1 U	1 U	1 U	20 U	1 U	1 U
B197R	04/14/2015	4 U	1 U	1 U	1 U	1 U	20 U	1 U	1 U	4 U	1 U	1 U	1 U	1 U	20 U	1 U	1 U
B197R	04/05/2016	2 U	NA	2 U	2 U	2 U	20 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	NA	NA	2 U
B197R	04/05/2016	2 U	NA	2 U	2 U	2 U	20 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	NA	NA	2 U
B277	09/15/2010	0.5 U	NA	0.5 U	1 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U
B277	04/18/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B277	10/05/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B277	04/03/2012	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B277	04/04/2013	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B277	04/02/2014	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 UJ	0.5 U	0.5 U
B277	04/16/2015	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B277	04/11/2016	1 U	NA	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	1 U

VOCs (µg/L)

Location ID	Sample Date	Hexachlorobutadiene	Isopropyl ether	Isopropylbenzene	M,P-Xylene	Methyl Tert-Butyl Ether	Methylene Chloride	N-Butylbenzene	N-Propylbenzene	Naphthalene	O-Xylene	P-Isopropyltoluene	Sec-Butylbenzene	Styrene	Tert Butyl Alcohol	Tert-amyl methyl ether	Tert-Butylbenzene
California MCLs						13											
Federal MCLs					100000						100000			100			
B278	09/16/2010	0.5 U	NA	0.5 U	1 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U
B278	04/19/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B278	10/05/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B278	04/05/2012	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B278	04/04/2013	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B278	04/09/2014	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B278	04/17/2015	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B278	04/08/2016	1 U	NA	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	1 U
B280A	09/16/2010	0.5 U	NA	0.5 U	1 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U
B280A	04/14/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B280A	10/06/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 UJ	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B280A	04/03/2012	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B280A	04/04/2013	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B280A	04/09/2014	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B280A	04/17/2015	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B280A	04/11/2016	1 U	NA	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	1 U
B280B	10/01/2010	0.5 U	NA	0.5 U	1 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U
B280B	04/14/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B280B	10/06/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 UJ	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B280B	04/03/2012	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B300	09/09/2010	0.5 U	NA	0.5 U	1 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U
B300	04/15/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.2 J	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B300	10/06/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	1.6 J	0.5 U	3.5	0.5 U	0.5 U	10 U	0.5 U	0.1 J
B300	04/09/2012	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.2 J	0.5 U	0.5 U	10 U	0.5 U	0.5 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

VOCs (µg/L)

Location ID	Sample Date	Hexachlorobutadiene	Isopropyl ether	Isopropylbenzene	M,P-Xylene	Methyl Tert-Butyl Ether	Methylene Chloride	N-Butylbenzene	N-Propylbenzene	Naphthalene	O-Xylene	P-Isopropyltoluene	Sec-Butylbenzene	Styrene	Tert Butyl Alcohol	Tert-amyl methyl ether	Tert-Butylbenzene
California MCLs						13											
Federal MCLs					100000						100000			100			
B38	09/15/2010	0.5 U	NA	0.5 U	1 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U
B38	04/19/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B38	04/19/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B38	10/06/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.2 J	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B38	04/04/2012	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B450	04/19/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B450	10/10/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B450	04/06/2012	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B450	04/03/2013	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B450	04/03/2014	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B450	04/14/2015	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B450	04/07/2016	1 U	NA	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	1 U
B460	09/15/2010	0.5 U	NA	0.5 U	1 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U
B460	04/20/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B460	10/07/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B460	04/06/2012	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U

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VOCs (µg/L)

Location ID	Sample Date	Hexachlorobutadiene	Isopropyl ether	Isopropylbenzene	M,P-Xylene	Methyl Tert-Butyl Ether	Methylene Chloride	N-Butylbenzene	N-Propylbenzene	Naphthalene	O-Xylene	P-Isopropyltoluene	Sec-Butylbenzene	Styrene	Tert Butyl Alcohol	Tert-amyl methyl ether	Tert-Butylbenzene
California MCLs						13											
Federal MCLs					100000						100000			100			
B473	09/24/2010	0.5 U	NA	0.5 U	1 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U
B473	04/20/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B473	10/07/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B473	04/06/2012	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B473	04/03/2013	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B473	04/03/2014	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B473	04/03/2014	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B473	04/16/2015	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B473	04/08/2016	1 U	NA	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	1 U
B473	04/08/2016	1 U	NA	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	1 U
B474	09/23/2010	0.5 U	NA	0.5 U	1 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U
B474	04/20/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 UJ	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B474	10/07/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B474	04/09/2012	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B480	09/24/2010	0.5 U	NA	0.5 U	1 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U
B480	04/19/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B480	10/07/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B480	04/09/2012	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B480	04/03/2013	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B480	04/03/2014	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B480	04/17/2015	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B480	04/07/2016	1 U	NA	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	1 U
B480	04/07/2016	1 U	NA	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	1 U

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VOCs (µg/L)

Location ID	Sample Date	Hexachlorobutadiene	Isopropyl ether	Isopropylbenzene	M,P-Xylene	Methyl Tert-Butyl Ether	Methylene Chloride	N-Butylbenzene	N-Propylbenzene	Naphthalene	O-Xylene	P-Isopropyltoluene	Sec-Butylbenzene	Styrene	Tert Butyl Alcohol	Tert-amyl methyl ether	Tert-Butylbenzene
California MCLs						13											
Federal MCLs					100000						100000			100			
B490	09/16/2010	0.5 U	NA	0.5 U	1 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U
B490	04/20/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B490	10/10/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
B490	04/09/2012	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
BULB1	10/19/2010	0.5 U	NA	0.5 U	1 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U
BULB1	04/12/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
BULB1	09/30/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
BULB1	04/05/2012	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 UJ	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
BULB1	04/05/2013	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
BULB1	04/10/2014	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
BULB1	04/13/2015	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
BULB1	04/13/2015	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
BULB2	10/19/2010	0.5 U	NA	0.5 U	1 U	2 U	0.5 U	0.5 U	0.5 U	0.2 J	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U
BULB2	04/12/2011	2 U	0.5 U	0.5 U	0.5 U	0.9	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
BULB2	09/30/2011	2 U	0.5 U	0.5 U	0.5 U	0.9	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
BULB2	04/05/2012	2 U	0.5 U	0.3 J	0.2 J	0.6	10 U	0.5 U	0.5 U	2 UJ	0.3 J	0.5 U	0.1 J	0.5 U	10 U	0.5 U	0.5 U
BULB2	04/05/2013	2 U	0.5 U	0.5 U	0.5 U	0.8	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
BULB2	04/10/2014	2 U	0.5 U	0.5 U	0.5 U	0.7	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
BULB2	04/13/2015	2 U	0.5 U	0.5 U	0.5 U	0.5	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
BULB2	04/08/2016	1 U	NA	1 U	1 U	0.2 J	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	1 U
CCC1	09/08/2010	0.5 U	NA	0.5 U	1 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U
CCC1	04/14/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
CCC1	10/05/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
CCC1	04/10/2012	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U

VOCs (µg/L)

Location ID	Sample Date	Hexachlorobutadiene	Isopropyl ether	Isopropylbenzene	M,P-Xylene	Methyl Tert-Butyl Ether	Methylene Chloride	N-Butylbenzene	N-Propylbenzene	Naphthalene	O-Xylene	P-Isopropyltoluene	Sec-Butylbenzene	Styrene	Tert Butyl Alcohol	Tert-amyl methyl ether	Tert-Butylbenzene
California MCLs						13											
Federal MCLs					100000						100000			100			
CCC2	09/08/2010	0.5 U	NA	0.5 U	1 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U
CCC2	04/14/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
CCC2	10/04/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
CCC2	04/10/2012	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
CCC2	04/02/2013	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
CCC2	04/02/2013	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
CCC2	04/02/2014	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 UJ	0.5 U	0.5 U
CCC2	04/15/2015	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
CCC2	04/07/2016	1 U	NA	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	1 U
CCC3	09/03/2010	0.5 U	NA	0.5 U	1 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U
CCC3	09/03/2010	0.5 U	NA	0.5 U	1 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U
CCC3	04/12/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
CCC3	10/04/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
CCC3	10/04/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
CCC3	04/10/2012	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
CCC3	04/02/2013	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
CCC3	04/02/2014	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 UJ	0.5 U	0.5 U
CCC3	04/15/2015	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

VOCs (µg/L)

Location ID	Sample Date	Hexachlorobutadiene	Isopropyl ether	Isopropylbenzene	M,P-Xylene	Methyl Tert-Butyl Ether	Methylene Chloride	N-Butylbenzene	N-Propylbenzene	Naphthalene	O-Xylene	P-Isopropyltoluene	Sec-Butylbenzene	Styrene	Tert Butyl Alcohol	Tert-amyl methyl ether	Tert-Butylbenzene
California MCLs						13											
Federal MCLs					100000						100000			100			
CCCT	09/03/2010	0.5 U	NA	0.5 U	1 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U
CCCT	04/18/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
CCCT	10/03/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
CCCT	04/04/2012	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
CCCT	04/02/2013	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
CCCT	04/08/2014	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
CCCT	04/15/2015	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
CCCT	04/07/2016	1 U	NA	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	1 U
CTP	09/30/2010	0.5 U	NA	0.5 U	1 U	2 U	0.4 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U
CTP	09/30/2010	0.5 U	NA	0.5 U	1 U	2 U	0.3 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U
CTP	04/14/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
CTP	10/06/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 UJ	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
CTP	04/03/2012	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
CTP	04/03/2012	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 J	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
CTP	04/04/2013	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
CTP	04/03/2014	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
CTP	04/03/2014	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
CTP	04/17/2015	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
CTP	04/11/2016	1 U	NA	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	1 U
CTPDEEP	04/03/2012	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.9 J	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
CTPS	09/30/2010	0.5 U	NA	0.5 U	1 U	2 U	0.5 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U
CTPS	04/19/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
CTPS	10/07/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
CTPS	04/05/2012	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

VOCs (µg/L)

Location ID	Sample Date	Hexachlorobutadiene	Isopropyl ether	Isopropylbenzene	M,P-Xylene	Methyl Tert-Butyl Ether	Methylene Chloride	N-Butylbenzene	N-Propylbenzene	Naphthalene	O-Xylene	P-Isopropyltoluene	Sec-Butylbenzene	Styrene	Tert Butyl Alcohol	Tert-amyl methyl ether	Tert-Butylbenzene
California MCLs						13											
Federal MCLs					100000						100000			100			
DH	09/30/2010	0.5 U	NA	0.5 U	1 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U
DH	04/14/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
DH	10/05/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
DH	04/05/2012	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 UJ	0.5 U	0.5 U	2 U	0.5 U	0.1 J	0.5 U	0.5 U	10 U	0.5 U	0.5 U
EERC	10/01/2010	0.5 U	NA	0.5 U	1 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U
EERC	04/20/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 UJ	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
EERC	10/07/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
EERC	04/06/2012	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
EERC	04/08/2013	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
EERC	04/03/2014	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
EERC	04/16/2015	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
EPA	09/16/2010	0.5 U	NA	0.5 U	1 U	2 U	0.6	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U
EPA	04/19/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
EPA	10/06/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
EPA	04/06/2012	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
EPA	04/06/2012	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
EPA	04/04/2013	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
EPA	04/10/2014	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
EPA	04/17/2015	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

VOCs (µg/L)

Location ID	Sample Date	Hexachlorobutadiene	Isopropyl ether	Isopropylbenzene	M,P-Xylene	Methyl Tert-Butyl Ether	Methylene Chloride	N-Butylbenzene	N-Propylbenzene	Naphthalene	O-Xylene	P-Isopropyltoluene	Sec-Butylbenzene	Styrene	Tert Butyl Alcohol	Tert-amyl methyl ether	Tert-Butylbenzene
California MCLs						13											
Federal MCLs					100000						100000			100			
ETA	09/24/2010	0.5 U	NA	0.5 U	1 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U
ETA	09/24/2010	0.5 U	NA	0.5 U	1 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U
ETA	04/12/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
ETA	09/30/2011	2 U	0.5 U	0.5 U	0.5 U	0.1 J	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
ETA	04/10/2012	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
ETA	04/10/2012	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
ETA	04/05/2013	2 U	0.5 U	0.5 U	0.5 U	0.1 J	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
ETA	04/08/2014	2 U	0.5 U	0.5 U	0.5 U	0.1 J	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
ETA	04/13/2015	2 U	0.5 U	0.5 U	0.5 U	0.1 J	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
ETA	04/05/2016	1 U	NA	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	1 U
ETA01	02/02/2015	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 UJ	0.5 U	0.5 U
ETA01	04/05/2016	1 U	NA	1 U	1 U	0.1 J	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	1 U
ETA02	02/02/2015	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	2.1 J	0.5 U	0.5 U
ETA02	02/02/2015	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 UJ	0.5 U	0.5 U
ETA02	04/05/2016	1 U	NA	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	1 U
ETA03	02/02/2015	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	2.7 J	0.5 U	0.5 U
ETA03	04/05/2016	1 U	NA	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	1 U
EXT	09/30/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
FG	09/23/2010	0.5 U	NA	0.5 U	1 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U
FG	04/19/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
FG	04/19/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
FG	10/10/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
FG	04/09/2012	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

VOCs (µg/L)

Location ID	Sample Date	Hexachlorobutadiene	Isopropyl ether	Isopropylbenzene	M,P-Xylene	Methyl Tert-Butyl Ether	Methylene Chloride	N-Butylbenzene	N-Propylbenzene	Naphthalene	O-Xylene	P-Isopropyltoluene	Sec-Butylbenzene	Styrene	Tert Butyl Alcohol	Tert-amyl methyl ether	Tert-Butylbenzene
California MCLs						13											
Federal MCLs					100000						100000			100			
GEO	09/03/2010	0.5 U	NA	0.5 U	1 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U
GEO	04/20/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
GEO	10/06/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 UJ	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
GEO	04/06/2012	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
GEO	04/04/2013	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
GEO	04/09/2014	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
GEO	04/16/2015	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
GEO	04/11/2016	1 U	NA	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	1 U
MFA	09/24/2010	0.5 U	NA	0.5 U	1 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U
MFA	04/12/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
MFA	10/03/2011	2 U	0.5 U	0.5 U	0.5 U	0.1 J	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
MFA	04/05/2012	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 UJ	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
MFA	04/05/2013	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
MFA	04/08/2014	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
MFA	04/13/2015	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
MFA	04/08/2016	1 U	NA	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	1 U
MFA	04/08/2016	1 U	NA	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	1 U
NRLF	09/16/2010	0.5 U	NA	0.5 U	1 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U
NRLF	04/20/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
NRLF	10/06/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 UJ	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
NRLF	04/09/2012	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
OBS6	09/30/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

VOCs (µg/L)

Location ID	Sample Date	Hexachlorobutadiene	Isopropyl ether	Isopropylbenzene	M,P-Xylene	Methyl Tert-Butyl Ether	Methylene Chloride	N-Butylbenzene	N-Propylbenzene	Naphthalene	O-Xylene	P-Isopropyltoluene	Sec-Butylbenzene	Styrene	Tert Butyl Alcohol	Tert-amyl methyl ether	Tert-Butylbenzene
California MCLs						13											
Federal MCLs					100000						100000			100			
PZ11	10/01/2010	0.5 U	NA	0.5 U	1 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U
PZ11	04/20/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
PZ11	10/10/2011	13 U	3.1 U	3.1 U	3.1 U	3.1 U	63 U	3.1 U	3.1 U	13 U	3.1 U	3.1 U	3.1 U	3.1 U	63 U	3.1 U	3.1 U
PZ11	04/05/2012	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
PZ11	04/05/2013	5 U	1.3 U	1.3 U	1.3 U	1.3 U	25 U	1.3 U	1.3 U	5 U	1.3 U	1.3 U	1.3 U	1.3 U	25 U	1.3 U	1.3 U
PZ11	04/05/2013	8 U	2 U	2 U	2 U	2 U	40 U	2 U	2 U	8 U	2 U	2 U	2 U	2 U	40 U	2 U	2 U
PZ11	04/09/2014	10 U	2.5 U	2.5 U	2.5 U	2.5 U	50 U	2.5 U	2.5 U	10 U	2.5 U	2.5 U	2.5 U	2.5 U	50 U	2.5 U	2.5 U
PZ11	04/16/2015	10 U	2.5 U	2.5 U	2.5 U	2.5 U	50 U	2.5 U	2.5 U	10 U	2.5 U	2.5 U	2.5 U	2.5 U	50 U	2.5 U	2.5 U
PZ11	04/08/2016	1 U	NA	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	1 U
PZ8	10/15/2010	0.5 U	NA	0.5 U	1 U	2 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U
PZ8	04/18/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
PZ8	10/04/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
PZ8	04/03/2012	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
PZ9	09/24/2010	0.5 U	NA	0.5 U	1 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U
PZ9	04/20/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
PZ9	10/07/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
PZ9	10/07/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
PZ9	04/06/2012	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
PZ9	04/03/2013	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
PZ9	04/09/2014	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
PZ9	04/16/2015	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
PZ9	04/07/2016	1 U	NA	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	1 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

VOCs (µg/L)

Location ID	Sample Date	Hexachlorobutadiene	Isopropyl ether	Isopropylbenzene	M,P-Xylene	Methyl Tert-Butyl Ether	Methylene Chloride	N-Butylbenzene	N-Propylbenzene	Naphthalene	O-Xylene	P-Isopropyltoluene	Sec-Butylbenzene	Styrene	Tert Butyl Alcohol	Tert-amyl methyl ether	Tert-Butylbenzene
California MCLs						13											
Federal MCLs					100000						100000			100			
RWF	09/15/2010	0.5 U	NA	0.5 U	1 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U
RWF	04/18/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
RWF	10/06/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 UJ	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
RWF	04/04/2012	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
RWF	04/08/2013	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
RWF	04/09/2014	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
RWF	04/14/2015	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
RWF	04/08/2016	1 U	NA	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	1 U
TP1	09/29/2010	0.5 U	NA	0.5 U	1 U	2 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U
TP1	04/18/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
TP1	10/07/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
TP1	04/05/2012	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
TP1	04/04/2013	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
TP1	04/02/2014	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 UJ	0.5 U	0.5 U
TP1	04/10/2015	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 UJ	0.5 U	0.5 U
TP1	04/07/2016	1 U	NA	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	1 U

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University of California, Berkeley, Richmond Field Station Site

VOCs (µg/L)

Location ID	Sample Date	Hexachlorobutadiene	Isopropyl ether	Isopropylbenzene	M,P-Xylene	Methyl Tert-Butyl Ether	Methylene Chloride	N-Butylbenzene	N-Propylbenzene	Naphthalene	O-Xylene	P-Isopropyltoluene	Sec-Butylbenzene	Styrene	Tert Butyl Alcohol	Tert-amyl methyl ether	Tert-Butylbenzene
California MCLs						13											
Federal MCLs					100000						100000			100			
TP2	09/29/2010	0.5 U	NA	0.5 U	1 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U
TP2	04/18/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
TP2	10/07/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
TP2	04/09/2012	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
TP2	04/09/2012	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
TP2	04/04/2013	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
TP2	04/02/2014	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 UJ	0.5 U	0.5 U
TP2	04/10/2015	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 UJ	0.5 U	0.5 U
TP2	04/10/2015	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 UJ	0.5 U	0.5 U
TP2	04/08/2016	1 U	NA	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	1 U
WSM01	02/02/2015	2 U	0.5 U	0.5 U	0.5 U	0.2 J	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 UJ	0.5 U	0.5 U
WSM01	04/05/2016	1 U	NA	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	1 U
WTA	09/30/2010	0.5 U	NA	0.5 U	1 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U
WTA	04/14/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
WTA	04/14/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
WTA	10/05/2011	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
WTA	04/05/2012	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
WTA	04/05/2013	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
WTA	04/10/2014	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U
WTA	04/13/2015	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

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VOCs (µg/L)

Location ID	Sample Date	Tetrachloroethene	Toluene	Trans-1,2-Dichloroethene	Trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl Acetate	Vinyl Chloride
California MCLs		5	150	10		5			0.5
Federal MCLs		5	1000	100		5			2
B120	09/09/2010	0.4 J	0.5 U	0.5 U	0.5 U	210	0.5 U	NA	0.5 U
B120	04/15/2011	1.3 U	1.3 U	1.3 U	1.3 U	170	2.5 U	25 U	1.3 U
B120	10/04/2011	0.4 J	2 U	0.4 J	2 U	180	4 U	40 U	2 U
B120	04/03/2012	0.7 J	1.3 U	1.3 U	1.3 U	190	2.5 U	25 U	1.3 U
B120	04/02/2013	2 U	2 U	2 U	2 U	190	4 U	40 U	2 U
B120	04/01/2014	0.6 J	1.3 U	0.4 J	1.3 U	160	2.5 U	25 U	1.3 U
B120	04/10/2015	0.7	0.5 U	0.5 J	0.5 U	140	1 U	10 U	0.5 U
B120	04/05/2016	0.5 J	2 U	0.4 J	2 U	120	2 U	20 U	2 U
B121	09/08/2010	0.3 J	0.5 U	0.5 U	0.5 U	0.8	0.5 U	NA	0.5 UJ
B121	04/13/2011	0.4 J	0.5 U	0.5 U	0.5 U	1.1	1 U	10 U	0.5 U
B121	10/04/2011	0.3 J	0.5 U	0.5 U	0.5 U	1.8	1 U	10 U	0.5 U
B121	04/04/2012	0.3 J	0.5 U	0.5 U	0.5 U	2	1 U	10 U	0.5 U
B128	09/23/2010	0.3 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U
B128	09/23/2010	0.6	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U
B128	04/18/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
B128	10/04/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
B128	04/02/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 UJ	0.5 U
B150	09/08/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 UJ
B150	04/13/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
B150	10/05/2011	0.1 J	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 UJ	0.5 U
B150	10/05/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 UJ	0.5 U
B150	04/04/2012	0.3 J	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
B150	04/04/2012	0.3 J	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U

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VOCs (µg/L)

Location ID	Sample Date	Tetrachloroethene	Toluene	Trans-1,2-Dichloroethene	Trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl Acetate	Vinyl Chloride
California MCLs		5	150	10		5			0.5
Federal MCLs		5	1000	100		5			2
B158	09/08/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 UJ
B158	04/15/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
B158	10/05/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 UJ	0.5 U
B158	04/06/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
B163	09/02/2010	8.4	0.5 U	0.3 J	0.5 U	100	0.5 U	NA	0.7
B163	04/12/2011	9.5	0.5 U	0.4 J	0.5 U	77 J	1 U	10 UJ	1.2
B163	10/03/2011	12	0.5 U	0.4 J	0.5 U	70	1 U	10 U	0.8
B163	04/02/2012	11	0.5 U	0.4 J	0.5 U	78	1 U	10 UJ	0.9
B163	04/03/2013	11	0.5 U	0.5 J	0.5 U	78 J	1 U	10 U	0.9
B163	04/01/2014	9.3	0.5 U	0.6	0.5 U	80	1 U	10 U	1
B163	04/14/2015	9	0.5 U	0.6	0.5 U	93	1 U	10 U	1
B163	04/05/2016	8.6	1 U	0.5 J	1 U	89	1 U	10 U	0.9 J
B175S	09/03/2010	0.2 J	0.5 U	0.5 U	0.5 U	7.9	0.5 U	NA	0.5 U
B175S	04/13/2011	0.5 U	0.5 U	0.5 U	0.5 U	5.3	1 U	10 U	0.5 U
B175S	10/04/2011	0.1 J	0.5 U	0.5 U	0.5 U	8.6	1 U	10 U	0.5 U
B175S	04/04/2012	0.5 U	0.5 U	0.5 U	0.5 U	2.6	1 U	10 U	0.5 U
B175S	04/02/2013	0.2 J	0.5 U	0.5 U	0.5 U	10	1 U	10 U	0.5 U
B175S	04/01/2014	0.1 J	0.5 U	0.5 U	0.5 U	3.9	1 U	10 U	0.5 U
B175S	04/15/2015	0.5 U	0.5 U	0.5 U	0.5 U	7.9	1 U	10 U	0.5 U
B175S	04/07/2016	1 U	1 U	1 U	1 U	2.9	1 U	10 U	1 U

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VOCs (µg/L)

Location ID	Sample Date	Tetrachloroethene	Toluene	Trans-1,2-Dichloroethene	Trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl Acetate	Vinyl Chloride
California MCLs		5	150	10		5			0.5
Federal MCLs		5	1000	100		5			2
B175W	09/08/2010	1.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 UJ
B175W	04/13/2011	1.7	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
B175W	10/04/2011	1.6	0.5 U	0.5 U	0.5 U	0.1 J	1 U	10 U	0.5 U
B175W	04/04/2012	2.7	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 UJ	0.5 U
B175W	04/02/2013	2	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
B175W	04/01/2014	2.3	0.5 U	0.5 U	0.5 U	0.1 J	1 U	10 U	0.5 U
B175W	04/15/2015	2.1	0.5 U	0.5 U	0.5 U	0.2 J	1 U	10 U	0.5 U
B175W	04/07/2016	1.4	1 U	1 U	1 U	1 U	1 U	10 U	1 U
B177	09/23/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U
B177	04/18/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
B177	10/05/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 UJ	0.5 U
B177	04/04/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
B178	09/02/2010	0.2 J	0.5 U	0.4 J	0.5 U	360	0.5 U	NA	0.5 U
B178	04/15/2011	0.3 J	1.3 U	1.3 U	1.3 U	160	2.5 U	25 U	1.3 U
B178	10/04/2011	0.3 J	1.3 U	0.5 J	1.3 U	170	2.5 U	25 U	1.3 U
B178	04/03/2012	1.7 U	1.7 U	1.7 U	1.7 U	170	3.3 U	33 U	1.7 U
B178	04/02/2013	0.5 J	1.3 U	0.5 J	1.3 U	160	2.5 U	25 U	1.3 U
B178	04/08/2014	0.4 J	1 U	0.4 J	1 U	110	2 U	20 U	1 U
B178	04/10/2015	0.4 J	1 U	0.4 J	1 U	130	2 U	20 U	1 U
B178	04/05/2016	2 U	2 U	0.5 J	2 U	92	2 U	20 U	2 U
B180	09/15/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U
B180	04/13/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
B180	10/06/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
B180	10/06/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
B180	04/04/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U

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Location ID	Sample Date	Tetrachloroethene	Toluene	Trans-1,2-Dichloroethene	Trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl Acetate	Vinyl Chloride
California MCLs		5	150	10		5			0.5
Federal MCLs		5	1000	100		5			2
B185	09/02/2010	0.4 J	0.5 U	0.5 U	0.5 U	150	0.5 U	NA	0.2 J
B185	04/15/2011	0.3 J	0.7 U	0.7 U	0.7 U	77	1.4 U	14 UJ	0.2 J
B185	04/15/2011	0.3 J	0.5 U	0.2 J	0.5 U	93	1 U	10 U	0.1 J
B185	10/03/2011	0.4 J	0.5 U	0.2 J	0.5 U	94	1 U	10 U	0.3 J
B185	10/03/2011	0.4 J	0.7 U	0.2 J	0.7 U	77	1.4 U	14 U	0.7 U
B185	04/02/2012	0.4 J	0.5 U	0.5 U	0.5 U	95	1 U	10 UJ	0.2 J
B185	04/02/2013	0.4 J	0.5 U	0.2 J	0.5 U	99	1 U	10 U	0.3 J
B185	04/08/2014	0.3 J	0.5 U	0.1 J	0.5 U	85	1 U	10 U	0.1 J
B185	04/10/2015	0.6	0.5 U	0.2 J	0.5 U	72	1 U	10 U	0.3 J
B185	04/05/2016	1 U	1 U	1 U	1 U	65	1 U	10 U	1 U
B194	09/09/2010	0.5 U	0.5 U	0.5 U	0.5 U	2	0.5 U	NA	0.5 UJ
B194	04/13/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
B194	10/04/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
B194	04/04/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
B195	09/09/2010	3.1	0.5 U	0.4 J	0.5 U	140	0.5 U	NA	0.5 UJ
B195	04/13/2011	2.2	0.5 U	0.2 J	0.5 U	68	1 U	10 UJ	0.5 U
B195	04/13/2011	1.7	0.7 U	0.7 U	0.7 U	65	1.4 U	14 U	0.7 U
B195	10/04/2011	3	1.1 J	0.5 J	1.3 U	170 J	2.5 U	25 U	1.3 U
B195	04/03/2012	2.8	1 U	0.3 J	1 U	120	2 U	20 U	1 U
B195	04/02/2013	3.2	0.5 U	0.4 J	0.5 U	89	1 U	10 U	0.5 U
B195	04/02/2013	3.1	0.5 U	0.4 J	0.5 U	98	1 U	10 U	0.5 U
B195	04/02/2014	3.8	0.5 U	0.4 J	0.5 U	140	1 U	10 U	0.5 U
B195	04/02/2014	3.4	0.5 U	0.4 J	0.5 U	140	1 U	10 U	0.5 U
B195	04/14/2015	2.2	0.5 U	0.3 J	0.5 U	79	1 U	10 U	0.5 U
B195	04/11/2016	1.6	1 U	1 U	1 U	45	1 U	10 U	1 U

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VOCs (µg/L)

Location ID	Sample Date	Tetrachloroethene	Toluene	Trans-1,2-Dichloroethene	Trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl Acetate	Vinyl Chloride
California MCLs		5	150	10		5			0.5
Federal MCLs		5	1000	100		5			2
B197	09/09/2010	1	0.5 U	0.4 J	0.5 U	200	0.5 U	NA	0.5 U
B197	09/09/2010	1	0.5 U	0.4 J	0.5 U	170	0.5 U	NA	0.5 U
B197	04/13/2011	1.7 U	1.7 U	1.7 U	1.7 U	150	3.3 U	33 U	1.7 U
B197	10/04/2011	1.1 J	1.7 U	0.4 J	1.7 U	170	3.3 U	33 U	1.7 U
B197	04/03/2012	1.1	1 U	0.3 J	1 U	160	2 U	20 U	1 U
B197	04/03/2012	0.9 J	1 U	0.3 J	1 U	170	2 U	20 U	1 U
B197R	04/08/2013	1.5	0.5 U	0.4 J	0.5 U	150	1 U	10 U	0.5 U
B197R	04/08/2014	0.8 J	1 U	1 U	1 U	110	2 U	20 U	1 U
B197R	04/14/2015	1.2	1 U	0.4 J	1 U	140	2 U	20 U	1 U
B197R	04/05/2016	0.9 J	2 U	2 U	2 U	84	2 U	20 U	2 U
B197R	04/05/2016	0.8 J	2 U	2 U	2 U	85	2 U	20 U	2 U
B277	09/15/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U
B277	04/18/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
B277	10/05/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 UJ	0.5 U
B277	04/03/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
B277	04/04/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
B277	04/02/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
B277	04/16/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
B277	04/11/2016	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U

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VOCs (µg/L)

Location ID	Sample Date	Tetrachloroethene	Toluene	Trans-1,2-Dichloroethene	Trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl Acetate	Vinyl Chloride
California MCLs		5	150	10		5			0.5
Federal MCLs		5	1000	100		5			2
B278	09/16/2010	0.5 U	0.5 U	0.5 U	0.5 U	13 J	0.5 U	NA	0.5 U
B278	04/19/2011	0.1 J	0.5 U	0.5 U	0.5 U	15	1 U	10 UJ	0.5 U
B278	10/05/2011	0.5 U	0.5 U	0.5 U	0.5 U	11	1 U	10 UJ	0.5 U
B278	04/05/2012	0.1 J	0.5 U	0.5 U	0.5 U	11	1 U	10 U	0.5 U
B278	04/04/2013	0.5 U	0.5 U	0.5 U	0.5 U	8.9	1 U	10 U	0.5 U
B278	04/09/2014	0.1 J	0.5 U	0.5 U	0.5 U	6.5	1 U	10 U	0.5 U
B278	04/17/2015	0.5 U	0.5 U	0.5 U	0.5 U	8	1 U	10 U	0.5 U
B278	04/08/2016	1 U	1 U	1 U	1 U	8.8	1 U	10 U	1 U
B280A	09/16/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U
B280A	04/14/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
B280A	10/06/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
B280A	04/03/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
B280A	04/04/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
B280A	04/09/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
B280A	04/17/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
B280A	04/11/2016	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U
B280B	10/01/2010	0.5 U	0.5 U	0.5 U	0.5 UJ	1.8	0.5 U	NA	0.5 U
B280B	04/14/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
B280B	10/06/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
B280B	04/03/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
B300	09/09/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.7	0.5 U	NA	0.5 UJ
B300	04/15/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
B300	10/06/2011	0.5 U	0.4 J	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
B300	04/09/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U

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VOCs (µg/L)

Location ID	Sample Date	Tetrachloroethene	Toluene	Trans-1,2-Dichloroethene	Trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl Acetate	Vinyl Chloride
California MCLs		5	150	10		5			0.5
Federal MCLs		5	1000	100		5			2
B38	09/15/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U
B38	04/19/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 UJ	0.5 U
B38	04/19/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 UJ	0.5 U
B38	10/06/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
B38	04/04/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
B450	04/19/2011	0.2 J	0.5 U	0.5 U	0.5 U	5	1 U	10 UJ	0.5 U
B450	10/10/2011	0.1 J	0.5 U	0.5 U	0.5 U	6.7	1 U	10 U	0.5 U
B450	04/06/2012	0.4 J	0.5 U	0.5 U	0.5 U	26	1 U	10 U	0.5 U
B450	04/03/2013	0.3 J	0.5 U	0.5 U	0.5 U	11	1 U	10 U	0.5 U
B450	04/03/2014	0.6	0.5 U	0.5 U	0.5 U	31	1 U	10 U	0.5 U
B450	04/14/2015	0.6	0.5 U	0.5 U	0.5 U	21	1 U	10 U	0.5 U
B450	04/07/2016	0.4 J	1 U	1 U	1 U	14	1 U	10 U	1 U
B460	09/15/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U
B460	04/20/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 UJ	0.5 U
B460	10/07/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
B460	04/06/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U

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VOCs (µg/L)

Location ID	Sample Date	Tetrachloroethene	Toluene	Trans-1,2-Dichloroethene	Trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl Acetate	Vinyl Chloride
California MCLs		5	150	10		5			0.5
Federal MCLs		5	1000	100		5			2
B473	09/24/2010	0.5 U	0.5 U	0.5 U	0.5 U	12	0.5 U	NA	0.5 U
B473	04/20/2011	0.5 U	0.5 U	0.5 U	0.5 U	3.4	1 U	10 UJ	0.5 U
B473	10/07/2011	0.1 J	0.5 U	0.5 U	0.5 U	6.1	1 U	10 U	0.5 U
B473	04/06/2012	0.2 J	0.5 U	0.5 U	0.5 U	6	1 U	10 U	0.5 U
B473	04/03/2013	0.3 J	0.5 U	0.5 U	0.5 U	8.8	1 U	10 U	0.5 U
B473	04/03/2014	0.9	0.5 U	0.5 U	0.5 U	37	1 U	10 U	0.5 U
B473	04/03/2014	1	0.5 U	0.5 U	0.5 U	37	1 U	10 U	0.5 U
B473	04/16/2015	0.7	0.5 U	0.5 U	0.5 U	26	1 U	10 U	0.5 U
B473	04/08/2016	0.3 J	1 U	1 U	1 U	8	1 U	10 U	1 U
B473	04/08/2016	0.1 J	1 U	1 U	1 U	9.3	1 U	10 U	1 U
B474	09/23/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U
B474	04/20/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.4 J	1 U	10 UJ	0.5 U
B474	10/07/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
B474	04/09/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
B480	09/24/2010	0.5 U	0.5 U	0.5 U	0.5 U	10	0.5 U	NA	0.5 U
B480	04/19/2011	0.1 J	0.5 U	0.5 U	0.5 U	9.1	1 U	10 UJ	0.5 U
B480	10/07/2011	0.2 J	0.5 U	0.5 U	0.5 U	13	1 U	10 U	0.5 U
B480	04/09/2012	0.2 J	0.5 U	0.5 U	0.5 U	14	1 U	10 U	0.5 U
B480	04/03/2013	0.5 J	0.5 U	0.5 U	0.5 U	23	1 U	10 U	0.5 U
B480	04/03/2014	0.4 J	0.5 U	0.5 U	0.5 U	21	1 U	10 U	0.5 U
B480	04/17/2015	0.5	0.5 U	0.5 U	0.5 U	23	1 U	10 U	0.5 U
B480	04/07/2016	0.3 J	1 U	1 U	1 U	15	1 U	10 U	1 U
B480	04/07/2016	0.2 J	1 U	1 U	1 U	15	1 U	10 U	1 U

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VOCs (µg/L)

Location ID	Sample Date	Tetrachloroethene	Toluene	Trans-1,2-Dichloroethene	Trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl Acetate	Vinyl Chloride
California MCLs		5	150	10		5			0.5
Federal MCLs		5	1000	100		5			2
B490	09/16/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U
B490	04/20/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 UJ	0.5 U
B490	10/10/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
B490	04/09/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
BULB1	10/19/2010	0.5 U	3.4	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U
BULB1	04/12/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 UJ	0.5 U
BULB1	09/30/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
BULB1	04/05/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
BULB1	04/05/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
BULB1	04/10/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
BULB1	04/13/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
BULB1	04/13/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
BULB2	10/19/2010	0.5 U	6.8	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U
BULB2	04/12/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.4 J	1 U	10 UJ	0.5 U
BULB2	09/30/2011	0.5 U	0.5 U	0.5 U	0.5 U	1	1 U	10 U	0.5 U
BULB2	04/05/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.3 J	1 U	10 U	0.5 U
BULB2	04/05/2013	0.5 U	0.5 U	0.5 U	0.5 U	1.5	1 U	10 U	0.5 U
BULB2	04/10/2014	0.5 U	0.5 U	0.5 U	0.5 U	1.7	1 U	10 U	0.5 U
BULB2	04/13/2015	0.5 U	0.5 U	0.5 U	0.5 U	2.4	1 U	10 U	0.5 U
BULB2	04/08/2016	1 U	1 U	1 U	1 U	1.1	1 U	10 U	1 U
CCC1	09/08/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 UJ
CCC1	04/14/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
CCC1	10/05/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 UJ	0.5 U
CCC1	04/10/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U

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Location ID	Sample Date	Tetrachloroethene	Toluene	Trans-1,2-Dichloroethene	Trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl Acetate	Vinyl Chloride
California MCLs		5	150	10		5			0.5
Federal MCLs		5	1000	100		5			2
CCC2	09/08/2010	2.6	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 UJ
CCC2	04/14/2011	0.2 J	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
CCC2	10/04/2011	2.1	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
CCC2	04/10/2012	1.1	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
CCC2	04/02/2013	1.7	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
CCC2	04/02/2013	2.1	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
CCC2	04/02/2014	3.3	0.5 U	0.5 U	0.5 U	0.1 J	1 U	10 U	0.5 U
CCC2	04/15/2015	1.1	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
CCC2	04/07/2016	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U
CCC3	09/03/2010	0.5 U	0.5 U	0.5 U	0.5 U	6	0.5 U	NA	0.5 U
CCC3	09/03/2010	0.5 U	0.5 U	0.5 U	0.5 U	6.2	0.5 U	NA	0.5 U
CCC3	04/12/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.7	1 U	10 UJ	0.5 U
CCC3	10/04/2011	0.5 U	0.5 U	0.5 U	0.5 U	1.9	1 U	10 U	0.5 U
CCC3	10/04/2011	0.5 U	0.5 U	0.5 U	0.5 U	1.9	1 U	10 U	0.5 U
CCC3	04/10/2012	0.5 U	0.5 U	0.5 U	0.5 U	1.3	1 U	10 U	0.5 U
CCC3	04/02/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.4 J	1 U	10 U	0.5 U
CCC3	04/02/2014	0.5 U	0.5 U	0.5 U	0.5 U	1	1 U	10 U	0.5 U
CCC3	04/15/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.2 J	1 U	10 U	0.5 U

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Location ID	Sample Date	Tetrachloroethene	Toluene	Trans-1,2-Dichloroethene	Trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl Acetate	Vinyl Chloride
California MCLs		5	150	10		5			0.5
Federal MCLs		5	1000	100		5			2
CCCT	09/03/2010	0.5 U	0.5 U	0.5 U	0.5 U	120	0.5 U	NA	0.5 U
CCCT	04/18/2011	0.5 U	0.5 U	0.5 U	0.5 U	84	1 U	10 U	0.5 U
CCCT	10/03/2011	0.5 U	0.5 U	0.1 J	0.5 U	79	1 U	10 U	0.5 U
CCCT	04/04/2012	0.5 U	0.5 U	0.1 J	0.5 U	85	1 U	10 U	0.5 U
CCCT	04/02/2013	0.5 U	0.5 U	0.5 U	0.5 U	90	1 U	10 U	0.5 U
CCCT	04/08/2014	0.1 J	0.5 U	0.2 J	0.5 U	97	1 U	10 U	0.5 U
CCCT	04/15/2015	0.5 U	0.5 U	0.5 U	0.5 U	22	1 U	10 U	0.5 U
CCCT	04/07/2016	1 U	1 U	1 U	1 U	74	1 U	10 U	1 U
CTP	09/30/2010	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	NA	0.5 U
CTP	09/30/2010	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	NA	0.5 U
CTP	04/14/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.2 J	1 U	10 U	0.5 U
CTP	10/06/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.3 J	1 U	10 U	0.5 U
CTP	04/03/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.3 J	1 U	10 U	0.5 U
CTP	04/03/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.2 J	1 U	10 U	0.5 U
CTP	04/04/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.3 J	1 U	10 U	0.5 U
CTP	04/03/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.4 J	1 U	10 U	0.5 U
CTP	04/03/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.4 J	1 U	10 U	0.5 U
CTP	04/17/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.4 J	1 U	10 U	0.5 U
CTP	04/11/2016	1 U	1 U	1 U	1 U	0.3 J	1 U	10 U	1 U
CTPDEEP	04/03/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
CTPS	09/30/2010	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	NA	0.5 U
CTPS	04/19/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 UJ	0.5 U
CTPS	10/07/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
CTPS	04/05/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U

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VOCs (µg/L)

Location ID	Sample Date	Tetrachloroethene	Toluene	Trans-1,2-Dichloroethene	Trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl Acetate	Vinyl Chloride
California MCLs		5	150	10		5			0.5
Federal MCLs		5	1000	100		5			2
DH	09/30/2010	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	NA	0.5 U
DH	04/14/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
DH	10/05/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 UJ	0.5 U
DH	04/05/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
EERC	10/01/2010	0.3 J	0.5 U	0.5 U	0.5 U	6.8	0.5 U	NA	0.5 UJ
EERC	04/20/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 UJ	0.5 U
EERC	10/07/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
EERC	04/06/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
EERC	04/08/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
EERC	04/03/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
EERC	04/16/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
EPA	09/16/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.6	0.5 U	NA	0.5 U
EPA	04/19/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 UJ	0.5 U
EPA	10/06/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
EPA	04/06/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
EPA	04/06/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
EPA	04/04/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
EPA	04/10/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
EPA	04/17/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U

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Location ID	Sample Date	Tetrachloroethene	Toluene	Trans-1,2-Dichloroethene	Trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl Acetate	Vinyl Chloride
California MCLs		5	150	10		5			0.5
Federal MCLs		5	1000	100		5			2
ETA	09/24/2010	0.5 U	0.5 U	0.5 U	0.5 U	12	0.5 U	NA	0.5 U
ETA	09/24/2010	0.5 U	0.5 U	0.5 U	0.5 U	14	0.5 U	NA	0.5 U
ETA	04/12/2011	0.5 U	0.5 U	0.5 U	0.5 U	7.3	1 U	10 UJ	0.5 U
ETA	09/30/2011	0.3 J	0.5 U	0.3 J	0.5 U	17	1 U	10 U	0.5 U
ETA	04/10/2012	0.5 U	0.5 U	1	0.5 U	9.2	1 U	10 U	0.5 U
ETA	04/10/2012	0.5 U	0.5 U	0.9	0.5 U	9.3	1 U	10 U	0.5 U
ETA	04/05/2013	0.2 J	0.5 U	0.9	0.5 U	16	1 U	10 U	0.5 U
ETA	04/08/2014	0.2 J	0.5 U	1.6	0.5 U	16	1 U	10 U	0.5 U
ETA	04/13/2015	0.5 U	0.5 U	1.9	0.5 U	16	1 U	10 U	0.5 U
ETA	04/05/2016	1 U	1 U	2.7	1 U	7.6	1 U	10 U	1 U
ETA01	02/02/2015	0.5 U	0.5 U	0.5 U	0.5 U	15	1 U	10 U	0.2 J
ETA01	04/05/2016	1 U	1 U	1 U	1 U	14	1 U	10 U	0.1 J
ETA02	02/02/2015	14	0.5 U	0.7	0.5 U	57	1 U	10 U	0.5 U
ETA02	02/02/2015	14	0.5 U	0.7	0.5 U	56	1 U	10 U	0.1 J
ETA02	04/05/2016	3.8	1 U	0.3 J	1 U	21	1 U	10 U	1 U
ETA03	02/02/2015	25	0.5 U	1	0.5 U	60	1 U	10 U	0.5 U
ETA03	04/05/2016	25	1 U	1	1 U	69	1 U	10 U	1 U
EXT	09/30/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
FG	09/23/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U
FG	04/19/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 UJ	0.5 U
FG	04/19/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 UJ	0.5 U
FG	10/10/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.2 J	1 U	10 U	0.5 U
FG	04/09/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U

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VOCs (µg/L)

Location ID	Sample Date	Tetrachloroethene	Toluene	Trans-1,2-Dichloroethene	Trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl Acetate	Vinyl Chloride
California MCLs		5	150	10		5			0.5
Federal MCLs		5	1000	100		5			2
GEO	09/03/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.4 J	0.5 U	NA	0.5 U
GEO	04/20/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 UJ	0.5 U
GEO	10/06/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
GEO	04/06/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
GEO	04/04/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
GEO	04/09/2014	0.1 J	0.5 U	0.5 U	0.5 U	0.1 J	1 U	10 U	0.5 U
GEO	04/16/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
GEO	04/11/2016	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U
MFA	09/24/2010	0.5 U	0.5 U	0.5 U	0.5 U	5.7	0.5 U	NA	0.5 U
MFA	04/12/2011	0.5 U	0.5 U	0.5 U	0.5 U	3.1	1 U	10 UJ	0.5 U
MFA	10/03/2011	0.5 U	0.5 U	0.5 U	0.5 U	8.2	1 U	10 U	0.2 J
MFA	04/05/2012	0.5 U	0.5 U	0.5 U	0.5 U	5.4	1 U	10 U	0.5 U
MFA	04/05/2013	0.5 U	0.5 U	0.5 U	0.5 U	13	1 U	10 U	0.2 J
MFA	04/08/2014	0.5 U	0.5 U	0.5 U	0.5 U	15	1 U	10 U	0.5 U
MFA	04/13/2015	0.5 U	0.5 U	0.5 U	0.5 U	19	1 U	10 U	0.3 J
MFA	04/08/2016	1 U	1 U	1 U	1 U	12	1 U	10 U	0.2 J
MFA	04/08/2016	1 U	1 U	1 U	1 U	9.7	1 U	10 U	0.1 J
NRLF	09/16/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U
NRLF	04/20/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 UJ	0.5 U
NRLF	10/06/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
NRLF	04/09/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
OBS6	09/30/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U

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Location ID	Sample Date	Tetrachloroethene	Toluene	Trans-1,2-Dichloroethene	Trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl Acetate	Vinyl Chloride
California MCLs		5	150	10		5			0.5
Federal MCLs		5	1000	100		5			2
PZ11	10/01/2010	67	0.5 U	2.4	0.5 UJ	690	0.5 U	NA	0.6
PZ11	04/20/2011	1.2	0.5 U	0.5 U	0.5 U	8.1	1 U	10 UJ	0.5 U
PZ11	10/10/2011	53	3.1 U	9.6	3.1 U	490	6.3 U	63 U	3.1 U
PZ11	04/05/2012	0.9	0.5 U	0.5 U	0.5 U	9.7	1 U	10 U	0.5 U
PZ11	04/05/2013	12	1.3 U	56	1.3 U	240	2.5 U	25 U	0.9 J
PZ11	04/05/2013	12	2 U	57	2 U	240	4 U	40 U	0.8 J
PZ11	04/09/2014	3.5	2.5 U	61	2.5 U	120	5 U	50 U	5.8
PZ11	04/16/2015	3	2.5 U	53	2.5 U	75	5 U	50 U	17
PZ11	04/08/2016	0.6 J	1 U	0.3 J	1 U	8.3	1 U	10 U	0.2 J
PZ8	10/15/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U
PZ8	04/18/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
PZ8	10/04/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
PZ8	04/03/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.1 J	1 U	10 U	0.5 U
PZ9	09/24/2010	0.5 U	0.5 U	0.5 U	0.5 U	16	0.5 U	NA	0.5 U
PZ9	04/20/2011	0.2 J	0.5 U	0.5 U	0.5 U	11	1 U	10 UJ	0.5 U
PZ9	10/07/2011	0.3 J	0.5 U	0.5 U	0.5 U	28	1 U	10 U	0.5 U
PZ9	10/07/2011	0.4 J	0.5 U	0.5 U	0.5 U	27	1 U	10 U	0.5 U
PZ9	04/06/2012	0.6	0.5 U	0.5 U	0.5 U	65 J	1 U	10 UJ	0.5 U
PZ9	04/03/2013	1.2	0.5 U	0.5 U	0.5 U	64	1 U	10 U	0.5 U
PZ9	04/09/2014	1.1	0.5 U	0.5 U	0.5 U	69	1 U	10 U	0.5 U
PZ9	04/16/2015	0.9	0.5 U	0.5 U	0.5 U	63	1 U	10 U	0.5 U
PZ9	04/07/2016	0.8 J	1 U	1 U	1 U	60	1 U	10 U	1 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

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VOCs (µg/L)

Location ID	Sample Date	Tetrachloroethene	Toluene	Trans-1,2-Dichloroethene	Trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl Acetate	Vinyl Chloride
California MCLs		5	150	10		5			0.5
Federal MCLs		5	1000	100		5			2
RWF	09/15/2010	0.5 U	0.5 U	0.5 U	0.5 U	4.4	0.5 U	NA	0.5 U
RWF	04/18/2011	0.5 U	0.5 U	0.5 U	0.5 U	2.8	1 U	10 U	0.5 U
RWF	10/06/2011	0.5 U	0.5 U	0.5 U	0.5 U	5	1 U	10 U	0.5 U
RWF	04/04/2012	0.1 J	0.5 U	0.5 U	0.5 U	2.8	1 U	10 U	0.5 U
RWF	04/08/2013	0.1 J	0.5 U	0.5 U	0.5 U	4.9	1 U	10 U	0.5 U
RWF	04/09/2014	0.1 J	0.5 U	0.5 U	0.5 U	4	1 U	10 U	0.5 U
RWF	04/14/2015	0.5 U	0.5 U	0.5 U	0.5 U	4.8	1 U	10 U	0.5 U
RWF	04/08/2016	1 U	1 U	1 U	1 U	2.8	1 U	10 U	1 U
TP1	09/29/2010	0.5 U	0.5 U	0.5 UJ	0.5 U	13	0.5 U	NA	0.5 U
TP1	04/18/2011	0.5 U	0.5 U	0.5 U	0.5 U	1.8	1 U	10 U	0.5 U
TP1	10/07/2011	0.1 J	0.5 U	0.5 U	0.5 U	8.5	1 U	10 U	0.5 U
TP1	04/05/2012	0.5 U	0.5 U	0.5 U	0.5 U	3.8	1 U	10 U	0.5 U
TP1	04/04/2013	0.5 U	0.5 U	0.5 U	0.5 U	6.3	1 U	10 U	0.5 U
TP1	04/02/2014	0.5 U	0.5 U	0.5 U	0.5 U	4.2	1 U	10 U	0.5 U
TP1	04/10/2015	0.2 J	0.5 U	0.5 U	0.5 U	4.7	1 U	10 U	0.5 U
TP1	04/07/2016	1 U	1 U	1 U	1 U	1.2	1 U	10 U	1 U

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VOCs (µg/L)

Location ID	Sample Date	Tetrachloroethene	Toluene	Trans-1,2-Dichloroethene	Trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl Acetate	Vinyl Chloride
California MCLs		5	150	10		5			0.5
Federal MCLs		5	1000	100		5			2
TP2	09/29/2010	0.2 J	0.5 U	0.5 U	0.5 U	15	0.5 U	NA	0.5 U
TP2	04/18/2011	0.3 J	0.5 U	0.5 U	0.5 U	12	1 U	10 U	0.5 U
TP2	10/07/2011	0.3 J	0.5 U	0.5 U	0.5 U	14	1 U	10 U	0.5 U
TP2	04/09/2012	0.3 J	0.5 U	0.5 U	0.5 U	13	1 U	10 U	0.5 U
TP2	04/09/2012	0.2 J	0.5 U	0.5 U	0.5 U	12	1 U	10 U	0.5 U
TP2	04/04/2013	0.3 J	0.5 U	0.5 U	0.5 U	18	1 U	10 U	0.5 U
TP2	04/02/2014	0.4 J	0.5 U	0.5 U	0.5 U	22	1 U	10 U	0.5 U
TP2	04/10/2015	0.5	0.5 U	0.5 U	0.5 U	29	1 U	10 U	0.5 U
TP2	04/10/2015	0.5	0.5 U	0.5 U	0.5 U	28	1 U	10 U	0.5 U
TP2	04/08/2016	0.4 J	1 U	1 U	1 U	23	1 U	10 U	1 U
WSM01	02/02/2015	4.2	0.5 U	0.4 J	0.5 U	68	1 U	10 U	0.5 U
WSM01	04/05/2016	6	1 U	1 U	1 U	59	1 U	10 U	1 U
WTA	09/30/2010	3.2	0.5 U	0.5 U	0.5 UJ	0.4 J	0.5 U	NA	0.5 U
WTA	04/14/2011	3.8	0.5 U	0.5 U	0.5 U	0.4 J	1 U	10 U	0.5 U
WTA	04/14/2011	4.1	0.5 U	0.5 U	0.5 U	0.4 J	1 U	10 U	0.5 U
WTA	10/05/2011	3.2	0.5 U	0.5 U	0.5 U	0.5 J	1 U	10 UJ	0.5 U
WTA	04/05/2012	1.3	0.5 U	0.5 U	0.5 U	0.2 J	1 U	10 U	0.5 U
WTA	04/05/2013	1.5	0.5 U	0.5 U	0.5 U	0.2 J	1 U	10 U	0.5 U
WTA	04/10/2014	1	0.5 U	0.5 U	0.5 U	0.5 U	1 U	10 U	0.5 U
WTA	04/13/2015	1.5	0.5 U	0.5 U	0.5 U	0.3 J	1 U	10 U	0.5 U

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SVOC AND PAH (µg/L)

Location ID	Sample Date	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,4-Dioxane	1-Methylnaphthalene	2,2'-Oxybis(1-Chloropropane)	2,3,4,6-Tetrachlorophenol	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chloronaphthalene
California MCLs																	
Federal MCLs		70															
B120	09/09/2010	NA	NA	NA	NA	NA	0.047 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B120	09/09/2010	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	NA	0.9 U	NA	4.7 U	4.7 U	4.7 U	4.7 U	19 U	0.9 UJ	0.9 U	0.9 U
B120	04/15/2011	NA	NA	NA	NA	0.03 J	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B120	04/15/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B120	10/04/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B120	10/04/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B120	04/03/2012	NA	NA	NA	NA	1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B120	04/03/2012	9.6 U	9.6 U	9.6 U	9.6 U	NA	NA	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	19 U	9.6 U	9.6 U	9.6 U
B121	09/08/2010	NA	NA	NA	NA	NA	0.048 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B121	09/08/2010	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	NA	0.9 U	NA	4.7 U	4.7 U	4.7 U	4.7 U	19 U	0.9 U	0.9 U	0.9 U
B121	04/13/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B121	04/13/2011	NA	NA	NA	NA	0.06 J	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B121	10/04/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B121	10/04/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B121	04/04/2012	NA	NA	NA	NA	1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B121	04/04/2012	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U

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SVOC AND PAH (µg/L)

Location ID	Sample Date	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,4-Dioxane	1-Methylnaphthalene	2,2'-Oxybis(1-Chloropropane)	2,3,4,6-Tetrachlorophenol	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chloronaphthalene
California MCLs																	
Federal MCLs		70															
B128	09/23/2010	NA	NA	NA	NA	NA	0.047 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B128	09/23/2010	1 U	1 U	1 U	1 U	1 U	NA	1 U	NA	5 U	5 U	5 U	5 U	20 U	1 U	1 U	1 U
B128	09/23/2010	1 U	1 U	1 U	1 U	1 U	NA	1 U	NA	5 U	5 U	5 U	5 U	20 U	1 U	1 U	1 U
B128	09/23/2010	NA	NA	NA	NA	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B128	04/18/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B128	04/18/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B128	10/04/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B128	10/04/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B128	04/02/2012	9.6 U	9.6 U	9.6 U	9.6 U	NA	NA	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	19 U	9.6 U	9.6 U	9.6 U
B128	04/02/2012	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B128	04/05/2013	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B128	04/05/2013	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B128	04/10/2014	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B128	04/10/2014	9.8 U	9.8 U	9.8 U	9.8 U	NA	NA	9.8 U	9.8 U	9.8 U	9.8 U	9.8 U	9.8 U	20 U	9.8 U	9.8 U	9.8 U
B128	04/13/2015	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B128	04/13/2015	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B128	04/13/2015	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B128	04/13/2015	NA	NA	NA	NA	1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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SVOC AND PAH (µg/L)

Location ID	Sample Date	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,4-Dioxane	1-Methylnaphthalene	2,2'-Oxybis(1-Chloropropane)	2,3,4,6-Tetrachlorophenol	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chloronaphthalene
California MCLs																	
Federal MCLs		70															
B150	09/08/2010	1 U	1 U	1 U	1 U	1 U	NA	1 U	NA	4.8 U	4.8 U	4.8 U	4.8 U	19 U	1 U	1 U	1 U
B150	09/08/2010	NA	NA	NA	NA	NA	0.048 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B150	04/13/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B150	04/13/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B150	10/05/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B150	10/05/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B150	10/05/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B150	10/05/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B150	04/04/2012	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B150	04/04/2012	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B150	04/04/2012	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B150	04/04/2012	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B158	09/08/2010	NA	NA	NA	NA	NA	0.047 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B158	09/08/2010	1 U	1 U	1 U	1 U	1 U	NA	1 U	NA	5 U	5 U	5 U	5 U	20 U	1 U	1 U	1 U
B158	04/15/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B158	04/15/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B158	10/05/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B158	10/05/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B158	04/06/2012	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B158	04/06/2012	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U

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SVOC AND PAH (µg/L)

Location ID	Sample Date	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,4-Dioxane	1-Methylnaphthalene	2,2'-Oxybis(1-Chloropropane)	2,3,4,6-Tetrachlorophenol	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chloronaphthalene
California MCLs																	
Federal MCLs		70															
B163	09/02/2010	1 U	1 U	1 U	1 U	0.5 J	NA	1 UJ	NA	5 U	5 U	5 U	5 U	20 U	1 U	1 U	1 U
B163	09/02/2010	NA	NA	NA	NA	NA	0.047 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B163	04/12/2011	NA	NA	NA	NA	0.2 J	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B163	04/12/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 UJ	9.4 U	9.4 U	9.4 U
B163	10/03/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B163	10/03/2011	NA	NA	NA	NA	0.2 J	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B163	04/02/2012	9.6 U	9.6 U	9.6 U	9.6 U	NA	NA	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	19 U	9.6 U	9.6 U	9.6 U
B163	04/02/2012	NA	NA	NA	NA	0.09 J	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B163	04/03/2013	11 U	11 U	11 U	11 U	NA	NA	11 U	11 U	11 U	11 U	11 U	11 U	21 U	11 U	11 U	11 U
B163	04/03/2013	NA	NA	NA	NA	0.2 J	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B163	04/01/2014	NA	NA	NA	NA	0.2 J	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B163	04/01/2014	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B163	04/14/2015	NA	NA	NA	NA	0.2 J	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B163	04/14/2015	10 U	10 U	10 U	10 U	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	20 U	10 U	10 U	10 U
B175S	09/03/2010	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	NA	0.9 UJ	NA	4.7 U	4.7 U	4.7 U	4.7 U	19 U	0.9 U	0.9 U	0.9 U
B175S	09/03/2010	NA	NA	NA	NA	NA	0.047 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B175S	04/13/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B175S	04/13/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B175S	10/04/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B175S	10/04/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B175S	04/04/2012	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B175S	04/04/2012	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum

University of California, Berkeley, Richmond Field Station Site

SVOC AND PAH (µg/L)

Location ID	Sample Date	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,4-Dioxane	1-Methylnaphthalene	2,2'-Oxybis(1-Chloropropane)	2,3,4,6-Tetrachlorophenol	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chloronaphthalene
California MCLs																	
Federal MCLs		70															
B175W	09/08/2010	1 U	1 U	1 U	1 U	1 U	NA	1 U	NA	5 U	5 U	5 U	5 U	20 U	1 U	1 U	1 U
B175W	09/08/2010	NA	NA	NA	NA	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B175W	04/13/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B175W	04/13/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B175W	10/04/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B175W	10/04/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B175W	04/04/2012	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B175W	04/04/2012	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B177	09/23/2010	0.9 U	0.9 U	0.9 U	0.9 UJ	0.9 U	NA	0.9 U	NA	4.7 U	4.7 U	4.7 U	4.7 U	19 U	0.9 U	0.9 U	0.9 U
B177	09/23/2010	NA	NA	NA	NA	NA	0.047 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B177	04/18/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B177	04/18/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B177	10/05/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B177	10/05/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B177	04/04/2012	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B177	04/04/2012	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B178	09/02/2010	1 U	1 U	1 U	1 U	1 U	NA	1 UJ	NA	5 U	5 U	5 U	5 U	20 U	1 U	1 U	1 U
B178	09/02/2010	NA	NA	NA	NA	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B178	04/15/2011	NA	NA	NA	NA	0.04 J	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B178	04/15/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B178	10/04/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B178	10/04/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B178	04/03/2012	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B178	04/03/2012	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

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SVOC AND PAH (µg/L)

Location ID	Sample Date	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,4-Dioxane	1-Methylnaphthalene	2,2'-Oxybis(1-Chloropropane)	2,3,4,6-Tetrachlorophenol	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chloronaphthalene
California MCLs																	
Federal MCLs		70															
B180	09/15/2010	NA	NA	NA	NA	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B180	09/15/2010	1 U	1 U	1 U	1 U	1 U	NA	1 U	NA	4.8 U	4.8 U	4.8 U	4.8 U	19 U	1 UJ	1 U	1 U
B180	04/13/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B180	04/13/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B180	10/06/2011	NA	NA	NA	NA	1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B180	10/06/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 UJ	9.4 U	9.4 U	9.4 U
B180	10/06/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 UJ	9.4 U	9.4 U	9.4 U
B180	10/06/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B180	04/04/2012	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B180	04/04/2012	9.7 U	9.7 U	9.7 U	9.7 U	NA	NA	9.7 U	9.7 U	9.7 U	9.7 U	9.7 U	9.7 U	19 U	9.7 U	9.7 U	9.7 U
B180	04/08/2013	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B180	04/08/2013	9.3 U	9.3 U	9.3 U	9.3 U	NA	NA	9.3 U	9.3 U	9.3 U	9.3 U	9.3 U	9.3 U	19 U	9.3 U	9.3 U	9.3 U
B180	04/08/2014	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B180	04/08/2014	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B180	04/14/2015	9.6 U	9.6 U	9.6 U	9.6 U	NA	NA	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	19 U	9.6 U	9.6 U	9.6 U
B180	04/14/2015	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum

University of California, Berkeley, Richmond Field Station Site

SVOC AND PAH (µg/L)

Location ID	Sample Date	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,4-Dioxane	1-Methylnaphthalene	2,2'-Oxybis(1-Chloropropane)	2,3,4,6-Tetrachlorophenol	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chloronaphthalene
California MCLs																	
Federal MCLs		70															
B185	09/02/2010	0.9 U	0.9 U	0.9 U	0.9 U	10	NA	0.9 UJ	NA	4.7 U	4.7 U	4.7 U	4.7 U	19 U	0.9 U	0.9 U	0.9 U
B185	09/02/2010	NA	NA	NA	NA	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B185	04/15/2011	NA	NA	NA	NA	6	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B185	04/15/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B185	04/15/2011	NA	NA	NA	NA	6.8	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B185	04/15/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B185	10/03/2011	NA	NA	NA	NA	6.1	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B185	10/03/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B185	10/03/2011	NA	NA	NA	NA	6.3	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B185	10/03/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B185	04/02/2012	NA	NA	NA	NA	4.4	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B185	04/02/2012	9.6 U	9.6 U	9.6 U	9.6 U	NA	NA	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	19 U	9.6 U	9.6 U	9.6 U
B194	09/09/2010	NA	NA	NA	NA	NA	0.047 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B194	09/09/2010	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	NA	0.9 U	NA	4.7 U	4.7 U	4.7 U	4.7 U	19 U	0.9 UJ	0.9 U	0.9 U
B194	04/13/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B194	04/13/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B194	10/04/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B194	10/04/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B194	04/04/2012	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B194	04/04/2012	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

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University of California, Berkeley, Richmond Field Station Site

SVOC AND PAH (µg/L)

Location ID	Sample Date	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,4-Dioxane	1-Methylnaphthalene	2,2'-Oxybis(1-Chloropropane)	2,3,4,6-Tetrachlorophenol	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chloronaphthalene
California MCLs																	
Federal MCLs		70															
B195	09/09/2010	NA	NA	NA	NA	NA	0.047 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B195	09/09/2010	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	NA	0.9 U	NA	4.7 U	4.7 U	4.7 U	4.7 U	19 U	0.9 UJ	0.9 U	0.9 U
B195	04/13/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B195	04/13/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B195	04/13/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B195	04/13/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B195	10/04/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B195	10/04/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B195	04/03/2012	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B195	04/03/2012	9.5 U	9.5 U	9.5 U	9.5 U	NA	NA	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	19 U	9.5 U	9.5 U	9.5 U
B197	09/09/2010	NA	NA	NA	NA	NA	0.047 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B197	09/09/2010	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	NA	0.9 U	NA	4.7 U	4.7 U	4.7 U	4.7 U	19 U	0.9 UJ	0.9 U	0.9 U
B197	09/09/2010	NA	NA	NA	NA	NA	0.047 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B197	09/09/2010	1 U	1 U	1 U	1 U	1 U	NA	1 U	NA	4.8 U	4.8 U	4.8 U	4.8 U	19 U	1 UJ	1 U	1 U
B197	04/13/2011	NA	NA	NA	NA	0.04 J	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B197	04/13/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B197	10/04/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B197	10/04/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B197	04/03/2012	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B197	04/03/2012	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B197	04/03/2012	NA	NA	NA	NA	1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B197	04/03/2012	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

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University of California, Berkeley, Richmond Field Station Site

SVOC AND PAH (µg/L)

Location ID	Sample Date	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,4-Dioxane	1-Methylnaphthalene	2,2'-Oxybis(1-Chloropropane)	2,3,4,6-Tetrachlorophenol	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chloronaphthalene
California MCLs																	
Federal MCLs		70															
B277	09/15/2010	1 U	1 U	1 U	1 U	1 U	NA	1 U	NA	5 U	5 U	5 U	5 U	20 U	1 UJ	1 U	1 U
B277	09/15/2010	NA	NA	NA	NA	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B277	04/18/2011	NA	NA	NA	NA	0.2 J	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B277	04/18/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B277	10/05/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B277	10/05/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B277	04/03/2012	NA	NA	NA	NA	0.1 J	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B277	04/03/2012	9.5 U	9.5 U	9.5 U	9.5 U	NA	NA	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	19 U	9.5 U	9.5 U	9.5 U
B278	09/16/2010	1 U	1 U	1 U	1 U	1.4	NA	1 U	NA	5 U	5 U	5 U	5 U	20 U	1 UJ	1 U	1 U
B278	09/16/2010	NA	NA	NA	NA	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B278	04/19/2011	NA	NA	NA	NA	1.1	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B278	04/19/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B278	10/05/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B278	10/05/2011	NA	NA	NA	NA	0.9 J	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B278	04/05/2012	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B278	04/05/2012	NA	NA	NA	NA	1.1	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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SVOC AND PAH (µg/L)

Location ID	Sample Date	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,4-Dioxane	1-Methylnaphthalene	2,2'-Oxybis(1-Chloropropane)	2,3,4,6-Tetrachlorophenol	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chloronaphthalene
California MCLs																	
Federal MCLs		70															
B280A	09/16/2010	NA	NA	NA	NA	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B280A	09/16/2010	1 U	1 U	1 U	1 U	1 U	NA	1 U	NA	5 U	5 U	5 U	5 U	20 U	1 UJ	1 U	1 U
B280A	04/14/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B280A	04/14/2011	NA	NA	NA	NA	0.2 J	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B280A	10/06/2011	NA	NA	NA	NA	0.2 J	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B280A	10/06/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 UJ	9.4 U	9.4 U	9.4 U
B280A	04/03/2012	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B280A	04/03/2012	NA	NA	NA	NA	0.2 J	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B280A	04/04/2013	NA	NA	NA	NA	0.2 J	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B280A	04/04/2013	10 U	10 U	10 U	10 U	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	20 U	10 U	10 U	10 U
B280A	04/09/2014	NA	NA	NA	NA	0.2 J	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B280A	04/09/2014	9.3 U	9.3 U	9.3 U	9.3 U	NA	NA	9.3 U	9.3 U	9.3 U	9.3 U	9.3 U	9.3 U	19 U	9.3 U	9.3 U	9.3 U
B280A	04/17/2015	NA	NA	NA	NA	0.2 J	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B280A	04/17/2015	9.8 U	9.8 U	9.8 U	9.8 U	NA	NA	9.8 U	9.8 U	9.8 U	9.8 U	9.8 U	9.8 U	20 U	9.8 U	9.8 U	9.8 U
B280B	10/01/2010	NA	NA	NA	NA	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B280B	10/01/2010	1 U	1 U	1 U	1 U	1 U	NA	1 U	NA	5 U	5 U	5 U	5 U	20 U	1 U	1 U	1 U
B280B	04/14/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B280B	04/14/2011	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U	10 U	10 U	10 U
B280B	10/06/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B280B	10/06/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 UJ	9.4 U	9.4 U	9.4 U
B280B	04/03/2012	NA	NA	NA	NA	1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B280B	04/03/2012	9.5 U	9.5 U	9.5 U	9.5 U	NA	NA	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	19 U	9.5 U	9.5 U	9.5 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum

University of California, Berkeley, Richmond Field Station Site

SVOC AND PAH (µg/L)

Location ID	Sample Date	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,4-Dioxane	1-Methylnaphthalene	2,2'-Oxybis(1-Chloropropane)	2,3,4,6-Tetrachlorophenol	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chloronaphthalene
California MCLs																	
Federal MCLs		70															
B300	09/09/2010	NA	NA	NA	NA	NA	0.047 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B300	09/09/2010	0.9 U	0.9 U	0.9 U	0.9 U	1.4	NA	0.9 U	NA	4.7 U	4.7 U	4.7 U	4.7 U	19 U	0.9 UJ	0.9 U	0.9 U
B300	04/15/2011	NA	NA	NA	NA	0.1 J	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B300	04/15/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B300	10/06/2011	NA	NA	NA	NA	5.9	0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B300	10/06/2011	97 U	97 U	97 U	97 U	NA	NA	97 U	97 U	97 U	97 U	97 U	97 U	190 UJ	97 U	97 U	97 U
B300	04/09/2012	NA	NA	NA	NA	0.8 J	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B300	04/09/2012	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B38	09/15/2010	NA	NA	NA	NA	NA	0.05 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B38	09/15/2010	1 U	1 U	1 U	1 U	1 U	NA	1 U	NA	5 U	5 U	5 U	5 U	20 U	1 UJ	1 U	1 U
B38	04/19/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B38	04/19/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B38	04/19/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B38	04/19/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B38	10/06/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B38	10/06/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 UJ	9.4 U	9.4 U	9.4 U
B38	04/04/2012	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B38	04/04/2012	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B450	04/19/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B450	04/19/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B450	10/10/2011	NA	NA	NA	NA	0.3 J	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B450	10/10/2011	9.6 UJ	9.6 UJ	9.6 UJ	9.6 UJ	NA	NA	9.6 UJ	9.6 UJ	9.6 UJ	9.6 UJ	9.6 UJ	9.6 UJ	19 UJ	9.6 UJ	9.6 UJ	9.6 UJ
B450	04/06/2012	NA	NA	NA	NA	0.5 J	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B450	04/06/2012	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U

SVOC AND PAH (µg/L)

Location ID	Sample Date	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,4-Dioxane	1-Methylnaphthalene	2,2'-Oxybis(1-Chloropropane)	2,3,4,6-Tetrachlorophenol	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chloronaphthalene
California MCLs																	
Federal MCLs		70															
B460	09/15/2010	NA	NA	NA	NA	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B460	09/15/2010	1 U	1 U	1 U	1 U	1 U	NA	1 U	NA	5 U	5 U	5 U	5 U	20 U	1 UJ	1 U	1 U
B460	04/20/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B460	04/20/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B460	10/07/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B460	10/07/2011	9.6 U	9.6 U	9.6 U	9.6 U	NA	NA	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	19 U	9.6 U	9.6 U	9.6 U
B460	04/06/2012	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B460	04/06/2012	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B473	09/24/2010	NA	NA	NA	NA	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B473	09/24/2010	1 U	1 U	1 U	1 U	0.5 J	NA	1 U	NA	5 U	5 U	5 U	5 U	20 U	1 U	1 U	1 U
B473	04/20/2011	NA	NA	NA	NA	0.06 J	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B473	04/20/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B473	10/07/2011	NA	NA	NA	NA	0.3 J	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B473	10/07/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B473	04/06/2012	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B473	04/06/2012	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B474	09/23/2010	NA	NA	NA	NA	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B474	09/23/2010	1 U	1 U	1 U	1 U	1 U	NA	1 U	NA	5 U	5 U	5 U	5 U	20 U	1 U	1 U	1 U
B474	04/20/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B474	04/20/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B474	10/07/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B474	10/07/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B474	04/09/2012	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B474	04/09/2012	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum

University of California, Berkeley, Richmond Field Station Site

SVOC AND PAH (µg/L)

Location ID	Sample Date	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,4-Dioxane	1-Methylnaphthalene	2,2'-Oxybis(1-Chloropropane)	2,3,4,6-Tetrachlorophenol	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chloronaphthalene
California MCLs																	
Federal MCLs		70															
B480	09/24/2010	NA	NA	NA	NA	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B480	09/24/2010	1 U	1 U	1 U	1 U	1 U	NA	1 U	NA	5 U	5 U	5 U	5 U	20 U	1 U	1 U	1 U
B480	04/19/2011	NA	NA	NA	NA	0.2 J	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B480	04/19/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B480	10/07/2011	NA	NA	NA	NA	0.3 J	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B480	10/07/2011	9.5 U	9.5 U	9.5 U	9.5 U	NA	NA	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	19 U	9.5 U	9.5 U	9.5 U
B480	04/09/2012	NA	NA	NA	NA	0.1 J	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B480	04/09/2012	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B490	09/16/2010	NA	NA	NA	NA	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B490	09/16/2010	1 U	1 U	1 U	1 U	1 U	NA	1 U	NA	5 U	5 U	5 U	5 U	20 U	1 UJ	1 U	1 U
B490	04/20/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B490	04/20/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B490	10/10/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B490	10/10/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B490	04/09/2012	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B490	04/09/2012	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
BULB1	10/19/2010	NA	NA	NA	NA	NA	0.047 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BULB1	10/19/2010	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	NA	0.9 U	NA	4.7 U	4.7 U	4.7 U	4.7 U	19 UJ	0.9 U	0.9 U	0.9 U
BULB1	04/12/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BULB1	04/12/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
BULB1	09/30/2011	9.5 U	9.5 U	9.5 U	9.5 U	NA	NA	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	19 U	9.5 U	9.5 U	9.5 U
BULB1	09/30/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BULB1	04/05/2012	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BULB1	04/05/2012	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum

University of California, Berkeley, Richmond Field Station Site

SVOC AND PAH (µg/L)

Location ID	Sample Date	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,4-Dioxane	1-Methylnaphthalene	2,2'-Oxybis(1-Chloropropane)	2,3,4,6-Tetrachlorophenol	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chloronaphthalene
California MCLs																	
Federal MCLs		70															
BULB2	10/19/2010	1 U	1 U	1 U	1 U	1.3	NA	1 U	NA	5 U	5 U	5 U	5 U	20 UJ	1 U	1 U	1 U
BULB2	10/19/2010	NA	NA	NA	NA	NA	0.033 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BULB2	04/12/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BULB2	04/12/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
BULB2	09/30/2011	NA	NA	NA	NA	1.2	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BULB2	09/30/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
BULB2	04/05/2012	NA	NA	NA	NA	1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BULB2	04/05/2012	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
BULB2	04/05/2013	10 U	10 U	10 U	10 U	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	20 U	10 U	10 U	10 U
BULB2	04/05/2013	NA	NA	NA	NA	1 J	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BULB2	04/10/2014	NA	NA	NA	NA	1	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BULB2	04/10/2014	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
BULB2	04/13/2015	9.6 U	9.6 U	9.6 U	9.6 U	NA	NA	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	19 U	9.6 U	9.6 U	9.6 U
BULB2	04/13/2015	NA	NA	NA	NA	0.8 J	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CCC1	09/08/2010	NA	NA	NA	NA	NA	0.047 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CCC1	09/08/2010	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	NA	0.9 U	NA	4.7 U	4.7 U	4.7 U	4.7 U	19 U	0.9 U	0.9 U	0.9 U
CCC1	04/14/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
CCC1	04/14/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CCC1	10/05/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CCC1	10/05/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
CCC1	04/10/2012	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CCC1	04/10/2012	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

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SVOC AND PAH (µg/L)

Location ID	Sample Date	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,4-Dioxane	1-Methylnaphthalene	2,2'-Oxybis(1-Chloropropane)	2,3,4,6-Tetrachlorophenol	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chloronaphthalene
California MCLs																	
Federal MCLs		70															
CCC2	09/08/2010	NA	NA	NA	NA	NA	0.047 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CCC2	09/08/2010	1 U	1 U	1 U	1 U	1 U	NA	1 U	NA	4.8 U	4.8 U	4.8 U	4.8 U	19 U	1 U	1 U	1 U
CCC2	04/14/2011	NA	NA	NA	NA	1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CCC2	04/14/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
CCC2	10/04/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CCC2	10/04/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
CCC2	04/10/2012	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
CCC2	04/10/2012	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CCC2	04/02/2013	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CCC2	04/02/2013	9.5 U	9.5 U	9.5 U	9.5 U	NA	NA	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	19 U	9.5 U	9.5 U	9.5 U
CCC2	04/02/2013	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CCC2	04/02/2013	9.3 U	9.3 U	9.3 U	9.3 U	NA	NA	9.3 U	9.3 U	9.3 U	9.3 U	9.3 U	9.3 U	19 U	9.3 U	9.3 U	9.3 U
CCC2	04/02/2014	NA	NA	NA	NA	1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CCC2	04/02/2014	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
CCC2	04/15/2015	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
CCC2	04/15/2015	NA	NA	NA	NA	1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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University of California, Berkeley, Richmond Field Station Site

SVOC AND PAH (µg/L)

Location ID	Sample Date	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,4-Dioxane	1-Methylnaphthalene	2,2'-Oxybis(1-Chloropropane)	2,3,4,6-Tetrachlorophenol	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chloronaphthalene
California MCLs																	
Federal MCLs		70															
CCC3	09/03/2010	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	NA	0.9 UJ	NA	4.7 U	4.7 U	4.7 U	4.7 U	19 U	0.9 U	0.9 U	0.9 U
CCC3	09/03/2010	NA	NA	NA	NA	NA	0.047 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CCC3	09/03/2010	NA	NA	NA	NA	NA	0.047 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CCC3	09/03/2010	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	NA	0.9 UJ	NA	4.7 U	4.7 U	4.7 U	4.7 U	19 U	0.9 U	0.9 U	0.9 U
CCC3	04/12/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CCC3	04/12/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
CCC3	10/04/2011	NA	NA	NA	NA	0.1 J	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CCC3	10/04/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
CCC3	10/04/2011	NA	NA	NA	NA	0.1 J	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CCC3	10/04/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
CCC3	04/10/2012	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
CCC3	04/10/2012	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CCCT	09/03/2010	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	NA	0.9 UJ	NA	4.7 U	4.7 U	4.7 U	4.7 U	19 U	0.9 U	0.9 U	0.9 U
CCCT	09/03/2010	NA	NA	NA	NA	NA	0.047 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CCCT	04/18/2011	NA	NA	NA	NA	0.1 J	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CCCT	04/18/2011	9.5 U	9.5 U	9.5 U	9.5 U	NA	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	19 U	9.5 U	9.5 U	9.5 U
CCCT	10/03/2011	NA	NA	NA	NA	0.08 J	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CCCT	10/03/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
CCCT	04/04/2012	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CCCT	04/04/2012	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U

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SVOC AND PAH (µg/L)

Location ID	Sample Date	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,4-Dioxane	1-Methylnaphthalene	2,2'-Oxybis(1-Chloropropane)	2,3,4,6-Tetrachlorophenol	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chloronaphthalene
California MCLs																	
Federal MCLs		70															
CTP	09/30/2010	NA	NA	NA	NA	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CTP	09/30/2010	1 U	1 U	1 U	1 U	1 U	NA	1 U	NA	5 U	5 U	5 U	5 U	20 U	1 U	1 U	1 U
CTP	09/30/2010	NA	NA	NA	NA	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CTP	09/30/2010	1 U	1 U	1 U	1 U	1 U	NA	1 U	NA	5 U	5 U	5 U	5 U	20 U	1 U	1 U	1 U
CTP	04/14/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CTP	04/14/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
CTP	10/06/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CTP	10/06/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 UJ	9.4 U	9.4 U	9.4 U
CTP	04/03/2012	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CTP	04/03/2012	9.5 U	9.5 U	9.5 U	9.5 U	NA	NA	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	19 U	9.5 U	9.5 U	9.5 U
CTP	04/04/2013	NA	NA	NA	NA	1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CTP	04/04/2013	10 U	10 U	10 U	10 U	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	20 U	10 U	10 U	10 U
CTP	04/03/2014	9.3 U	9.3 U	9.3 U	9.3 U	NA	NA	9.3 U	9.3 U	9.3 U	9.3 U	9.3 U	9.3 U	19 U	9.3 U	9.3 U	9.3 U
CTP	04/03/2014	NA	NA	NA	NA	1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CTP	04/03/2014	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CTP	04/03/2014	10 U	10 U	10 U	10 U	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	20 U	10 U	10 U	10 U
CTP	04/17/2015	NA	NA	NA	NA	1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CTP	04/17/2015	9.3 U	9.3 U	9.3 U	9.3 U	NA	NA	9.3 U	9.3 U	9.3 U	9.3 U	9.3 U	9.3 U	19 U	9.3 U	9.3 U	9.3 U

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SVOC AND PAH (µg/L)

Location ID	Sample Date	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,4-Dioxane	1-Methylnaphthalene	2,2'-Oxybis(1-Chloropropane)	2,3,4,6-Tetrachlorophenol	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chloronaphthalene
California MCLs																	
Federal MCLs		70															
CTPS	10/01/2010	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	NA	1.2 U	NA	6 U	6 U	6 U	6 U	24 U	1.2 U	1.2 U	1.2 U
CTPS	10/18/2010	NA	NA	NA	NA	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CTPS	04/19/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
CTPS	04/19/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CTPS	10/07/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
CTPS	10/10/2011	NA	NA	NA	NA	1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CTPS	04/05/2012	9.5 U	9.5 U	9.5 U	9.5 U	NA	NA	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	19 U	9.5 U	9.5 U	9.5 U
CTPS	04/05/2012	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DH	09/30/2010	NA	NA	NA	NA	NA	0.047 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DH	09/30/2010	1 U	1 U	1 U	1 U	1 U	NA	1 U	NA	5 U	5 U	5 U	5 U	20 U	1 U	1 U	1 U
DH	04/14/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
DH	04/14/2011	NA	NA	NA	NA	0.04 J	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DH	10/05/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
DH	10/05/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DH	04/05/2012	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DH	04/06/2012	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
EERC	10/01/2010	1 U	1 U	1 U	1 U	1 U	NA	1 U	NA	5 U	5 U	5 U	5 U	20 U	1 U	1 U	1 U
EERC	10/15/2010	NA	NA	NA	NA	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EERC	04/20/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
EERC	04/20/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EERC	10/07/2011	NA	NA	NA	NA	1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EERC	10/07/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
EERC	04/06/2012	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EERC	04/06/2012	9.5 U	9.5 U	9.5 U	9.5 U	NA	NA	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	19 U	9.5 U	9.5 U	9.5 U

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SVOC AND PAH (µg/L)

Location ID	Sample Date	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,4-Dioxane	1-Methylnaphthalene	2,2'-Oxybis(1-Chloropropane)	2,3,4,6-Tetrachlorophenol	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chloronaphthalene
California MCLs																	
Federal MCLs		70															
EPA	09/16/2010	1 U	1 U	1 U	1 U	1 U	NA	1 U	NA	5 U	5 U	5 U	5 U	20 U	1 UJ	1 U	1 U
EPA	09/16/2010	NA	NA	NA	NA	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPA	04/19/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPA	04/19/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
EPA	10/06/2011	9.8 U	9.8 U	9.8 U	9.8 U	NA	NA	9.8 U	9.8 U	9.8 U	9.8 U	9.8 U	9.8 U	20 UJ	9.8 U	9.8 U	9.8 U
EPA	10/06/2011	NA	NA	NA	NA	1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPA	04/06/2012	NA	NA	NA	NA	0.5 J	0.05 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPA	04/06/2012	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
EPA	04/06/2012	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
EPA	04/06/2012	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPA	04/04/2013	9.3 U	9.3 U	9.3 U	9.3 U	NA	NA	9.3 U	9.3 U	9.3 U	9.3 U	9.3 U	9.3 U	19 U	9.3 U	9.3 U	9.3 U
EPA	04/04/2013	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPA	04/10/2014	NA	NA	NA	NA	1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPA	04/10/2014	9.6 U	9.6 U	9.6 U	9.6 U	NA	NA	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	19 U	9.6 U	9.6 U	9.6 U
EPA	04/17/2015	9.6 U	9.6 U	9.6 U	9.6 U	NA	NA	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	19 U	9.6 U	9.6 U	9.6 U
EPA	04/17/2015	NA	NA	NA	NA	1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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SVOC AND PAH (µg/L)

Location ID	Sample Date	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,4-Dioxane	1-Methylnaphthalene	2,2'-Oxybis(1-Chloropropane)	2,3,4,6-Tetrachlorophenol	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chloronaphthalene
California MCLs																	
Federal MCLs		70															
ETA	09/24/2010	NA	NA	NA	NA	NA	0.033 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETA	09/24/2010	0.9 U	0.9 U	0.9 U	0.9 U	12	NA	0.9 U	NA	4.7 U	4.7 U	4.7 U	4.7 U	19 U	0.9 U	0.9 U	0.9 U
ETA	09/24/2010	1 U	1 U	1 U	1 U	12	NA	1 U	NA	5 U	5 U	5 U	5 U	20 U	1 U	1 U	1 U
ETA	09/24/2010	NA	NA	NA	NA	NA	0.032 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETA	04/12/2011	NA	NA	NA	NA	8.1	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETA	04/12/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
ETA	09/30/2011	NA	NA	NA	NA	6.1	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETA	09/30/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
ETA	04/10/2012	NA	NA	NA	NA	12	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETA	04/10/2012	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
ETA	04/10/2012	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
ETA	04/10/2012	NA	NA	NA	NA	12	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EXT	09/30/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
EXT	09/30/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FG	09/23/2010	NA	NA	NA	NA	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FG	09/23/2010	1 U	1 U	1 U	1 U	1 U	NA	1 U	NA	5 U	5 U	5 U	5 U	20 U	1 U	1 U	1 U
FG	04/19/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FG	04/19/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
FG	04/19/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
FG	04/19/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FG	10/10/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FG	10/10/2011	9.5 U	9.5 U	9.5 U	9.5 U	NA	NA	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	19 U	9.5 U	9.5 U	9.5 U
FG	04/09/2012	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
FG	04/09/2012	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

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SVOC AND PAH (µg/L)

Location ID	Sample Date	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,4-Dioxane	1-Methylnaphthalene	2,2'-Oxybis(1-Chloropropane)	2,3,4,6-Tetrachlorophenol	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chloronaphthalene
California MCLs																	
Federal MCLs		70															
GEO	09/03/2010	NA	NA	NA	NA	NA	0.047 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GEO	09/03/2010	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	NA	0.9 UJ	NA	4.7 U	4.7 U	4.7 U	4.7 U	19 U	0.9 U	0.9 U	0.9 U
GEO	04/20/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
GEO	04/20/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GEO	10/06/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 UJ	9.4 U	9.4 U	9.4 U
GEO	10/06/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GEO	04/06/2012	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GEO	04/06/2012	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
MFA	09/24/2010	1 U	1 U	1 U	1 U	2.3	NA	1 U	NA	5 U	5 U	5 U	5 U	20 U	1 U	1 U	1 U
MFA	09/24/2010	NA	NA	NA	NA	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MFA	04/12/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
MFA	04/12/2011	NA	NA	NA	NA	1.1	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MFA	10/03/2011	NA	NA	NA	NA	1.7	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MFA	10/03/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
MFA	04/05/2012	NA	NA	NA	NA	1.2	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MFA	04/05/2012	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
MFA	04/05/2013	10 U	10 U	10 U	10 U	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	20 U	10 U	10 U	10 U
MFA	04/05/2013	NA	NA	NA	NA	1.9	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MFA	04/08/2014	NA	NA	NA	NA	1.8	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MFA	04/08/2014	9.3 U	9.3 U	9.3 U	9.3 U	NA	NA	9.3 U	9.3 U	9.3 U	9.3 U	9.3 U	9.3 U	19 U	9.3 U	9.3 U	9.3 U
MFA	04/13/2015	NA	NA	NA	NA	1.6	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MFA	04/13/2015	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

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University of California, Berkeley, Richmond Field Station Site

SVOC AND PAH (µg/L)

Location ID	Sample Date	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,4-Dioxane	1-Methylnaphthalene	2,2'-Oxybis(1-Chloropropane)	2,3,4,6-Tetrachlorophenol	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chloronaphthalene
California MCLs																	
Federal MCLs		70															
NRLF	09/16/2010	1 U	1 U	1 U	1 U	1 U	NA	1 U	NA	4.8 U	4.8 U	4.8 U	4.8 U	19 U	1 UJ	1 U	1 U
NRLF	09/16/2010	NA	NA	NA	NA	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NRLF	04/20/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
NRLF	04/20/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NRLF	10/06/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NRLF	10/06/2011	9.5 U	9.5 U	9.5 U	9.5 U	NA	NA	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	19 UJ	9.5 U	9.5 U	9.5 U
NRLF	04/09/2012	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
NRLF	04/09/2012	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
OBS6	09/30/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
OBS6	09/30/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
PZ11	10/01/2010	NA	NA	NA	NA	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PZ11	10/01/2010	1 U	1 U	1 U	1 U	0.7 J	NA	1 U	NA	5 U	5 U	5 U	5 U	20 U	1 U	1 U	1 U
PZ11	04/20/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
PZ11	04/20/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PZ11	10/10/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
PZ11	10/10/2011	NA	NA	NA	NA	0.3 J	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PZ11	04/05/2012	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PZ11	04/05/2012	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U

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University of California, Berkeley, Richmond Field Station Site

SVOC AND PAH (µg/L)

Location ID	Sample Date	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,4-Dioxane	1-Methylnaphthalene	2,2'-Oxybis(1-Chloropropane)	2,3,4,6-Tetrachlorophenol	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chloronaphthalene
California MCLs																	
Federal MCLs		70															
PZ8	10/15/2010	NA	NA	NA	NA	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PZ8	10/15/2010	1 U	1 U	1 U	1 U	1 U	NA	1 U	NA	5 U	5 U	5 U	5 U	20 UJ	1 U	1 U	1 U
PZ8	04/18/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
PZ8	04/18/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PZ8	10/04/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PZ8	10/04/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
PZ8	04/03/2012	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PZ8	04/03/2012	9.7 UJ	9.7 UJ	9.7 UJ	9.7 UJ	NA	NA	9.7 UJ	9.7 UJ	9.7 UJ	9.7 UJ	9.7 UJ	9.7 UJ	19 UJ	9.7 UJ	9.7 UJ	9.7 UJ
PZ9	09/24/2010	NA	NA	NA	NA	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PZ9	09/24/2010	1 U	1 U	1 U	1 U	1.6	NA	1 U	NA	5 U	5 U	5 U	5 U	20 U	1 U	1 U	1 U
PZ9	04/20/2011	NA	NA	NA	NA	0.9 J	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PZ9	04/20/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
PZ9	10/07/2011	NA	NA	NA	NA	1.2	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PZ9	10/07/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
PZ9	10/07/2011	NA	NA	NA	NA	1.2	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PZ9	10/07/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
PZ9	04/06/2012	NA	NA	NA	NA	1	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PZ9	04/06/2012	9.4 UJ	9.4 U	9.4 UJ	9.4 UJ	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U

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University of California, Berkeley, Richmond Field Station Site

SVOC AND PAH (µg/L)

Location ID	Sample Date	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,4-Dioxane	1-Methylnaphthalene	2,2'-Oxybis(1-Chloropropane)	2,3,4,6-Tetrachlorophenol	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chloronaphthalene
California MCLs																	
Federal MCLs		70															
RWF	09/15/2010	NA	NA	NA	NA	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RWF	09/15/2010	1 U	1 U	1 U	1 U	0.7 J	NA	1 U	NA	5 U	5 U	5 U	5 U	20 U	1 UJ	1 U	1 U
RWF	04/18/2011	NA	NA	NA	NA	0.06 J	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RWF	04/18/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
RWF	10/06/2011	NA	NA	NA	NA	0.6 J	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RWF	10/06/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 UJ	9.4 U	9.4 U	9.4 U
RWF	04/04/2012	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RWF	04/04/2012	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
TP1	09/29/2010	NA	NA	NA	NA	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP1	09/29/2010	1 U	1 U	1 U	1 U	1 U	NA	1 U	NA	5 U	5 U	5 U	5 U	20 U	1 U	1 U	1 U
TP1	04/18/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP1	04/18/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
TP1	10/07/2011	NA	NA	NA	NA	0.05 J	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP1	10/07/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
TP1	04/05/2012	NA	NA	NA	NA	1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP1	04/05/2012	9.5 U	9.5 U	9.5 U	9.5 U	NA	NA	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	19 U	9.5 U	9.5 U	9.5 U

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University of California, Berkeley, Richmond Field Station Site

SVOC AND PAH (µg/L)

Location ID	Sample Date	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,4-Dioxane	1-Methylnaphthalene	2,2'-Oxybis(1-Chloropropane)	2,3,4,6-Tetrachlorophenol	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chloronaphthalene
California MCLs																	
Federal MCLs		70															
TP2	09/29/2010	NA	NA	NA	NA	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP2	09/29/2010	1 U	1 U	1 U	1 U	1.1	NA	1 U	NA	5 U	5 U	5 U	5 U	20 U	1 U	1 U	1 U
TP2	04/18/2011	NA	NA	NA	NA	0.7 J	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP2	04/18/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
TP2	10/07/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
TP2	10/07/2011	NA	NA	NA	NA	0.9 J	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP2	04/09/2012	NA	NA	NA	NA	0.3 J	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP2	04/09/2012	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
TP2	04/09/2012	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
TP2	04/09/2012	NA	NA	NA	NA	0.4 J	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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University of California, Berkeley, Richmond Field Station Site

SVOC AND PAH (µg/L)

Location ID	Sample Date	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,4-Dioxane	1-Methylnaphthalene	2,2'-Oxybis(1-Chloropropane)	2,3,4,6-Tetrachlorophenol	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chloronaphthalene
California MCLs																	
Federal MCLs		70															
WTA	09/30/2010	NA	NA	NA	NA	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WTA	09/30/2010	1 U	1 U	1 U	1 U	1 U	NA	1 U	NA	5 U	5 U	5 U	5 U	20 UJ	1 U	1 U	1 U
WTA	04/14/2011	NA	NA	NA	NA	0.06 J	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WTA	04/14/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
WTA	04/14/2011	NA	NA	NA	NA	0.07 J	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WTA	04/14/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
WTA	10/05/2011	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WTA	10/05/2011	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
WTA	04/05/2012	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WTA	04/05/2012	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
WTA	04/05/2013	9.8 U	9.8 U	9.8 U	9.8 U	NA	NA	9.8 U	9.8 U	9.8 U	9.8 U	9.8 U	9.8 U	20 U	9.8 U	9.8 U	9.8 U
WTA	04/05/2013	NA	NA	NA	NA	0.04 J	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WTA	04/10/2014	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
WTA	04/10/2014	NA	NA	NA	NA	0.9 U	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WTA	04/13/2015	9.4 U	9.4 U	9.4 U	9.4 U	NA	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
WTA	04/13/2015	NA	NA	NA	NA	0.03 J	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

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SVOC AND PAH (µg/L)

Location ID	Sample Date	2-Chlorophenol	2-Methylnaphthalene	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3,3'-Dichlorobenzidine	3-Nitroaniline	3/4-Methylphenol	4,6-Dinitro-2-Methylphenol	4-Bromophenyl-Phenylether	4-Chloro-3-Methylphenol	4-Chloroaniline	4-Chlorophenyl-Phenylether	4-Methylphenol	4-Nitroaniline	4-Nitrophenol
California MCLs																	
Federal MCLs																	
B120	09/09/2010	NA	0.047 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B120	09/09/2010	4.7 U	0.9 U	4.7 U	4.7 U	4.7 U	4.7 UJ	4.7 U	4.7 U	4.7 UJ	0.9 U	4.7 U	4.7 U	0.9 U	NA	4.7 U	4.7 UJ
B120	04/15/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B120	04/15/2011	9.4 U	9.4 U	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B120	10/04/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B120	10/04/2011	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B120	04/03/2012	NA	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B120	04/03/2012	9.6 U	NA	9.6 U	19 U	19 U	19 U	19 U	NA	19 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	19 U	19 U
B121	09/08/2010	NA	0.048 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B121	09/08/2010	4.7 U	0.9 U	4.7 U	4.7 U	4.7 U	4.7 UJ	4.7 U	4.7 U	4.7 UJ	0.9 U	4.7 U	4.7 U	0.9 U	NA	4.7 U	4.7 U
B121	04/13/2011	9.4 U	9.4 U	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B121	04/13/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B121	10/04/2011	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B121	10/04/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B121	04/04/2012	NA	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B121	04/04/2012	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U

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SVOC AND PAH (µg/L)

Location ID	Sample Date	2-Chlorophenol	2-Methylnaphthalene	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3,3'-Dichlorobenzidine	3-Nitroaniline	3/4-Methylphenol	4,6-Dinitro-2-Methylphenol	4-Bromophenyl-Phenylether	4-Chloro-3-Methylphenol	4-Chloroaniline	4-Chlorophenyl-Phenylether	4-Methylphenol	4-Nitroaniline	4-Nitrophenol
California MCLs																	
Federal MCLs																	
B128	09/23/2010	NA	0.047 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B128	09/23/2010	5 U	1 U	5 UJ	5 U	5 U	5 UJ	5 U	5 U	5 UJ	1 U	5 U	5 U	1 U	NA	5 U	5 U
B128	09/23/2010	5 U	1 U	5 UJ	5 U	5 U	5 UJ	5 U	5 U	5 UJ	1 U	5 U	5 U	1 U	NA	5 U	5 U
B128	09/23/2010	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B128	04/18/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B128	04/18/2011	9.4 U	9.4 U	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B128	10/04/2011	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B128	10/04/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B128	04/02/2012	9.6 U	NA	9.6 U	19 U	19 U	19 U	19 U	NA	19 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	19 U	19 U
B128	04/02/2012	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B128	04/05/2013	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B128	04/05/2013	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B128	04/10/2014	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B128	04/10/2014	9.8 U	NA	9.8 U	20 U	20 U	20 U	20 U	NA	20 U	9.8 U	9.8 U	9.8 U	9.8 U	9.8 U	20 U	20 U
B128	04/13/2015	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B128	04/13/2015	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B128	04/13/2015	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B128	04/13/2015	NA	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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SVOC AND PAH (µg/L)

Location ID	Sample Date	2-Chlorophenol	2-Methylnaphthalene	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3,3'-Dichlorobenzidine	3-Nitroaniline	3/4-Methylphenol	4,6-Dinitro-2-Methylphenol	4-Bromophenyl-Phenylether	4-Chloro-3-Methylphenol	4-Chloroaniline	4-Chlorophenyl-Phenylether	4-Methylphenol	4-Nitroaniline	4-Nitrophenol
California MCLs																	
Federal MCLs																	
B150	09/08/2010	4.8 U	1 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 UJ	1 U	4.8 U	4.8 U	1 U	NA	4.8 U	4.8 U
B150	09/08/2010	NA	0.048 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B150	04/13/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B150	04/13/2011	9.4 U	9.4 U	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B150	10/05/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B150	10/05/2011	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B150	10/05/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B150	10/05/2011	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B150	04/04/2012	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B150	04/04/2012	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B150	04/04/2012	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B150	04/04/2012	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B158	09/08/2010	NA	0.047 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B158	09/08/2010	5 U	1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	1 U	5 U	5 U	1 U	NA	5 U	5 U
B158	04/15/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B158	04/15/2011	9.4 U	9.4 U	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B158	10/05/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B158	10/05/2011	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B158	04/06/2012	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B158	04/06/2012	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

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SVOC AND PAH (µg/L)

Location ID	Sample Date	2-Chlorophenol	2-Methylnaphthalene	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3,3'-Dichlorobenzidine	3-Nitroaniline	3/4-Methylphenol	4,6-Dinitro-2-Methylphenol	4-Bromophenyl-Phenylether	4-Chloro-3-Methylphenol	4-Chloroaniline	4-Chlorophenyl-Phenylether	4-Methylphenol	4-Nitroaniline	4-Nitrophenol
California MCLs																	
Federal MCLs																	
B163	09/02/2010	5 U	1 U	5 U	5 U	5 U	5 UJ	5 U	NA	5 UJ	1 U	5 U	5 U	1 U	5 U	5 U	5 U
B163	09/02/2010	NA	0.047 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B163	04/12/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B163	04/12/2011	9.4 U	9.4 U	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 UJ	9.4 U	9.4 U	19 U	19 U
B163	10/03/2011	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B163	10/03/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B163	04/02/2012	9.6 U	NA	9.6 U	19 U	19 U	19 U	19 U	NA	19 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	19 U	19 U
B163	04/02/2012	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B163	04/03/2013	11 U	NA	11 U	21 U	21 U	21 U	21 U	NA	21 U	11 U	11 U	11 U	11 U	11 U	21 U	21 U
B163	04/03/2013	NA	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B163	04/01/2014	NA	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B163	04/01/2014	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B163	04/14/2015	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B163	04/14/2015	10 U	NA	10 U	20 U	20 U	20 U	20 U	NA	20 U	10 U	10 U	10 U	10 U	10 U	20 U	20 U
B175S	09/03/2010	4.7 U	0.9 U	4.7 U	4.7 U	4.7 U	4.7 UJ	4.7 U	NA	4.7 UJ	0.9 U	4.7 U	4.7 U	0.9 U	4.7 U	4.7 U	4.7 U
B175S	09/03/2010	NA	0.047 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B175S	04/13/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B175S	04/13/2011	9.4 U	9.4 U	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B175S	10/04/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B175S	10/04/2011	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B175S	04/04/2012	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B175S	04/04/2012	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

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SVOC AND PAH (µg/L)

Location ID	Sample Date	2-Chlorophenol	2-Methylnaphthalene	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3,3'-Dichlorobenzidine	3-Nitroaniline	3/4-Methylphenol	4,6-Dinitro-2-Methylphenol	4-Bromophenyl-Phenylether	4-Chloro-3-Methylphenol	4-Chloroaniline	4-Chlorophenyl-Phenylether	4-Methylphenol	4-Nitroaniline	4-Nitrophenol
California MCLs																	
Federal MCLs																	
B175W	09/08/2010	5 U	1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	1 U	5 U	5 U	1 U	NA	5 U	5 U
B175W	09/08/2010	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B175W	04/13/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B175W	04/13/2011	9.4 U	9.4 U	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B175W	10/04/2011	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B175W	10/04/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B175W	04/04/2012	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B175W	04/04/2012	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B177	09/23/2010	4.7 U	0.9 U	4.7 UJ	4.7 U	4.7 U	4.7 UJ	4.7 U	4.7 U	4.7 UJ	0.9 U	4.7 U	4.7 U	0.9 U	NA	4.7 U	4.7 U
B177	09/23/2010	NA	0.047 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B177	04/18/2011	9.4 U	9.4 U	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B177	04/18/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B177	10/05/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B177	10/05/2011	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B177	04/04/2012	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B177	04/04/2012	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B178	09/02/2010	5 U	1 U	5 U	5 U	5 U	5 UJ	5 U	NA	5 UJ	1 U	5 U	5 U	1 U	5 U	5 U	5 U
B178	09/02/2010	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B178	04/15/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B178	04/15/2011	9.4 U	9.4 U	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B178	10/04/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B178	10/04/2011	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B178	04/03/2012	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B178	04/03/2012	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U

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SVOC AND PAH (µg/L)

Location ID	Sample Date	2-Chlorophenol	2-Methylnaphthalene	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3,3'-Dichlorobenzidine	3-Nitroaniline	3/4-Methylphenol	4,6-Dinitro-2-Methylphenol	4-Bromophenyl-Phenylether	4-Chloro-3-Methylphenol	4-Chloroaniline	4-Chlorophenyl-Phenylether	4-Methylphenol	4-Nitroaniline	4-Nitrophenol
California MCLs																	
Federal MCLs																	
B180	09/15/2010	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B180	09/15/2010	4.8 U	1 U	4.8 U	4.8 U	4.8 U	4.8 UJ	4.8 U	4.8 U	4.8 UJ	1 U	4.8 U	4.8 U	1 U	NA	4.8 U	4.8 UJ
B180	04/13/2011	9.4 U	9.4 U	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B180	04/13/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B180	10/06/2011	NA	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B180	10/06/2011	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B180	10/06/2011	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B180	10/06/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B180	04/04/2012	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B180	04/04/2012	9.7 U	NA	9.7 U	19 U	19 U	19 U	19 U	NA	19 U	9.7 U	9.7 U	9.7 U	9.7 U	9.7 U	19 U	19 U
B180	04/08/2013	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B180	04/08/2013	9.3 U	NA	9.3 U	19 U	19 U	19 U	19 U	NA	19 U	9.3 U	9.3 U	9.3 U	9.3 U	9.3 U	19 U	19 U
B180	04/08/2014	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B180	04/08/2014	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B180	04/14/2015	9.6 U	NA	9.6 U	19 U	19 U	19 U	19 U	NA	19 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	19 U	19 U
B180	04/14/2015	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

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SVOC AND PAH (µg/L)

Location ID	Sample Date	2-Chlorophenol	2-Methylnaphthalene	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3,3'-Dichlorobenzidine	3-Nitroaniline	3/4-Methylphenol	4,6-Dinitro-2-Methylphenol	4-Bromophenyl-Phenylether	4-Chloro-3-Methylphenol	4-Chloroaniline	4-Chlorophenyl-Phenylether	4-Methylphenol	4-Nitroaniline	4-Nitrophenol
California MCLs																	
Federal MCLs																	
B185	09/02/2010	4.7 U	0.9 U	4.7 U	4.7 U	4.7 U	4.7 UJ	4.7 U	NA	4.7 UJ	0.9 U	4.7 U	4.7 UJ	0.9 U	4.7 U	4.7 U	4.7 U
B185	09/02/2010	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B185	04/15/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B185	04/15/2011	9.4 U	9.4 U	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B185	04/15/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B185	04/15/2011	9.4 U	9.4 U	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B185	10/03/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B185	10/03/2011	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B185	10/03/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B185	10/03/2011	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B185	04/02/2012	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B185	04/02/2012	9.6 U	NA	9.6 U	19 U	19 U	19 U	19 U	NA	19 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	19 U	19 U
B194	09/09/2010	NA	0.047 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B194	09/09/2010	4.7 U	0.9 U	4.7 U	4.7 U	4.7 U	4.7 UJ	4.7 U	4.7 U	4.7 UJ	0.9 U	4.7 U	4.7 U	0.9 U	NA	4.7 U	4.7 UJ
B194	04/13/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B194	04/13/2011	9.4 U	9.4 U	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B194	10/04/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B194	10/04/2011	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B194	04/04/2012	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B194	04/04/2012	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U

SVOC AND PAH (µg/L)

Location ID	Sample Date	2-Chlorophenol	2-Methylnaphthalene	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3,3'-Dichlorobenzidine	3-Nitroaniline	3/4-Methylphenol	4,6-Dinitro-2-Methylphenol	4-Bromophenyl-Phenylether	4-Chloro-3-Methylphenol	4-Chloroaniline	4-Chlorophenyl-Phenylether	4-Methylphenol	4-Nitroaniline	4-Nitrophenol
California MCLs																	
Federal MCLs																	
B195	09/09/2010	NA	0.047 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B195	09/09/2010	4.7 U	0.9 U	4.7 U	4.7 U	4.7 U	4.7 UJ	4.7 U	4.7 U	4.7 UJ	0.9 U	4.7 U	4.7 U	0.9 U	NA	4.7 U	4.7 UJ
B195	04/13/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B195	04/13/2011	9.4 U	9.4 U	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B195	04/13/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B195	04/13/2011	9.4 U	9.4 U	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B195	10/04/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B195	10/04/2011	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B195	04/03/2012	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B195	04/03/2012	9.5 U	NA	9.5 U	19 U	19 U	19 U	19 U	NA	19 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	19 U	19 U
B197	09/09/2010	NA	0.047 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B197	09/09/2010	4.7 U	0.9 U	4.7 U	4.7 U	4.7 U	4.7 UJ	4.7 U	4.7 U	4.7 UJ	0.9 U	4.7 U	4.7 U	0.9 U	NA	4.7 U	4.7 UJ
B197	09/09/2010	NA	0.047 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B197	09/09/2010	4.8 U	1 U	4.8 U	4.8 U	4.8 U	4.8 UJ	4.8 U	4.8 U	4.8 UJ	1 U	4.8 U	4.8 U	1 U	NA	4.8 U	4.8 UJ
B197	04/13/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B197	04/13/2011	9.4 U	9.4 U	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B197	10/04/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B197	10/04/2011	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B197	04/03/2012	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B197	04/03/2012	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B197	04/03/2012	NA	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B197	04/03/2012	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U

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SVOC AND PAH (µg/L)

Location ID	Sample Date	2-Chlorophenol	2-Methylnaphthalene	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3,3'-Dichlorobenzidine	3-Nitroaniline	3/4-Methylphenol	4,6-Dinitro-2-Methylphenol	4-Bromophenyl-Phenylether	4-Chloro-3-Methylphenol	4-Chloroaniline	4-Chlorophenyl-Phenylether	4-Methylphenol	4-Nitroaniline	4-Nitrophenol
California MCLs																	
Federal MCLs																	
B277	09/15/2010	5 U	1 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 UJ	1 U	5 U	5 U	1 U	NA	5 U	5 UJ
B277	09/15/2010	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B277	04/18/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B277	04/18/2011	9.4 U	9.4 U	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B277	10/05/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B277	10/05/2011	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B277	04/03/2012	NA	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B277	04/03/2012	9.5 U	NA	9.5 U	19 U	19 U	19 U	19 U	NA	19 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	19 U	19 U
B278	09/16/2010	5 U	1 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 UJ	1 U	5 U	5 U	1 U	NA	5 U	5 UJ
B278	09/16/2010	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B278	04/19/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B278	04/19/2011	9.4 U	9.4 U	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B278	10/05/2011	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B278	10/05/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B278	04/05/2012	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B278	04/05/2012	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

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SVOC AND PAH (µg/L)

Location ID	Sample Date	2-Chlorophenol	2-Methylnaphthalene	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3,3'-Dichlorobenzidine	3-Nitroaniline	3/4-Methylphenol	4,6-Dinitro-2-Methylphenol	4-Bromophenyl-Phenylether	4-Chloro-3-Methylphenol	4-Chloroaniline	4-Chlorophenyl-Phenylether	4-Methylphenol	4-Nitroaniline	4-Nitrophenol
California MCLs																	
Federal MCLs																	
B280A	09/16/2010	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B280A	09/16/2010	5 U	1 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 UJ	1 U	5 U	5 U	1 U	NA	5 U	5 UJ
B280A	04/14/2011	9.4 U	9.4 U	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B280A	04/14/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B280A	10/06/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B280A	10/06/2011	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B280A	04/03/2012	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B280A	04/03/2012	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B280A	04/04/2013	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B280A	04/04/2013	10 U	NA	10 U	20 U	20 U	20 U	20 U	NA	20 U	10 U	10 U	10 U	10 U	10 U	20 U	20 U
B280A	04/09/2014	NA	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B280A	04/09/2014	9.3 U	NA	9.3 U	19 U	19 U	19 U	19 U	NA	19 U	9.3 U	9.3 U	9.3 U	9.3 U	9.3 U	19 U	19 U
B280A	04/17/2015	NA	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B280A	04/17/2015	9.8 U	NA	9.8 U	20 U	20 U	20 U	20 U	NA	20 U	9.8 U	9.8 U	9.8 U	9.8 U	9.8 U	20 U	20 U
B280B	10/01/2010	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B280B	10/01/2010	5 U	1 UJ	5 UJ	5 U	5 U	5 UJ	5 U	5 U	5 UJ	1 U	5 U	5 U	1 U	NA	5 U	5 U
B280B	04/14/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B280B	04/14/2011	10 U	10 U	10 U	20 U	20 U	20 U	20 U	NA	20 U	10 U	10 U	10 U	10 U	10 U	20 U	20 U
B280B	10/06/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B280B	10/06/2011	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B280B	04/03/2012	NA	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B280B	04/03/2012	9.5 U	NA	9.5 U	19 U	19 U	19 U	19 U	NA	19 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	19 U	19 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

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SVOC AND PAH (µg/L)

Location ID	Sample Date	2-Chlorophenol	2-Methylnaphthalene	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3,3'-Dichlorobenzidine	3-Nitroaniline	3/4-Methylphenol	4,6-Dinitro-2-Methylphenol	4-Bromophenyl-Phenylether	4-Chloro-3-Methylphenol	4-Chloroaniline	4-Chlorophenyl-Phenylether	4-Methylphenol	4-Nitroaniline	4-Nitrophenol
California MCLs																	
Federal MCLs																	
B300	09/09/2010	NA	0.047 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B300	09/09/2010	4.7 U	0.9 U	4.7 U	4.7 U	4.7 U	4.7 UJ	4.7 U	4.7 U	4.7 UJ	0.9 U	4.7 U	4.7 U	0.9 U	NA	4.7 U	4.7 UJ
B300	04/15/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B300	04/15/2011	9.4 U	9.4 U	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B300	10/06/2011	NA	0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B300	10/06/2011	97 U	NA	97 U	190 U	190 U	190 U	190 U	NA	190 U	97 U	97 U	97 U	97 U	97 U	190 U	190 U
B300	04/09/2012	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B300	04/09/2012	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B38	09/15/2010	NA	0.05 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B38	09/15/2010	5 U	1 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 UJ	1 U	5 U	5 U	1 U	NA	5 U	5 UJ
B38	04/19/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B38	04/19/2011	9.4 U	9.4 U	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B38	04/19/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B38	04/19/2011	9.4 U	9.4 U	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B38	10/06/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B38	10/06/2011	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B38	04/04/2012	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B38	04/04/2012	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B450	04/19/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B450	04/19/2011	9.4 U	9.4 U	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B450	10/10/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B450	10/10/2011	9.6 UJ	NA	9.6 UJ	19 UJ	19 UJ	19 UJ	19 UJ	NA	19 UJ	9.6 UJ	9.6 UJ	9.6 UJ	9.6 UJ	9.6 UJ	19 UJ	19 UJ
B450	04/06/2012	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B450	04/06/2012	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U

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University of California, Berkeley, Richmond Field Station Site

SVOC AND PAH (µg/L)

Location ID	Sample Date	2-Chlorophenol	2-Methylnaphthalene	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3,3'-Dichlorobenzidine	3-Nitroaniline	3/4-Methylphenol	4,6-Dinitro-2-Methylphenol	4-Bromophenyl-Phenylether	4-Chloro-3-Methylphenol	4-Chloroaniline	4-Chlorophenyl-Phenylether	4-Methylphenol	4-Nitroaniline	4-Nitrophenol
California MCLs																	
Federal MCLs																	
B460	09/15/2010	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B460	09/15/2010	5 U	1 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 UJ	1 U	5 U	5 U	1 U	NA	5 U	5 UJ
B460	04/20/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B460	04/20/2011	9.4 U	9.4 U	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B460	10/07/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B460	10/07/2011	9.6 U	NA	9.6 U	19 U	19 U	19 U	19 U	NA	19 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	19 U	19 U
B460	04/06/2012	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B460	04/06/2012	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B473	09/24/2010	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B473	09/24/2010	5 U	1 U	5 UJ	5 U	5 U	5 UJ	5 U	5 U	5 UJ	1 U	5 U	5 U	1 U	NA	5 U	5 U
B473	04/20/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B473	04/20/2011	9.4 U	9.4 U	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B473	10/07/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B473	10/07/2011	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B473	04/06/2012	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B473	04/06/2012	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B474	09/23/2010	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B474	09/23/2010	5 U	1 U	5 UJ	5 U	5 U	5 UJ	5 U	5 U	5 UJ	1 U	5 U	5 U	1 U	NA	5 U	5 U
B474	04/20/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B474	04/20/2011	9.4 U	9.4 U	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B474	10/07/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B474	10/07/2011	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B474	04/09/2012	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B474	04/09/2012	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

SVOC AND PAH (µg/L)

Location ID	Sample Date	2-Chlorophenol	2-Methylnaphthalene	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3,3'-Dichlorobenzidine	3-Nitroaniline	3/4-Methylphenol	4,6-Dinitro-2-Methylphenol	4-Bromophenyl-Phenylether	4-Chloro-3-Methylphenol	4-Chloroaniline	4-Chlorophenyl-Phenylether	4-Methylphenol	4-Nitroaniline	4-Nitrophenol
California MCLs																	
Federal MCLs																	
B480	09/24/2010	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B480	09/24/2010	5 U	1 U	5 UJ	5 U	5 U	5 UJ	5 U	5 U	5 UJ	1 U	5 U	5 U	1 U	NA	5 U	5 U
B480	04/19/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B480	04/19/2011	9.4 U	9.4 U	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B480	10/07/2011	NA	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B480	10/07/2011	9.5 U	NA	9.5 U	19 U	19 U	19 U	19 U	NA	19 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	19 U	19 U
B480	04/09/2012	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B480	04/09/2012	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B490	09/16/2010	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B490	09/16/2010	5 U	1 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 UJ	1 U	5 U	5 U	1 U	NA	5 U	5 UJ
B490	04/20/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B490	04/20/2011	9.4 U	9.4 U	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B490	10/10/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B490	10/10/2011	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
B490	04/09/2012	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B490	04/09/2012	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
BULB1	10/19/2010	NA	0.047 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BULB1	10/19/2010	4.7 U	0.9 U	4.7 U	4.7 U	4.7 U	4.7 UJ	4.7 U	4.7 U	4.7 UJ	0.9 U	4.7 U	4.7 U	0.9 U	NA	4.7 U	4.7 U
BULB1	04/12/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BULB1	04/12/2011	9.4 U	9.4 U	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 UJ	19 U
BULB1	09/30/2011	9.5 U	NA	9.5 U	19 U	19 U	19 U	19 U	NA	19 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	19 U	19 U
BULB1	09/30/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BULB1	04/05/2012	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BULB1	04/05/2012	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

SVOC AND PAH (µg/L)

Location ID	Sample Date	2-Chlorophenol	2-Methylnaphthalene	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3,3'-Dichlorobenzidine	3-Nitroaniline	3/4-Methylphenol	4,6-Dinitro-2-Methylphenol	4-Bromophenyl-Phenylether	4-Chloro-3-Methylphenol	4-Chloroaniline	4-Chlorophenyl-Phenylether	4-Methylphenol	4-Nitroaniline	4-Nitrophenol
California MCLs																	
Federal MCLs																	
BULB2	10/19/2010	5 U	1 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 UJ	1 U	5 U	5 U	1 U	NA	5 U	5 U
BULB2	10/19/2010	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BULB2	04/12/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BULB2	04/12/2011	9.4 U	9.4 U	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 UJ	19 U
BULB2	09/30/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BULB2	09/30/2011	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
BULB2	04/05/2012	NA	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BULB2	04/05/2012	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
BULB2	04/05/2013	10 U	NA	10 U	20 U	20 U	20 U	20 U	NA	20 U	10 U	10 U	10 U	10 U	10 U	20 U	20 U
BULB2	04/05/2013	NA	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BULB2	04/10/2014	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BULB2	04/10/2014	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
BULB2	04/13/2015	9.6 U	NA	9.6 U	19 U	19 U	19 U	19 U	NA	19 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	19 U	19 U
BULB2	04/13/2015	NA	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CCC1	09/08/2010	NA	0.047 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CCC1	09/08/2010	4.7 U	0.9 U	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	4.7 UJ	0.9 U	4.7 U	4.7 U	0.9 U	NA	4.7 U	4.7 U
CCC1	04/14/2011	9.4 U	9.4 U	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
CCC1	04/14/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CCC1	10/05/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CCC1	10/05/2011	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
CCC1	04/10/2012	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CCC1	04/10/2012	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

SVOC AND PAH (µg/L)

Location ID	Sample Date	2-Chlorophenol	2-Methylnaphthalene	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3,3'-Dichlorobenzidine	3-Nitroaniline	3/4-Methylphenol	4,6-Dinitro-2-Methylphenol	4-Bromophenyl-Phenylether	4-Chloro-3-Methylphenol	4-Chloroaniline	4-Chlorophenyl-Phenylether	4-Methylphenol	4-Nitroaniline	4-Nitrophenol
California MCLs																	
Federal MCLs																	
CCC2	09/08/2010	NA	0.047 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CCC2	09/08/2010	4.8 U	1 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 UJ	1 U	4.8 U	4.8 U	1 U	NA	4.8 U	4.8 U
CCC2	04/14/2011	NA	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CCC2	04/14/2011	9.4 U	9.4 U	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
CCC2	10/04/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CCC2	10/04/2011	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
CCC2	04/10/2012	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
CCC2	04/10/2012	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CCC2	04/02/2013	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CCC2	04/02/2013	9.5 U	NA	9.5 U	19 U	19 U	19 U	19 U	NA	19 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	19 U	19 U
CCC2	04/02/2013	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CCC2	04/02/2013	9.3 U	NA	9.3 U	19 U	19 U	19 U	19 U	NA	19 U	9.3 U	9.3 U	9.3 U	9.3 U	9.3 U	19 U	19 U
CCC2	04/02/2014	NA	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CCC2	04/02/2014	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
CCC2	04/15/2015	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
CCC2	04/15/2015	NA	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

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University of California, Berkeley, Richmond Field Station Site

SVOC AND PAH (µg/L)

Location ID	Sample Date	2-Chlorophenol	2-Methylnaphthalene	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3,3'-Dichlorobenzidine	3-Nitroaniline	3/4-Methylphenol	4,6-Dinitro-2-Methylphenol	4-Bromophenyl-Phenylether	4-Chloro-3-Methylphenol	4-Chloroaniline	4-Chlorophenyl-Phenylether	4-Methylphenol	4-Nitroaniline	4-Nitrophenol
California MCLs																	
Federal MCLs																	
CCC3	09/03/2010	4.7 U	0.9 U	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	NA	4.7 UJ	0.9 U	4.7 U	4.7 U	0.9 U	4.7 U	4.7 U	4.7 U
CCC3	09/03/2010	NA	0.047 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CCC3	09/03/2010	NA	0.047 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CCC3	09/03/2010	4.7 U	0.9 U	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	NA	4.7 UJ	0.9 U	4.7 U	4.7 U	0.9 U	4.7 U	4.7 U	4.7 U
CCC3	04/12/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CCC3	04/12/2011	9.4 U	9.4 U	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 UJ	9.4 U	9.4 U	19 U	19 U
CCC3	10/04/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CCC3	10/04/2011	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
CCC3	10/04/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CCC3	10/04/2011	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
CCC3	04/10/2012	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
CCC3	04/10/2012	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CCCT	09/03/2010	4.7 U	0.9 U	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	NA	4.7 UJ	0.9 U	4.7 U	4.7 U	0.9 U	4.7 U	4.7 U	4.7 U
CCCT	09/03/2010	NA	0.047 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CCCT	04/18/2011	NA	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CCCT	04/18/2011	9.5 U	9.5 U	9.5 U	19 U	19 U	19 U	19 U	NA	19 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	19 U	19 U
CCCT	10/03/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CCCT	10/03/2011	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
CCCT	04/04/2012	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CCCT	04/04/2012	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

SVOC AND PAH (µg/L)

Location ID	Sample Date	2-Chlorophenol	2-Methylnaphthalene	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3,3'-Dichlorobenzidine	3-Nitroaniline	3/4-Methylphenol	4,6-Dinitro-2-Methylphenol	4-Bromophenyl-Phenylether	4-Chloro-3-Methylphenol	4-Chloroaniline	4-Chlorophenyl-Phenylether	4-Methylphenol	4-Nitroaniline	4-Nitrophenol
California MCLs																	
Federal MCLs																	
CTP	09/30/2010	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CTP	09/30/2010	5 U	1 UJ	5 UJ	5 U	5 U	5 UJ	5 UJ	13	5 UJ	1 U	5 U	5 UJ	1 U	NA	5 U	5 U
CTP	09/30/2010	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CTP	09/30/2010	5 U	1 UJ	5 UJ	5 U	5 U	5 UJ	5 UJ	9	5 UJ	1 U	5 U	5 UJ	1 U	NA	5 U	5 U
CTP	04/14/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CTP	04/14/2011	9.4 U	9.4 U	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
CTP	10/06/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CTP	10/06/2011	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
CTP	04/03/2012	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CTP	04/03/2012	9.5 U	NA	9.5 U	19 U	19 U	19 U	19 U	NA	19 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	19 U	19 U
CTP	04/04/2013	NA	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CTP	04/04/2013	10 U	NA	10 U	20 U	20 U	20 U	20 U	NA	20 U	10 U	10 U	10 U	10 U	10 U	20 U	20 U
CTP	04/03/2014	9.3 U	NA	9.3 U	19 U	19 U	19 U	19 U	NA	19 U	9.3 U	9.3 U	9.3 U	9.3 U	9.3 U	19 U	19 U
CTP	04/03/2014	NA	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CTP	04/03/2014	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CTP	04/03/2014	10 U	NA	10 U	20 U	20 U	20 U	20 U	NA	20 U	10 U	10 U	10 U	10 U	10 U	20 U	20 U
CTP	04/17/2015	NA	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CTP	04/17/2015	9.3 U	NA	9.3 U	19 U	19 U	19 U	19 U	NA	19 U	9.3 U	9.3 U	9.3 U	9.3 U	9.3 U	19 U	19 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

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University of California, Berkeley, Richmond Field Station Site

SVOC AND PAH (µg/L)

Location ID	Sample Date	2-Chlorophenol	2-Methylnaphthalene	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3,3'-Dichlorobenzidine	3-Nitroaniline	3/4-Methylphenol	4,6-Dinitro-2-Methylphenol	4-Bromophenyl-Phenylether	4-Chloro-3-Methylphenol	4-Chloroaniline	4-Chlorophenyl-Phenylether	4-Methylphenol	4-Nitroaniline	4-Nitrophenol
California MCLs																	
Federal MCLs																	
CTPS	10/01/2010	6 U	1.2 UJ	6 UJ	6 U	6 U	6 UJ	6 U	6 U	6 UJ	1.2 U	6 U	6 U	1.2 U	NA	6 U	6 U
CTPS	10/18/2010	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CTPS	04/19/2011	9.4 U	9.4 U	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
CTPS	04/19/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CTPS	10/07/2011	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
CTPS	10/10/2011	NA	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CTPS	04/05/2012	9.5 U	NA	9.5 U	19 U	19 U	19 U	19 U	NA	19 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	19 U	19 U
CTPS	04/05/2012	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DH	09/30/2010	NA	0.047 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DH	09/30/2010	5 U	1 UJ	5 UJ	5 U	5 U	5 UJ	5 UJ	5 U	5 UJ	1 U	5 U	5 UJ	1 U	NA	5 U	5 U
DH	04/14/2011	9.4 U	9.4 U	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
DH	04/14/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DH	10/05/2011	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
DH	10/05/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DH	04/05/2012	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DH	04/06/2012	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	3.2 J	19 U	19 U
EERC	10/01/2010	5 U	1 UJ	5 UJ	5 U	5 U	5 UJ	5 U	5 U	5 UJ	1 U	5 U	5 U	1 U	NA	5 U	5 U
EERC	10/15/2010	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EERC	04/20/2011	9.4 U	9.4 U	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
EERC	04/20/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EERC	10/07/2011	NA	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EERC	10/07/2011	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
EERC	04/06/2012	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EERC	04/06/2012	9.5 U	NA	9.5 U	19 U	19 U	19 U	19 U	NA	19 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	19 U	19 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

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SVOC AND PAH (µg/L)

Location ID	Sample Date	2-Chlorophenol	2-Methylnaphthalene	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3,3'-Dichlorobenzidine	3-Nitroaniline	3/4-Methylphenol	4,6-Dinitro-2-Methylphenol	4-Bromophenyl-Phenylether	4-Chloro-3-Methylphenol	4-Chloroaniline	4-Chlorophenyl-Phenylether	4-Methylphenol	4-Nitroaniline	4-Nitrophenol
California MCLs																	
Federal MCLs																	
EPA	09/16/2010	5 U	1 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 UJ	1 U	5 U	5 U	1 U	NA	5 U	5 UJ
EPA	09/16/2010	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPA	04/19/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPA	04/19/2011	9.4 U	9.4 U	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
EPA	10/06/2011	9.8 U	NA	9.8 U	20 U	20 U	20 U	20 U	NA	20 U	9.8 U	9.8 U	9.8 U	9.8 U	9.8 U	20 U	20 U
EPA	10/06/2011	NA	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPA	04/06/2012	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPA	04/06/2012	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
EPA	04/06/2012	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
EPA	04/06/2012	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPA	04/04/2013	9.3 U	NA	9.3 U	19 U	19 U	19 U	19 U	NA	19 U	9.3 U	9.3 U	9.3 U	9.3 U	9.3 U	19 U	19 U
EPA	04/04/2013	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPA	04/10/2014	NA	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPA	04/10/2014	9.6 U	NA	9.6 U	19 U	19 U	19 U	19 U	NA	19 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	19 U	19 U
EPA	04/17/2015	9.6 U	NA	9.6 U	19 U	19 U	19 U	19 U	NA	19 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	19 U	19 U
EPA	04/17/2015	NA	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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University of California, Berkeley, Richmond Field Station Site

SVOC AND PAH (µg/L)

Location ID	Sample Date	2-Chlorophenol	2-Methylnaphthalene	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3,3'-Dichlorobenzidine	3-Nitroaniline	3/4-Methylphenol	4,6-Dinitro-2-Methylphenol	4-Bromophenyl-Phenylether	4-Chloro-3-Methylphenol	4-Chloroaniline	4-Chlorophenyl-Phenylether	4-Methylphenol	4-Nitroaniline	4-Nitrophenol
California MCLs																	
Federal MCLs																	
ETA	09/24/2010	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETA	09/24/2010	4.7 U	0.9 U	4.7 UJ	4.7 U	4.7 U	4.7 UJ	4.7 U	4.7 U	4.7 UJ	0.9 U	4.7 U	4.7 U	0.9 U	NA	4.7 U	4.7 U
ETA	09/24/2010	5 U	1 U	5 UJ	5 U	5 U	5 UJ	5 U	5 U	5 UJ	1 U	5 U	5 U	1 U	NA	5 U	5 U
ETA	09/24/2010	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETA	04/12/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETA	04/12/2011	9.4 U	9.4 U	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 UJ	9.4 U	9.4 U	19 U	19 U
ETA	09/30/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETA	09/30/2011	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
ETA	04/10/2012	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETA	04/10/2012	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
ETA	04/10/2012	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
ETA	04/10/2012	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EXT	09/30/2011	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
EXT	09/30/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FG	09/23/2010	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FG	09/23/2010	5 U	1 U	5 UJ	5 U	5 U	5 UJ	5 U	5 U	5 UJ	1 U	5 U	5 U	1 U	NA	5 U	5 U
FG	04/19/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FG	04/19/2011	9.4 U	9.4 U	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
FG	04/19/2011	9.4 U	9.4 U	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
FG	04/19/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FG	10/10/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FG	10/10/2011	9.5 U	NA	9.5 U	19 U	19 U	19 U	19 U	NA	19 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	19 U	19 U
FG	04/09/2012	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
FG	04/09/2012	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

SVOC AND PAH (µg/L)

Location ID	Sample Date	2-Chlorophenol	2-Methylnaphthalene	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3,3'-Dichlorobenzidine	3-Nitroaniline	3/4-Methylphenol	4,6-Dinitro-2-Methylphenol	4-Bromophenyl-Phenylether	4-Chloro-3-Methylphenol	4-Chloroaniline	4-Chlorophenyl-Phenylether	4-Methylphenol	4-Nitroaniline	4-Nitrophenol
California MCLs																	
Federal MCLs																	
GEO	09/03/2010	NA	0.047 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GEO	09/03/2010	4.7 U	0.9 U	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	NA	4.7 UJ	0.9 U	4.7 U	4.7 U	0.9 U	4.7 U	4.7 U	4.7 U
GEO	04/20/2011	9.4 U	9.4 U	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
GEO	04/20/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GEO	10/06/2011	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
GEO	10/06/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GEO	04/06/2012	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GEO	04/06/2012	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
MFA	09/24/2010	5 U	1 U	5 UJ	5 U	5 U	5 UJ	5 U	5 U	5 UJ	1 U	5 U	5 U	1 U	NA	5 U	5 U
MFA	09/24/2010	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MFA	04/12/2011	9.4 U	9.4 U	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 UJ	9.4 U	9.4 U	19 U	19 U
MFA	04/12/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MFA	10/03/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MFA	10/03/2011	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
MFA	04/05/2012	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MFA	04/05/2012	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
MFA	04/05/2013	10 U	NA	10 U	20 U	20 U	20 U	20 U	NA	20 U	10 U	10 U	10 U	10 U	10 U	20 U	20 U
MFA	04/05/2013	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MFA	04/08/2014	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MFA	04/08/2014	9.3 U	NA	9.3 U	19 U	19 U	19 U	19 U	NA	19 U	9.3 U	9.3 U	9.3 U	9.3 U	9.3 U	19 U	19 U
MFA	04/13/2015	NA	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MFA	04/13/2015	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U

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SVOC AND PAH (µg/L)

Location ID	Sample Date	2-Chlorophenol	2-Methylnaphthalene	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3,3'-Dichlorobenzidine	3-Nitroaniline	3/4-Methylphenol	4,6-Dinitro-2-Methylphenol	4-Bromophenyl-Phenylether	4-Chloro-3-Methylphenol	4-Chloroaniline	4-Chlorophenyl-Phenylether	4-Methylphenol	4-Nitroaniline	4-Nitrophenol
California MCLs																	
Federal MCLs																	
NRLF	09/16/2010	4.8 U	1 U	4.8 U	4.8 U	4.8 U	4.8 UJ	4.8 U	4.8 U	4.8 UJ	1 U	4.8 U	4.8 U	1 U	NA	4.8 U	4.8 UJ
NRLF	09/16/2010	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NRLF	04/20/2011	9.4 U	9.4 U	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
NRLF	04/20/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NRLF	10/06/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NRLF	10/06/2011	9.5 U	NA	9.5 U	19 U	19 U	19 U	19 U	NA	19 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	19 U	19 U
NRLF	04/09/2012	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
NRLF	04/09/2012	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
OBS6	09/30/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
OBS6	09/30/2011	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
PZ11	10/01/2010	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PZ11	10/01/2010	5 U	1 UJ	5 UJ	5 U	5 U	5 UJ	5 U	5 U	5 UJ	1 U	5 U	5 U	1 U	NA	5 U	5 U
PZ11	04/20/2011	9.4 U	9.4 U	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
PZ11	04/20/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PZ11	10/10/2011	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
PZ11	10/10/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PZ11	04/05/2012	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PZ11	04/05/2012	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U

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SVOC AND PAH (µg/L)

Location ID	Sample Date	2-Chlorophenol	2-Methylnaphthalene	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3,3'-Dichlorobenzidine	3-Nitroaniline	3/4-Methylphenol	4,6-Dinitro-2-Methylphenol	4-Bromophenyl-Phenylether	4-Chloro-3-Methylphenol	4-Chloroaniline	4-Chlorophenyl-Phenylether	4-Methylphenol	4-Nitroaniline	4-Nitrophenol
California MCLs																	
Federal MCLs																	
PZ8	10/15/2010	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PZ8	10/15/2010	5 U	1 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 UJ	1 U	5 U	5 U	1 U	NA	5 U	5 U
PZ8	04/18/2011	9.4 U	9.4 U	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
PZ8	04/18/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PZ8	10/04/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PZ8	10/04/2011	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
PZ8	04/03/2012	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PZ8	04/03/2012	9.7 UJ	NA	9.7 UJ	19 UJ	19 UJ	19 UJ	19 UJ	NA	19 UJ	9.7 UJ	9.7 UJ	9.7 UJ	9.7 UJ	9.7 UJ	19 UJ	19 UJ
PZ9	09/24/2010	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PZ9	09/24/2010	5 U	1 U	5 UJ	5 U	5 U	5 UJ	5 U	5 U	5 UJ	1 U	5 U	5 U	1 U	NA	5 U	5 U
PZ9	04/20/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PZ9	04/20/2011	9.4 U	9.4 U	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
PZ9	10/07/2011	NA	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PZ9	10/07/2011	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
PZ9	10/07/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PZ9	10/07/2011	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
PZ9	04/06/2012	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PZ9	04/06/2012	9.4 UJ	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U

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SVOC AND PAH (µg/L)

Location ID	Sample Date	2-Chlorophenol	2-Methylnaphthalene	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3,3'-Dichlorobenzidine	3-Nitroaniline	3/4-Methylphenol	4,6-Dinitro-2-Methylphenol	4-Bromophenyl-Phenylether	4-Chloro-3-Methylphenol	4-Chloroaniline	4-Chlorophenyl-Phenylether	4-Methylphenol	4-Nitroaniline	4-Nitrophenol
California MCLs																	
Federal MCLs																	
RWF	09/15/2010	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RWF	09/15/2010	5 U	1 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 UJ	1 U	5 U	5 U	1 U	NA	5 U	5 UJ
RWF	04/18/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RWF	04/18/2011	9.4 U	9.4 U	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
RWF	10/06/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RWF	10/06/2011	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
RWF	04/04/2012	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RWF	04/04/2012	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
TP1	09/29/2010	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP1	09/29/2010	5 U	1 UJ	5 UJ	5 U	5 U	5 UJ	5 UJ	5 U	5 UJ	1 U	5 U	5 UJ	1 U	NA	5 U	5 U
TP1	04/18/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP1	04/18/2011	9.4 U	9.4 U	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
TP1	10/07/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP1	10/07/2011	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
TP1	04/05/2012	NA	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP1	04/05/2012	9.5 U	NA	9.5 U	19 U	19 U	19 U	19 U	NA	19 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	19 U	19 U

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SVOC AND PAH (µg/L)

Location ID	Sample Date	2-Chlorophenol	2-Methylnaphthalene	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3,3'-Dichlorobenzidine	3-Nitroaniline	3/4-Methylphenol	4,6-Dinitro-2-Methylphenol	4-Bromophenyl-Phenylether	4-Chloro-3-Methylphenol	4-Chloroaniline	4-Chlorophenyl-Phenylether	4-Methylphenol	4-Nitroaniline	4-Nitrophenol
California MCLs																	
Federal MCLs																	
TP2	09/29/2010	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP2	09/29/2010	5 U	1 UJ	5 UJ	5 U	5 U	5 UJ	5 UJ	5 U	5 UJ	1 U	5 U	5 UJ	1 U	NA	5 U	5 U
TP2	04/18/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP2	04/18/2011	9.4 U	9.4 U	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
TP2	10/07/2011	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
TP2	10/07/2011	NA	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP2	04/09/2012	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP2	04/09/2012	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
TP2	04/09/2012	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
TP2	04/09/2012	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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SVOC AND PAH (µg/L)

Location ID	Sample Date	2-Chlorophenol	2-Methylnaphthalene	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3,3'-Dichlorobenzidine	3-Nitroaniline	3/4-Methylphenol	4,6-Dinitro-2-Methylphenol	4-Bromophenyl-Phenylether	4-Chloro-3-Methylphenol	4-Chloroaniline	4-Chlorophenyl-Phenylether	4-Methylphenol	4-Nitroaniline	4-Nitrophenol
California MCLs																	
Federal MCLs																	
WTA	09/30/2010	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WTA	09/30/2010	5 U	1 UJ	5 UJ	5 U	5 U	5 UJ	5 UJ	5 U	5 UJ	1 U	5 U	5 UJ	1 U	NA	5 U	5 U
WTA	04/14/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WTA	04/14/2011	9.4 U	9.4 U	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
WTA	04/14/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WTA	04/14/2011	9.4 U	9.4 U	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
WTA	10/05/2011	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WTA	10/05/2011	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
WTA	04/05/2012	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WTA	04/05/2012	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
WTA	04/05/2013	9.8 U	NA	9.8 U	20 U	20 U	20 U	20 U	NA	20 U	9.8 U	9.8 U	9.8 U	9.8 U	9.8 U	20 U	20 U
WTA	04/05/2013	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WTA	04/10/2014	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
WTA	04/10/2014	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WTA	04/13/2015	9.4 U	NA	9.4 U	19 U	19 U	19 U	19 U	NA	19 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	19 U
WTA	04/13/2015	NA	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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SVOC AND PAH (µg/L)

Location ID	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Azobenzene	Benzo(A)Anthracene	Benzo(A)Pyrene	Benzo(B)Fluoranthene	Benzo(G,H,I)Perylene	Benzo(K)Fluoranthene	Benzoic Acid	Benzyl Alcohol	Bis(2-Chloroethoxy)Methane	Bis(2-Chloroethyl)Ether	Bis(2-Ethylhexyl)Phthalate	Butylbenzylphthalate	Carbazole
California MCLs																	
Federal MCLs															6		
B120	09/09/2010	0.047 U	0.047 U	0.047 U	NA	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	NA	NA	NA	NA	NA	NA	NA
B120	09/09/2010	0.9 U	0.9 U	0.9 U	NA	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	NA	4.7 U	0.9 U	0.9 U	0.9 UJ	0.9 UJ	0.9 U
B120	04/15/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B120	04/15/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B120	10/04/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B120	10/04/2011	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B120	04/03/2012	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA
B120	04/03/2012	NA	NA	NA	9.6 U	NA	NA	NA	NA	NA	48 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U
B121	09/08/2010	0.048 U	0.048 U	0.048 U	NA	0.048 U	0.048 U	0.048 U	0.048 U	0.048 U	NA	NA	NA	NA	NA	NA	NA
B121	09/08/2010	0.9 U	0.9 U	0.9 U	NA	0.9 U	0.9 U	0.9 U	0.9 U	0.9 UJ	NA	4.7 U	0.9 U	0.9 U	0.9 UJ	0.9 U	0.9 U
B121	04/13/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B121	04/13/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B121	10/04/2011	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 UJ	9.4 U	9.4 U
B121	10/04/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B121	04/04/2012	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA
B121	04/04/2012	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U

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SVOC AND PAH (µg/L)

Location ID	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Azobenzene	Benzo(A)Anthracene	Benzo(A)Pyrene	Benzo(B)Fluoranthene	Benzo(G,H,I)Perylene	Benzo(K)Fluoranthene	Benzoic Acid	Benzyl Alcohol	Bis(2-Chloroethoxy)Methane	Bis(2-Chloroethyl)Ether	Bis(2-Ethylhexyl)Phthalate	Butylbenzylphthalate	Carbazole
California MCLs																	
Federal MCLs															6		
B128	09/23/2010	0.047 U	0.047 U	0.047 U	NA	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	NA	NA	NA	NA	NA	NA	NA
B128	09/23/2010	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	5 U	1 U	1 U	6.2	1 UJ	1 U
B128	09/23/2010	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	5 U	1 U	1 U	1 U	1 UJ	1 U
B128	09/23/2010	0.05 U	0.05 U	0.05 U	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	NA	NA	NA	NA	NA
B128	04/18/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B128	04/18/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B128	10/04/2011	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B128	10/04/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B128	04/02/2012	NA	NA	NA	9.6 U	NA	NA	NA	NA	NA	48 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U
B128	04/02/2012	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B128	04/05/2013	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B128	04/05/2013	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B128	04/10/2014	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B128	04/10/2014	NA	NA	NA	9.8 U	NA	NA	NA	NA	NA	49 U	9.8 U	9.8 U	9.8 U	9.8 U	9.8 U	9.8 U
B128	04/13/2015	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B128	04/13/2015	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B128	04/13/2015	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B128	04/13/2015	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA

SVOC AND PAH (µg/L)

Location ID	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Azobenzene	Benzo(A)Anthracene	Benzo(A)Pyrene	Benzo(B)Fluoranthene	Benzo(G,H,I)Perylene	Benzo(K)Fluoranthene	Benzoic Acid	Benzyl Alcohol	Bis(2-Chloroethoxy)Methane	Bis(2-Chloroethyl)Ether	Bis(2-Ethylhexyl)Phthalate	Butylbenzylphthalate	Carbazole
California MCLs																	
Federal MCLs															6		
B150	09/08/2010	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 UJ	NA	4.8 U	1 U	1 U	1 UJ	1 U	1 U
B150	09/08/2010	0.048 U	0.048 U	0.048 U	NA	0.048 U	0.048 U	0.048 U	0.048 U	0.048 U	NA	NA	NA	NA	NA	NA	NA
B150	04/13/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B150	04/13/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B150	10/05/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B150	10/05/2011	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B150	10/05/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B150	10/05/2011	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B150	04/04/2012	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B150	04/04/2012	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 UJ	9.4 U	9.4 U
B150	04/04/2012	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B150	04/04/2012	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B158	09/08/2010	0.047 U	0.047 U	0.047 U	NA	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	NA	NA	NA	NA	NA	NA	NA
B158	09/08/2010	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 UJ	NA	5 U	1 U	1 U	1 UJ	1 U	1 U
B158	04/15/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B158	04/15/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B158	10/05/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B158	10/05/2011	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	2.4 UJ	9.4 U	9.4 U
B158	04/06/2012	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B158	04/06/2012	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U

SVOC AND PAH (µg/L)

Location ID	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Azobenzene	Benzo(A)Anthracene	Benzo(A)Pyrene	Benzo(B)Fluoranthene	Benzo(G,H,I)Perylene	Benzo(K)Fluoranthene	Benzoic Acid	Benzyl Alcohol	Bis(2-Chloroethoxy)Methane	Bis(2-Chloroethyl)Ether	Bis(2-Ethylhexyl)Phthalate	Butylbenzylphthalate	Carbazole
California MCLs																	
Federal MCLs															6		
B163	09/02/2010	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 UJ	NA	5 U	1 U	1 U	5.7	1 U	1 U
B163	09/02/2010	0.047 U	0.047 U	0.047 U	NA	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	NA	NA	NA	NA	NA	NA	NA
B163	04/12/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B163	04/12/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	47 U	9.4 U	9.4 U	9.4 U	9.4 UJ	9.4 U	9.4 U
B163	10/03/2011	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B163	10/03/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B163	04/02/2012	NA	NA	NA	9.6 U	NA	NA	NA	NA	NA	48 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U
B163	04/02/2012	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B163	04/03/2013	NA	NA	NA	11 U	NA	NA	NA	NA	NA	53 U	11 U	11 U	11 U	8.9 UJ	11 U	11 U
B163	04/03/2013	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA
B163	04/01/2014	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA
B163	04/01/2014	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B163	04/14/2015	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B163	04/14/2015	NA	NA	NA	10 U	NA	NA	NA	NA	NA	50 U	10 U	10 U	10 U	10 U	10 U	10 U
B175S	09/03/2010	0.9 U	0.9 U	0.9 U	NA	0.9 U	0.9 U	0.9 U	0.9 U	0.9 UJ	NA	4.7 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U
B175S	09/03/2010	0.047 U	0.047 U	0.047 U	NA	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	NA	NA	NA	NA	NA	NA	NA
B175S	04/13/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B175S	04/13/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B175S	10/04/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B175S	10/04/2011	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B175S	04/04/2012	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B175S	04/04/2012	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

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SVOC AND PAH (µg/L)

Location ID	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Azobenzene	Benzo(A)Anthracene	Benzo(A)Pyrene	Benzo(B)Fluoranthene	Benzo(G,H,I)Perylene	Benzo(K)Fluoranthene	Benzoic Acid	Benzyl Alcohol	Bis(2-Chloroethoxy)Methane	Bis(2-Chloroethyl)Ether	Bis(2-Ethylhexyl)Phthalate	Butylbenzylphthalate	Carbazole
California MCLs																	
Federal MCLs															6		
B175W	09/08/2010	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 UJ	NA	5 U	1 U	1 U	1 UJ	1 U	1 U
B175W	09/08/2010	0.05 U	0.05 U	0.05 U	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	NA	NA	NA	NA	NA
B175W	04/13/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B175W	04/13/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B175W	10/04/2011	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B175W	10/04/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B175W	04/04/2012	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B175W	04/04/2012	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B177	09/23/2010	0.9 U	0.9 U	0.9 U	NA	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	NA	4.7 U	0.9 U	0.9 U	0.9 U	0.9 UJ	0.9 U
B177	09/23/2010	0.047 U	0.047 U	0.047 U	NA	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	NA	NA	NA	NA	NA	NA	NA
B177	04/18/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B177	04/18/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B177	10/05/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B177	10/05/2011	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B177	04/04/2012	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B177	04/04/2012	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B178	09/02/2010	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 UJ	NA	5 U	1 U	1 U	1 U	1 U	1 U
B178	09/02/2010	0.05 U	0.05 U	0.05 U	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	NA	NA	NA	NA	NA
B178	04/15/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B178	04/15/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B178	10/04/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B178	10/04/2011	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B178	04/03/2012	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B178	04/03/2012	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U

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SVOC AND PAH (µg/L)

Location ID	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Azobenzene	Benzo(A)Anthracene	Benzo(A)Pyrene	Benzo(B)Fluoranthene	Benzo(G,H,I)Perylene	Benzo(K)Fluoranthene	Benzoic Acid	Benzyl Alcohol	Bis(2-Chloroethoxy)Methane	Bis(2-Chloroethyl)Ether	Bis(2-Ethylhexyl)Phthalate	Butylbenzylphthalate	Carbazole
California MCLs																	
Federal MCLs															6		
B180	09/15/2010	0.05 U	0.05 U	0.05 U	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	NA	NA	NA	NA	NA
B180	09/15/2010	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	4.8 U	1 U	1 U	1 UJ	1 UJ	1 U
B180	04/13/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	47 U	9.4 U	9.4 U	9.4 U	9.4 UJ	9.4 U	9.4 U
B180	04/13/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B180	10/06/2011	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA
B180	10/06/2011	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B180	10/06/2011	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	20 UJ	9.4 U	9.4 U
B180	10/06/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B180	04/04/2012	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B180	04/04/2012	NA	NA	NA	9.7 U	NA	NA	NA	NA	NA	49 U	9.7 U	9.7 U	9.7 U	9.7 U	9.7 U	9.7 U
B180	04/08/2013	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B180	04/08/2013	NA	NA	NA	9.3 U	NA	NA	NA	NA	NA	47 U	9.3 U	9.3 U	9.3 U	9.3 U	9.3 U	9.3 U
B180	04/08/2014	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	79 UJ	9.4 U	9.4 U
B180	04/08/2014	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B180	04/14/2015	NA	NA	NA	9.6 U	NA	NA	NA	NA	NA	48 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U
B180	04/14/2015	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA

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SVOC AND PAH (µg/L)

Location ID	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Azobenzene	Benzo(A)Anthracene	Benzo(A)Pyrene	Benzo(B)Fluoranthene	Benzo(G,H,I)Perylene	Benzo(K)Fluoranthene	Benzoic Acid	Benzyl Alcohol	Bis(2-Chloroethoxy)Methane	Bis(2-Chloroethyl)Ether	Bis(2-Ethylhexyl)Phthalate	Butylbenzylphthalate	Carbazole
California MCLs																	
Federal MCLs															6		
B185	09/02/2010	0.9 U	0.9 U	0.9 U	NA	0.9 U	0.9 U	0.9 U	0.9 U	0.9 UJ	NA	4.7 U	0.9 U	0.9 U	0.5 UJ	0.9 U	0.9 U
B185	09/02/2010	0.05 U	0.05 U	0.05 U	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	NA	NA	NA	NA	NA
B185	04/15/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B185	04/15/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	47 U	9.4 U	9.4 U	9.4 U	20 UJ	9.4 U	9.4 U
B185	04/15/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B185	04/15/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B185	10/03/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B185	10/03/2011	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B185	10/03/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B185	10/03/2011	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B185	04/02/2012	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B185	04/02/2012	NA	NA	NA	9.6 U	NA	NA	NA	NA	NA	48 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U
B194	09/09/2010	0.047 U	0.047 U	0.047 U	NA	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	NA	NA	NA	NA	NA	NA	NA
B194	09/09/2010	0.9 U	0.9 U	0.9 U	NA	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	NA	4.7 U	0.9 U	0.9 U	0.9 UJ	0.9 UJ	0.9 U
B194	04/13/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B194	04/13/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	47 U	9.4 U	9.4 U	9.4 U	9.4 UJ	9.4 U	9.4 U
B194	10/04/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B194	10/04/2011	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B194	04/04/2012	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B194	04/04/2012	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U

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SVOC AND PAH (µg/L)

Location ID	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Azobenzene	Benzo(A)Anthracene	Benzo(A)Pyrene	Benzo(B)Fluoranthene	Benzo(G,H,I)Perylene	Benzo(K)Fluoranthene	Benzoic Acid	Benzyl Alcohol	Bis(2-Chloroethoxy)Methane	Bis(2-Chloroethyl)Ether	Bis(2-Ethylhexyl)Phthalate	Butylbenzylphthalate	Carbazole
California MCLs																	
Federal MCLs															6		
B195	09/09/2010	0.047 U	0.047 U	0.047 U	NA	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	NA	NA	NA	NA	NA	NA	NA
B195	09/09/2010	0.9 U	0.9 U	0.9 U	NA	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	NA	4.7 U	0.9 U	0.9 U	0.9 UJ	0.9 UJ	0.9 U
B195	04/13/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B195	04/13/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B195	04/13/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B195	04/13/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B195	10/04/2011	0.09 U	0.09 U	0.09 UJ	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B195	10/04/2011	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B195	04/03/2012	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B195	04/03/2012	NA	NA	NA	9.5 U	NA	NA	NA	NA	NA	48 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U
B197	09/09/2010	0.047 U	0.047 U	0.047 U	NA	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	NA	NA	NA	NA	NA	NA	NA
B197	09/09/2010	0.9 U	0.9 U	0.9 U	NA	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	NA	4.7 U	0.9 U	0.9 U	0.9 UJ	0.9 UJ	0.9 U
B197	09/09/2010	0.047 U	0.047 U	0.047 U	NA	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	NA	NA	NA	NA	NA	NA	NA
B197	09/09/2010	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	4.8 U	1 U	1 U	1 UJ	1 UJ	1 U
B197	04/13/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B197	04/13/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B197	10/04/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B197	10/04/2011	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B197	04/03/2012	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B197	04/03/2012	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B197	04/03/2012	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA
B197	04/03/2012	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

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University of California, Berkeley, Richmond Field Station Site

SVOC AND PAH (µg/L)

Location ID	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Azobenzene	Benzo(A)Anthracene	Benzo(A)Pyrene	Benzo(B)Fluoranthene	Benzo(G,H,I)Perylene	Benzo(K)Fluoranthene	Benzoic Acid	Benzyl Alcohol	Bis(2-Chloroethoxy)Methane	Bis(2-Chloroethyl)Ether	Bis(2-Ethylhexyl)Phthalate	Butylbenzylphthalate	Carbazole
California MCLs																	
Federal MCLs															6		
B277	09/15/2010	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	5 U	1 U	1 U	1 UJ	1 UJ	1 U
B277	09/15/2010	0.05 U	0.05 U	0.05 U	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	NA	NA	NA	NA	NA
B277	04/18/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B277	04/18/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B277	10/05/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B277	10/05/2011	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B277	04/03/2012	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA
B277	04/03/2012	NA	NA	NA	9.5 U	NA	NA	NA	NA	NA	48 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U
B278	09/16/2010	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	5 U	1 U	1 U	1 UJ	1 UJ	1 U
B278	09/16/2010	0.05 U	0.05 U	0.05 U	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	NA	NA	NA	NA	NA
B278	04/19/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B278	04/19/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B278	10/05/2011	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B278	10/05/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B278	04/05/2012	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B278	04/05/2012	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA

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SVOC AND PAH (µg/L)

Location ID	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Azobenzene	Benzo(A)Anthracene	Benzo(A)Pyrene	Benzo(B)Fluoranthene	Benzo(G,H,I)Perylene	Benzo(K)Fluoranthene	Benzoic Acid	Benzyl Alcohol	Bis(2-Chloroethoxy)Methane	Bis(2-Chloroethyl)Ether	Bis(2-Ethylhexyl)Phthalate	Butylbenzylphthalate	Carbazole
California MCLs																	
Federal MCLs															6		
B280A	09/16/2010	0.05 U	0.05 U	0.05 U	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	NA	NA	NA	NA	NA
B280A	09/16/2010	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	5 U	1 U	1 U	1 UJ	1 UJ	1 U
B280A	04/14/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B280A	04/14/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B280A	10/06/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B280A	10/06/2011	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 UJ	9.4 U	9.4 U
B280A	04/03/2012	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B280A	04/03/2012	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B280A	04/04/2013	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B280A	04/04/2013	NA	NA	NA	10 U	NA	NA	NA	NA	NA	50 U	10 U	10 U	10 U	10 U	10 U	10 U
B280A	04/09/2014	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA
B280A	04/09/2014	NA	NA	NA	9.3 U	NA	NA	NA	NA	NA	47 U	9.3 U	9.3 U	9.3 U	9.3 U	9.3 U	9.3 U
B280A	04/17/2015	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA
B280A	04/17/2015	NA	NA	NA	9.8 U	NA	NA	NA	NA	NA	49 U	9.8 U	9.8 U	9.8 U	9.8 U	9.8 U	9.8 U
B280B	10/01/2010	0.05 U	0.05 U	0.05 U	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	NA	NA	NA	NA	NA
B280B	10/01/2010	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	5 U	1 U	1 U	1 U	1 U	1 U
B280B	04/14/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B280B	04/14/2011	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U
B280B	10/06/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B280B	10/06/2011	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B280B	04/03/2012	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA
B280B	04/03/2012	NA	NA	NA	9.5 U	NA	NA	NA	NA	NA	48 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

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SVOC AND PAH (µg/L)

Location ID	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Azobenzene	Benzo(A)Anthracene	Benzo(A)Pyrene	Benzo(B)Fluoranthene	Benzo(G,H,I)Perylene	Benzo(K)Fluoranthene	Benzoic Acid	Benzyl Alcohol	Bis(2-Chloroethoxy)Methane	Bis(2-Chloroethyl)Ether	Bis(2-Ethylhexyl)Phthalate	Butylbenzylphthalate	Carbazole
California MCLs																	
Federal MCLs															6		
B300	09/09/2010	0.047 U	0.047 U	0.047 U	NA	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	NA	NA	NA	NA	NA	NA	NA
B300	09/09/2010	0.9 U	0.9 U	0.9 U	NA	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	NA	4.7 U	0.9 U	0.9 U	0.9 UJ	0.9 UJ	0.9 U
B300	04/15/2011	0.09 U	0.08 J	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B300	04/15/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B300	10/06/2011	0.5 U	4.9	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	NA	NA	NA	NA	NA
B300	10/06/2011	NA	NA	NA	97 U	NA	NA	NA	NA	NA	180 J	73 J	97 U	97 U	97 U	97 U	97 U
B300	04/09/2012	0.09 U	0.2	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B300	04/09/2012	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B38	09/15/2010	0.05 UJ	0.05 UJ	0.05 UJ	NA	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	NA	NA	NA	NA	NA	NA	NA
B38	09/15/2010	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	5 U	1 U	1 U	1 UJ	1 UJ	1 U
B38	04/19/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B38	04/19/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B38	04/19/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B38	04/19/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B38	10/06/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B38	10/06/2011	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B38	04/04/2012	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B38	04/04/2012	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	13 UJ	9.4 U	9.4 U
B450	04/19/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B450	04/19/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B450	10/10/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B450	10/10/2011	NA	NA	NA	9.6 UJ	NA	NA	NA	NA	NA	48 UJ	9.6 UJ	9.6 UJ	9.6 UJ	9.6 UJ	9.6 UJ	9.6 UJ
B450	04/06/2012	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B450	04/06/2012	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 UJ	9.4 U	9.4 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

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SVOC AND PAH (µg/L)

Location ID	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Azobenzene	Benzo(A)Anthracene	Benzo(A)Pyrene	Benzo(B)Fluoranthene	Benzo(G,H,I)Perylene	Benzo(K)Fluoranthene	Benzoic Acid	Benzyl Alcohol	Bis(2-Chloroethoxy)Methane	Bis(2-Chloroethyl)Ether	Bis(2-Ethylhexyl)Phthalate	Butylbenzylphthalate	Carbazole
California MCLs																	
Federal MCLs															6		
B460	09/15/2010	0.05 U	0.05 U	0.05 U	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	NA	NA	NA	NA	NA
B460	09/15/2010	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	5 U	1 U	1 U	1 UJ	1 UJ	1 U
B460	04/20/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B460	04/20/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B460	10/07/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B460	10/07/2011	NA	NA	NA	9.6 U	NA	NA	NA	NA	NA	48 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U
B460	04/06/2012	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B460	04/06/2012	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 UJ	9.4 U	9.4 U
B473	09/24/2010	0.05 U	0.05 U	0.05 U	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	NA	NA	NA	NA	NA
B473	09/24/2010	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	5 U	1 U	1 U	0.5 J	1 UJ	1 U
B473	04/20/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B473	04/20/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B473	10/07/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B473	10/07/2011	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B473	04/06/2012	0.09 U	0.09 U	0.02 J	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B473	04/06/2012	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B474	09/23/2010	0.05 U	0.05 U	0.05 U	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	NA	NA	NA	NA	NA
B474	09/23/2010	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	5 U	1 U	1 U	1 U	1 UJ	1 U
B474	04/20/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B474	04/20/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B474	10/07/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B474	10/07/2011	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B474	04/09/2012	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B474	04/09/2012	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U

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SVOC AND PAH (µg/L)

Location ID	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Azobenzene	Benzo(A)Anthracene	Benzo(A)Pyrene	Benzo(B)Fluoranthene	Benzo(G,H,I)Perylene	Benzo(K)Fluoranthene	Benzoic Acid	Benzyl Alcohol	Bis(2-Chloroethoxy)Methane	Bis(2-Chloroethyl)Ether	Bis(2-Ethylhexyl)Phthalate	Butylbenzylphthalate	Carbazole
California MCLs																	
Federal MCLs															6		
B480	09/24/2010	0.05 U	0.05 U	0.05 U	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	NA	NA	NA	NA	NA
B480	09/24/2010	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	5 U	1 U	1 U	0.8 J	1 UJ	1 U
B480	04/19/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B480	04/19/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B480	10/07/2011	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA
B480	10/07/2011	NA	NA	NA	9.5 U	NA	NA	NA	NA	NA	48 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U
B480	04/09/2012	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B480	04/09/2012	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B490	09/16/2010	0.05 U	0.05 U	0.05 U	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	NA	NA	NA	NA	NA
B490	09/16/2010	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	5 U	1 U	1 U	1 UJ	1 UJ	1 U
B490	04/20/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B490	04/20/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B490	10/10/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B490	10/10/2011	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
B490	04/09/2012	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
B490	04/09/2012	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
BULB1	10/19/2010	0.047 U	0.047 U	0.047 U	NA	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	NA	NA	NA	NA	NA	NA	NA
BULB1	10/19/2010	0.9 U	0.9 U	0.9 U	NA	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	NA	4.7 U	0.9 U	0.9 U	0.6 UJ	0.9 U	0.9 U
BULB1	04/12/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
BULB1	04/12/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
BULB1	09/30/2011	NA	NA	NA	9.5 U	NA	NA	NA	NA	NA	48 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U
BULB1	09/30/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
BULB1	04/05/2012	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
BULB1	04/05/2012	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

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SVOC AND PAH (µg/L)

Location ID	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Azobenzene	Benzo(A)Anthracene	Benzo(A)Pyrene	Benzo(B)Fluoranthene	Benzo(G,H,I)Perylene	Benzo(K)Fluoranthene	Benzoic Acid	Benzyl Alcohol	Bis(2-Chloroethoxy)Methane	Bis(2-Chloroethyl)Ether	Bis(2-Ethylhexyl)Phthalate	Butylbenzylphthalate	Carbazole
California MCLs																	
Federal MCLs															6		
BULB2	10/19/2010	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	5 U	1 U	1 U	1 U	1 U	1 U
BULB2	10/19/2010	0.062	0.05 U	0.05 U	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	NA	NA	NA	NA	NA
BULB2	04/12/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
BULB2	04/12/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
BULB2	09/30/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
BULB2	09/30/2011	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	19 UJ	9.4 U	9.4 U
BULB2	04/05/2012	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA
BULB2	04/05/2012	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
BULB2	04/05/2013	NA	NA	NA	10 U	NA	NA	NA	NA	NA	50 U	10 U	10 U	10 U	10 U	10 U	10 U
BULB2	04/05/2013	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA
BULB2	04/10/2014	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
BULB2	04/10/2014	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
BULB2	04/13/2015	NA	NA	NA	9.6 U	NA	NA	NA	NA	NA	48 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U
BULB2	04/13/2015	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA
CCC1	09/08/2010	0.047 U	0.047 U	0.047 U	NA	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	NA	NA	NA	NA	NA	NA	NA
CCC1	09/08/2010	0.9 U	0.9 U	0.9 U	NA	0.9 U	0.9 U	0.9 U	0.9 U	0.9 UJ	NA	4.7 U	0.9 U	0.9 U	0.9 UJ	0.9 U	0.9 U
CCC1	04/14/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
CCC1	04/14/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
CCC1	10/05/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
CCC1	10/05/2011	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
CCC1	04/10/2012	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
CCC1	04/10/2012	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U

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SVOC AND PAH (µg/L)

Location ID	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Azobenzene	Benzo(A)Anthracene	Benzo(A)Pyrene	Benzo(B)Fluoranthene	Benzo(G,H,I)Perylene	Benzo(K)Fluoranthene	Benzoic Acid	Benzyl Alcohol	Bis(2-Chloroethoxy)Methane	Bis(2-Chloroethyl)Ether	Bis(2-Ethylhexyl)Phthalate	Butylbenzylphthalate	Carbazole
California MCLs																	
Federal MCLs															6		
CCC2	09/08/2010	0.047 U	0.047 U	0.047 U	NA	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	NA	NA	NA	NA	NA	NA	NA
CCC2	09/08/2010	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 UJ	NA	4.8 U	1 U	1 U	0.6 J	1 U	1 U
CCC2	04/14/2011	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA
CCC2	04/14/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
CCC2	10/04/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
CCC2	10/04/2011	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 UJ	9.4 U	9.4 U
CCC2	04/10/2012	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
CCC2	04/10/2012	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
CCC2	04/02/2013	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
CCC2	04/02/2013	NA	NA	NA	9.5 U	NA	NA	NA	NA	NA	48 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U
CCC2	04/02/2013	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
CCC2	04/02/2013	NA	NA	NA	9.3 U	NA	NA	NA	NA	NA	47 U	9.3 U	9.3 U	9.3 U	9.3 U	9.3 U	9.3 U
CCC2	04/02/2014	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA
CCC2	04/02/2014	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
CCC2	04/15/2015	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	11 UJ	9.4 U	9.4 U
CCC2	04/15/2015	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA

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SVOC AND PAH (µg/L)

Location ID	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Azobenzene	Benzo(A)Anthracene	Benzo(A)Pyrene	Benzo(B)Fluoranthene	Benzo(G,H,I)Perylene	Benzo(K)Fluoranthene	Benzoic Acid	Benzyl Alcohol	Bis(2-Chloroethoxy)Methane	Bis(2-Chloroethyl)Ether	Bis(2-Ethylhexyl)Phthalate	Butylbenzylphthalate	Carbazole
California MCLs																	
Federal MCLs															6		
CCC3	09/03/2010	0.9 U	0.9 U	0.9 U	NA	0.9 U	0.9 U	0.9 U	0.9 U	0.9 UJ	NA	4.7 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U
CCC3	09/03/2010	0.047 U	0.047 U	0.047 U	NA	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	NA	NA	NA	NA	NA	NA	NA
CCC3	09/03/2010	0.047 U	0.047 U	0.047 U	NA	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	NA	NA	NA	NA	NA	NA	NA
CCC3	09/03/2010	0.9 U	0.9 U	0.9 U	NA	0.9 U	0.9 U	0.9 U	0.9 U	0.9 UJ	NA	4.7 U	0.9 U	0.9 U	1 UJ	0.9 U	0.9 U
CCC3	04/12/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
CCC3	04/12/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	47 U	9.4 U	9.4 U	9.4 U	9.4 UJ	9.4 U	9.4 U
CCC3	10/04/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
CCC3	10/04/2011	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
CCC3	10/04/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
CCC3	10/04/2011	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
CCC3	04/10/2012	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
CCC3	04/10/2012	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
CCCT	09/03/2010	0.9 U	0.9 U	0.9 U	NA	0.9 U	0.9 U	0.9 U	0.9 U	0.9 UJ	NA	4.7 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U
CCCT	09/03/2010	0.047 U	0.047 U	0.047 U	NA	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	NA	NA	NA	NA	NA	NA	NA
CCCT	04/18/2011	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA
CCCT	04/18/2011	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	48 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U
CCCT	10/03/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
CCCT	10/03/2011	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
CCCT	04/04/2012	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
CCCT	04/04/2012	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U

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SVOC AND PAH (µg/L)

Location ID	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Azobenzene	Benzo(A)Anthracene	Benzo(A)Pyrene	Benzo(B)Fluoranthene	Benzo(G,H,I)Perylene	Benzo(K)Fluoranthene	Benzoic Acid	Benzyl Alcohol	Bis(2-Chloroethoxy)Methane	Bis(2-Chloroethyl)Ether	Bis(2-Ethylhexyl)Phthalate	Butylbenzylphthalate	Carbazole
California MCLs																	
Federal MCLs															6		
CTP	09/30/2010	0.05 U	0.05 U	0.05 U	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	NA	NA	NA	NA	NA
CTP	09/30/2010	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	5 U	1 U	1 U	1 U	1 U	1 U
CTP	09/30/2010	0.05 U	0.05 U	0.05 U	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	NA	NA	NA	NA	NA
CTP	09/30/2010	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	5 U	1 U	1 U	1 U	1 U	1 U
CTP	04/14/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
CTP	04/14/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
CTP	10/06/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
CTP	10/06/2011	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 UJ	9.4 U	9.4 U
CTP	04/03/2012	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
CTP	04/03/2012	NA	NA	NA	9.5 U	NA	NA	NA	NA	NA	48 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U
CTP	04/04/2013	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA
CTP	04/04/2013	NA	NA	NA	10 U	NA	NA	NA	NA	NA	50 U	10 U	10 U	10 U	10 U	10 U	10 U
CTP	04/03/2014	NA	NA	NA	9.3 U	NA	NA	NA	NA	NA	47 U	9.3 U	9.3 U	9.3 U	9.3 U	9.3 U	9.3 U
CTP	04/03/2014	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA
CTP	04/03/2014	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
CTP	04/03/2014	NA	NA	NA	10 U	NA	NA	NA	NA	NA	50 U	10 U	10 U	10 U	10 U	10 U	10 U
CTP	04/17/2015	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA
CTP	04/17/2015	NA	NA	NA	9.3 U	NA	NA	NA	NA	NA	47 U	9.3 U	9.3 U	9.3 U	9.3 U	9.3 U	9.3 U

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Location ID	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Azobenzene	Benzo(A)Anthracene	Benzo(A)Pyrene	Benzo(B)Fluoranthene	Benzo(G,H,I)Perylene	Benzo(K)Fluoranthene	Benzoic Acid	Benzyl Alcohol	Bis(2-Chloroethoxy)Methane	Bis(2-Chloroethyl)Ether	Bis(2-Ethylhexyl)Phthalate	Butylbenzylphthalate	Carbazole
California MCLs																	
Federal MCLs															6		
CTPS	10/01/2010	1.2 U	1.2 U	1.2 U	NA	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	NA	6 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
CTPS	10/18/2010	0.05 U	0.05 U	0.05 U	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	NA	NA	NA	NA	NA
CTPS	04/19/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
CTPS	04/19/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
CTPS	10/07/2011	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
CTPS	10/10/2011	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA
CTPS	04/05/2012	NA	NA	NA	9.5 U	NA	NA	NA	NA	NA	48 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U
CTPS	04/05/2012	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
DH	09/30/2010	0.047 U	0.047 U	0.047 U	NA	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	NA	NA	NA	NA	NA	NA	NA
DH	09/30/2010	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	5 U	1 U	1 U	1 U	1 U	1 U
DH	04/14/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	47 U	9.4 U	9.4 U	9.4 U	9.4 UJ	9.4 U	9.4 U
DH	04/14/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
DH	10/05/2011	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	2.2 UJ	9.4 U	9.4 U
DH	10/05/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
DH	04/05/2012	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
DH	04/06/2012	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
EERC	10/01/2010	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	5 U	1 U	1 U	1 U	1 U	1 U
EERC	10/15/2010	0.05 U	0.05 U	0.05 U	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	NA	NA	NA	NA	NA
EERC	04/20/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
EERC	04/20/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
EERC	10/07/2011	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA
EERC	10/07/2011	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
EERC	04/06/2012	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
EERC	04/06/2012	NA	NA	NA	9.5 U	NA	NA	NA	NA	NA	48 U	9.5 U	9.5 U	9.5 U	9.5 UJ	9.5 U	9.5 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

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SVOC AND PAH (µg/L)

Location ID	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Azobenzene	Benzo(A)Anthracene	Benzo(A)Pyrene	Benzo(B)Fluoranthene	Benzo(G,H,I)Perylene	Benzo(K)Fluoranthene	Benzoic Acid	Benzyl Alcohol	Bis(2-Chloroethoxy)Methane	Bis(2-Chloroethyl)Ether	Bis(2-Ethylhexyl)Phthalate	Butylbenzylphthalate	Carbazole
California MCLs																	
Federal MCLs															6		
EPA	09/16/2010	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	5 U	1 U	1 U	1 UJ	1 UJ	1 U
EPA	09/16/2010	0.05 U	0.05 U	0.05 U	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	NA	NA	NA	NA	NA
EPA	04/19/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
EPA	04/19/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
EPA	10/06/2011	NA	NA	NA	9.8 U	NA	NA	NA	NA	NA	49 U	9.8 U	9.8 U	9.8 U	9.8 UJ	9.8 U	9.8 U
EPA	10/06/2011	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA
EPA	04/06/2012	0.2	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
EPA	04/06/2012	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
EPA	04/06/2012	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
EPA	04/06/2012	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
EPA	04/04/2013	NA	NA	NA	9.3 U	NA	NA	NA	NA	NA	47 U	9.3 U	9.3 U	9.3 U	9.3 U	9.3 U	9.3 U
EPA	04/04/2013	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
EPA	04/10/2014	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA
EPA	04/10/2014	NA	NA	NA	9.6 U	NA	NA	NA	NA	NA	48 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U
EPA	04/17/2015	NA	NA	NA	9.6 U	NA	NA	NA	NA	NA	48 U	9.6 U	9.6 U	9.6 U	9.6 UJ	9.6 U	9.6 U
EPA	04/17/2015	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

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SVOC AND PAH (µg/L)

Location ID	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Azobenzene	Benzo(A)Anthracene	Benzo(A)Pyrene	Benzo(B)Fluoranthene	Benzo(G,H,I)Perylene	Benzo(K)Fluoranthene	Benzoic Acid	Benzyl Alcohol	Bis(2-Chloroethoxy)Methane	Bis(2-Chloroethyl)Ether	Bis(2-Ethylhexyl)Phthalate	Butylbenzylphthalate	Carbazole
California MCLs																	
Federal MCLs															6		
ETA	09/24/2010	0.11	0.05 U	0.05 U	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	NA	NA	NA	NA	NA
ETA	09/24/2010	0.9 U	0.9 U	0.9 U	NA	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	NA	4.7 U	0.9 U	0.9 U	1.1	0.9 UJ	0.9 U
ETA	09/24/2010	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	5 U	1 U	1 U	0.5 J	1 UJ	1 U
ETA	09/24/2010	0.11	0.05 U	0.05 U	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	NA	NA	NA	NA	NA
ETA	04/12/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
ETA	04/12/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
ETA	09/30/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
ETA	09/30/2011	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
ETA	04/10/2012	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
ETA	04/10/2012	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
ETA	04/10/2012	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
ETA	04/10/2012	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
EXT	09/30/2011	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
EXT	09/30/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
FG	09/23/2010	0.05 U	0.05 U	0.05 U	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	NA	NA	NA	NA	NA
FG	09/23/2010	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	5 U	1 U	1 U	1 U	1 UJ	1 U
FG	04/19/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
FG	04/19/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
FG	04/19/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
FG	04/19/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
FG	10/10/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
FG	10/10/2011	NA	NA	NA	9.5 U	NA	NA	NA	NA	NA	48 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U
FG	04/09/2012	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
FG	04/09/2012	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum
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SVOC AND PAH (µg/L)

Location ID	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Azobenzene	Benzo(A)Anthracene	Benzo(A)Pyrene	Benzo(B)Fluoranthene	Benzo(G,H,I)Perylene	Benzo(K)Fluoranthene	Benzoic Acid	Benzyl Alcohol	Bis(2-Chloroethoxy)Methane	Bis(2-Chloroethyl)Ether	Bis(2-Ethylhexyl)Phthalate	Butylbenzylphthalate	Carbazole
California MCLs																	
Federal MCLs															6		
GEO	09/03/2010	0.047 U	0.047 U	0.047 U	NA	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	NA	NA	NA	NA	NA	NA	NA
GEO	09/03/2010	0.9 U	0.9 U	0.9 U	NA	0.9 U	0.9 U	0.9 U	0.9 U	0.9 UJ	NA	4.7 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U
GEO	04/20/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
GEO	04/20/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
GEO	10/06/2011	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
GEO	10/06/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
GEO	04/06/2012	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
GEO	04/06/2012	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
MFA	09/24/2010	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	5 U	1 U	1 U	27	1 UJ	1 U
MFA	09/24/2010	0.05 U	0.05 U	0.05 U	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	NA	NA	NA	NA	NA
MFA	04/12/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
MFA	04/12/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
MFA	10/03/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
MFA	10/03/2011	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
MFA	04/05/2012	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
MFA	04/05/2012	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
MFA	04/05/2013	NA	NA	NA	10 U	NA	NA	NA	NA	NA	50 U	10 U	10 U	10 U	9.4 U	10 U	10 U
MFA	04/05/2013	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
MFA	04/08/2014	0.09 U	0.09 U	0.09 UJ	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
MFA	04/08/2014	NA	NA	NA	9.3 U	NA	NA	NA	NA	NA	47 U	9.3 U	9.3 U	9.3 U	9.3 U	9.3 U	9.3 U
MFA	04/13/2015	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA
MFA	04/13/2015	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

SVOC AND PAH (µg/L)

Location ID	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Azobenzene	Benzo(A)Anthracene	Benzo(A)Pyrene	Benzo(B)Fluoranthene	Benzo(G,H,I)Perylene	Benzo(K)Fluoranthene	Benzoic Acid	Benzyl Alcohol	Bis(2-Chloroethoxy)Methane	Bis(2-Chloroethyl)Ether	Bis(2-Ethylhexyl)Phthalate	Butylbenzylphthalate	Carbazole
California MCLs																	
Federal MCLs															6		
NRLF	09/16/2010	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	4.8 U	1 U	1 U	1 UJ	1 UJ	1 U
NRLF	09/16/2010	0.05 U	0.05 U	0.05 U	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	NA	NA	NA	NA	NA
NRLF	04/20/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	47 U	9.4 U	9.4 U	9.4 U	9.4 UJ	9.4 U	9.4 U
NRLF	04/20/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
NRLF	10/06/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
NRLF	10/06/2011	NA	NA	NA	9.5 U	NA	NA	NA	NA	NA	48 U	9.5 U	9.5 U	9.5 U	9.5 UJ	9.5 U	9.5 U
NRLF	04/09/2012	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
NRLF	04/09/2012	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
OBS6	09/30/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
OBS6	09/30/2011	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
PZ11	10/01/2010	0.05 U	0.05 U	0.05 U	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	NA	NA	NA	NA	NA
PZ11	10/01/2010	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	5 U	1 U	1 U	1 U	1 U	1 U
PZ11	04/20/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
PZ11	04/20/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
PZ11	10/10/2011	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
PZ11	10/10/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
PZ11	04/05/2012	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
PZ11	04/05/2012	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 UJ	9.4 U	9.4 U

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University of California, Berkeley, Richmond Field Station Site

SVOC AND PAH (µg/L)

Location ID	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Azobenzene	Benzo(A)Anthracene	Benzo(A)Pyrene	Benzo(B)Fluoranthene	Benzo(G,H,I)Perylene	Benzo(K)Fluoranthene	Benzoic Acid	Benzyl Alcohol	Bis(2-Chloroethoxy)Methane	Bis(2-Chloroethyl)Ether	Bis(2-Ethylhexyl)Phthalate	Butylbenzylphthalate	Carbazole
California MCLs																	
Federal MCLs															6		
PZ8	10/15/2010	0.05 U	0.05 U	0.05 U	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	NA	NA	NA	NA	NA
PZ8	10/15/2010	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	5 U	1 U	1 U	1 U	1 U	1 U
PZ8	04/18/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
PZ8	04/18/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
PZ8	10/04/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
PZ8	10/04/2011	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
PZ8	04/03/2012	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
PZ8	04/03/2012	NA	NA	NA	9.7 UJ	NA	NA	NA	NA	NA	49 UJ	9.7 UJ	9.7 UJ	9.7 UJ	9.7 UJ	9.7 UJ	9.7 UJ
PZ9	09/24/2010	0.05 U	0.05 U	0.05 U	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	NA	NA	NA	NA	NA
PZ9	09/24/2010	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	5 U	1 U	1 U	1 U	1 UJ	1 U
PZ9	04/20/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
PZ9	04/20/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
PZ9	10/07/2011	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA
PZ9	10/07/2011	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
PZ9	10/07/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
PZ9	10/07/2011	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
PZ9	04/06/2012	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
PZ9	04/06/2012	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 UJ	9.4 U	9.4 U	9.4 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

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SVOC AND PAH (µg/L)

Location ID	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Azobenzene	Benzo(A)Anthracene	Benzo(A)Pyrene	Benzo(B)Fluoranthene	Benzo(G,H,I)Perylene	Benzo(K)Fluoranthene	Benzoic Acid	Benzyl Alcohol	Bis(2-Chloroethoxy)Methane	Bis(2-Chloroethyl)Ether	Bis(2-Ethylhexyl)Phthalate	Butylbenzylphthalate	Carbazole
California MCLs																	
Federal MCLs															6		
RWF	09/15/2010	0.05 U	0.05 U	0.05 U	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	NA	NA	NA	NA	NA
RWF	09/15/2010	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	5 U	1 U	1 U	1 UJ	1 UJ	1 U
RWF	04/18/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
RWF	04/18/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
RWF	10/06/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
RWF	10/06/2011	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
RWF	04/04/2012	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
RWF	04/04/2012	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
TP1	09/29/2010	0.05 U	0.05 U	0.05 U	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	NA	NA	NA	NA	NA
TP1	09/29/2010	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	5 U	1 U	1 U	1 U	1 U	1 U
TP1	04/18/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
TP1	04/18/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
TP1	10/07/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
TP1	10/07/2011	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
TP1	04/05/2012	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA
TP1	04/05/2012	NA	NA	NA	9.5 U	NA	NA	NA	NA	NA	48 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U

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SVOC AND PAH (µg/L)

Location ID	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Azobenzene	Benzo(A)Anthracene	Benzo(A)Pyrene	Benzo(B)Fluoranthene	Benzo(G,H,I)Perylene	Benzo(K)Fluoranthene	Benzoic Acid	Benzyl Alcohol	Bis(2-Chloroethoxy)Methane	Bis(2-Chloroethyl)Ether	Bis(2-Ethylhexyl)Phthalate	Butylbenzylphthalate	Carbazole
California MCLs																	
Federal MCLs															6		
TP2	09/29/2010	0.05 U	0.05 U	0.05 U	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	NA	NA	NA	NA	NA
TP2	09/29/2010	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	5 U	1 U	1 U	1 U	1 U	1 U
TP2	04/18/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
TP2	04/18/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
TP2	10/07/2011	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
TP2	10/07/2011	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA
TP2	04/09/2012	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
TP2	04/09/2012	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
TP2	04/09/2012	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	23 UJ	9.4 U	9.4 U
TP2	04/09/2012	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

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SVOC AND PAH (µg/L)

Location ID	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Azobenzene	Benzo(A)Anthracene	Benzo(A)Pyrene	Benzo(B)Fluoranthene	Benzo(G,H,I)Perylene	Benzo(K)Fluoranthene	Benzoic Acid	Benzyl Alcohol	Bis(2-Chloroethoxy)Methane	Bis(2-Chloroethyl)Ether	Bis(2-Ethylhexyl)Phthalate	Butylbenzylphthalate	Carbazole
California MCLs																	
Federal MCLs															6		
WTA	09/30/2010	0.05 U	0.05 U	0.05 U	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	NA	NA	NA	NA	NA
WTA	09/30/2010	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	5 U	1 U	1 U	1 U	1 U	1 U
WTA	04/14/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
WTA	04/14/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	47 U	9.4 U	9.4 U	9.4 U	9.4 UJ	9.4 U	9.4 U
WTA	04/14/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
WTA	04/14/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
WTA	10/05/2011	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
WTA	10/05/2011	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	3.3 UJ	9.4 U	9.4 U
WTA	04/05/2012	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
WTA	04/05/2012	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
WTA	04/05/2013	NA	NA	NA	9.8 U	NA	NA	NA	NA	NA	49 U	9.8 U	9.8 U	9.8 U	9.2 UJ	9.8 U	9.8 U
WTA	04/05/2013	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
WTA	04/10/2014	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
WTA	04/10/2014	0.09 U	0.09 U	0.09 U	NA	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA	NA	NA
WTA	04/13/2015	NA	NA	NA	9.4 U	NA	NA	NA	NA	NA	47 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
WTA	04/13/2015	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

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SVOC AND PAH (µg/L)

Location ID	Sample Date	Chrysene	Di-N-Butylphthalate	Di-N-Octylphthalate	Dibenz(A,H)Anthracene	Dibenzofuran	Diethylphthalate	Dimethylphthalate	Diphenyl Amine	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-Cd)Pyrene	Isophorone
California MCLs																	
Federal MCLs																	
B120	09/09/2010	0.047 U	NA	NA	0.047 U	NA	NA	NA	NA	0.047 U	0.047 U	NA	NA	NA	NA	0.047 U	NA
B120	09/09/2010	0.9 U	0.9 U	0.9 UJ	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	4.7 UJ	0.9 U	0.9 U	0.9 U
B120	04/15/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B120	04/15/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B120	10/04/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B120	10/04/2011	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
B120	04/03/2012	0.1 U	NA	NA	0.1 U	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA	NA	0.1 U	NA
B120	04/03/2012	NA	9.6 U	9.6 U	NA	9.6 U	9.6 U	9.6 U	NA	NA	NA	9.6 U	9.6 U	19 U	9.6 U	NA	9.6 U
B121	09/08/2010	0.048 U	NA	NA	0.048 U	NA	NA	NA	NA	0.048 U	0.048 U	NA	NA	NA	NA	0.048 U	NA
B121	09/08/2010	0.9 U	0.9 U	0.9 UJ	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	4.7 U	0.9 U	0.9 U	0.9 U
B121	04/13/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B121	04/13/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B121	10/04/2011	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
B121	10/04/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B121	04/04/2012	0.1 U	NA	NA	0.1 U	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA	NA	0.1 U	NA
B121	04/04/2012	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U

SVOC AND PAH (µg/L)

Location ID	Sample Date	Chrysene	Di-N-Butylphthalate	Di-N-Octylphthalate	Dibenz(A,H)Anthracene	Dibenzofuran	Diethylphthalate	Dimethylphthalate	Diphenyl Amine	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-Cd)Pyrene	Isophorone
California MCLs																	
Federal MCLs																	
B128	09/23/2010	0.047 U	NA	NA	0.047 U	NA	NA	NA	NA	0.047 U	0.047 U	NA	NA	NA	NA	0.047 U	NA
B128	09/23/2010	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 UJ	1 U	1 U	1 U
B128	09/23/2010	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 UJ	1 U	1 U	1 U
B128	09/23/2010	0.05 U	NA	NA	0.05 U	NA	NA	NA	NA	0.05 U	0.05 U	NA	NA	NA	NA	0.05 U	NA
B128	04/18/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B128	04/18/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B128	10/04/2011	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
B128	10/04/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B128	04/02/2012	NA	9.6 U	9.6 U	NA	9.6 U	9.6 U	9.6 U	NA	NA	NA	9.6 U	9.6 U	19 U	9.6 U	NA	9.6 U
B128	04/02/2012	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B128	04/05/2013	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B128	04/05/2013	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
B128	04/10/2014	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B128	04/10/2014	NA	9.8 U	9.8 U	NA	9.8 U	9.8 U	9.8 U	NA	NA	NA	9.8 U	9.8 U	20 U	9.8 U	NA	9.8 U
B128	04/13/2015	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B128	04/13/2015	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
B128	04/13/2015	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
B128	04/13/2015	0.1 U	NA	NA	0.1 U	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA	NA	0.1 U	NA

SVOC AND PAH (µg/L)

Location ID	Sample Date	Chrysene	Di-N-Butylphthalate	Di-N-Octylphthalate	Dibenz(A,H)Anthracene	Dibenzofuran	Diethylphthalate	Dimethylphthalate	Diphenyl Amine	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-Cd)Pyrene	Isophorone
California MCLs																	
Federal MCLs																	
B150	09/08/2010	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	4.8 U	1 U	1 U	1 U
B150	09/08/2010	0.048 U	NA	NA	0.048 U	NA	NA	NA	NA	0.048 U	0.048 U	NA	NA	NA	NA	0.048 U	NA
B150	04/13/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B150	04/13/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B150	10/05/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B150	10/05/2011	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
B150	10/05/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B150	10/05/2011	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
B150	04/04/2012	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B150	04/04/2012	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
B150	04/04/2012	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B150	04/04/2012	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
B158	09/08/2010	0.047 U	NA	NA	0.047 U	NA	NA	NA	NA	0.047 U	0.047 U	NA	NA	NA	NA	0.047 U	NA
B158	09/08/2010	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U
B158	04/15/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B158	04/15/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B158	10/05/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B158	10/05/2011	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
B158	04/06/2012	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B158	04/06/2012	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U

SVOC AND PAH (µg/L)

Location ID	Sample Date	Chrysene	Di-N-Butylphthalate	Di-N-Octylphthalate	Dibenz(A,H)Anthracene	Dibenzofuran	Diethylphthalate	Dimethylphthalate	Diphenyl Amine	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-Cd)Pyrene	Isophorone
California MCLs																	
Federal MCLs																	
B163	09/02/2010	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U
B163	09/02/2010	0.047 U	NA	NA	0.047 U	NA	NA	NA	NA	0.047 U	0.047 U	NA	NA	NA	NA	0.047 U	NA
B163	04/12/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B163	04/12/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B163	10/03/2011	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
B163	10/03/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B163	04/02/2012	NA	9.6 U	9.6 U	NA	9.6 U	9.6 U	9.6 U	NA	NA	NA	9.6 U	9.6 U	19 U	9.6 U	NA	9.6 U
B163	04/02/2012	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B163	04/03/2013	NA	11 U	11 U	NA	11 U	11 U	11 U	NA	NA	NA	11 U	11 U	21 U	11 U	NA	11 U
B163	04/03/2013	0.1 U	NA	NA	0.1 U	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA	NA	0.1 U	NA
B163	04/01/2014	0.1 U	NA	NA	0.1 U	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA	NA	0.1 U	NA
B163	04/01/2014	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
B163	04/14/2015	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B163	04/14/2015	NA	10 U	10 U	NA	10 U	10 U	10 U	NA	NA	NA	10 U	10 U	20 U	10 U	NA	10 U
B175S	09/03/2010	0.9 U	0.9 U	0.9 UJ	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	4.7 U	0.9 U	0.9 U	0.9 U
B175S	09/03/2010	0.047 U	NA	NA	0.047 U	NA	NA	NA	NA	0.047 U	0.047 U	NA	NA	NA	NA	0.047 U	NA
B175S	04/13/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B175S	04/13/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B175S	10/04/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B175S	10/04/2011	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
B175S	04/04/2012	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B175S	04/04/2012	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

SVOC AND PAH (µg/L)

Location ID	Sample Date	Chrysene	Di-N-Butylphthalate	Di-N-Octylphthalate	Dibenz(A,H)Anthracene	Dibenzofuran	Diethylphthalate	Dimethylphthalate	Diphenyl Amine	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-Cd)Pyrene	Isophorone
California MCLs																	
Federal MCLs																	
B175W	09/08/2010	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U
B175W	09/08/2010	0.05 U	NA	NA	0.05 U	NA	NA	NA	NA	0.05 U	0.05 U	NA	NA	NA	NA	0.05 U	NA
B175W	04/13/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B175W	04/13/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B175W	10/04/2011	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
B175W	10/04/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B175W	04/04/2012	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B175W	04/04/2012	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
B177	09/23/2010	0.9 U	0.9 U	0.9 UJ	0.9 U	0.9 U	0.9 U	0.9 U	0.9 UJ	0.9 U	0.9 U	0.9 U	0.9 U	4.7 UJ	0.9 U	0.9 U	0.9 U
B177	09/23/2010	0.047 U	NA	NA	0.047 U	NA	NA	NA	NA	0.047 U	0.047 U	NA	NA	NA	NA	0.047 U	NA
B177	04/18/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B177	04/18/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B177	10/05/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B177	10/05/2011	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
B177	04/04/2012	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B177	04/04/2012	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
B178	09/02/2010	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U
B178	09/02/2010	0.05 U	NA	NA	0.05 U	NA	NA	NA	NA	0.05 U	0.05 U	NA	NA	NA	NA	0.05 U	NA
B178	04/15/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B178	04/15/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B178	10/04/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B178	10/04/2011	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
B178	04/03/2012	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B178	04/03/2012	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U

SVOC AND PAH (µg/L)

Location ID	Sample Date	Chrysene	Di-N-Butylphthalate	Di-N-Octylphthalate	Dibenz(A,H)Anthracene	Dibenzofuran	Diethylphthalate	Dimethylphthalate	Diphenyl Amine	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-Cd)Pyrene	Isophorone
California MCLs																	
Federal MCLs																	
B180	09/15/2010	0.05 U	NA	NA	0.05 U	NA	NA	NA	NA	0.05 U	0.05 U	NA	NA	NA	NA	0.05 U	NA
B180	09/15/2010	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	4.8 UJ	1 U	1 U	1 U
B180	04/13/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B180	04/13/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B180	10/06/2011	0.1 U	NA	NA	0.1 U	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA	NA	0.1 U	NA
B180	10/06/2011	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
B180	10/06/2011	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
B180	10/06/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B180	04/04/2012	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B180	04/04/2012	NA	9.7 U	9.7 U	NA	9.7 U	9.7 U	9.7 U	NA	NA	NA	9.7 U	9.7 U	19 U	9.7 U	NA	9.7 U
B180	04/08/2013	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B180	04/08/2013	NA	9.3 U	9.3 U	NA	9.3 U	9.3 U	9.3 U	NA	NA	NA	9.3 U	9.3 U	19 U	9.3 U	NA	9.3 U
B180	04/08/2014	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
B180	04/08/2014	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B180	04/14/2015	NA	9.6 U	9.6 U	NA	9.6 U	9.6 U	9.6 U	NA	NA	NA	9.6 U	9.6 U	19 U	9.6 U	NA	9.6 U
B180	04/14/2015	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA

SVOC AND PAH (µg/L)

Location ID	Sample Date	Chrysene	Di-N-Butylphthalate	Di-N-Octylphthalate	Dibenz(A,H)Anthracene	Dibenzofuran	Diethylphthalate	Dimethylphthalate	Diphenyl Amine	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-Cd)Pyrene	Isophorone
California MCLs																	
Federal MCLs																	
B185	09/02/2010	0.9 U	0.9 U	0.9 UJ	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	4.7 U	0.9 U	0.9 U	0.9 U
B185	09/02/2010	0.05 U	NA	NA	0.05 U	NA	NA	NA	NA	0.05 U	0.05 U	NA	NA	NA	NA	0.05 U	NA
B185	04/15/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B185	04/15/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B185	04/15/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B185	04/15/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B185	10/03/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B185	10/03/2011	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
B185	10/03/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B185	10/03/2011	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
B185	04/02/2012	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B185	04/02/2012	NA	9.6 U	9.6 U	NA	9.6 U	9.6 U	9.6 U	NA	NA	NA	9.6 U	9.6 U	19 U	9.6 U	NA	9.6 U
B194	09/09/2010	0.047 U	NA	NA	0.047 U	NA	NA	NA	NA	0.047 U	0.047 U	NA	NA	NA	NA	0.047 U	NA
B194	09/09/2010	0.9 U	0.9 U	0.9 UJ	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	4.7 UJ	0.9 U	0.9 U	0.9 U
B194	04/13/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B194	04/13/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B194	10/04/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B194	10/04/2011	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
B194	04/04/2012	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B194	04/04/2012	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

SVOC AND PAH (µg/L)

Location ID	Sample Date	Chrysene	Di-N-Butylphthalate	Di-N-Octylphthalate	Dibenz(A,H)Anthracene	Dibenzofuran	Diethylphthalate	Dimethylphthalate	Diphenyl Amine	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-Cd)Pyrene	Isophorone
California MCLs																	
Federal MCLs																	
B195	09/09/2010	0.047 U	NA	NA	0.047 U	NA	NA	NA	NA	0.047 U	0.047 U	NA	NA	NA	NA	0.047 U	NA
B195	09/09/2010	0.9 U	0.9 U	0.9 UJ	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	4.7 UJ	0.9 U	0.9 U	0.9 U
B195	04/13/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B195	04/13/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B195	04/13/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B195	04/13/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B195	10/04/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 UJ	0.09 U	NA	NA	NA	NA	0.09 U	NA
B195	10/04/2011	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
B195	04/03/2012	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B195	04/03/2012	NA	9.5 U	9.5 U	NA	9.5 U	9.5 U	9.5 U	NA	NA	NA	9.5 U	9.5 U	19 U	9.5 U	NA	9.5 U
B197	09/09/2010	0.047 U	NA	NA	0.047 U	NA	NA	NA	NA	0.047 U	0.047 U	NA	NA	NA	NA	0.047 U	NA
B197	09/09/2010	0.9 U	0.9 U	0.9 UJ	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	4.7 UJ	0.9 U	0.9 U	0.9 U
B197	09/09/2010	0.047 U	NA	NA	0.047 U	NA	NA	NA	NA	0.047 U	0.047 U	NA	NA	NA	NA	0.047 U	NA
B197	09/09/2010	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	4.8 UJ	1 U	1 U	1 U
B197	04/13/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B197	04/13/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B197	10/04/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B197	10/04/2011	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
B197	04/03/2012	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B197	04/03/2012	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
B197	04/03/2012	0.1 U	NA	NA	0.1 U	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA	NA	0.1 U	NA
B197	04/03/2012	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U

SVOC AND PAH (µg/L)

Location ID	Sample Date	Chrysene	Di-N-Butylphthalate	Di-N-Octylphthalate	Dibenz(A,H)Anthracene	Dibenzofuran	Diethylphthalate	Dimethylphthalate	Diphenyl Amine	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-Cd)Pyrene	Isophorone
California MCLs																	
Federal MCLs																	
B277	09/15/2010	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 UJ	1 U	1 U	1 U
B277	09/15/2010	0.05 U	NA	NA	0.05 U	NA	NA	NA	NA	0.05 U	0.05 U	NA	NA	NA	NA	0.05 U	NA
B277	04/18/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B277	04/18/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B277	10/05/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B277	10/05/2011	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
B277	04/03/2012	0.1 U	NA	NA	0.1 U	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA	NA	0.1 U	NA
B277	04/03/2012	NA	9.5 U	9.5 U	NA	9.5 U	9.5 U	9.5 U	NA	NA	NA	9.5 U	9.5 U	19 U	9.5 U	NA	9.5 U
B278	09/16/2010	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 UJ	1 U	1 U	1 U
B278	09/16/2010	0.05 U	NA	NA	0.05 U	NA	NA	NA	NA	0.05 U	0.05 U	NA	NA	NA	NA	0.05 U	NA
B278	04/19/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B278	04/19/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B278	10/05/2011	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
B278	10/05/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B278	04/05/2012	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
B278	04/05/2012	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

SVOC AND PAH (µg/L)

Location ID	Sample Date	Chrysene	Di-N-Butylphthalate	Di-N-Octylphthalate	Dibenz(A,H)Anthracene	Dibenzofuran	Diethylphthalate	Dimethylphthalate	Diphenyl Amine	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-Cd)Pyrene	Isophorone
California MCLs																	
Federal MCLs																	
B280A	09/16/2010	0.05 U	NA	NA	0.05 U	NA	NA	NA	NA	0.05 U	0.05 U	NA	NA	NA	NA	0.05 U	NA
B280A	09/16/2010	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 UJ	1 U	1 U	1 U
B280A	04/14/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B280A	04/14/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B280A	10/06/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B280A	10/06/2011	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
B280A	04/03/2012	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
B280A	04/03/2012	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B280A	04/04/2013	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B280A	04/04/2013	NA	10 U	10 U	NA	10 U	10 U	10 U	NA	NA	NA	10 U	10 U	20 UJ	10 U	NA	10 U
B280A	04/09/2014	0.1 U	NA	NA	0.1 U	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA	NA	0.1 U	NA
B280A	04/09/2014	NA	9.3 U	9.3 U	NA	9.3 U	9.3 U	9.3 U	NA	NA	NA	9.3 U	9.3 U	19 U	9.3 U	NA	9.3 U
B280A	04/17/2015	0.1 U	NA	NA	0.1 U	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA	NA	0.1 U	NA
B280A	04/17/2015	NA	9.8 U	9.8 U	NA	9.8 U	9.8 U	9.8 U	NA	NA	NA	9.8 U	9.8 U	20 U	9.8 U	NA	9.8 U
B280B	10/01/2010	0.05 U	NA	NA	0.05 U	NA	NA	NA	NA	0.05 U	0.05 U	NA	NA	NA	NA	0.05 U	NA
B280B	10/01/2010	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 UJ	1 U	1 U	1 U
B280B	04/14/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B280B	04/14/2011	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 U	10 U	20 U	10 U	10 U	10 U
B280B	10/06/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B280B	10/06/2011	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
B280B	04/03/2012	0.1 U	NA	NA	0.1 U	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA	NA	0.1 U	NA
B280B	04/03/2012	NA	9.5 U	9.5 U	NA	9.5 U	9.5 U	9.5 U	NA	NA	NA	9.5 U	9.5 U	19 U	9.5 U	NA	9.5 U

SVOC AND PAH (µg/L)

Location ID	Sample Date	Chrysene	Di-N-Butylphthalate	Di-N-Octylphthalate	Dibenz(A,H)Anthracene	Dibenzofuran	Diethylphthalate	Dimethylphthalate	Diphenyl Amine	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-Cd)Pyrene	Isophorone
California MCLs																	
Federal MCLs																	
B300	09/09/2010	0.047 U	NA	NA	0.047 U	NA	NA	NA	NA	0.047 U	0.047 U	NA	NA	NA	NA	0.047 U	NA
B300	09/09/2010	0.9 U	0.9 U	0.9 UJ	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	4.7 UJ	0.9 U	0.9 U	0.9 U
B300	04/15/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B300	04/15/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B300	10/06/2011	0.5 U	NA	NA	0.5 U	NA	NA	NA	NA	0.5 U	0.5 U	NA	NA	NA	NA	0.5 U	NA
B300	10/06/2011	NA	97 U	97 U	NA	97 U	97 U	97 U	NA	NA	NA	97 U	97 U	190 U	97 U	NA	97 U
B300	04/09/2012	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B300	04/09/2012	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
B38	09/15/2010	0.05 UJ	NA	NA	0.05 UJ	NA	NA	NA	NA	0.05 UJ	0.05 UJ	NA	NA	NA	NA	0.05 UJ	NA
B38	09/15/2010	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 UJ	1 U	1 U	1 U
B38	04/19/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B38	04/19/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B38	04/19/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B38	04/19/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B38	10/06/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B38	10/06/2011	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
B38	04/04/2012	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B38	04/04/2012	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
B450	04/19/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B450	04/19/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B450	10/10/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B450	10/10/2011	NA	9.6 UJ	9.6 UJ	NA	9.6 UJ	9.6 UJ	9.6 UJ	NA	NA	NA	9.6 UJ	9.6 UJ	19 UJ	9.6 UJ	NA	9.6 UJ
B450	04/06/2012	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B450	04/06/2012	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

SVOC AND PAH (µg/L)

Location ID	Sample Date	Chrysene	Di-N-Butylphthalate	Di-N-Octylphthalate	Dibenz(A,H)Anthracene	Dibenzofuran	Diethylphthalate	Dimethylphthalate	Diphenyl Amine	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-Cd)Pyrene	Isophorone
California MCLs																	
Federal MCLs																	
B460	09/15/2010	0.05 U	NA	NA	0.05 U	NA	NA	NA	NA	0.05 U	0.05 U	NA	NA	NA	NA	0.05 U	NA
B460	09/15/2010	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 UJ	1 U	1 U	1 U
B460	04/20/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B460	04/20/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B460	10/07/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B460	10/07/2011	NA	9.6 U	9.6 U	NA	9.6 U	9.6 U	9.6 U	NA	NA	NA	9.6 U	9.6 U	19 U	9.6 U	NA	9.6 U
B460	04/06/2012	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B460	04/06/2012	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
B473	09/24/2010	0.05 U	NA	NA	0.05 U	NA	NA	NA	NA	0.05 U	0.05 U	NA	NA	NA	NA	0.05 U	NA
B473	09/24/2010	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 UJ	1 U	1 U	1 U
B473	04/20/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B473	04/20/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B473	10/07/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B473	10/07/2011	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
B473	04/06/2012	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B473	04/06/2012	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
B474	09/23/2010	0.05 U	NA	NA	0.05 U	NA	NA	NA	NA	0.05 U	0.05 U	NA	NA	NA	NA	0.05 U	NA
B474	09/23/2010	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 UJ	1 U	1 U	1 U
B474	04/20/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B474	04/20/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B474	10/07/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B474	10/07/2011	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
B474	04/09/2012	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B474	04/09/2012	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

SVOC AND PAH (µg/L)

Location ID	Sample Date	Chrysene	Di-N-Butylphthalate	Di-N-Octylphthalate	Dibenz(A,H)Anthracene	Dibenzofuran	Diethylphthalate	Dimethylphthalate	Diphenyl Amine	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-Cd)Pyrene	Isophorone
California MCLs																	
Federal MCLs																	
B480	09/24/2010	0.05 U	NA	NA	0.05 U	NA	NA	NA	NA	0.05 U	0.05 U	NA	NA	NA	NA	0.05 U	NA
B480	09/24/2010	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 UJ	1 U	1 U	1 U
B480	04/19/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B480	04/19/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B480	10/07/2011	0.1 U	NA	NA	0.1 U	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA	NA	0.1 U	NA
B480	10/07/2011	NA	9.5 U	9.5 U	NA	9.5 U	9.5 U	9.5 U	NA	NA	NA	9.5 U	9.5 U	19 U	9.5 U	NA	9.5 U
B480	04/09/2012	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B480	04/09/2012	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
B490	09/16/2010	0.05 U	NA	NA	0.05 U	NA	NA	NA	NA	0.05 U	0.05 U	NA	NA	NA	NA	0.05 U	NA
B490	09/16/2010	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 UJ	1 U	1 U	1 U
B490	04/20/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B490	04/20/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B490	10/10/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B490	10/10/2011	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
B490	04/09/2012	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
B490	04/09/2012	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
BULB1	10/19/2010	0.047 U	NA	NA	0.047 U	NA	NA	NA	NA	0.047 U	0.047 U	NA	NA	NA	NA	0.047 U	NA
BULB1	10/19/2010	0.9 U	0.9 U	0.9 UJ	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	4.7 UJ	0.9 U	0.9 U	0.9 U
BULB1	04/12/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
BULB1	04/12/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
BULB1	09/30/2011	NA	9.5 U	9.5 U	NA	9.5 U	9.5 U	9.5 U	NA	NA	NA	9.5 U	9.5 U	19 U	9.5 U	NA	9.5 U
BULB1	09/30/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
BULB1	04/05/2012	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
BULB1	04/05/2012	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U

SVOC AND PAH (µg/L)

Location ID	Sample Date	Chrysene	Di-N-Butylphthalate	Di-N-Octylphthalate	Dibenz(A,H)Anthracene	Dibenzofuran	Diethylphthalate	Dimethylphthalate	Diphenyl Amine	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-Cd)Pyrene	Isophorone
California MCLs																	
Federal MCLs																	
BULB2	10/19/2010	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 UJ	1 U	1 U	1 U
BULB2	10/19/2010	0.05 U	NA	NA	0.05 U	NA	NA	NA	NA	0.05 U	0.05 U	NA	NA	NA	NA	0.05 U	NA
BULB2	04/12/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
BULB2	04/12/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
BULB2	09/30/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
BULB2	09/30/2011	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
BULB2	04/05/2012	0.1 U	NA	NA	0.1 U	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA	NA	0.1 U	NA
BULB2	04/05/2012	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
BULB2	04/05/2013	NA	10 U	10 U	NA	10 U	10 U	10 U	NA	NA	NA	10 U	10 U	20 U	10 U	NA	10 U
BULB2	04/05/2013	0.1 U	NA	NA	0.1 U	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA	NA	0.1 U	NA
BULB2	04/10/2014	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
BULB2	04/10/2014	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
BULB2	04/13/2015	NA	9.6 U	9.6 U	NA	9.6 U	9.6 U	9.6 U	NA	NA	NA	9.6 U	9.6 U	19 U	9.6 U	NA	9.6 U
BULB2	04/13/2015	0.1 U	NA	NA	0.1 U	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA	NA	0.1 U	NA
CCC1	09/08/2010	0.047 U	NA	NA	0.047 U	NA	NA	NA	NA	0.047 U	0.047 U	NA	NA	NA	NA	0.047 U	NA
CCC1	09/08/2010	0.9 U	0.9 U	0.9 UJ	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	4.7 U	0.9 U	0.9 U	0.9 U
CCC1	04/14/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
CCC1	04/14/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
CCC1	10/05/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
CCC1	10/05/2011	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
CCC1	04/10/2012	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
CCC1	04/10/2012	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U

SVOC AND PAH (µg/L)

Location ID	Sample Date	Chrysene	Di-N-Butylphthalate	Di-N-Octylphthalate	Dibenz(A,H)Anthracene	Dibenzofuran	Diethylphthalate	Dimethylphthalate	Diphenyl Amine	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-Cd)Pyrene	Isophorone
California MCLs																	
Federal MCLs																	
CCC2	09/08/2010	0.047 U	NA	NA	0.047 U	NA	NA	NA	NA	0.047 U	0.047 U	NA	NA	NA	NA	0.047 U	NA
CCC2	09/08/2010	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	4.8 U	1 U	1 U	1 U
CCC2	04/14/2011	0.1 U	NA	NA	0.1 U	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA	NA	0.1 U	NA
CCC2	04/14/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
CCC2	10/04/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
CCC2	10/04/2011	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
CCC2	04/10/2012	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
CCC2	04/10/2012	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
CCC2	04/02/2013	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
CCC2	04/02/2013	NA	9.5 U	9.5 U	NA	9.5 U	9.5 U	9.5 U	NA	NA	NA	9.5 U	9.5 U	19 U	9.5 U	NA	9.5 U
CCC2	04/02/2013	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
CCC2	04/02/2013	NA	9.3 U	9.3 U	NA	9.3 U	9.3 U	9.3 U	NA	NA	NA	9.3 U	9.3 U	19 U	9.3 U	NA	9.3 U
CCC2	04/02/2014	0.1 U	NA	NA	0.1 U	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA	NA	0.1 U	NA
CCC2	04/02/2014	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
CCC2	04/15/2015	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
CCC2	04/15/2015	0.1 U	NA	NA	0.1 U	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA	NA	0.1 U	NA

SVOC AND PAH (µg/L)

Location ID	Sample Date	Chrysene	Di-N-Butylphthalate	Di-N-Octylphthalate	Dibenz(A,H)Anthracene	Dibenzofuran	Diethylphthalate	Dimethylphthalate	Diphenyl Amine	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-Cd)Pyrene	Isophorone
California MCLs																	
Federal MCLs																	
CCC3	09/03/2010	0.9 U	0.9 U	0.9 UJ	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	4.7 U	0.9 U	0.9 U	0.9 U
CCC3	09/03/2010	0.047 U	NA	NA	0.047 U	NA	NA	NA	NA	0.047 U	0.047 U	NA	NA	NA	NA	0.047 U	NA
CCC3	09/03/2010	0.047 U	NA	NA	0.047 U	NA	NA	NA	NA	0.047 U	0.047 U	NA	NA	NA	NA	0.047 U	NA
CCC3	09/03/2010	0.9 U	0.9 U	0.9 UJ	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	4.7 U	0.9 U	0.9 U	0.9 U
CCC3	04/12/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
CCC3	04/12/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
CCC3	10/04/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
CCC3	10/04/2011	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
CCC3	10/04/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
CCC3	10/04/2011	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
CCC3	04/10/2012	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
CCC3	04/10/2012	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
CCCT	09/03/2010	0.9 U	0.9 U	0.9 UJ	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	4.7 U	0.9 U	0.9 U	0.9 U
CCCT	09/03/2010	0.047 U	NA	NA	0.047 U	NA	NA	NA	NA	0.047 U	0.047 U	NA	NA	NA	NA	0.047 U	NA
CCCT	04/18/2011	0.1 U	NA	NA	0.1 U	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA	NA	0.1 U	NA
CCCT	04/18/2011	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	NA	9.5 U	9.5 U	9.5 U	9.5 U	19 U	9.5 U	9.5 U	9.5 U
CCCT	10/03/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
CCCT	10/03/2011	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
CCCT	04/04/2012	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
CCCT	04/04/2012	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U

SVOC AND PAH (µg/L)

Location ID	Sample Date	Chrysene	Di-N-Butylphthalate	Di-N-Octylphthalate	Dibenz(A,H)Anthracene	Dibenzofuran	Diethylphthalate	Dimethylphthalate	Diphenyl Amine	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-Cd)Pyrene	Isophorone
California MCLs																	
Federal MCLs																	
CTP	09/30/2010	0.05 U	NA	NA	0.05 U	NA	NA	NA	NA	0.05 U	0.05 U	NA	NA	NA	NA	0.05 U	NA
CTP	09/30/2010	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 UJ	1 U	1 U	1 U
CTP	09/30/2010	0.05 U	NA	NA	0.05 U	NA	NA	NA	NA	0.05 U	0.05 U	NA	NA	NA	NA	0.05 U	NA
CTP	09/30/2010	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 UJ	1 U	1 U	1 U
CTP	04/14/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
CTP	04/14/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
CTP	10/06/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
CTP	10/06/2011	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
CTP	04/03/2012	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
CTP	04/03/2012	NA	9.5 U	9.5 U	NA	9.5 U	9.5 U	9.5 U	NA	NA	NA	9.5 U	9.5 U	19 U	9.5 U	NA	9.5 U
CTP	04/04/2013	0.1 U	NA	NA	0.1 U	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA	NA	0.1 U	NA
CTP	04/04/2013	NA	10 U	10 U	NA	10 U	10 U	10 U	NA	NA	NA	10 U	10 U	20 UJ	10 U	NA	10 U
CTP	04/03/2014	NA	9.3 U	9.3 U	NA	9.3 U	9.3 U	9.3 U	NA	NA	NA	9.3 U	9.3 U	19 U	9.3 U	NA	9.3 U
CTP	04/03/2014	0.1 U	NA	NA	0.1 U	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA	NA	0.1 U	NA
CTP	04/03/2014	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
CTP	04/03/2014	NA	10 U	10 U	NA	10 U	10 U	10 U	NA	NA	NA	10 U	10 U	20 U	10 U	NA	10 U
CTP	04/17/2015	0.1 U	NA	NA	0.1 U	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA	NA	0.1 U	NA
CTP	04/17/2015	NA	9.3 U	9.3 U	NA	9.3 U	9.3 U	9.3 U	NA	NA	NA	9.3 U	9.3 U	19 U	9.3 U	NA	9.3 U

SVOC AND PAH (µg/L)

Location ID	Sample Date	Chrysene	Di-N-Butylphthalate	Di-N-Octylphthalate	Dibenz(A,H)Anthracene	Dibenzofuran	Diethylphthalate	Dimethylphthalate	Diphenyl Amine	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-Cd)Pyrene	Isophorone
California MCLs																	
Federal MCLs																	
CTPS	10/01/2010	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	6 UJ	1.2 U	1.2 U	1.2 U
CTPS	10/18/2010	0.05 U	NA	NA	0.05 U	NA	NA	NA	NA	0.05 U	0.05 U	NA	NA	NA	NA	0.05 U	NA
CTPS	04/19/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
CTPS	04/19/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
CTPS	10/07/2011	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
CTPS	10/10/2011	0.1 U	NA	NA	0.1 U	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA	NA	0.1 U	NA
CTPS	04/05/2012	NA	9.5 U	9.5 U	NA	9.5 U	9.5 U	9.5 U	NA	NA	NA	9.5 U	9.5 U	19 U	9.5 U	NA	9.5 U
CTPS	04/05/2012	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
DH	09/30/2010	0.047 U	NA	NA	0.047 U	NA	NA	NA	NA	0.047 U	0.047 U	NA	NA	NA	NA	0.047 U	NA
DH	09/30/2010	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 UJ	1 U	1 U	1 U
DH	04/14/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
DH	04/14/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
DH	10/05/2011	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
DH	10/05/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
DH	04/05/2012	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
DH	04/06/2012	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
EERC	10/01/2010	1 U	1 U	1 U	1 U	1 U	0.6 J	1 U	1 U	1 U	1 U	1 U	1 U	5 UJ	1 U	1 U	1 U
EERC	10/15/2010	0.05 U	NA	NA	0.05 U	NA	NA	NA	NA	0.05 U	0.05 U	NA	NA	NA	NA	0.05 U	NA
EERC	04/20/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
EERC	04/20/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
EERC	10/07/2011	0.1 U	NA	NA	0.1 U	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA	NA	0.1 U	NA
EERC	10/07/2011	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
EERC	04/06/2012	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
EERC	04/06/2012	NA	9.5 U	9.5 U	NA	9.5 U	9.5 U	9.5 U	NA	NA	NA	9.5 U	9.5 U	19 U	9.5 U	NA	9.5 U

SVOC AND PAH (µg/L)

Location ID	Sample Date	Chrysene	Di-N-Butylphthalate	Di-N-Octylphthalate	Dibenz(A,H)Anthracene	Dibenzofuran	Diethylphthalate	Dimethylphthalate	Diphenyl Amine	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-Cd)Pyrene	Isophorone
California MCLs																	
Federal MCLs																	
EPA	09/16/2010	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 UJ	1 U	1 U	1 U
EPA	09/16/2010	0.05 U	NA	NA	0.05 U	NA	NA	NA	NA	0.05 U	0.05 U	NA	NA	NA	NA	0.05 U	NA
EPA	04/19/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
EPA	04/19/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
EPA	10/06/2011	NA	9.8 U	9.8 U	NA	9.8 U	9.8 U	9.8 U	NA	NA	NA	9.8 U	9.8 U	20 U	9.8 U	NA	9.8 U
EPA	10/06/2011	0.1 U	NA	NA	0.1 U	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA	NA	0.1 U	NA
EPA	04/06/2012	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.04 J	0.03 J	NA	NA	NA	NA	0.09 U	NA
EPA	04/06/2012	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
EPA	04/06/2012	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
EPA	04/06/2012	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
EPA	04/04/2013	NA	9.3 U	9.3 U	NA	9.3 U	9.3 U	9.3 U	NA	NA	NA	9.3 U	9.3 U	19 UJ	9.3 U	NA	9.3 U
EPA	04/04/2013	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
EPA	04/10/2014	0.1 U	NA	NA	0.1 U	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA	NA	0.1 U	NA
EPA	04/10/2014	NA	9.6 U	9.6 U	NA	9.6 U	9.6 U	9.6 U	NA	NA	NA	9.6 U	9.6 U	19 U	9.6 U	NA	9.6 U
EPA	04/17/2015	NA	9.6 U	9.6 U	NA	9.6 U	9.6 U	9.6 U	NA	NA	NA	9.6 U	9.6 U	19 U	9.6 U	NA	9.6 U
EPA	04/17/2015	0.1 U	NA	NA	0.1 U	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA	NA	0.1 U	NA

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum

University of California, Berkeley, Richmond Field Station Site

SVOC AND PAH (µg/L)

Location ID	Sample Date	Chrysene	Di-N-Butylphthalate	Di-N-Octylphthalate	Dibenz(A,H)Anthracene	Dibenzofuran	Diethylphthalate	Dimethylphthalate	Diphenyl Amine	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-Cd)Pyrene	Isophorone
California MCLs																	
Federal MCLs																	
ETA	09/24/2010	0.05 U	NA	NA	0.05 U	NA	NA	NA	NA	0.041 J	0.17	NA	NA	NA	NA	0.05 U	NA
ETA	09/24/2010	0.9 U	0.9 U	0.9 UJ	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	4.7 UJ	0.9 U	0.9 U	0.9 U
ETA	09/24/2010	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 UJ	1 U	1 U	1 U
ETA	09/24/2010	0.05 U	NA	NA	0.05 U	NA	NA	NA	NA	0.035 J	0.16	NA	NA	NA	NA	0.05 U	NA
ETA	04/12/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
ETA	04/12/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
ETA	09/30/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
ETA	09/30/2011	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
ETA	04/10/2012	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
ETA	04/10/2012	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
ETA	04/10/2012	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
ETA	04/10/2012	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
EXT	09/30/2011	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
EXT	09/30/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
FG	09/23/2010	0.05 U	NA	NA	0.05 U	NA	NA	NA	NA	0.05 U	0.05 U	NA	NA	NA	NA	0.05 U	NA
FG	09/23/2010	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 UJ	1 U	1 U	1 U
FG	04/19/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
FG	04/19/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
FG	04/19/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
FG	04/19/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
FG	10/10/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
FG	10/10/2011	NA	9.5 U	9.5 U	NA	9.5 U	9.5 U	9.5 U	NA	NA	NA	9.5 U	9.5 U	19 U	9.5 U	NA	9.5 U
FG	04/09/2012	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
FG	04/09/2012	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

SVOC AND PAH (µg/L)

Location ID	Sample Date	Chrysene	Di-N-Butylphthalate	Di-N-Octylphthalate	Dibenz(A,H)Anthracene	Dibenzofuran	Diethylphthalate	Dimethylphthalate	Diphenyl Amine	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-Cd)Pyrene	Isophorone
California MCLs																	
Federal MCLs																	
GEO	09/03/2010	0.047 U	NA	NA	0.047 U	NA	NA	NA	NA	0.047 U	0.047 U	NA	NA	NA	NA	0.047 U	NA
GEO	09/03/2010	0.9 U	0.9 U	0.9 UJ	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	4.7 U	0.9 U	0.9 U	0.9 U
GEO	04/20/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
GEO	04/20/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
GEO	10/06/2011	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
GEO	10/06/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
GEO	04/06/2012	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
GEO	04/06/2012	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
MFA	09/24/2010	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 UJ	1 U	1 U	1 U
MFA	09/24/2010	0.05 U	NA	NA	0.05 U	NA	NA	NA	NA	0.05 U	0.05 U	NA	NA	NA	NA	0.05 U	NA
MFA	04/12/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
MFA	04/12/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
MFA	10/03/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
MFA	10/03/2011	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
MFA	04/05/2012	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
MFA	04/05/2012	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
MFA	04/05/2013	NA	10 U	10 U	NA	10 U	10 U	10 U	NA	NA	NA	10 U	10 U	20 U	10 U	NA	10 U
MFA	04/05/2013	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
MFA	04/08/2014	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
MFA	04/08/2014	NA	9.3 U	9.3 U	NA	9.3 U	9.3 U	9.3 U	NA	NA	NA	9.3 U	9.3 U	19 U	9.3 U	NA	9.3 U
MFA	04/13/2015	0.1 U	NA	NA	0.1 U	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA	NA	0.1 U	NA
MFA	04/13/2015	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

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University of California, Berkeley, Richmond Field Station Site

SVOC AND PAH (µg/L)

Location ID	Sample Date	Chrysene	Di-N-Butylphthalate	Di-N-Octylphthalate	Dibenz(A,H)Anthracene	Dibenzofuran	Diethylphthalate	Dimethylphthalate	Diphenyl Amine	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-Cd)Pyrene	Isophorone
California MCLs																	
Federal MCLs																	
NRLF	09/16/2010	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	4.8 UJ	1 U	1 U	1 U
NRLF	09/16/2010	0.05 U	NA	NA	0.05 U	NA	NA	NA	NA	0.05 U	0.05 U	NA	NA	NA	NA	0.05 U	NA
NRLF	04/20/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
NRLF	04/20/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
NRLF	10/06/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
NRLF	10/06/2011	NA	9.5 U	9.5 U	NA	9.5 U	9.5 U	9.5 U	NA	NA	NA	9.5 U	9.5 U	19 U	9.5 U	NA	9.5 U
NRLF	04/09/2012	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
NRLF	04/09/2012	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
OBS6	09/30/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
OBS6	09/30/2011	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
PZ11	10/01/2010	0.05 U	NA	NA	0.05 U	NA	NA	NA	NA	0.05 U	0.05 U	NA	NA	NA	NA	0.05 U	NA
PZ11	10/01/2010	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 UJ	1 U	1 U	1 U
PZ11	04/20/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
PZ11	04/20/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
PZ11	10/10/2011	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
PZ11	10/10/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
PZ11	04/05/2012	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
PZ11	04/05/2012	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

2016 Groundwater Sampling Results, Technical Memorandum
University of California, Berkeley, Richmond Field Station Site

SVOC AND PAH (µg/L)

Location ID	Sample Date	Chrysene	Di-N-Butylphthalate	Di-N-Octylphthalate	Dibenz(A,H)Anthracene	Dibenzofuran	Diethylphthalate	Dimethylphthalate	Diphenyl Amine	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-Cd)Pyrene	Isophorone
California MCLs																	
Federal MCLs																	
PZ8	10/15/2010	0.05 U	NA	NA	0.05 U	NA	NA	NA	NA	0.05 U	0.05 U	NA	NA	NA	NA	0.05 U	NA
PZ8	10/15/2010	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 UJ	1 U	1 U	1 U
PZ8	04/18/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
PZ8	04/18/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
PZ8	10/04/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
PZ8	10/04/2011	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
PZ8	04/03/2012	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
PZ8	04/03/2012	NA	9.7 UJ	9.7 UJ	NA	9.7 UJ	9.7 UJ	9.7 UJ	NA	NA	NA	9.7 UJ	9.7 UJ	19 UJ	9.7 UJ	NA	9.7 UJ
PZ9	09/24/2010	0.05 U	NA	NA	0.05 U	NA	NA	NA	NA	0.05 U	0.05 U	NA	NA	NA	NA	0.05 U	NA
PZ9	09/24/2010	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 UJ	1 U	1 U	1 U
PZ9	04/20/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
PZ9	04/20/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
PZ9	10/07/2011	0.1 U	NA	NA	0.1 U	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA	NA	0.1 U	NA
PZ9	10/07/2011	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
PZ9	10/07/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
PZ9	10/07/2011	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
PZ9	04/06/2012	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
PZ9	04/06/2012	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U

SVOC AND PAH (µg/L)

Location ID	Sample Date	Chrysene	Di-N-Butylphthalate	Di-N-Octylphthalate	Dibenz(A,H)Anthracene	Dibenzofuran	Diethylphthalate	Dimethylphthalate	Diphenyl Amine	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-Cd)Pyrene	Isophorone
California MCLs																	
Federal MCLs																	
RWF	09/15/2010	0.05 U	NA	NA	0.05 U	NA	NA	NA	NA	0.05 U	0.05 U	NA	NA	NA	NA	0.05 U	NA
RWF	09/15/2010	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 UJ	1 U	1 U	1 U
RWF	04/18/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
RWF	04/18/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
RWF	10/06/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
RWF	10/06/2011	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
RWF	04/04/2012	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
RWF	04/04/2012	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
TP1	09/29/2010	0.05 U	NA	NA	0.05 U	NA	NA	NA	NA	0.05 U	0.05 U	NA	NA	NA	NA	0.05 U	NA
TP1	09/29/2010	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 UJ	1 U	1 U	1 U
TP1	04/18/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
TP1	04/18/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
TP1	10/07/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
TP1	10/07/2011	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
TP1	04/05/2012	0.1 U	NA	NA	0.1 U	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA	NA	0.1 U	NA
TP1	04/05/2012	NA	9.5 U	9.5 U	NA	9.5 U	9.5 U	9.5 U	NA	NA	NA	9.5 U	9.5 U	19 U	9.5 U	NA	9.5 U

SVOC AND PAH (µg/L)

Location ID	Sample Date	Chrysene	Di-N-Butylphthalate	Di-N-Octylphthalate	Dibenz(A,H)Anthracene	Dibenzofuran	Diethylphthalate	Dimethylphthalate	Diphenyl Amine	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-Cd)Pyrene	Isophorone
California MCLs																	
Federal MCLs																	
TP2	09/29/2010	0.05 U	NA	NA	0.05 U	NA	NA	NA	NA	0.05 U	0.05 U	NA	NA	NA	NA	0.05 U	NA
TP2	09/29/2010	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 UJ	1 U	1 U	1 U
TP2	04/18/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
TP2	04/18/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
TP2	10/07/2011	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
TP2	10/07/2011	0.1 U	NA	NA	0.1 U	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA	NA	0.1 U	NA
TP2	04/09/2012	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
TP2	04/09/2012	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
TP2	04/09/2012	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
TP2	04/09/2012	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA

SVOC AND PAH (µg/L)

Location ID	Sample Date	Chrysene	Di-N-Butylphthalate	Di-N-Octylphthalate	Dibenz(A,H)Anthracene	Dibenzofuran	Diethylphthalate	Dimethylphthalate	Diphenyl Amine	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-Cd)Pyrene	Isophorone
California MCLs																	
Federal MCLs																	
WTA	09/30/2010	0.05 U	NA	NA	0.05 U	NA	NA	NA	NA	0.05 U	0.05 U	NA	NA	NA	NA	0.05 U	NA
WTA	09/30/2010	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 UJ	1 U	1 U	1 U
WTA	04/14/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
WTA	04/14/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
WTA	04/14/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
WTA	04/14/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
WTA	10/05/2011	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
WTA	10/05/2011	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
WTA	04/05/2012	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
WTA	04/05/2012	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
WTA	04/05/2013	NA	9.8 U	9.8 U	NA	9.8 U	9.8 U	9.8 U	NA	NA	NA	9.8 U	9.8 U	20 U	9.8 U	NA	9.8 U
WTA	04/05/2013	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
WTA	04/10/2014	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
WTA	04/10/2014	0.09 U	NA	NA	0.09 U	NA	NA	NA	NA	0.09 U	0.09 U	NA	NA	NA	NA	0.09 U	NA
WTA	04/13/2015	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	NA	NA	NA	9.4 U	9.4 U	19 U	9.4 U	NA	9.4 U
WTA	04/13/2015	0.1 U	NA	NA	0.1 U	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA	NA	0.1 U	NA

SVOC AND PAH (µg/L)

Location ID	Sample Date	N-Nitroso-Di-N-Propylamine	N-Nitrosodimethylamine	N-Nitrosodiphenylamine(1)	Naphthalene	Nitrobenzene	Pentachlorophenol	Phenanthrene	Phenol	Pyrene
California MCLs										
Federal MCLs										
B120	09/09/2010	NA	NA	NA	0.047 U	NA	NA	0.047 U	NA	0.047 U
B120	09/09/2010	0.9 U	NA	NA	0.9 U	0.9 U	4.7 U	0.9 U	4.7 U	0.9 U
B120	04/15/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B120	04/15/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B120	10/04/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B120	10/04/2011	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
B120	04/03/2012	NA	NA	NA	0.1 U	NA	NA	0.1 U	NA	0.1 U
B120	04/03/2012	9.6 U	9.6 U	9.6 U	NA	9.6 U	19 U	NA	9.6 U	NA
B121	09/08/2010	NA	NA	NA	0.048 U	NA	NA	0.048 U	NA	0.048 U
B121	09/08/2010	0.9 U	NA	NA	0.9 U	0.9 UJ	4.7 U	0.9 U	4.7 U	0.9 U
B121	04/13/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B121	04/13/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B121	10/04/2011	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
B121	10/04/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B121	04/04/2012	NA	NA	NA	0.1 U	NA	NA	0.1 U	NA	0.1 U
B121	04/04/2012	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA

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Location ID	Sample Date	N-Nitroso-Di-N-Propylamine	N-Nitrosodimethylamine	N-Nitrosodiphenylamine(1)	Naphthalene	Nitrobenzene	Pentachlorophenol	Phenanthrene	Phenol	Pyrene
California MCLs										
Federal MCLs										
B128	09/23/2010	NA	NA	NA	0.047 U	NA	NA	0.047 U	NA	0.047 U
B128	09/23/2010	1 U	NA	NA	1 U	1 U	5 U	1 U	5 U	1 U
B128	09/23/2010	1 U	NA	NA	1 U	1 U	5 U	1 U	5 U	1 U
B128	09/23/2010	NA	NA	NA	0.05 U	NA	NA	0.05 U	NA	0.05 U
B128	04/18/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B128	04/18/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B128	10/04/2011	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
B128	10/04/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B128	04/02/2012	9.6 U	9.6 U	9.6 U	NA	9.6 U	19 U	NA	9.6 U	NA
B128	04/02/2012	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B128	04/05/2013	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B128	04/05/2013	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
B128	04/10/2014	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B128	04/10/2014	9.8 U	9.8 U	9.8 U	NA	9.8 U	20 U	NA	9.8 U	NA
B128	04/13/2015	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B128	04/13/2015	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
B128	04/13/2015	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
B128	04/13/2015	NA	NA	NA	0.1 U	NA	NA	0.1 U	NA	0.1 U

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SVOC AND PAH (µg/L)

Location ID	Sample Date	N-Nitroso-Di-N-Propylamine	N-Nitrosodimethylamine	N-Nitrosodiphenylamine(1)	Naphthalene	Nitrobenzene	Pentachlorophenol	Phenanthrene	Phenol	Pyrene
California MCLs										
Federal MCLs										
B150	09/08/2010	1 U	NA	NA	1 U	1 U	4.8 U	1 U	4.8 U	1 U
B150	09/08/2010	NA	NA	NA	0.048 U	NA	NA	0.048 U	NA	0.048 U
B150	04/13/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B150	04/13/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B150	10/05/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B150	10/05/2011	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
B150	10/05/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B150	10/05/2011	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
B150	04/04/2012	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B150	04/04/2012	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
B150	04/04/2012	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B150	04/04/2012	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
B158	09/08/2010	NA	NA	NA	0.047 U	NA	NA	0.047 U	NA	0.047 U
B158	09/08/2010	1 U	NA	NA	1 U	1 U	5 U	1 U	5 U	1 U
B158	04/15/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B158	04/15/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B158	10/05/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B158	10/05/2011	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
B158	04/06/2012	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B158	04/06/2012	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA

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Location ID	Sample Date	N-Nitroso-Di-N-Propylamine	N-Nitrosodimethylamine	N-Nitrosodiphenylamine(1)	Naphthalene	Nitrobenzene	Pentachlorophenol	Phenanthrene	Phenol	Pyrene
California MCLs										
Federal MCLs										
B163	09/02/2010	1 UJ	NA	NA	1 U	1 U	5 U	1 U	5 U	1 U
B163	09/02/2010	NA	NA	NA	0.047 U	NA	NA	0.047 U	NA	0.047 U
B163	04/12/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B163	04/12/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B163	10/03/2011	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
B163	10/03/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B163	04/02/2012	9.6 U	9.6 U	9.6 U	NA	9.6 U	19 U	NA	9.6 U	NA
B163	04/02/2012	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B163	04/03/2013	11 U	11 U	11 U	NA	11 U	21 U	NA	11 U	NA
B163	04/03/2013	NA	NA	NA	0.1 U	NA	NA	0.1 U	NA	0.1 U
B163	04/01/2014	NA	NA	NA	0.1 U	NA	NA	0.1 U	NA	0.1 U
B163	04/01/2014	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
B163	04/14/2015	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B163	04/14/2015	10 U	10 U	10 U	NA	10 U	20 U	NA	10 U	NA
B175S	09/03/2010	0.9 UJ	NA	NA	0.9 U	0.9 U	4.7 U	0.9 U	4.7 U	0.9 U
B175S	09/03/2010	NA	NA	NA	0.047 U	NA	NA	0.047 U	NA	0.047 U
B175S	04/13/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B175S	04/13/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B175S	10/04/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B175S	10/04/2011	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
B175S	04/04/2012	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B175S	04/04/2012	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA

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SVOC AND PAH (µg/L)

Location ID	Sample Date	N-Nitroso-Di-N-Propylamine	N-Nitrosodimethylamine	N-Nitrosodiphenylamine(1)	Naphthalene	Nitrobenzene	Pentachlorophenol	Phenanthrene	Phenol	Pyrene
California MCLs										
Federal MCLs										
B175W	09/08/2010	1 U	NA	NA	1 U	1 U	5 U	1 U	5 U	1 U
B175W	09/08/2010	NA	NA	NA	0.05 U	NA	NA	0.05 U	NA	0.05 U
B175W	04/13/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B175W	04/13/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B175W	10/04/2011	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
B175W	10/04/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B175W	04/04/2012	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B175W	04/04/2012	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
B177	09/23/2010	0.9 U	NA	NA	0.9 U	0.9 U	4.7 U	0.9 U	4.7 U	0.9 U
B177	09/23/2010	NA	NA	NA	0.047 U	NA	NA	0.047 U	NA	0.047 U
B177	04/18/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B177	04/18/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B177	10/05/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B177	10/05/2011	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
B177	04/04/2012	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B177	04/04/2012	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
B178	09/02/2010	1 UJ	NA	NA	1 U	1 U	5 U	1 U	5 U	1 U
B178	09/02/2010	NA	NA	NA	0.05 U	NA	NA	0.05 U	NA	0.05 U
B178	04/15/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B178	04/15/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B178	10/04/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B178	10/04/2011	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
B178	04/03/2012	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B178	04/03/2012	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA

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Location ID	Sample Date	N-Nitroso-Di-N-Propylamine	N-Nitrosodimethylamine	N-Nitrosodiphenylamine(1)	Naphthalene	Nitrobenzene	Pentachlorophenol	Phenanthrene	Phenol	Pyrene
California MCLs										
Federal MCLs										
B180	09/15/2010	NA	NA	NA	0.05 U	NA	NA	0.05 U	NA	0.05 U
B180	09/15/2010	1 U	NA	NA	1 U	1 U	4.8 U	1 U	4.8 U	1 U
B180	04/13/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B180	04/13/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B180	10/06/2011	NA	NA	NA	0.1 U	NA	NA	0.1 U	NA	0.1 U
B180	10/06/2011	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
B180	10/06/2011	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
B180	10/06/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B180	04/04/2012	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B180	04/04/2012	9.7 U	9.7 U	9.7 U	NA	9.7 U	19 U	NA	9.7 U	NA
B180	04/08/2013	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B180	04/08/2013	9.3 U	9.3 U	9.3 U	NA	9.3 U	19 U	NA	9.3 U	NA
B180	04/08/2014	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
B180	04/08/2014	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B180	04/14/2015	9.6 U	9.6 U	9.6 U	NA	9.6 U	19 U	NA	9.6 U	NA
B180	04/14/2015	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U

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SVOC AND PAH (µg/L)

Location ID	Sample Date	N-Nitroso-Di-N-Propylamine	N-Nitrosodimethylamine	N-Nitrosodiphenylamine(1)	Naphthalene	Nitrobenzene	Pentachlorophenol	Phenanthrene	Phenol	Pyrene
California MCLs										
Federal MCLs										
B185	09/02/2010	0.9 UJ	NA	NA	0.9 U	0.9 U	4.7 U	0.9 U	4.7 U	0.9 U
B185	09/02/2010	NA	NA	NA	0.05 U	NA	NA	0.05 U	NA	0.05 U
B185	04/15/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.02 J
B185	04/15/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B185	04/15/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B185	04/15/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B185	10/03/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B185	10/03/2011	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
B185	10/03/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B185	10/03/2011	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
B185	04/02/2012	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B185	04/02/2012	9.6 U	9.6 U	9.6 U	NA	9.6 U	19 U	NA	9.6 U	NA
B194	09/09/2010	NA	NA	NA	0.047 U	NA	NA	0.047 U	NA	0.047 U
B194	09/09/2010	0.9 U	NA	NA	0.9 U	0.9 U	4.7 U	0.9 U	4.7 U	0.9 U
B194	04/13/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B194	04/13/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B194	10/04/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B194	10/04/2011	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
B194	04/04/2012	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B194	04/04/2012	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA

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SVOC AND PAH (µg/L)

Location ID	Sample Date	N-Nitroso-Di-N-Propylamine	N-Nitrosodimethylamine	N-Nitrosodiphenylamine(1)	Naphthalene	Nitrobenzene	Pentachlorophenol	Phenanthrene	Phenol	Pyrene
California MCLs										
Federal MCLs										
B195	09/09/2010	NA	NA	NA	0.047 U	NA	NA	0.047 U	NA	0.047 U
B195	09/09/2010	0.9 U	NA	NA	0.9 U	0.9 U	4.7 U	0.9 U	4.7 U	0.9 U
B195	04/13/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B195	04/13/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B195	04/13/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B195	04/13/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B195	10/04/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B195	10/04/2011	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
B195	04/03/2012	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B195	04/03/2012	9.5 U	9.5 U	9.5 U	NA	9.5 U	19 U	NA	9.5 U	NA
B197	09/09/2010	NA	NA	NA	0.047 U	NA	NA	0.047 U	NA	0.047 U
B197	09/09/2010	0.9 U	NA	NA	0.9 U	0.9 U	4.7 U	0.9 U	4.7 U	0.9 U
B197	09/09/2010	NA	NA	NA	0.047 U	NA	NA	0.047 U	NA	0.047 U
B197	09/09/2010	1 U	NA	NA	1 U	1 U	4.8 U	1 U	4.8 U	1 U
B197	04/13/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B197	04/13/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B197	10/04/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B197	10/04/2011	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
B197	04/03/2012	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B197	04/03/2012	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
B197	04/03/2012	NA	NA	NA	0.1 U	NA	NA	0.1 U	NA	0.1 U
B197	04/03/2012	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA

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SVOC AND PAH (µg/L)

Location ID	Sample Date	N-Nitroso-Di-N-Propylamine	N-Nitrosodimethylamine	N-Nitrosodiphenylamine(1)	Naphthalene	Nitrobenzene	Pentachlorophenol	Phenanthrene	Phenol	Pyrene
California MCLs										
Federal MCLs										
B277	09/15/2010	1 U	NA	NA	1 U	1 U	5 U	1 U	5 U	1 U
B277	09/15/2010	NA	NA	NA	0.05 U	NA	NA	0.05 U	NA	0.05 U
B277	04/18/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B277	04/18/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B277	10/05/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B277	10/05/2011	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
B277	04/03/2012	NA	NA	NA	0.1 U	NA	NA	0.1 U	NA	0.1 U
B277	04/03/2012	9.5 U	9.5 U	9.5 U	NA	9.5 U	19 U	NA	9.5 U	NA
B278	09/16/2010	1 U	NA	NA	1 U	1 UJ	5 U	1 U	5 U	1 U
B278	09/16/2010	NA	NA	NA	0.05 U	NA	NA	0.05 U	NA	0.05 U
B278	04/19/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B278	04/19/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B278	10/05/2011	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
B278	10/05/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B278	04/05/2012	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
B278	04/05/2012	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U

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SVOC AND PAH (µg/L)

Location ID	Sample Date	N-Nitroso-Di-N-Propylamine	N-Nitrosodimethylamine	N-Nitrosodiphenylamine(1)	Naphthalene	Nitrobenzene	Pentachlorophenol	Phenanthrene	Phenol	Pyrene
California MCLs										
Federal MCLs										
B280A	09/16/2010	NA	NA	NA	0.035 J	NA	NA	0.05 U	NA	0.05 U
B280A	09/16/2010	1 U	NA	NA	1 U	1 U	5 U	1 U	5 U	1 U
B280A	04/14/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B280A	04/14/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B280A	10/06/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B280A	10/06/2011	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
B280A	04/03/2012	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
B280A	04/03/2012	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B280A	04/04/2013	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B280A	04/04/2013	10 U	10 U	10 U	NA	10 U	20 U	NA	10 U	NA
B280A	04/09/2014	NA	NA	NA	0.1 U	NA	NA	0.1 U	NA	0.1 U
B280A	04/09/2014	9.3 U	9.3 U	9.3 U	NA	9.3 U	19 U	NA	9.3 U	NA
B280A	04/17/2015	NA	NA	NA	0.1 U	NA	NA	0.1 U	NA	0.1 U
B280A	04/17/2015	9.8 U	9.8 U	9.8 U	NA	9.8 U	20 U	NA	9.8 U	NA
B280B	10/01/2010	NA	NA	NA	0.05 U	NA	NA	0.05 U	NA	0.05 U
B280B	10/01/2010	1 U	NA	NA	1 U	1 U	5 U	1 U	5 U	1 U
B280B	04/14/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B280B	04/14/2011	10 U	10 U	10 U	10 U	10 U	20 U	10 U	10 U	10 U
B280B	10/06/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B280B	10/06/2011	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
B280B	04/03/2012	NA	NA	NA	0.1 U	NA	NA	0.1 U	NA	0.1 U
B280B	04/03/2012	9.5 U	9.5 U	9.5 U	NA	9.5 U	19 U	NA	9.5 U	NA

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SVOC AND PAH (µg/L)

Location ID	Sample Date	N-Nitroso-Di-N-Propylamine	N-Nitrosodimethylamine	N-Nitrosodiphenylamine(1)	Naphthalene	Nitrobenzene	Pentachlorophenol	Phenanthrene	Phenol	Pyrene
California MCLs										
Federal MCLs										
B300	09/09/2010	NA	NA	NA	0.047 U	NA	NA	0.047 U	NA	0.047 U
B300	09/09/2010	0.9 U	NA	NA	0.9 U	0.9 U	4.7 U	0.9 U	4.7 U	0.9 U
B300	04/15/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B300	04/15/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B300	10/06/2011	NA	NA	NA	0.5 U	NA	NA	0.5 U	NA	0.5 U
B300	10/06/2011	97 U	97 U	97 U	NA	97 U	190 U	NA	97 U	NA
B300	04/09/2012	NA	NA	NA	0.02 J	NA	NA	0.09 U	NA	0.09 U
B300	04/09/2012	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
B38	09/15/2010	NA	NA	NA	0.05 UJ	NA	NA	0.05 UJ	NA	0.05 UJ
B38	09/15/2010	1 U	NA	NA	1 U	1 U	5 U	1 U	5 U	1 U
B38	04/19/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B38	04/19/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B38	04/19/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B38	04/19/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B38	10/06/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B38	10/06/2011	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
B38	04/04/2012	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B38	04/04/2012	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
B450	04/19/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B450	04/19/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B450	10/10/2011	NA	NA	NA	0.02 J	NA	NA	0.09 U	NA	0.09 U
B450	10/10/2011	9.6 UJ	9.6 UJ	9.6 UJ	NA	9.6 UJ	19 UJ	NA	9.6 UJ	NA
B450	04/06/2012	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B450	04/06/2012	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA

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SVOC AND PAH (µg/L)

Location ID	Sample Date	N-Nitroso-Di-N-Propylamine	N-Nitrosodimethylamine	N-Nitrosodiphenylamine(1)	Naphthalene	Nitrobenzene	Pentachlorophenol	Phenanthrene	Phenol	Pyrene
California MCLs										
Federal MCLs										
B460	09/15/2010	NA	NA	NA	0.05 U	NA	NA	0.05 U	NA	0.05 U
B460	09/15/2010	1 U	NA	NA	1 U	1 U	5 U	1 U	5 U	1 U
B460	04/20/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 UJ
B460	04/20/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B460	10/07/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B460	10/07/2011	9.6 U	9.6 U	9.6 U	NA	9.6 U	19 U	NA	9.6 U	NA
B460	04/06/2012	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B460	04/06/2012	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
B473	09/24/2010	NA	NA	NA	0.05 U	NA	NA	0.05 U	NA	0.05 U
B473	09/24/2010	1 U	NA	NA	1 U	1 U	5 U	1 U	5 U	1 U
B473	04/20/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B473	04/20/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B473	10/07/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B473	10/07/2011	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
B473	04/06/2012	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B473	04/06/2012	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
B474	09/23/2010	NA	NA	NA	0.05 U	NA	NA	0.05 U	NA	0.05 U
B474	09/23/2010	1 U	NA	NA	1 U	1 U	5 U	1 U	5 U	1 U
B474	04/20/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B474	04/20/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B474	10/07/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B474	10/07/2011	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
B474	04/09/2012	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B474	04/09/2012	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA

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SVOC AND PAH (µg/L)

Location ID	Sample Date	N-Nitroso-Di-N-Propylamine	N-Nitrosodimethylamine	N-Nitrosodiphenylamine(1)	Naphthalene	Nitrobenzene	Pentachlorophenol	Phenanthrene	Phenol	Pyrene
California MCLs										
Federal MCLs										
B480	09/24/2010	NA	NA	NA	0.05 U	NA	NA	0.05 U	NA	0.05 U
B480	09/24/2010	1 U	NA	NA	1 U	1 U	5 U	1 U	5 U	1 U
B480	04/19/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B480	04/19/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B480	10/07/2011	NA	NA	NA	0.1 U	NA	NA	0.1 U	NA	0.1 U
B480	10/07/2011	9.5 U	9.5 U	9.5 U	NA	9.5 U	19 U	NA	9.5 U	NA
B480	04/09/2012	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B480	04/09/2012	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
B490	09/16/2010	NA	NA	NA	0.05 U	NA	NA	0.05 U	NA	0.05 U
B490	09/16/2010	1 U	NA	NA	1 U	1 U	5 U	1 U	5 U	1 U
B490	04/20/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B490	04/20/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
B490	10/10/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B490	10/10/2011	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
B490	04/09/2012	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
B490	04/09/2012	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
BULB1	10/19/2010	NA	NA	NA	0.047 U	NA	NA	0.047 U	NA	0.047 U
BULB1	10/19/2010	0.9 U	NA	NA	0.9 U	0.9 U	4.7 U	0.9 U	4.7 U	0.9 U
BULB1	04/12/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
BULB1	04/12/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
BULB1	09/30/2011	9.5 U	9.5 U	9.5 U	NA	9.5 U	19 U	NA	9.5 U	NA
BULB1	09/30/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
BULB1	04/05/2012	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
BULB1	04/05/2012	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA

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Location ID	Sample Date	N-Nitroso-Di-N-Propylamine	N-Nitrosodimethylamine	N-Nitrosodiphenylamine(1)	Naphthalene	Nitrobenzene	Pentachlorophenol	Phenanthrene	Phenol	Pyrene
California MCLs										
Federal MCLs										
BULB2	10/19/2010	1 U	NA	NA	1 U	1 U	5 U	1 U	5 U	1 U
BULB2	10/19/2010	NA	NA	NA	0.19	NA	NA	0.05 U	NA	0.05 U
BULB2	04/12/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
BULB2	04/12/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
BULB2	09/30/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
BULB2	09/30/2011	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
BULB2	04/05/2012	NA	NA	NA	0.1 U	NA	NA	0.1 U	NA	0.1 U
BULB2	04/05/2012	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
BULB2	04/05/2013	10 U	10 U	10 U	NA	10 U	20 U	NA	10 U	NA
BULB2	04/05/2013	NA	NA	NA	0.1 U	NA	NA	0.1 U	NA	0.1 U
BULB2	04/10/2014	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
BULB2	04/10/2014	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
BULB2	04/13/2015	9.6 U	9.6 U	9.6 U	NA	9.6 U	19 U	NA	9.6 U	NA
BULB2	04/13/2015	NA	NA	NA	0.1 U	NA	NA	0.1 U	NA	0.1 U
CCC1	09/08/2010	NA	NA	NA	0.047 U	NA	NA	0.047 U	NA	0.047 U
CCC1	09/08/2010	0.9 U	NA	NA	0.9 U	0.9 U	4.7 U	0.9 U	4.7 U	0.9 U
CCC1	04/14/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
CCC1	04/14/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
CCC1	10/05/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
CCC1	10/05/2011	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
CCC1	04/10/2012	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
CCC1	04/10/2012	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA

SVOC AND PAH (µg/L)

Location ID	Sample Date	N-Nitroso-Di-N-Propylamine	N-Nitrosodimethylamine	N-Nitrosodiphenylamine(1)	Naphthalene	Nitrobenzene	Pentachlorophenol	Phenanthrene	Phenol	Pyrene
California MCLs										
Federal MCLs										
CCC2	09/08/2010	NA	NA	NA	0.047 U	NA	NA	0.047 U	NA	0.047 U
CCC2	09/08/2010	1 U	NA	NA	1 U	1 U	4.8 U	1 U	4.8 U	1 U
CCC2	04/14/2011	NA	NA	NA	0.1 U	NA	NA	0.1 U	NA	0.1 U
CCC2	04/14/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
CCC2	10/04/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
CCC2	10/04/2011	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
CCC2	04/10/2012	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
CCC2	04/10/2012	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
CCC2	04/02/2013	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
CCC2	04/02/2013	9.5 U	9.5 U	9.5 U	NA	9.5 U	19 U	NA	9.5 U	NA
CCC2	04/02/2013	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
CCC2	04/02/2013	9.3 U	9.3 U	9.3 U	NA	9.3 U	19 U	NA	9.3 U	NA
CCC2	04/02/2014	NA	NA	NA	0.1 U	NA	NA	0.1 U	NA	0.1 U
CCC2	04/02/2014	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
CCC2	04/15/2015	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
CCC2	04/15/2015	NA	NA	NA	0.1 U	NA	NA	0.1 U	NA	0.1 U

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Location ID	Sample Date	N-Nitroso-Di-N-Propylamine	N-Nitrosodimethylamine	N-Nitrosodiphenylamine(1)	Naphthalene	Nitrobenzene	Pentachlorophenol	Phenanthrene	Phenol	Pyrene
California MCLs										
Federal MCLs										
CCC3	09/03/2010	0.9 UJ	NA	NA	0.9 U	0.9 U	4.7 U	0.9 U	4.7 U	0.9 U
CCC3	09/03/2010	NA	NA	NA	0.047 U	NA	NA	0.047 U	NA	0.047 U
CCC3	09/03/2010	NA	NA	NA	0.047 U	NA	NA	0.047 U	NA	0.047 U
CCC3	09/03/2010	0.9 UJ	NA	NA	0.9 U	0.9 U	4.7 U	0.9 U	4.7 U	0.9 U
CCC3	04/12/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
CCC3	04/12/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
CCC3	10/04/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
CCC3	10/04/2011	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
CCC3	10/04/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
CCC3	10/04/2011	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
CCC3	04/10/2012	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
CCC3	04/10/2012	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
CCCT	09/03/2010	0.9 UJ	NA	NA	0.9 U	0.9 U	4.7 U	0.9 U	4.7 U	0.9 U
CCCT	09/03/2010	NA	NA	NA	0.047 U	NA	NA	0.047 U	NA	0.047 U
CCCT	04/18/2011	NA	NA	NA	0.1 U	NA	NA	0.1 U	NA	0.1 U
CCCT	04/18/2011	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	19 U	9.5 U	9.5 U	9.5 U
CCCT	10/03/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
CCCT	10/03/2011	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
CCCT	04/04/2012	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
CCCT	04/04/2012	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA

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SVOC AND PAH (µg/L)

Location ID	Sample Date	N-Nitroso-Di-N-Propylamine	N-Nitrosodimethylamine	N-Nitrosodiphenylamine(1)	Naphthalene	Nitrobenzene	Pentachlorophenol	Phenanthrene	Phenol	Pyrene
California MCLs										
Federal MCLs										
CTP	09/30/2010	NA	NA	NA	0.05 U	NA	NA	0.05 U	NA	0.05 U
CTP	09/30/2010	1 U	NA	NA	1 U	1 U	5 U	1 U	5 U	1 U
CTP	09/30/2010	NA	NA	NA	0.05 U	NA	NA	0.05 U	NA	0.05 U
CTP	09/30/2010	1 U	NA	NA	1 U	1 U	5 U	1 U	5 U	1 U
CTP	04/14/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
CTP	04/14/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
CTP	10/06/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
CTP	10/06/2011	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
CTP	04/03/2012	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
CTP	04/03/2012	9.5 U	9.5 U	9.5 U	NA	9.5 U	19 U	NA	9.5 U	NA
CTP	04/04/2013	NA	NA	NA	0.1 U	NA	NA	0.1 U	NA	0.1 U
CTP	04/04/2013	10 U	10 U	10 U	NA	10 U	20 U	NA	10 U	NA
CTP	04/03/2014	9.3 U	9.3 U	9.3 U	NA	9.3 U	19 U	NA	9.3 U	NA
CTP	04/03/2014	NA	NA	NA	0.1 U	NA	NA	0.1 U	NA	0.1 U
CTP	04/03/2014	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
CTP	04/03/2014	10 U	10 U	10 U	NA	10 U	20 U	NA	10 U	NA
CTP	04/17/2015	NA	NA	NA	0.1 U	NA	NA	0.1 U	NA	0.1 U
CTP	04/17/2015	9.3 U	9.3 U	9.3 U	NA	9.3 U	19 U	NA	9.3 U	NA

SVOC AND PAH (µg/L)

Location ID	Sample Date	N-Nitroso-Di-N-Propylamine	N-Nitrosodimethylamine	N-Nitrosodiphenylamine(1)	Naphthalene	Nitrobenzene	Pentachlorophenol	Phenanthrene	Phenol	Pyrene
California MCLs										
Federal MCLs										
CTPS	10/01/2010	1.2 U	NA	NA	1.2 U	1.2 U	6 U	1.2 U	6 U	1.2 U
CTPS	10/18/2010	NA	NA	NA	0.05 U	NA	NA	0.05 U	NA	0.05 U
CTPS	04/19/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
CTPS	04/19/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
CTPS	10/07/2011	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
CTPS	10/10/2011	NA	NA	NA	0.02 J	NA	NA	0.1 U	NA	0.1 U
CTPS	04/05/2012	9.5 U	9.5 U	9.5 U	NA	9.5 U	19 U	NA	9.5 U	NA
CTPS	04/05/2012	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
DH	09/30/2010	NA	NA	NA	0.047 U	NA	NA	0.047 U	NA	0.047 U
DH	09/30/2010	1 U	NA	NA	1 U	1 U	5 U	1 U	5 U	1 U
DH	04/14/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
DH	04/14/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
DH	10/05/2011	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
DH	10/05/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
DH	04/05/2012	NA	NA	NA	0.03 J	NA	NA	0.09 U	NA	0.09 U
DH	04/06/2012	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
EERC	10/01/2010	1 U	NA	NA	1 U	1 U	5 U	1 U	5 U	1 U
EERC	10/15/2010	NA	NA	NA	0.05 U	NA	NA	0.05 U	NA	0.05 U
EERC	04/20/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
EERC	04/20/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
EERC	10/07/2011	NA	NA	NA	0.1 U	NA	NA	0.1 U	NA	0.1 U
EERC	10/07/2011	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
EERC	04/06/2012	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
EERC	04/06/2012	9.5 U	9.5 U	9.5 U	NA	9.5 U	19 U	NA	9.5 U	NA

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SVOC AND PAH (µg/L)

Location ID	Sample Date	N-Nitroso-Di-N-Propylamine	N-Nitrosodimethylamine	N-Nitrosodiphenylamine(1)	Naphthalene	Nitrobenzene	Pentachlorophenol	Phenanthrene	Phenol	Pyrene
California MCLs										
Federal MCLs										
EPA	09/16/2010	1 U	NA	NA	1 U	1 U	5 U	1 U	5 U	1 U
EPA	09/16/2010	NA	NA	NA	0.042 J	NA	NA	0.05 U	NA	0.05 U
EPA	04/19/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
EPA	04/19/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
EPA	10/06/2011	9.8 U	9.8 U	9.8 U	NA	9.8 U	20 U	NA	9.8 U	NA
EPA	10/06/2011	NA	NA	NA	0.02 J	NA	NA	0.1 U	NA	0.1 U
EPA	04/06/2012	NA	NA	NA	0.4	NA	NA	0.02 J	NA	0.02 J
EPA	04/06/2012	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
EPA	04/06/2012	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
EPA	04/06/2012	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
EPA	04/04/2013	9.3 U	9.3 U	9.3 U	NA	9.3 U	19 U	NA	9.3 U	NA
EPA	04/04/2013	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
EPA	04/10/2014	NA	NA	NA	0.1 U	NA	NA	0.1 U	NA	0.1 U
EPA	04/10/2014	9.6 U	9.6 U	9.6 U	NA	9.6 U	19 U	NA	9.6 U	NA
EPA	04/17/2015	9.6 U	9.6 U	9.6 U	NA	9.6 U	19 U	NA	9.6 U	NA
EPA	04/17/2015	NA	NA	NA	0.1 U	NA	NA	0.1 U	NA	0.1 U

SVOC AND PAH (µg/L)

Location ID	Sample Date	N-Nitroso-Di-N-Propylamine	N-Nitrosodimethylamine	N-Nitrosodiphenylamine(1)	Naphthalene	Nitrobenzene	Pentachlorophenol	Phenanthrene	Phenol	Pyrene
California MCLs										
Federal MCLs										
ETA	09/24/2010	NA	NA	NA	0.05 U	NA	NA	0.05 U	NA	0.088
ETA	09/24/2010	0.9 U	NA	NA	0.9 U	0.9 U	4.7 U	0.9 U	4.7 U	0.9 U
ETA	09/24/2010	1 U	NA	NA	1 U	1 U	5 U	1 U	5 U	1 U
ETA	09/24/2010	NA	NA	NA	0.05 U	NA	NA	0.05 U	NA	0.074
ETA	04/12/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
ETA	04/12/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
ETA	09/30/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.04 J
ETA	09/30/2011	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
ETA	04/10/2012	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.03 J
ETA	04/10/2012	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
ETA	04/10/2012	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
ETA	04/10/2012	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.03 J
EXT	09/30/2011	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
EXT	09/30/2011	NA	NA	NA	0.04 J	NA	NA	0.09 U	NA	0.09 U
FG	09/23/2010	NA	NA	NA	0.05 U	NA	NA	0.05 U	NA	0.05 U
FG	09/23/2010	1 U	NA	NA	1 U	1 U	5 U	1 U	5 U	1 U
FG	04/19/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
FG	04/19/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
FG	04/19/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
FG	04/19/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
FG	10/10/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
FG	10/10/2011	9.5 U	9.5 U	9.5 U	NA	9.5 U	19 U	NA	9.5 U	NA
FG	04/09/2012	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
FG	04/09/2012	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U

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SVOC AND PAH (µg/L)

Location ID	Sample Date	N-Nitroso-Di-N-Propylamine	N-Nitrosodimethylamine	N-Nitrosodiphenylamine(1)	Naphthalene	Nitrobenzene	Pentachlorophenol	Phenanthrene	Phenol	Pyrene
California MCLs										
Federal MCLs										
GEO	09/03/2010	NA	NA	NA	0.047 U	NA	NA	0.047 U	NA	0.047 U
GEO	09/03/2010	0.9 UJ	NA	NA	0.9 U	0.9 U	4.7 U	0.9 U	4.7 U	0.9 U
GEO	04/20/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
GEO	04/20/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 UJ
GEO	10/06/2011	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
GEO	10/06/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
GEO	04/06/2012	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
GEO	04/06/2012	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
MFA	09/24/2010	1 U	NA	NA	1 U	1 U	5 U	1 U	5 U	1 U
MFA	09/24/2010	NA	NA	NA	0.05 U	NA	NA	0.05 U	NA	0.05 U
MFA	04/12/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
MFA	04/12/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
MFA	10/03/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
MFA	10/03/2011	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
MFA	04/05/2012	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
MFA	04/05/2012	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
MFA	04/05/2013	10 U	10 U	10 U	NA	10 U	20 U	NA	10 U	NA
MFA	04/05/2013	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
MFA	04/08/2014	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 UJ
MFA	04/08/2014	9.3 U	9.3 U	9.3 U	NA	9.3 U	19 U	NA	9.3 U	NA
MFA	04/13/2015	NA	NA	NA	0.1 U	NA	NA	0.1 U	NA	0.1 U
MFA	04/13/2015	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA

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SVOC AND PAH (µg/L)

Location ID	Sample Date	N-Nitroso-Di-N-Propylamine	N-Nitrosodimethylamine	N-Nitrosodiphenylamine(1)	Naphthalene	Nitrobenzene	Pentachlorophenol	Phenanthrene	Phenol	Pyrene
California MCLs										
Federal MCLs										
NRLF	09/16/2010	1 U	NA	NA	1 U	1 U	4.8 U	1 U	4.8 U	1 U
NRLF	09/16/2010	NA	NA	NA	0.029 J	NA	NA	0.05 U	NA	0.05 U
NRLF	04/20/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
NRLF	04/20/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 UJ
NRLF	10/06/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
NRLF	10/06/2011	9.5 U	9.5 U	9.5 U	NA	9.5 U	19 U	NA	9.5 U	NA
NRLF	04/09/2012	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
NRLF	04/09/2012	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
OBS6	09/30/2011	NA	NA	NA	0.04 J	NA	NA	0.09 U	NA	0.09 U
OBS6	09/30/2011	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
PZ11	10/01/2010	NA	NA	NA	0.05 U	NA	NA	0.05 U	NA	0.05 U
PZ11	10/01/2010	1 U	NA	NA	1 U	1 U	5 U	1 U	5 U	1 U
PZ11	04/20/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
PZ11	04/20/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
PZ11	10/10/2011	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
PZ11	10/10/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
PZ11	04/05/2012	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
PZ11	04/05/2012	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA

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Location ID	Sample Date	N-Nitroso-Di-N-Propylamine	N-Nitrosodimethylamine	N-Nitrosodiphenylamine(1)	Naphthalene	Nitrobenzene	Pentachlorophenol	Phenanthrene	Phenol	Pyrene
California MCLs										
Federal MCLs										
PZ8	10/15/2010	NA	NA	NA	0.05 U	NA	NA	0.05 U	NA	0.05 U
PZ8	10/15/2010	1 U	NA	NA	1 U	1 U	5 U	1 U	5 U	1 U
PZ8	04/18/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
PZ8	04/18/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
PZ8	10/04/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
PZ8	10/04/2011	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
PZ8	04/03/2012	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
PZ8	04/03/2012	9.7 UJ	9.7 UJ	9.7 UJ	NA	9.7 UJ	19 UJ	NA	9.7 UJ	NA
PZ9	09/24/2010	NA	NA	NA	0.05 U	NA	NA	0.05 U	NA	0.05 U
PZ9	09/24/2010	1 U	NA	NA	1 U	1 U	5 U	1 U	5 U	1 U
PZ9	04/20/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 UJ
PZ9	04/20/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
PZ9	10/07/2011	NA	NA	NA	0.1 U	NA	NA	0.1 U	NA	0.1 U
PZ9	10/07/2011	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
PZ9	10/07/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
PZ9	10/07/2011	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
PZ9	04/06/2012	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
PZ9	04/06/2012	9.4 U	9.4 U	9.4 U	NA	9.4 UJ	19 U	NA	9.4 U	NA

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SVOC AND PAH (µg/L)

Location ID	Sample Date	N-Nitroso-Di-N-Propylamine	N-Nitrosodimethylamine	N-Nitrosodiphenylamine(1)	Naphthalene	Nitrobenzene	Pentachlorophenol	Phenanthrene	Phenol	Pyrene
California MCLs										
Federal MCLs										
RWF	09/15/2010	NA	NA	NA	0.05 U	NA	NA	0.05 U	NA	0.05 U
RWF	09/15/2010	1 U	NA	NA	1 U	1 U	5 U	1 U	5 U	1 U
RWF	04/18/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
RWF	04/18/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
RWF	10/06/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
RWF	10/06/2011	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
RWF	04/04/2012	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
RWF	04/04/2012	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
TP1	09/29/2010	NA	NA	NA	0.05 U	NA	NA	0.05 U	NA	0.036 UJ
TP1	09/29/2010	1 U	NA	NA	1 U	1 U	5 U	1 U	5 U	1 U
TP1	04/18/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
TP1	04/18/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
TP1	10/07/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
TP1	10/07/2011	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
TP1	04/05/2012	NA	NA	NA	0.1 U	NA	NA	0.1 U	NA	0.1 U
TP1	04/05/2012	9.5 U	9.5 U	9.5 U	NA	9.5 U	19 U	NA	9.5 U	NA

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SVOC AND PAH (µg/L)

Location ID	Sample Date	N-Nitroso-Di-N-Propylamine	N-Nitrosodimethylamine	N-Nitrosodiphenylamine(1)	Naphthalene	Nitrobenzene	Pentachlorophenol	Phenanthrene	Phenol	Pyrene
California MCLs										
Federal MCLs										
TP2	09/29/2010	NA	NA	NA	0.05 U	NA	NA	0.05 U	NA	0.05 U
TP2	09/29/2010	1 U	NA	NA	1 U	1 U	5 U	1 U	5 U	1 U
TP2	04/18/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
TP2	04/18/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
TP2	10/07/2011	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
TP2	10/07/2011	NA	NA	NA	0.1 U	NA	NA	0.1 U	NA	0.1 U
TP2	04/09/2012	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
TP2	04/09/2012	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
TP2	04/09/2012	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
TP2	04/09/2012	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

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SVOC AND PAH (µg/L)

Location ID	Sample Date	N-Nitroso-Di-N-Propylamine	N-Nitrosodimethylamine	N-Nitrosodiphenylamine(1)	Naphthalene	Nitrobenzene	Pentachlorophenol	Phenanthrene	Phenol	Pyrene
California MCLs										
Federal MCLs										
WTA	09/30/2010	NA	NA	NA	0.05 U	NA	NA	0.05 U	NA	0.05 U
WTA	09/30/2010	1 U	NA	NA	1 U	1 UJ	5 U	1 U	5 U	1 U
WTA	04/14/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
WTA	04/14/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
WTA	04/14/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
WTA	04/14/2011	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	19 U	9.4 U	9.4 U	9.4 U
WTA	10/05/2011	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
WTA	10/05/2011	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
WTA	04/05/2012	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
WTA	04/05/2012	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
WTA	04/05/2013	9.8 U	9.8 U	9.8 U	NA	9.8 U	20 U	NA	9.8 U	NA
WTA	04/05/2013	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
WTA	04/10/2014	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
WTA	04/10/2014	NA	NA	NA	0.09 U	NA	NA	0.09 U	NA	0.09 U
WTA	04/13/2015	9.4 U	9.4 U	9.4 U	NA	9.4 U	19 U	NA	9.4 U	NA
WTA	04/13/2015	NA	NA	NA	0.1 U	NA	NA	0.1 U	NA	0.1 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

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		PCBs (µg/L)									PESTICIDES (µg/L)						
Location ID	Sample Date	Aroclor-1016	Aroclor-1221	Aroclor-1232	Aroclor-1242	Aroclor-1248	Aroclor-1254	Aroclor-1260	Aroclor-1262	Aroclor-1268	4,4'-DDD	4,4'-DDE	4,4'-DDT	Aldrin	Alpha-BHC	Alpha-Chlordane	Beta-BHC
B120	09/09/2010	0.19 U	0.38 U	0.19 U	0.19 U	0.09 J	0.19 U	0.19 U	0.19 U	0.19 U	0.09 U	0.09 U	0.09 U	0.05 UJ	0.05 U	0.05 U	0.05 U
B121	09/08/2010	0.19 U	0.38 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U
B128	09/23/2010	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U
B128	09/23/2010	0.19 U	0.38 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U
B150	09/08/2010	0.19 U	0.38 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U
B158	09/08/2010	0.19 U	0.38 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.09 U	0.09 U	0.09 U	0.05 U	0.05 U	0.05 U	0.05 U
B163	09/02/2010	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U
B175S	09/03/2010	0.19 U	0.38 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U
B175W	09/08/2010	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U
B177	09/23/2010	0.19 U	0.38 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.09 U	0.09 U	0.09 U	0.05 U	0.05 U	0.05 U	0.05 U
B178	09/02/2010	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U
B180	09/15/2010	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U
B185	09/02/2010	0.19 U	0.38 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U
B194	09/09/2010	0.19 U	0.38 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.09 U	0.09 U	0.09 U	0.05 UJ	0.05 U	0.05 U	0.05 U
B195	09/09/2010	0.19 U	0.38 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.1 U	0.1 U	0.1 U	0.05 UJ	0.05 U	0.05 U	0.05 U
B197	09/09/2010	0.19 U	0.38 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.1 U	0.1 U	0.1 U	0.05 UJ	0.05 U	0.05 U	0.05 U
B197	09/09/2010	0.19 U	0.38 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.09 U	0.09 U	0.09 U	0.05 UJ	0.05 U	0.05 U	0.05 U
B277	09/15/2010	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U
B278	09/16/2010	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U
B280A	09/16/2010	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U
B280B	10/01/2010	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U
B300	09/09/2010	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.05 UJ	0.05 U	0.05 U	0.05 U
B38	09/15/2010	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U
B460	09/15/2010	0.2 UJ	0.4 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U
B473	09/24/2010	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U
B474	09/23/2010	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

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		PCBs (µg/L)									PESTICIDES (µg/L)						
Location ID	Sample Date	Aroclor-1016	Aroclor-1221	Aroclor-1232	Aroclor-1242	Aroclor-1248	Aroclor-1254	Aroclor-1260	Aroclor-1262	Aroclor-1268	4,4'-DDD	4,4'-DDE	4,4'-DDT	Aldrin	Alpha-BHC	Alpha-Chlordane	Beta-BHC
B480	09/24/2010	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U
B490	09/16/2010	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U
BULB1	10/19/2010	0.19 U	0.38 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.09 U	0.09 U	0.09 U	0.05 U	0.05 U	0.05 U	0.05 U
BULB2	10/19/2010	0.19 UJ	0.38 UJ	0.19 UJ	0.19 UJ	0.19 UJ	0.19 UJ	0.19 UJ	0.19 UJ	0.19 UJ	0.09 U	0.09 U	0.09 U	0.05 U	0.05 U	0.05 U	0.05 U
CCC1	09/08/2010	0.19 U	0.38 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U
CCC2	09/08/2010	0.19 U	0.38 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U
CCC3	09/03/2010	0.19 U	0.38 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.09 U	0.09 U	0.09 U	0.05 U	0.05 U	0.05 U	0.05 U
CCC3	09/03/2010	0.19 U	0.38 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.09 U	0.09 U	0.09 U	0.05 U	0.05 U	0.05 U	0.05 U
CCCT	09/03/2010	0.19 U	0.38 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.09 U	0.09 U	0.09 U	0.05 U	0.05 U	0.05 U	0.05 U
CTP	09/30/2010	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U
CTP	09/30/2010	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U
CTPS	09/30/2010	0.22 UJ	0.44 UJ	0.22 UJ	0.22 UJ	0.22 UJ	0.22 UJ	0.22 UJ	0.22 UJ	0.22 UJ	NA	NA	NA	NA	NA	NA	NA
CTPS	10/18/2010	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.11 U	0.11 U	0.11 U	0.05 U	0.05 U	0.05 U	0.05 U
DH	09/30/2010	0.2 UJ	0.4 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U
EERC	10/01/2010	0.2 UJ	0.4 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	NA	NA	NA	NA	NA	NA	NA
EERC	10/15/2010	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U
EPA	09/16/2010	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.09 U	0.09 U	0.09 U	0.05 U	0.05 U	0.05 U	0.05 U
ETA	09/24/2010	0.2 UJ	0.4 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U
ETA	09/24/2010	0.2 UJ	0.4 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U
EXT	09/30/2011	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U
FG	09/23/2010	0.2 UJ	0.4 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U
GEO	09/03/2010	0.19 U	0.38 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.09 U	0.09 U	0.09 U	0.05 U	0.05 U	0.05 U	0.05 U
MFA	09/24/2010	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U
NRLF	09/16/2010	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U
OBS6	09/30/2011	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.09 U	0.09 U	0.09 U	0.05 U	0.05 U	0.05 U	0.05 U
PZ11	10/01/2010	0.19 UJ	0.38 UJ	0.19 UJ	0.19 UJ	0.19 UJ	0.19 UJ	0.19 UJ	0.19 UJ	0.19 UJ	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U

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		PCBs (µg/L)									PESTICIDES (µg/L)						
Location ID	Sample Date	Aroclor-1016	Aroclor-1221	Aroclor-1232	Aroclor-1242	Aroclor-1248	Aroclor-1254	Aroclor-1260	Aroclor-1262	Aroclor-1268	4,4'-DDD	4,4'-DDE	4,4'-DDT	Aldrin	Alpha-BHC	Alpha-Chlordane	Beta-BHC
PZ8	10/15/2010	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U
PZ9	09/24/2010	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U
RWF	09/15/2010	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U
TP1	09/29/2010	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.09 U	0.09 U	0.09 U	0.05 U	0.05 U	0.05 U	0.05 U
TP2	09/29/2010	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U
WTA	09/30/2010	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

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PESTICIDES (µg/L)

Location ID	Sample Date	Chlordane	Delta-BHC	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan Sulfate	Endrin	Endrin Aldehyde	Endrin Ketone	Gamma-BHC (Lindane)	Gamma-Chlordane	Heptachlor	Heptachlor Epoxide	Methoxychlor	Toxaphene
B120	09/09/2010	4.7 U	0.05 U	0.09 U	0.05 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.05 U	0.05 U	0.05 U	0.05 U	0.47 U	4.7 U
B121	09/08/2010	4.8 U	0.05 U	0.1 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.48 U	4.8 U
B128	09/23/2010	5 U	0.05 U	0.1 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.5 U	5 U
B128	09/23/2010	5 U	0.05 U	0.1 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.5 U	5 U
B150	09/08/2010	4.8 U	0.05 U	0.1 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.48 U	4.8 U
B158	09/08/2010	4.7 U	0.05 U	0.09 U	0.05 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.05 U	0.05 U	0.05 U	0.05 U	0.47 U	4.7 U
B163	09/02/2010	5 U	0.05 U	0.1 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.5 U	5 U
B175S	09/03/2010	4.8 U	0.05 U	0.1 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.48 U	4.8 U
B175W	09/08/2010	4.8 U	0.05 U	0.1 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.48 U	4.8 U
B177	09/23/2010	4.7 U	0.05 U	0.09 U	0.05 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.05 U	0.05 U	0.05 U	0.05 U	0.47 U	4.7 U
B178	09/02/2010	5 U	0.05 U	0.1 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.5 U	5 U
B180	09/15/2010	5 U	0.05 U	0.1 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.5 U	5 U
B185	09/02/2010	5 U	0.05 U	0.1 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.5 U	5 U
B194	09/09/2010	NA	0.05 U	0.09 U	0.05 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.05 U	0.05 U	0.05 U	0.05 U	0.47 U	NA
B195	09/09/2010	5 U	0.05 U	0.1 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.5 U	5 U
B197	09/09/2010	4.8 U	0.05 U	0.1 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.48 U	4.8 U
B197	09/09/2010	4.7 U	0.05 U	0.09 U	0.05 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.05 U	0.05 U	0.05 U	0.05 U	0.47 U	4.7 U
B277	09/15/2010	5 U	0.05 U	0.1 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.5 U	5 U
B278	09/16/2010	5 U	0.05 U	0.1 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.5 U	5 U
B280A	09/16/2010	5 U	0.05 U	0.1 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.5 U	5 U
B280B	10/01/2010	5 U	0.05 U	0.1 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.5 U	5 U
B300	09/09/2010	NA	0.05 U	0.1 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.5 U	NA
B38	09/15/2010	5 U	0.05 U	0.1 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.5 U	5 U
B460	09/15/2010	5 U	0.05 U	0.1 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.5 U	5 U
B473	09/24/2010	5 U	0.05 U	0.1 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.5 U	5 U

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PESTICIDES (µg/L)

Location ID	Sample Date	Chlordane	Delta-BHC	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan Sulfate	Endrin	Endrin Aldehyde	Endrin Ketone	Gamma-BHC (Lindane)	Gamma-Chlordane	Heptachlor	Heptachlor Epoxide	Methoxychlor	Toxaphene
B474	09/23/2010	5 U	0.05 U	0.1 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.5 U	5 U
B480	09/24/2010	5 U	0.05 U	0.1 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.5 U	5 U
B490	09/16/2010	5 U	0.05 U	0.1 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.5 U	5 U
BULB1	10/19/2010	4.7 U	0.05 U	0.09 U	0.05 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.05 U	0.05 U	0.05 U	0.05 U	0.47 U	4.7 U
BULB2	10/19/2010	4.7 U	0.05 U	0.09 U	0.05 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.05 U	0.05 U	0.05 U	0.05 U	0.47 U	4.7 U
CCC1	09/08/2010	4.8 U	0.05 U	0.1 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.48 U	4.8 U
CCC2	09/08/2010	4.8 U	0.05 U	0.1 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.48 U	4.8 U
CCC3	09/03/2010	4.7 U	0.05 U	0.09 U	0.05 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.05 U	0.05 U	0.05 U	0.05 U	0.47 U	4.7 U
CCC3	09/03/2010	4.7 U	0.05 U	0.09 U	0.05 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.05 U	0.05 U	0.05 U	0.05 U	0.47 U	4.7 U
CCCT	09/03/2010	4.7 U	0.05 U	0.09 U	0.05 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.05 U	0.05 U	0.05 U	0.05 U	0.47 U	4.7 U
CTP	09/30/2010	5 U	0.05 U	0.1 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.5 U	5 U
CTP	09/30/2010	5 U	0.05 U	0.1 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.5 U	5 U
CTPS	09/30/2010	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CTPS	10/18/2010	5.5 U	0.05 U	0.11 U	0.05 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.05 U	0.05 U	0.05 U	0.05 U	0.55 U	5.5 U
DH	09/30/2010	4.8 U	0.05 U	0.1 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.48 U	4.8 U
EERC	10/01/2010	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EERC	10/15/2010	5 U	0.05 U	0.1 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.5 U	5 U
EPA	09/16/2010	4.7 U	0.05 U	0.09 U	0.05 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.05 U	0.05 U	0.05 U	0.05 U	0.47 U	4.7 U
ETA	09/24/2010	5 U	0.05 U	0.1 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.5 U	5 U
ETA	09/24/2010	5 U	0.05 U	0.1 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.5 U	5 U
EXT	09/30/2011	NA	0.05 U	0.1 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.5 U	1 U
FG	09/23/2010	5 U	0.05 U	0.1 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.5 U	5 U
GEO	09/03/2010	4.7 U	0.05 U	0.09 U	0.05 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.05 U	0.05 U	0.05 U	0.05 U	0.47 U	4.7 U
MFA	09/24/2010	5 U	0.05 U	0.1 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.5 U	5 U
NRLF	09/16/2010	5 U	0.05 U	0.1 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.5 U	5 U

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PESTICIDES (µg/L)

Location ID	Sample Date	Chlordane	Delta-BHC	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan Sulfate	Endrin	Endrin Aldehyde	Endrin Ketone	Gamma-BHC (Lindane)	Gamma-Chlordane	Heptachlor	Heptachlor Epoxide	Methoxychlor	Toxaphene
OBS6	09/30/2011	NA	0.05 U	0.09 U	0.05 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.5 U	0.9 U
PZ11	10/01/2010	5 U	0.05 U	0.1 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.5 U	5 U
PZ8	10/15/2010	5 U	0.05 U	0.1 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.5 U	5 U
PZ9	09/24/2010	5 U	0.05 U	0.1 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.5 U	5 U
RWF	09/15/2010	5 U	0.05 U	0.1 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.5 U	5 U
TP1	09/29/2010	4.7 U	0.05 U	0.09 U	0.05 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.05 U	0.05 U	0.05 U	0.05 U	0.47 U	4.7 U
TP2	09/29/2010	5 U	0.05 U	0.1 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.5 U	5 U
WTA	09/30/2010	5 U	0.05 U	0.1 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.5 U	5 U

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		TPH (mg/L)			MISCELLANEOUS (mg/L)		
Location ID	Sample Date	Diesel Range Organic	Motor Oil Range Organic	Gasoline Range Organic	Perchlorate	Hardness	Total Dissolved Solids
B120	09/09/2010	0.24 U	0.95 U	0.07 Z	2 U	1000	1900
B120	04/15/2011	0.05 U	0.3 U	0.086	NA	NA	2510
B120	10/04/2011	0.013 J	0.3 U	0.1 YZ	NA	NA	2230
B120	04/03/2012	0.05 U	0.3 U	0.097 UJ	NA	NA	2190
B121	09/08/2010	0.25 U	1 U	0.05 U	2 U	280	520
B121	04/13/2011	0.05 UJ	0.3 U	0.05 UJ	NA	NA	520
B121	10/04/2011	0.05 U	0.3 U	0.05 UJ	NA	NA	530
B121	04/04/2012	0.05 U	0.3 U	0.05 UJ	NA	NA	510
B128	09/23/2010	0.25 U	1 U	0.05 U	2 U	360	800
B128	09/23/2010	0.25 U	1 U	0.05 U	2 U	320	970
B128	04/18/2011	0.05 U	0.3 U	0.05 UJ	NA	NA	500
B128	10/04/2011	0.028 J	0.3 U	0.05 UJ	NA	NA	560
B128	04/02/2012	0.05 UJ	0.3 U	0.05 UJ	NA	NA	440
B128DEEP	10/15/2010	NA	NA	NA	2 U	NA	440
B150	09/08/2010	0.24 U	0.95 U	0.05 U	2 U	150	290
B150	04/13/2011	0.05 UJ	0.3 U	0.05 UJ	NA	NA	220
B150	10/05/2011	0.05 U	0.3 U	0.05 UJ	NA	NA	290
B150	10/05/2011	0.05 U	0.3 U	0.05 UJ	NA	NA	280
B150	04/04/2012	0.05 U	0.3 U	0.05 UJ	NA	NA	150
B150	04/04/2012	0.05 U	0.3 U	0.05 UJ	NA	NA	190
B158	09/08/2010	0.24 U	0.95 U	0.05 U	2 U	21	200
B158	04/15/2011	0.05 U	0.3 U	0.05 U	NA	NA	180
B158	10/05/2011	0.05 U	0.3 U	0.05 UJ	NA	NA	310
B158	04/06/2012	0.05 U	0.3 U	0.05 UJ	NA	NA	200
B163	09/02/2010	0.2 ZJ	1 U	0.046 ZJ	2 U	1500	2900
B163	04/12/2011	0.05 U	0.3 U	0.064 Y	NA	NA	2820
B163	10/03/2011	0.011 J	0.3 U	0.062 Z	NA	NA	2860
B163	04/02/2012	0.05 UJ	0.3 U	0.05 UJ	NA	NA	2700

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		TPH (mg/L)			MISCELLANEOUS (mg/L)		
Location ID	Sample Date	Diesel Range Organic	Motor Oil Range Organic	Gasoline Range Organic	Perchlorate	Hardness	Total Dissolved Solids
B175S	09/03/2010	0.24 U	0.95 U	0.05 U	2 U	310	590
B175S	04/13/2011	0.053 UJ	0.3 U	0.05 UJ	NA	NA	580
B175S	10/04/2011	0.017 J	0.3 U	0.05 UJ	NA	NA	540
B175S	04/04/2012	0.05 U	0.3 U	0.05 UJ	NA	NA	550
B175W	09/08/2010	0.25 U	1 U	0.05 U	2 U	92	270
B175W	04/13/2011	0.052 UJ	0.3 U	0.012 UJ	NA	NA	270
B175W	10/04/2011	0.051 Y	0.091 J	0.05 UJ	NA	NA	290
B175W	04/04/2012	0.05 U	0.3 U	0.05 UJ	NA	NA	210
B177	09/23/2010	0.24 U	0.95 U	0.05 U	2 U	71	190
B177	04/18/2011	0.05 U	0.3 U	0.05 UJ	NA	NA	250
B177	10/05/2011	0.05 U	0.3 U	0.05 UJ	NA	NA	200
B177	04/04/2012	0.05 U	0.3 U	0.05 UJ	NA	NA	270
B178	09/02/2010	0.25 U	1 U	0.063 Z	1.9 J	990	1800
B178	04/15/2011	0.05 U	0.3 U	0.073 UJ	NA	NA	2050
B178	10/04/2011	0.05 U	0.3 U	0.12 YZ	NA	NA	1810
B178	04/03/2012	0.011 J	0.3 U	0.094 UJ	NA	NA	2190
B180	09/15/2010	0.25 U	1 U	0.05 U	2 U	35	360
B180	04/13/2011	0.05 UJ	0.3 U	0.05 UJ	NA	NA	330
B180	10/06/2011	0.05 U	0.3 U	0.05 UJ	NA	NA	350
B180	10/06/2011	0.05 U	0.3 U	0.05 UJ	NA	NA	350
B180	04/04/2012	0.05 U	0.3 U	0.05 UJ	NA	NA	260
B185	09/02/2010	0.12 ZJ	0.95 U	0.036 ZJ	3.1	920	1700
B185	04/15/2011	0.05 U	0.3 U	0.05 UJ	NA	NA	1630
B185	04/15/2011	0.05 U	0.3 U	0.062 UJ	NA	NA	1610
B185	10/03/2011	0.05 U	0.3 U	0.055 YZ	NA	NA	1670
B185	10/03/2011	0.05 U	0.3 U	0.048 J	NA	NA	1630
B185	04/02/2012	0.05 U	0.3 U	0.05 UJ	NA	NA	1670

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		TPH (mg/L)			MISCELLANEOUS (mg/L)		
Location ID	Sample Date	Diesel Range Organic	Motor Oil Range Organic	Gasoline Range Organic	Perchlorate	Hardness	Total Dissolved Solids
B194	09/09/2010	0.24 U	0.95 U	0.05 U	2 U	300	670
B194	04/13/2011	0.05 UJ	0.3 U	0.05 UJ	NA	NA	660
B194	10/04/2011	0.05 U	0.3 U	0.05 UJ	NA	NA	630
B194	04/04/2012	0.05 U	0.3 U	0.05 UJ	NA	NA	570
B195	09/09/2010	0.24 U	0.95 U	0.059 ZJ	2 U	830	1600
B195	04/13/2011	0.05 UJ	0.3 U	0.05 UJ	NA	NA	570
B195	04/13/2011	0.05 UJ	0.3 U	0.051 Z	NA	NA	550
B195	10/04/2011	0.05 U	0.3 U	0.15 YZ	NA	NA	1610
B195	04/03/2012	0.05 U	0.3 U	0.088 UJ	NA	NA	790
B197	09/09/2010	0.25 U	1 U	0.073 Z	2 U	830	1500
B197	09/09/2010	0.24 U	0.95 U	0.074 Z	2 U	830	1500
B197	04/13/2011	0.05 UJ	0.3 U	0.1 YZ	NA	NA	2170
B197	10/04/2011	0.05 U	0.3 U	0.11 YZ	NA	NA	1560
B197	04/03/2012	0.05 U	0.3 U	0.092 UJ	NA	NA	2290
B197	04/03/2012	0.05 U	0.3 U	0.095 UJ	NA	NA	2240
B277	09/15/2010	0.25 U	1 U	0.05 U	2 U	230	400
B277	04/18/2011	0.05 U	0.3 U	0.05 UJ	NA	NA	450
B277	10/05/2011	0.05 U	0.3 U	0.05 UJ	NA	NA	400
B277	04/03/2012	0.05 U	0.3 U	0.05 UJ	NA	NA	420
B278	09/16/2010	0.25 U	1 U	0.05 U	2 U	1300	2300
B278	04/19/2011	0.05 U	0.3 U	0.019 J	NA	NA	2050 J
B278	10/05/2011	0.05 U	0.3 U	0.05 UJ	NA	NA	2250
B278	04/05/2012	0.01 J	0.3 U	0.05 UJ	NA	NA	NA
B280A	09/16/2010	0.25 U	1 U	0.05 U	2 U	290	510
B280A	04/14/2011	0.05 U	0.3 U	0.05 UJ	NA	NA	430
B280A	10/06/2011	0.05 U	0.3 U	0.05 UJ	NA	NA	510
B280A	04/03/2012	0.05 U	0.3 U	0.05 UJ	NA	NA	540

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		TPH (mg/L)			MISCELLANEOUS (mg/L)		
Location ID	Sample Date	Diesel Range Organic	Motor Oil Range Organic	Gasoline Range Organic	Perchlorate	Hardness	Total Dissolved Solids
B280B	10/01/2010	0.25 U	1 U	0.05 U	2 U	230	650
B280B	04/14/2011	0.05 U	0.3 U	0.05 U	NA	NA	580
B280B	10/06/2011	0.05 U	0.3 U	0.05 UJ	NA	NA	530
B280B	04/03/2012	0.05 U	0.3 U	0.05 UJ	NA	NA	490
B300	09/09/2010	0.24 U	0.95 U	0.05 U	2 U	720	1100
B300	04/15/2011	0.05 U	0.3 U	0.05 U	NA	NA	2480
B300	10/06/2011	0.33 Y	0.3 U	0.21 YZ	NA	NA	580
B300	04/09/2012	0.0086 J	0.3 U	0.05 UJ	NA	NA	1680
B38	09/15/2010	0.25 U	1 U	0.05 U	2 U	170	310
B38	04/19/2011	0.05 U	0.3 U	0.05 U	NA	NA	350
B38	04/19/2011	0.05 U	0.3 U	0.05 U	NA	NA	350
B38	10/06/2011	0.05 U	0.3 U	0.05 UJ	NA	NA	290
B38	04/04/2012	0.05 U	0.3 U	0.05 UJ	NA	NA	240
B38DEEP	10/18/2010	NA	NA	NA	2 U	NA	350
B450	04/19/2011	0.013 J	0.3 U	0.018 J	NA	NA	610
B450	10/10/2011	0.05 U	0.3 U	0.05 UJ	NA	NA	120
B450	04/06/2012	0.05 U	0.3 U	0.05 UJ	NA	NA	770
B460	09/15/2010	0.25 U	1 U	0.05 U	2 U	150	290
B460	04/20/2011	0.05 U	0.3 U	0.05 UJ	NA	NA	320
B460	10/07/2011	0.05 U	0.3 U	0.05 UJ	NA	NA	320
B460	04/06/2012	0.05 U	0.3 U	0.05 UJ	NA	NA	270
B473	09/24/2010	0.25 U	1 U	0.05 U	2 U	170	460
B473	04/20/2011	0.05 U	0.3 U	0.05 UJ	NA	NA	590
B473	10/07/2011	0.05 U	0.3 U	0.05 UJ	NA	NA	350
B473	04/06/2012	0.05 U	0.3 U	0.05 UJ	NA	NA	300

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		TPH (mg/L)			MISCELLANEOUS (mg/L)		
Location ID	Sample Date	Diesel Range Organic	Motor Oil Range Organic	Gasoline Range Organic	Perchlorate	Hardness	Total Dissolved Solids
B474	09/23/2010	0.37 ZJ	1 U	0.049 ZJ	2 U	160	430
B474	04/20/2011	0.05 U	0.3 U	0.05 U	NA	NA	420
B474	10/07/2011	0.05 U	0.3 U	0.05 UJ	NA	NA	130
B474	04/09/2012	0.05 U	0.3 U	0.05 UJ	NA	NA	250
B480	09/24/2010	0.25 U	1 U	0.05 U	2 U	320	670
B480	04/19/2011	0.014 J	0.3 U	0.019 J	NA	NA	620
B480	10/07/2011	0.05 U	0.3 U	0.05 UJ	NA	NA	490
B480	04/09/2012	0.05 U	0.3 U	0.05 UJ	NA	NA	640
B480DEEP	10/15/2010	NA	NA	NA	2 U	NA	360
B490	09/16/2010	0.25 U	1 U	0.05 U	2 U	350	540
B490	04/20/2011	0.05 U	0.3 U	0.05 U	NA	NA	560
B490	10/10/2011	0.05 U	0.3 U	0.05 UJ	NA	NA	270
B490	04/09/2012	0.008 J	0.3 U	0.05 UJ	NA	NA	550
BULB1	10/19/2010	0.24 U	0.94 U	0.038 J	40 U	4400	25000
BULB1	04/12/2011	0.05 U	0.3 U	0.05 UJ	NA	NA	22800
BULB1	09/30/2011	0.05 U	0.3 U	0.05 UJ	NA	NA	27600
BULB1	04/05/2012	0.05 U	0.3 U	0.05 UJ	NA	NA	NA
BULB2	10/19/2010	0.17 ZJ	1 U	0.077	10 U	1100	5900
BULB2	04/12/2011	0.0078 J	0.3 U	0.05 UJ	NA	NA	1530
BULB2	09/30/2011	0.05 U	0.3 U	0.05 UJ	NA	NA	930
BULB2	04/05/2012	0.013 J	0.3 U	0.05 UJ	NA	NA	NA
CCC1	09/08/2010	0.24 U	0.95 U	0.05 U	2 U	140	440
CCC1	04/14/2011	0.05 UJ	0.3 U	0.05 U	NA	NA	520
CCC1	10/05/2011	0.012 J	0.3 U	0.05 UJ	NA	NA	510
CCC1	04/10/2012	0.049 U	0.29 U	0.05 UJ	NA	NA	640

APPENDIX B: COMPLETE ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

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		TPH (mg/L)			MISCELLANEOUS (mg/L)		
Location ID	Sample Date	Diesel Range Organic	Motor Oil Range Organic	Gasoline Range Organic	Perchlorate	Hardness	Total Dissolved Solids
CCC2	09/08/2010	0.25 U	1 U	0.05 U	2 U	250	630
CCC2	04/14/2011	0.05 UJ	0.3 U	0.05 U	NA	NA	1990
CCC2	10/04/2011	0.014 J	0.3 U	0.05 UJ	NA	NA	770
CCC2	04/10/2012	0.049 U	0.29 U	0.05 UJ	NA	NA	1140
CCC3	09/03/2010	0.24 U	0.95 U	0.05 U	2 U	360	730
CCC3	09/03/2010	0.25 U	1 U	0.05 U	2 U	350	710
CCC3	04/12/2011	0.05 U	0.3 U	0.05 UJ	NA	NA	720
CCC3	10/04/2011	0.018 J	0.3 U	0.05 UJ	NA	NA	700
CCC3	10/04/2011	0.05 U	0.3 U	0.05 UJ	NA	NA	710
CCC3	04/10/2012	0.049 U	0.29 U	0.05 UJ	NA	NA	740
CCCT	09/03/2010	0.24 U	0.94 U	0.038 ZJ	1.6 J	590	1100
CCCT	04/18/2011	0.05 U	0.3 U	0.055 UJ	NA	NA	1110
CCCT	10/03/2011	0.05 U	0.3 U	0.046 JYZ	NA	NA	1120
CCCT	04/04/2012	0.05 U	0.3 U	0.054 UJ	NA	NA	1240
CTP	09/30/2010	0.25 U	1 U	0.05 U	2 U	240	490
CTP	09/30/2010	0.25 U	1 U	0.05 U	2 U	240	500
CTP	04/14/2011	0.05 U	0.3 U	0.05 UJ	NA	NA	480
CTP	10/06/2011	0.05 U	0.3 U	0.05 UJ	NA	NA	480
CTP	04/03/2012	0.05 U	0.3 U	0.05 UJ	NA	NA	540
CTPDEEP	10/15/2010	NA	NA	NA	2 U	NA	370
CTPS	09/30/2010	NA	NA	0.05 U	NA	610	NA
CTPS	04/19/2011	0.05 U	0.3 U	0.013 J	NA	NA	520
CTPS	10/07/2011	0.05 U	0.3 U	0.05 UJ	NA	NA	500
CTPS	04/05/2012	0.013 J	0.3 U	0.05 UJ	NA	NA	NA

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		TPH (mg/L)			MISCELLANEOUS (mg/L)		
Location ID	Sample Date	Diesel Range Organic	Motor Oil Range Organic	Gasoline Range Organic	Perchlorate	Hardness	Total Dissolved Solids
DH	09/30/2010	0.25 U	1 U	0.05 U	4 U	2700	5500
DH	04/14/2011	0.05 UJ	0.3 U	0.05 UJ	NA	NA	5350
DH	10/05/2011	0.05 U	0.3 U	0.05 UJ	NA	NA	7480
DH	04/05/2012	NA	NA	0.05 UJ	NA	NA	NA
DH	04/06/2012	0.0085 J	0.3 U	NA	NA	NA	4580
EERC	10/01/2010	0.16 J	1 U	0.05 U	NA	2500	NA
EERC	10/15/2010	NA	NA	NA	4 U	NA	4800
EERC	04/20/2011	0.05 U	0.3 U	0.05 UJ	NA	NA	4260
EERC	10/07/2011	0.05 U	0.3 U	0.05 UJ	NA	NA	3530
EERC	04/06/2012	0.05 U	0.3 U	0.05 UJ	NA	NA	4190
EPA	09/16/2010	0.25 U	1 U	0.05 U	2 U	380	710
EPA	04/19/2011	0.05 U	0.3 U	0.013 J	NA	NA	950
EPA	10/06/2011	0.012 UJ	0.3 U	0.05 UJ	NA	NA	950
EPA	04/06/2012	0.05 U	0.3 U	0.05 UJ	NA	NA	1050
EPA	04/06/2012	0.05 U	0.3 U	0.05 UJ	NA	NA	1100
ETA	09/24/2010	0.12 J	1 U	0.05 U	2 U	630	1300
ETA	09/24/2010	0.12 J	1 U	0.05 U	2 U	620	1300
ETA	04/12/2011	0.014 J	0.3 U	0.05 UJ	NA	NA	1410
ETA	09/30/2011	0.014 J	0.3 U	0.05 UJ	NA	NA	1290
ETA	04/10/2012	0.049 U	0.29 U	0.05 UJ	NA	NA	1510
ETA	04/10/2012	0.049 U	0.29 U	0.05 UJ	NA	NA	1510
EXT	09/30/2011	0.014 J	0.3 U	0.05 UJ	NA	NA	240
FG	09/23/2010	0.25 U	1 U	0.05 U	2 U	820	1300
FG	04/19/2011	0.05 U	0.3 U	0.021 J	NA	NA	590
FG	04/19/2011	0.05 U	0.3 U	0.016 J	NA	NA	580
FG	10/10/2011	0.05 UJ	0.3 UJ	0.05 UJ	NA	NA	800
FG	04/09/2012	0.05 U	0.3 U	0.05 UJ	NA	NA	500

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		TPH (mg/L)			MISCELLANEOUS (mg/L)		
Location ID	Sample Date	Diesel Range Organic	Motor Oil Range Organic	Gasoline Range Organic	Perchlorate	Hardness	Total Dissolved Solids
GEO	09/03/2010	0.24 U	0.95 U	0.05 U	2 U	270	510
GEO	04/20/2011	0.05 U	0.3 U	0.05 UJ	NA	NA	560
GEO	10/06/2011	0.05 U	0.3 U	0.05 UJ	NA	NA	520
GEO	04/06/2012	0.05 U	0.3 U	0.05 UJ	NA	NA	570
MFA	09/24/2010	0.25 U	1 U	0.05 U	2 U	440	900
MFA	04/12/2011	0.05 U	0.3 U	0.05 UJ	NA	NA	640
MFA	10/03/2011	0.036 J	0.3 U	0.05 UJ	NA	NA	930
MFA	04/05/2012	0.05 U	0.3 U	0.05 UJ	NA	NA	NA
NRLF	09/16/2010	0.12 ZJ	1 U	0.041 ZJ	2 U	230	400
NRLF	04/20/2011	0.05 U	0.3 U	0.05 UJ	NA	NA	560
NRLF	10/06/2011	0.05 U	0.3 U	0.05 UJ	NA	NA	420
NRLF	04/09/2012	0.05 U	0.3 U	0.05 UJ	NA	NA	430
OBS6	09/30/2011	0.05 U	0.3 U	0.05 UJ	NA	NA	360
PZ11	10/01/2010	0.25 U	1 U	0.31 ZJ	2 U	1400	2500
PZ11	04/20/2011	0.05 U	0.3 U	0.05 UJ	NA	NA	2930
PZ11	10/10/2011	0.05 U	0.3 U	0.21 YZJ	NA	NA	3090
PZ11	04/05/2012	0.05 U	0.3 U	0.05 UJ	NA	NA	NA
PZ8	10/15/2010	0.25 U	1 U	0.05 U	2 UJ	270	510
PZ8	04/18/2011	0.05 U	0.3 U	0.05 UJ	NA	NA	480
PZ8	10/04/2011	0.05 U	0.3 U	0.05 UJ	NA	NA	540
PZ8	04/03/2012	0.05 U	0.3 U	0.05 UJ	NA	NA	560
PZ9	09/24/2010	0.25 U	1 U	0.05 U	2 U	240	400
PZ9	04/20/2011	0.05 U	0.3 U	0.05 UJ	NA	NA	370
PZ9	10/07/2011	0.05 U	0.13 J	0.05 UJ	NA	NA	340
PZ9	10/07/2011	0.05 U	0.3 U	0.05 UJ	NA	NA	330
PZ9	04/06/2012	0.05 U	0.3 U	0.05 UJ	NA	NA	450

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		TPH (mg/L)			MISCELLANEOUS (mg/L)		
Location ID	Sample Date	Diesel Range Organic	Motor Oil Range Organic	Gasoline Range Organic	Perchlorate	Hardness	Total Dissolved Solids
RWF	09/15/2010	0.24 U	0.95 U	0.05 U	2 U	430	720
RWF	04/18/2011	0.05 U	0.3 U	0.05 UJ	NA	NA	780
RWF	10/06/2011	0.05 U	0.3 U	0.05 UJ	NA	NA	760
RWF	04/04/2012	0.05 U	0.3 U	0.05 UJ	NA	NA	720
TP1	09/29/2010	0.24 U	0.95 U	0.05 U	2 U	410	720
TP1	04/18/2011	0.05 U	0.3 U	0.05 UJ	NA	NA	1770
TP1	10/07/2011	0.05 U	0.3 U	0.05 UJ	NA	NA	750
TP1	04/05/2012	0.013 J	0.3 U	0.05 UJ	NA	NA	NA
TP2	09/29/2010	0.25 U	1 U	0.05 U	2 U	510	830
TP2	04/18/2011	0.05 U	0.3 U	0.05 UJ	NA	NA	810
TP2	10/07/2011	0.031 J	0.3 U	0.05 UJ	NA	NA	800
TP2	04/09/2012	0.05 U	0.3 U	0.05 UJ	NA	NA	820
TP2	04/09/2012	0.05 U	0.3 U	0.05 UJ	NA	NA	790
WTA	09/30/2010	0.25 U	1 U	0.05 U	2 U	550	1000
WTA	04/14/2011	0.05 UJ	0.3 U	0.05 U	NA	NA	1020
WTA	04/14/2011	0.05 UJ	0.3 U	0.05 UJ	NA	NA	1010
WTA	10/05/2011	0.05 U	0.3 U	0.05 UJ	NA	NA	1050
WTA	04/05/2012	0.0099 J	0.3 U	0.05 UJ	NA	NA	NA

Notes:

Gray highlights indicate the result equals or exceeds the Federal MCL.

Outlined boxes indicate the result equals or exceeds the California MCL.

BHC	Hexachlorocyclohexane	MCL	Maximum Contaminant Level	SVOC	Semivolatile Organic Compounds
DDD	Dichlorodiphenyldichloroethane	METAL	Total (unfiltered) metal	TPH	Total Petroleum Hydrocarbons
DDE	Dichlorodiphenyldichloroethene	mg/L	Milligrams per liter	U	Nondetect
DDT	Dichlorodiphenyltrichloroethane	NA	Not analyzed	VOC	Volatile Organic Compounds
DMETAL	Dissolved (filtered) metal	PAH	Polycyclic aromatic hydrocarbon	Z	Chromatographic pattern does not resemble TPH fuel pattern (individual peaks)
J	Estimated value	PCB	Polychlorinated biphenyl	µg/L	Micrograms per liter

APPENDIX C
CONCENTRATION-TIME GRAPHS FOR CARBON TETRACHLORIDE, MERCURY, AND TRICHLOROETHENE

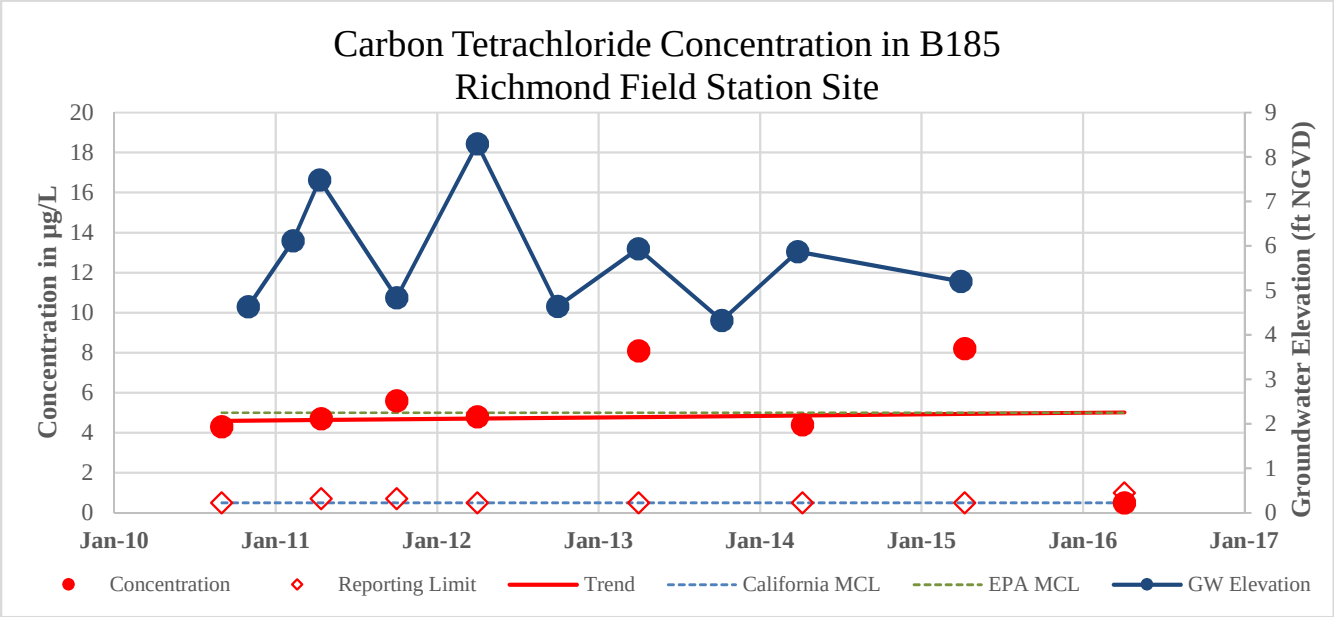
This appendix presents concentration-time graphs and trend lines for groundwater collected from 2010 through 2016 at the Richmond Field Station Site, located at the Berkeley Global Campus at Richmond Bay. Concentrations of carbon tetrachloride, trichloroethene, and mercury were plotted because results of these analytes have consistently exceeded California and federal maximum contaminant levels (MCL) throughout the duration of the groundwater investigations. Other chemicals that have exceeded MCLs in at least one sampling event but are not presented include 1,2-dichloroethane, cis-1,2-dichloroethene, tetrachloroethene, trans-1,2-dichloroethene, bis(2-ethylhexyl)phthalate, aluminum, arsenic, cadmium, chromium (unfiltered samples only), copper (unfiltered samples only), lead (unfiltered samples only), nickel, and selenium; these chemicals were excluded from the trend analysis because were not detected frequently above the MCLs.

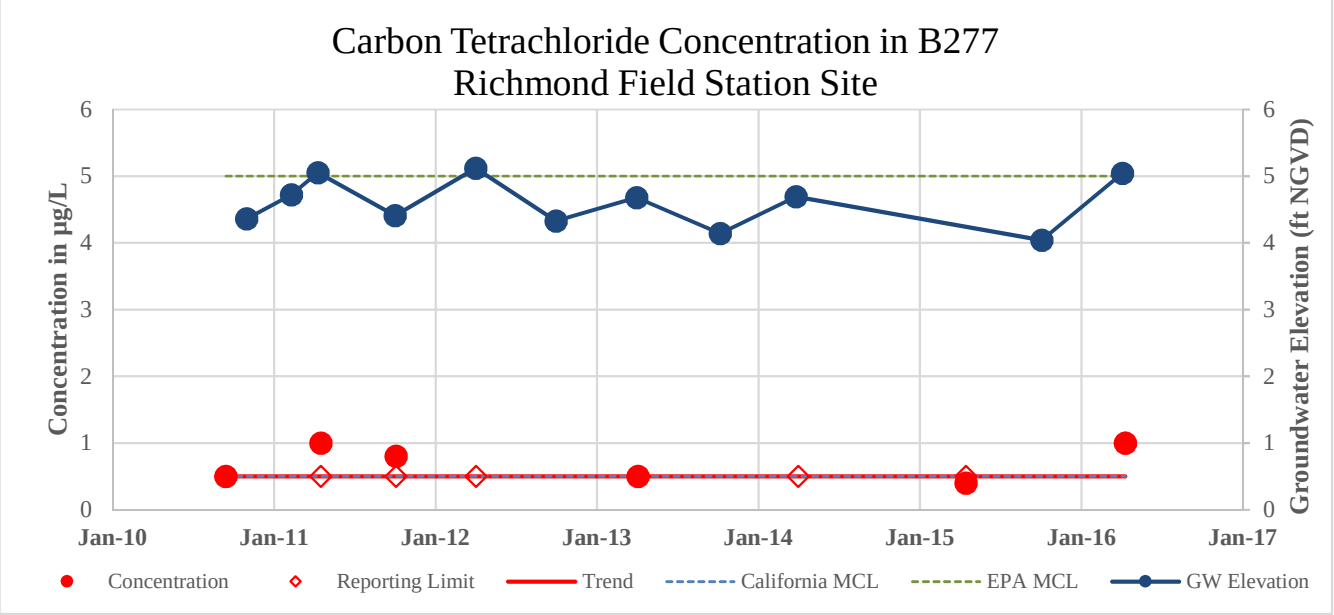
For piezometers with duplicate sample results, the maximum value of the duplicate is presented on the concentration-time graphs and used for calculation of the trend line. Where non-detects were present, the reporting limit value is presented on the graphs and used for the trend calculations.

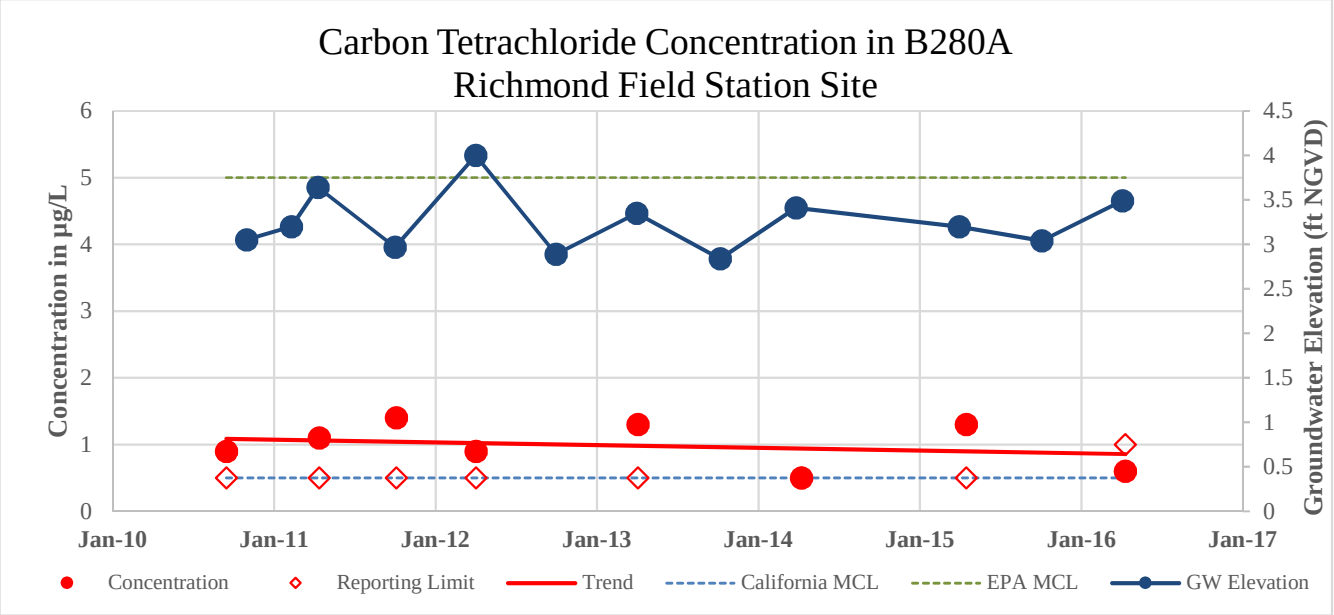
Trend lines were calculated by importing the data into ProUCL 5.0 (EPA 2013) and calculating a Theil-Sen trend test at a 95 percent confidence level. The slope and intercept of the Thiel-Sen line were used to plot the Theil-Sen line.

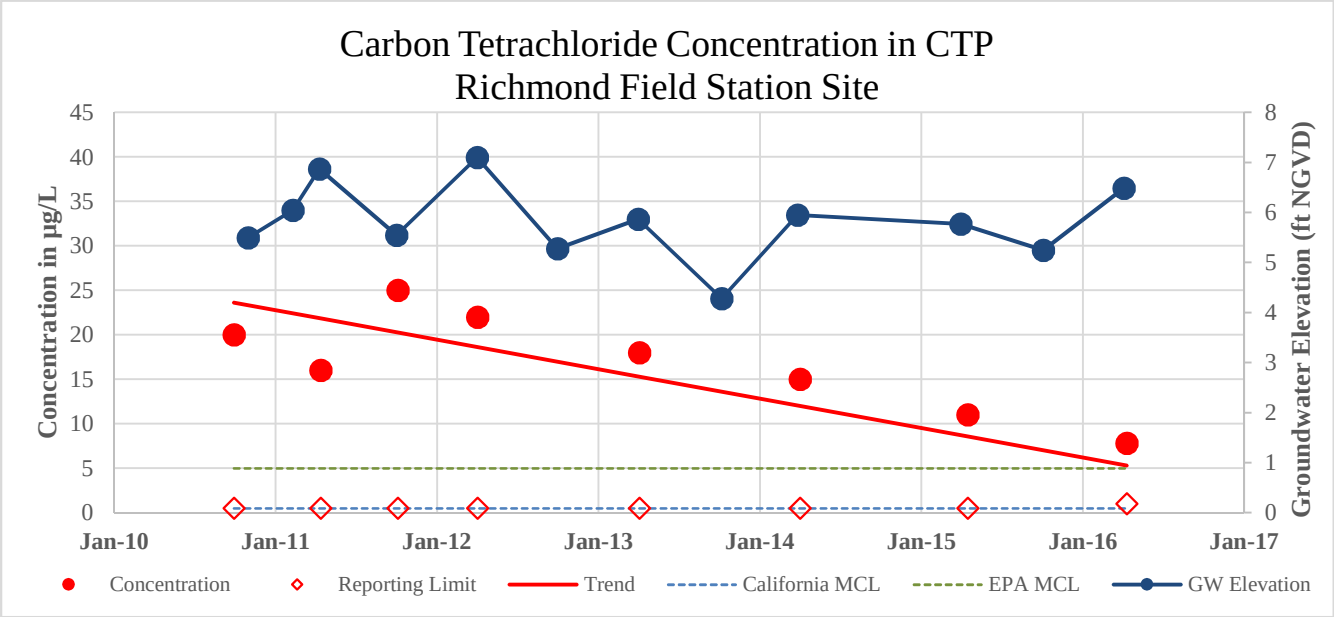
Reference:

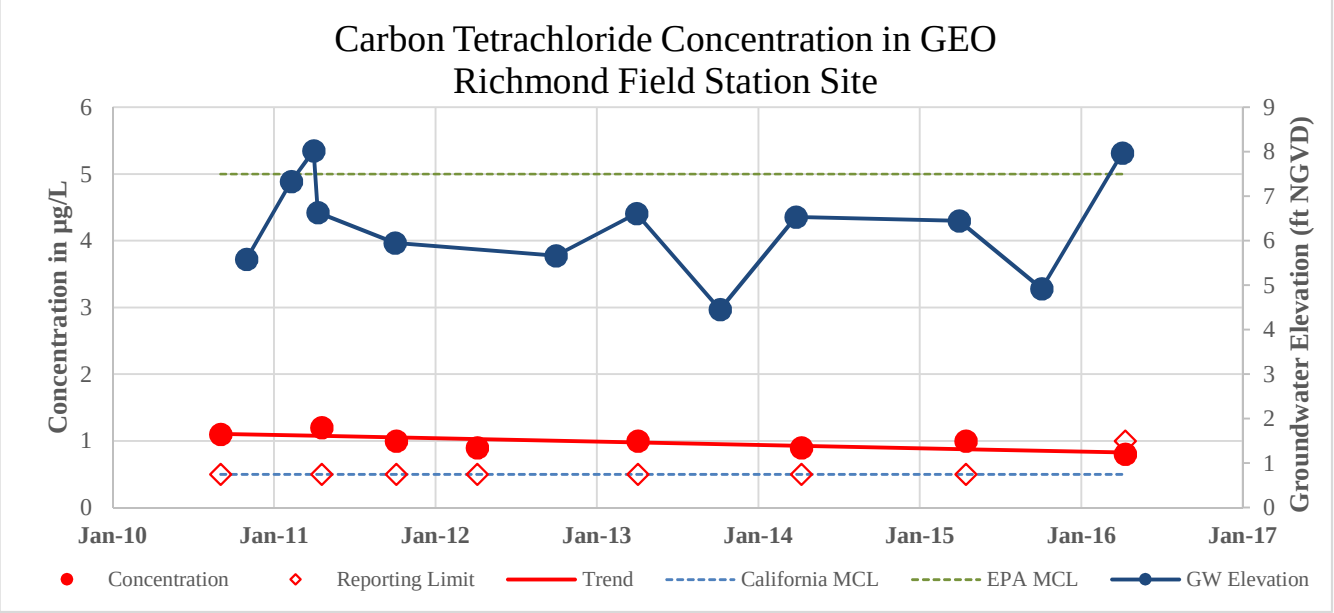
EPA. 2013. ProUCL Version 5.0.00 Technical Guide: Statistical Software for Environmental Applications for Data Sets with and without Nondetect Observations. EPA/600/R-07/041. September.

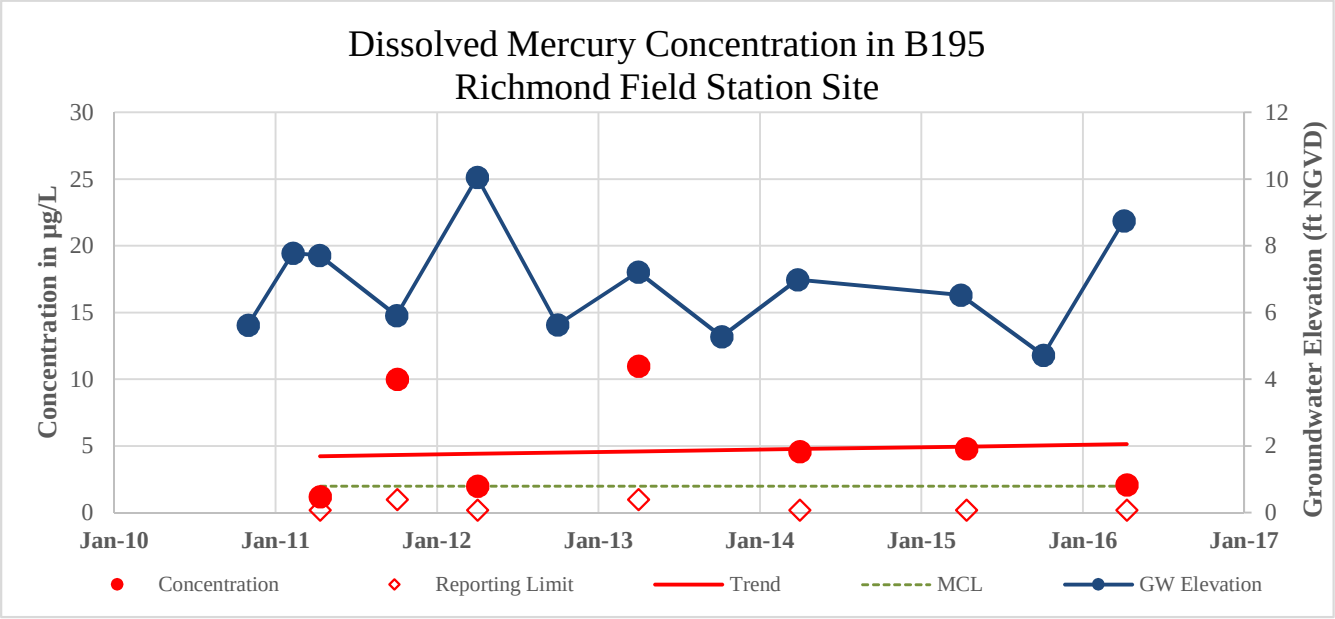

Carbon Tetrachloride Concentration in B185
Richmond Field Station Site
Concentration in µg/L
Groundwater Elevation (ft NGVD)
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Concentration
Reporting Limit
Trend
California MCL
EPA MCL
GW Elevation


Carbon Tetrachloride Concentration in B277
Richmond Field Station Site
Concentration in µg/L
Groundwater Elevation (ft NGVD)
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Concentration
Reporting Limit
Trend
California MCL
EPA MCL
GW Elevation

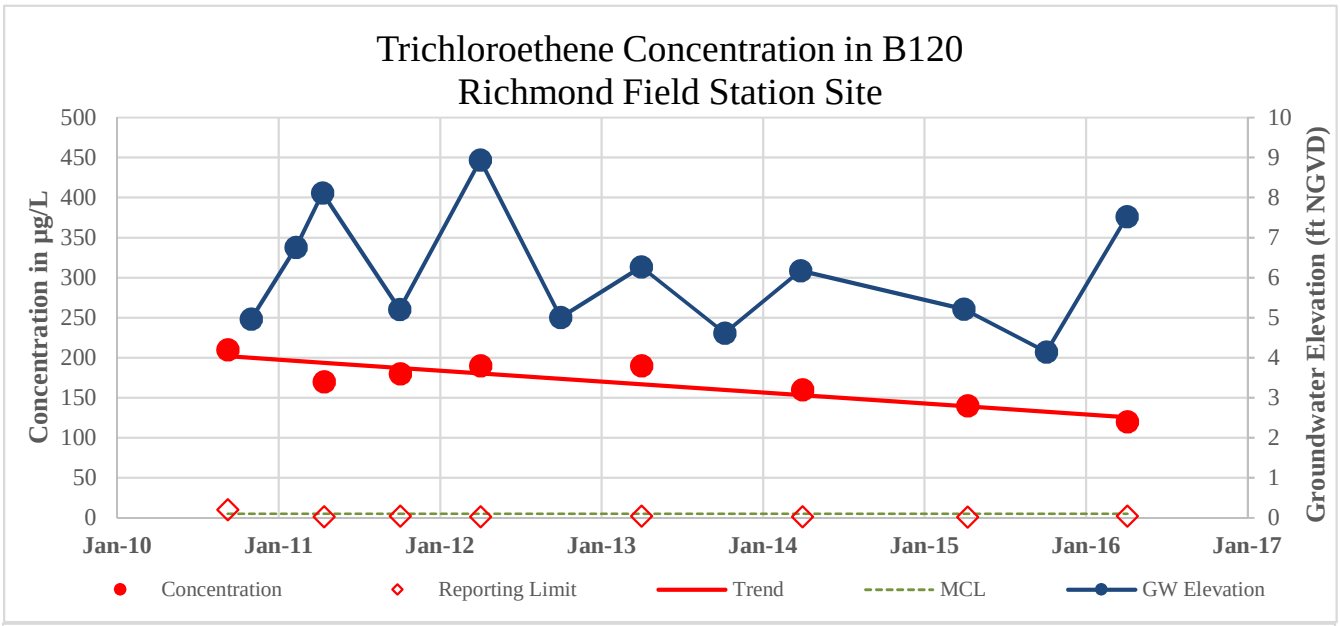

Carbon Tetrachloride Concentration in B280A
Richmond Field Station Site
Concentration in µg/L
Groundwater Elevation (ft NGVD)
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Concentration
Reporting Limit
Trend
California MCL
EPA MCL
GW Elevation

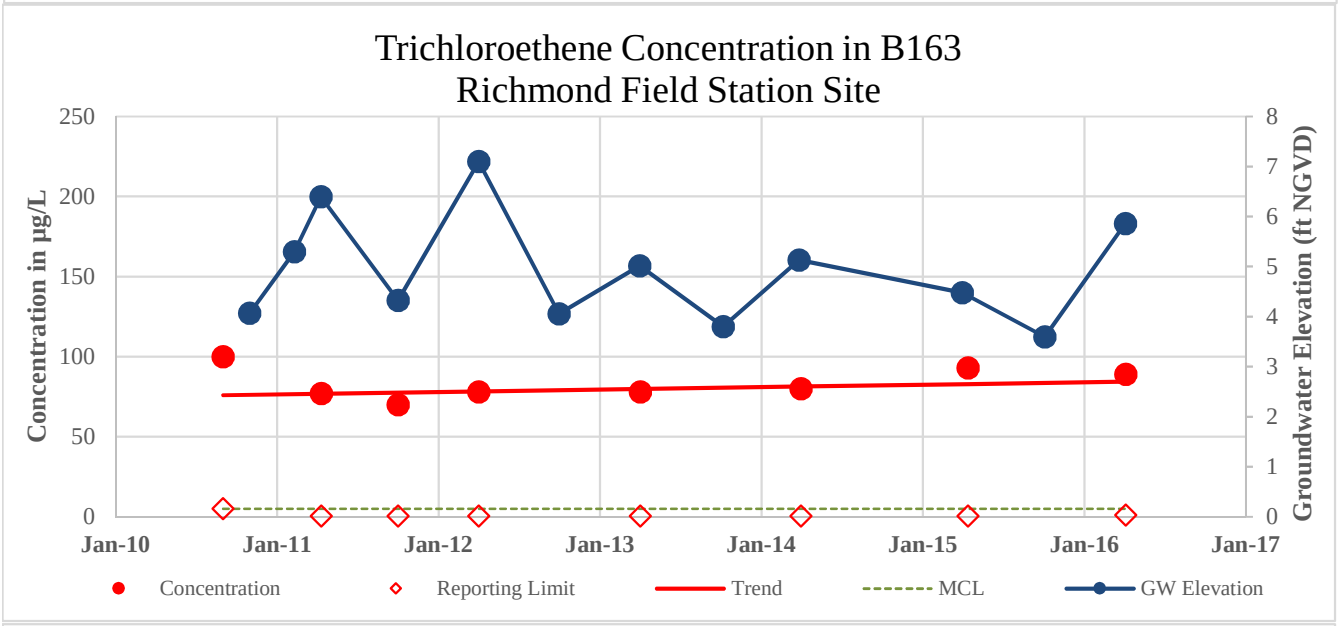

Carbon Tetrachloride Concentration in CTP
Richmond Field Station Site
Concentration in µg/L
Groundwater Elevation (ft NGVD)
45
40
35
30
25
20
15
10
5
0
8
7
6
5
4
3
2
1
0
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Concentration
Reporting Limit
Trend
California MCL
EPA MCL
GW Elevation

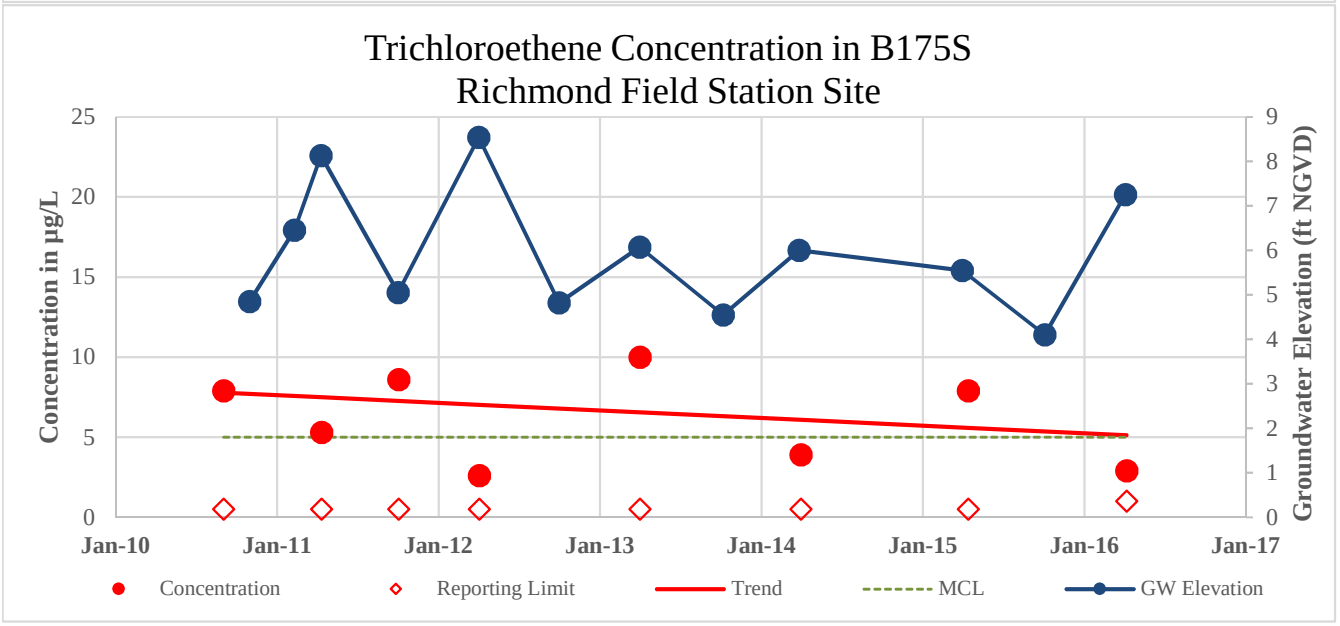

Carbon Tetrachloride Concentration in GEO
Richmond Field Station Site
Concentration in µg/L
Groundwater Elevation (ft NGVD)
6
5
4
3
2
1
0
9
8
7
6
5
4
3
2
1
0
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Concentration
Reporting Limit
Trend
California MCL
EPA MCL
GW Elevation

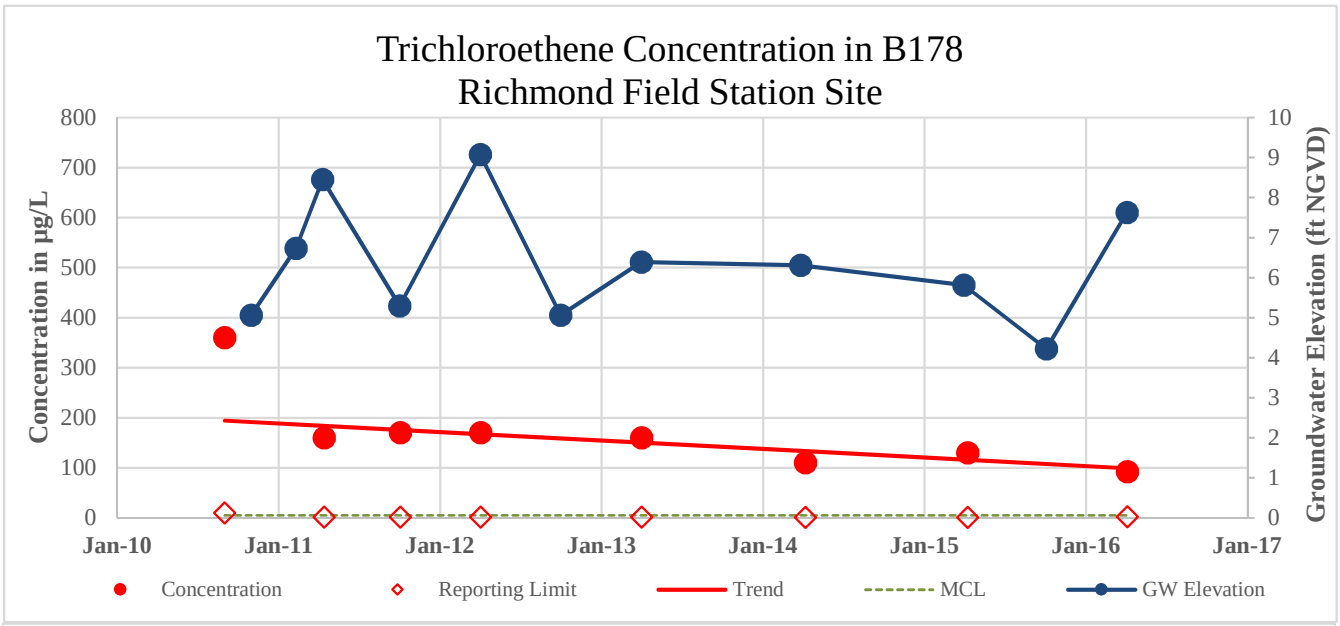


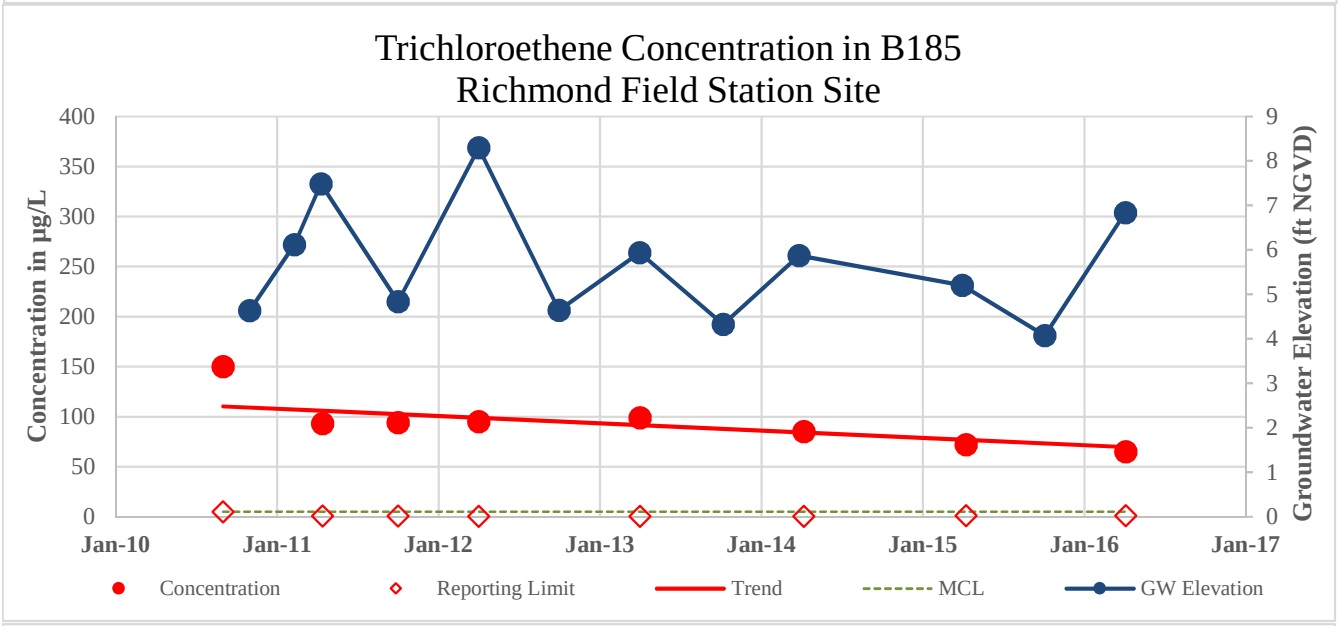
Note: Dissolved mercury concentrations were reported, as MCLs are based on dissolved concentrations of metals. Results for unfiltered mercury collected between 2010 and 2012 were not reported. See Appendix B for complete analytical results.

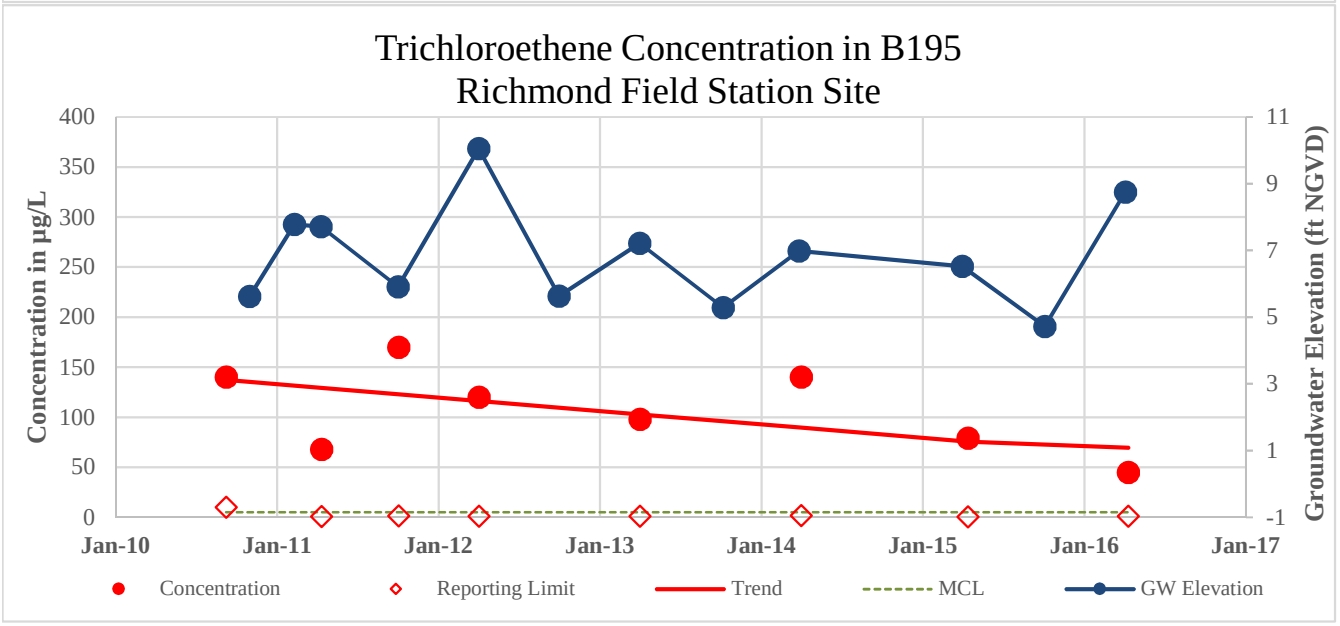

Trichloroethene Concentration in B120
Richmond Field Station Site
Concentration in µg/L
Groundwater Elevation (ft NGVD)
500
450
400
350
300
250
200
150
100
50
0
10
9
8
7
6
5
4
3
2
1
0
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Concentration
Reporting Limit
Trend
MCL
GW Elevation

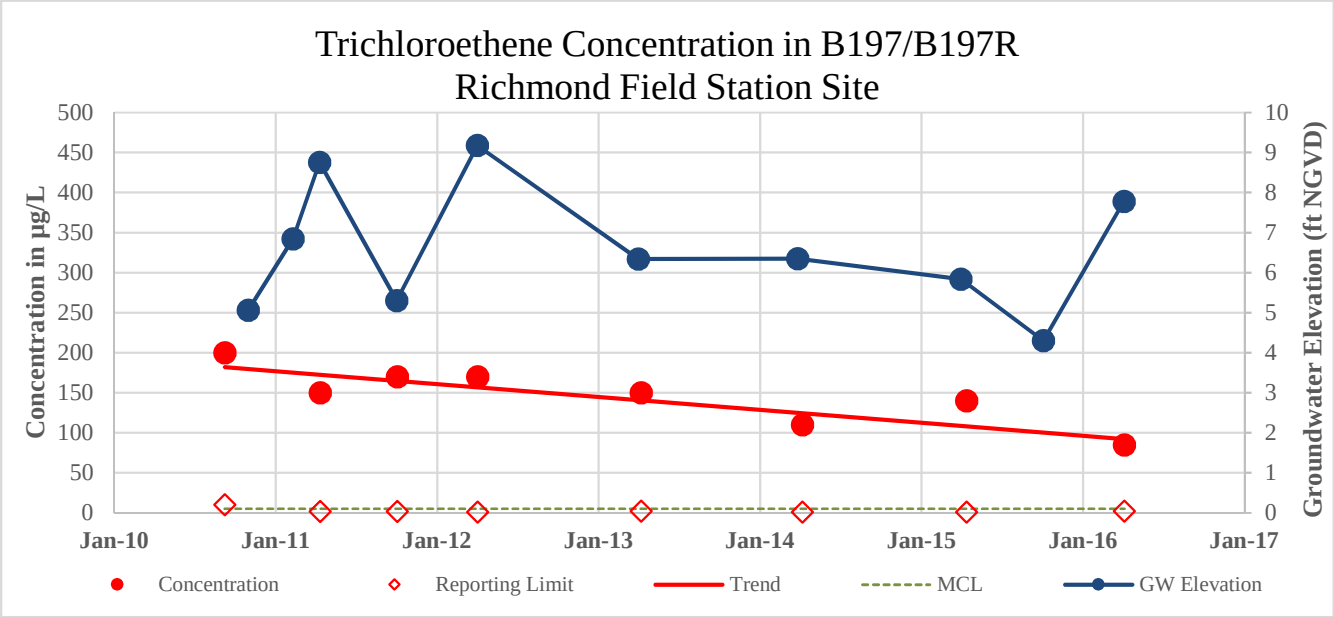

Trichloroethene Concentration in B163
Richmond Field Station Site
Concentration in µg/L
Groundwater Elevation (ft NGVD)
250
200
150
100
50
0
8
7
6
5
4
3
2
1
0
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Concentration
Reporting Limit
Trend
MCL
GW Elevation

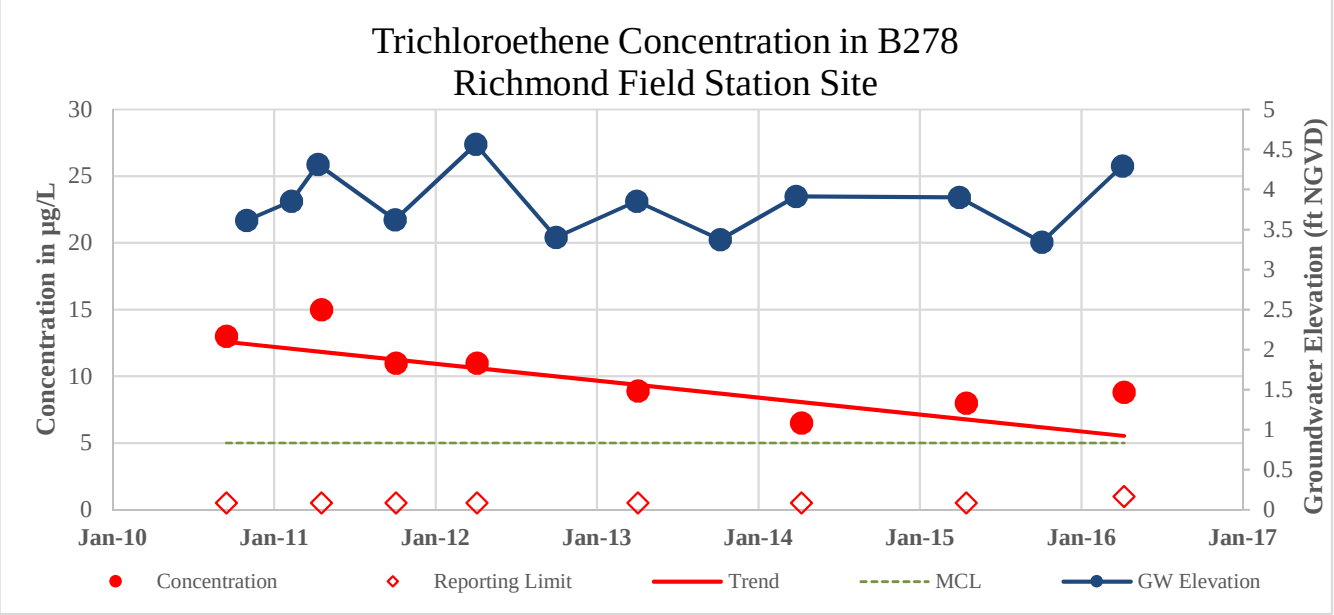

Trichloroethene Concentration in B175S
Richmond Field Station Site
Concentration in µg/L
Groundwater Elevation (ft NGVD)
25
20
15
10
5
0
9
8
7
6
5
4
3
2
1
0
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Concentration
Reporting Limit
Trend
MCL
GW Elevation

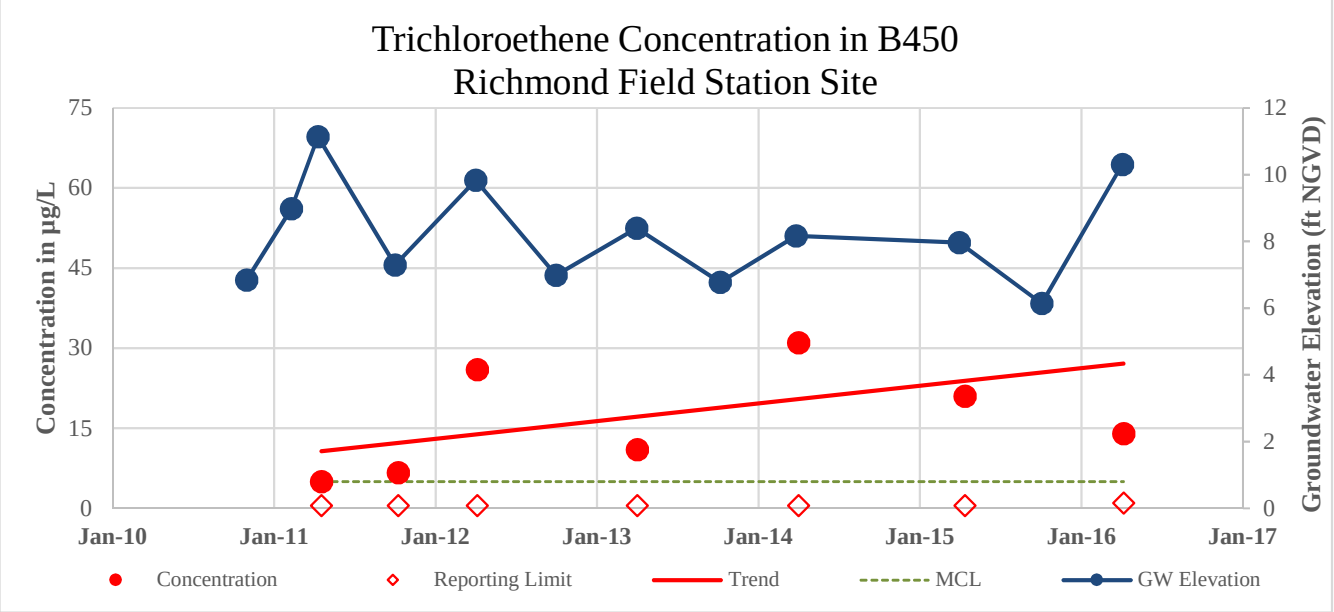

Trichloroethene Concentration in B178
Richmond Field Station Site
Concentration in µg/L
Groundwater Elevation (ft NGVD)
800
700
600
500
400
300
200
100
0
10
9
8
7
6
5
4
3
2
1
0
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Concentration
Reporting Limit
Trend
MCL
GW Elevation

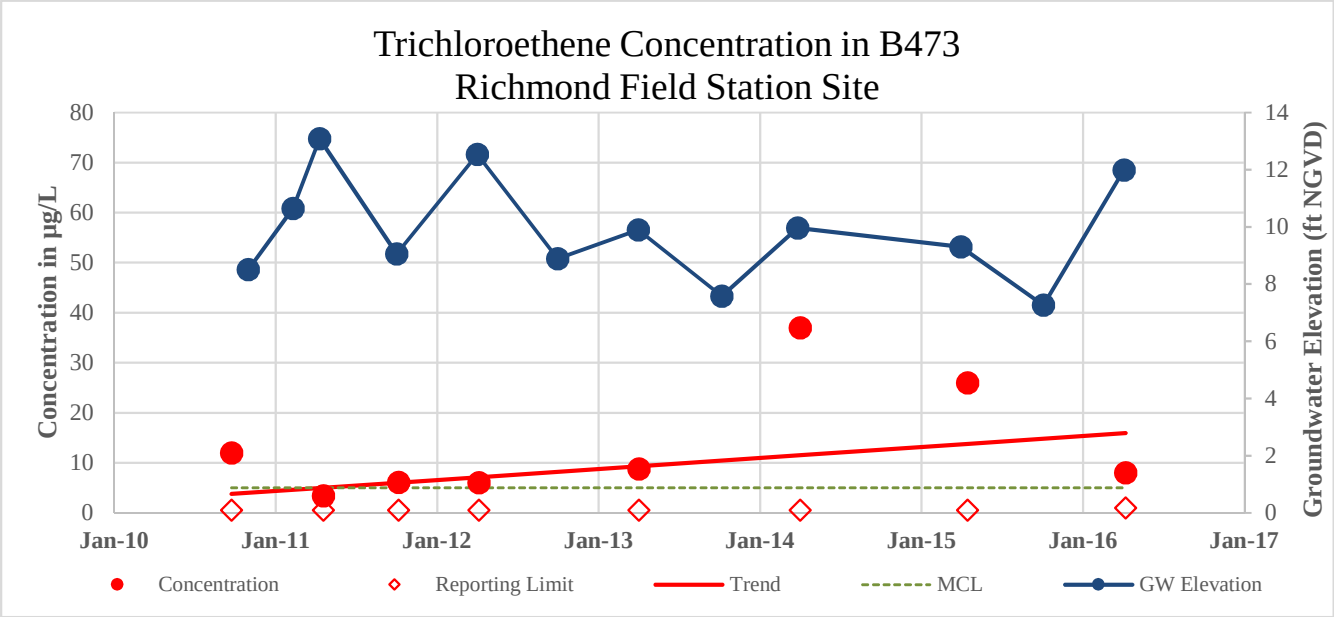

Trichloroethene Concentration in B185
Richmond Field Station Site
Concentration in µg/L
Groundwater Elevation (ft NGVD)
400
350
300
250
200
150
100
50
0
9
8
7
6
5
4
3
2
1
0
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Concentration
Reporting Limit
Trend
MCL
GW Elevation

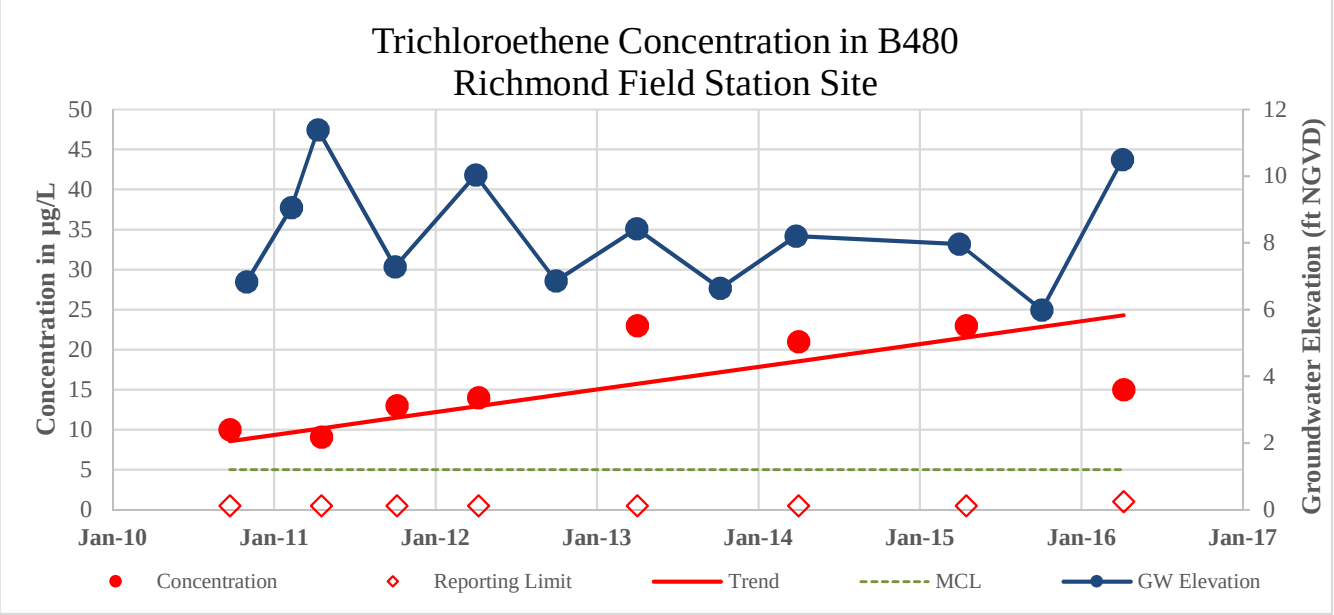

Trichloroethene Concentration in B195
Richmond Field Station Site
Concentration in µg/L
Groundwater Elevation (ft NGVD)
400
350
300
250
200
150
100
50
0
11
9
7
5
3
1
-1
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Concentration
Reporting Limit
Trend
MCL
GW Elevation

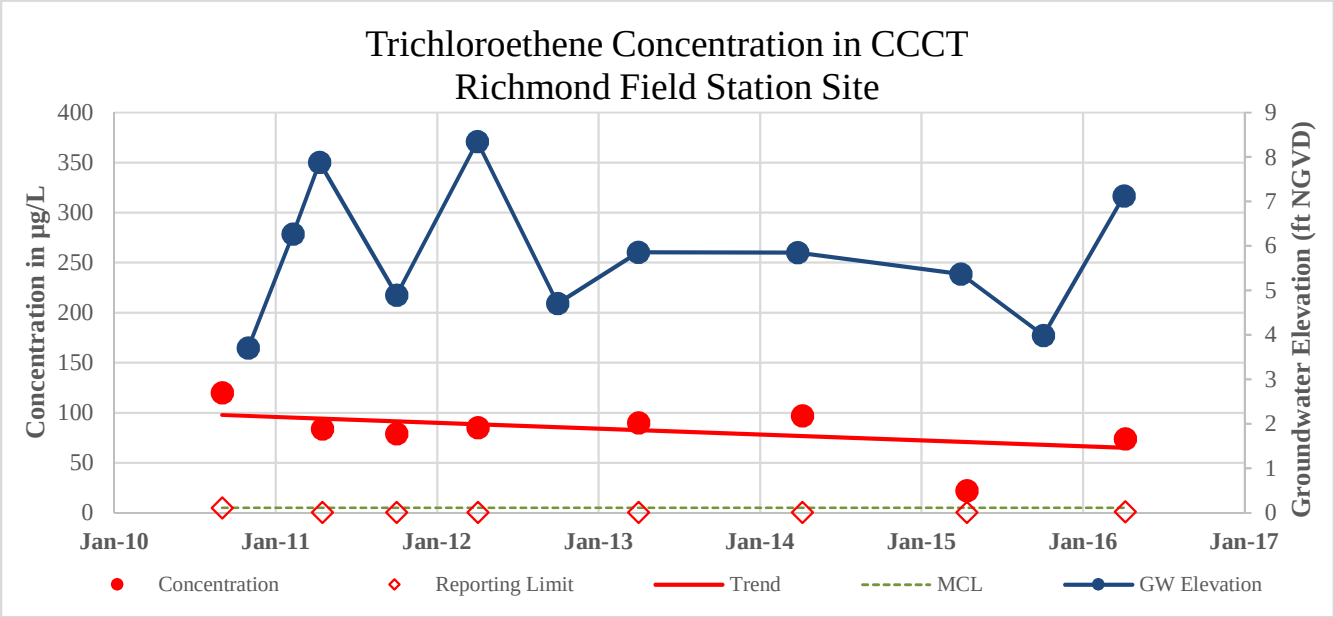

Trichloroethene Concentration in B197/B197R
Richmond Field Station Site
Concentration in µg/L
Groundwater Elevation (ft NGVD)
500
450
400
350
300
250
200
150
100
50
0
10
9
8
7
6
5
4
3
2
1
0
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Concentration
Reporting Limit
Trend
MCL
GW Elevation

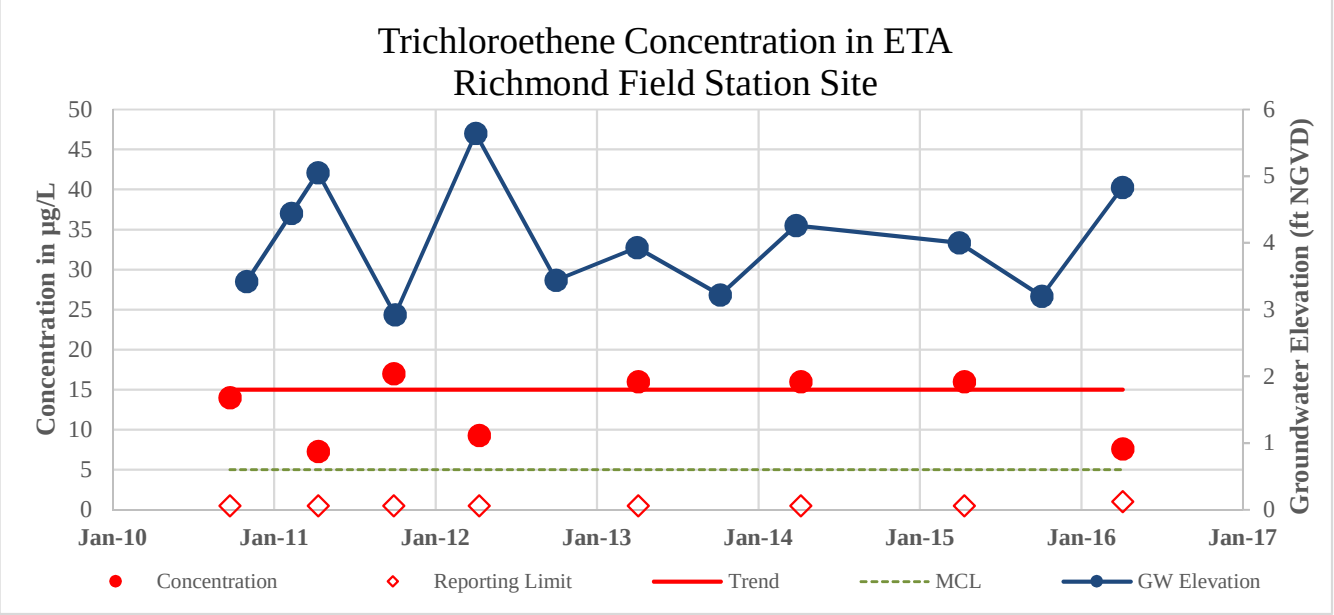

Trichloroethene Concentration in B278
Richmond Field Station Site
Concentration in µg/L
Groundwater Elevation (ft NGVD)
30
25
20
15
10
5
0
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Concentration
Reporting Limit
Trend
MCL
GW Elevation

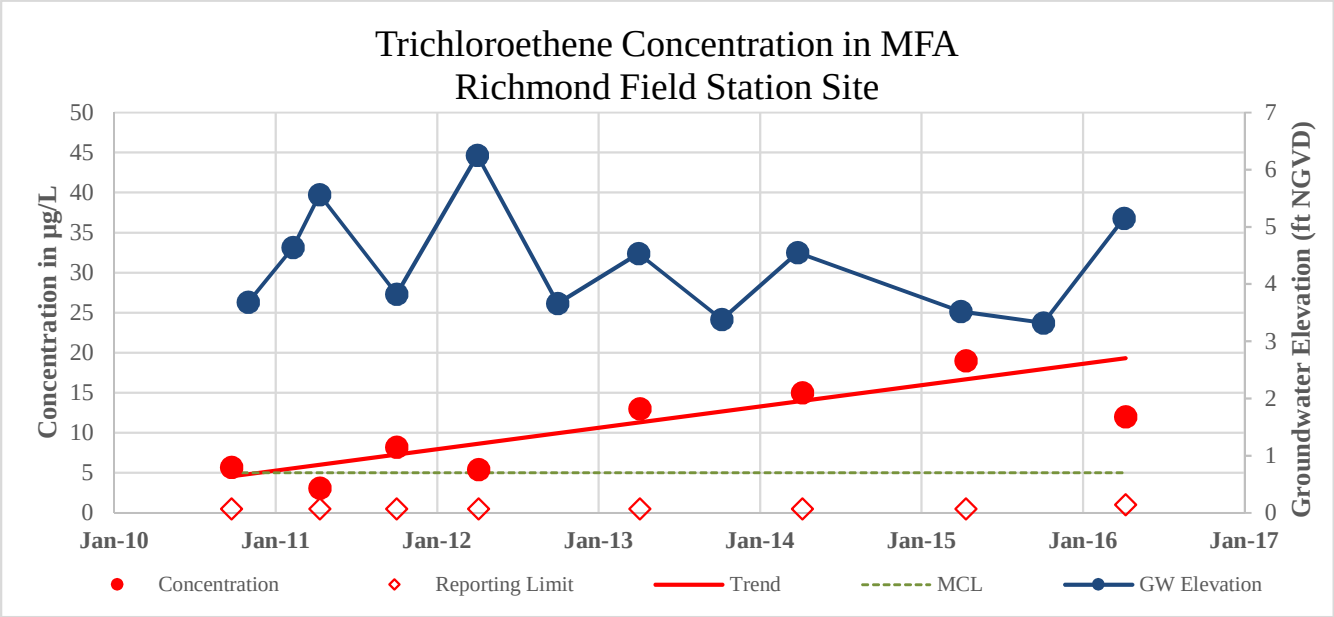

Trichloroethene Concentration in B450
Richmond Field Station Site
Concentration in µg/L
Groundwater Elevation (ft NGVD)
75
60
45
30
15
0
12
10
8
6
4
2
0
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Concentration
Reporting Limit
Trend
MCL
GW Elevation

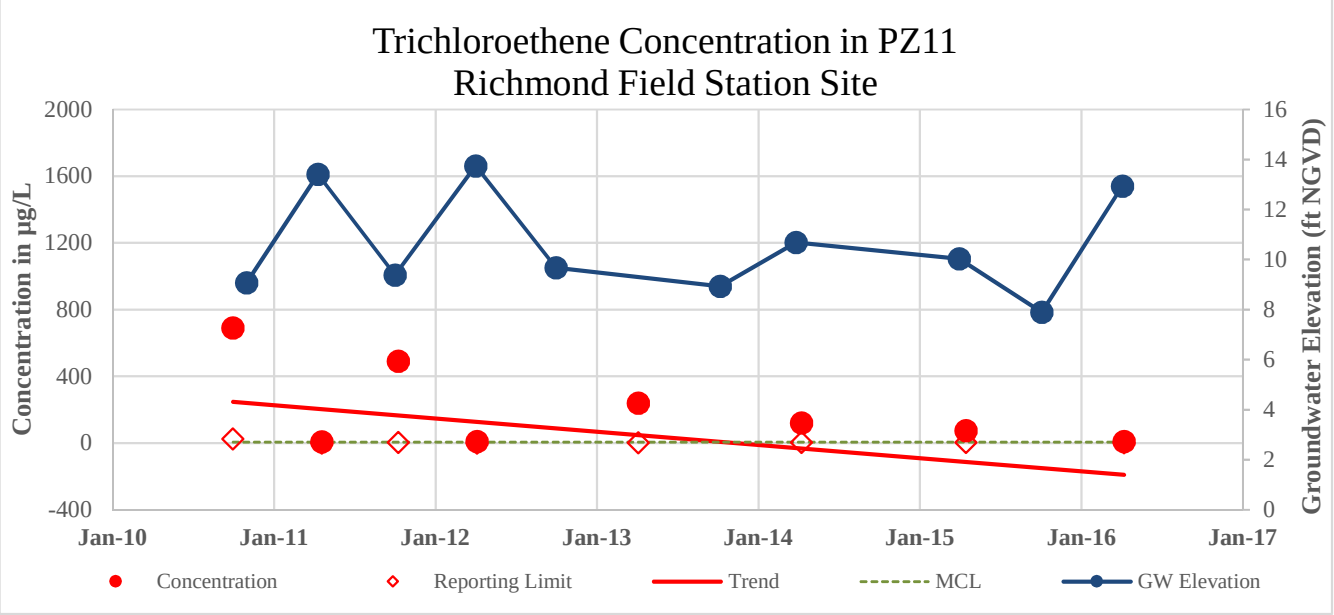

Trichloroethene Concentration in B473
Richmond Field Station Site
Concentration in µg/L
Groundwater Elevation (ft NGVD)
80
70
60
50
40
30
20
10
0
14
12
10
8
6
4
2
0
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Concentration
Reporting Limit
Trend
MCL
GW Elevation

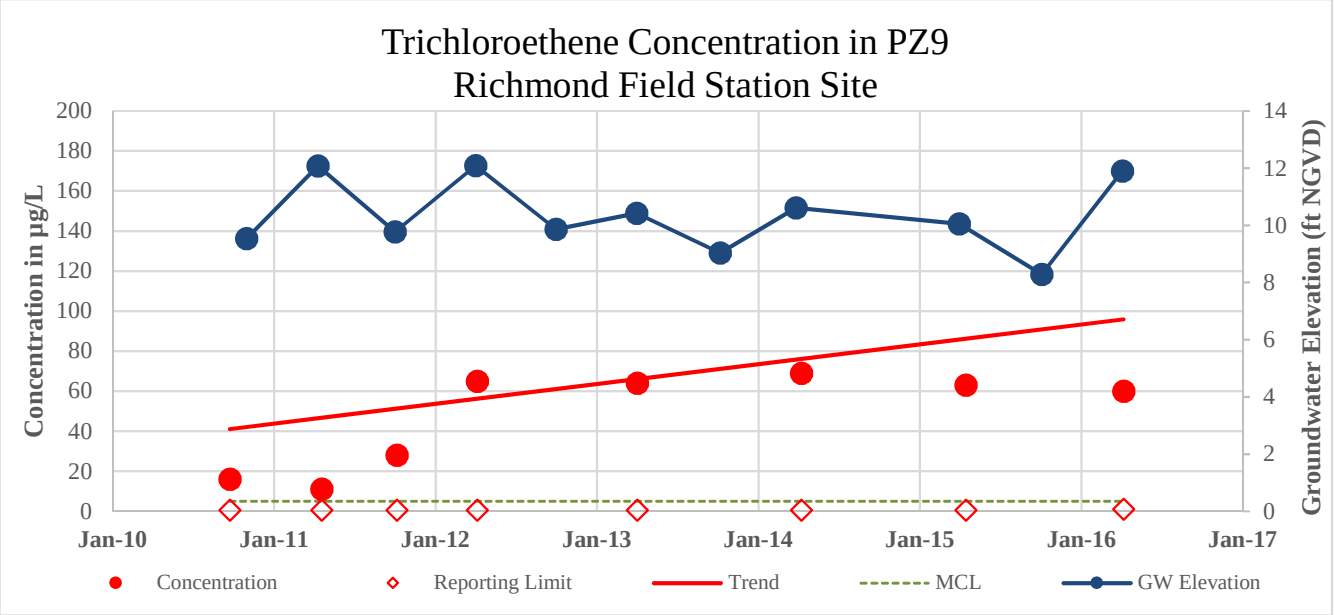

Trichloroethene Concentration in B480
Richmond Field Station Site
Concentration in µg/L
Groundwater Elevation (ft NGVD)
50
45
40
35
30
25
20
15
10
5
0
12
10
8
6
4
2
0
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Concentration
Reporting Limit
Trend
MCL
GW Elevation

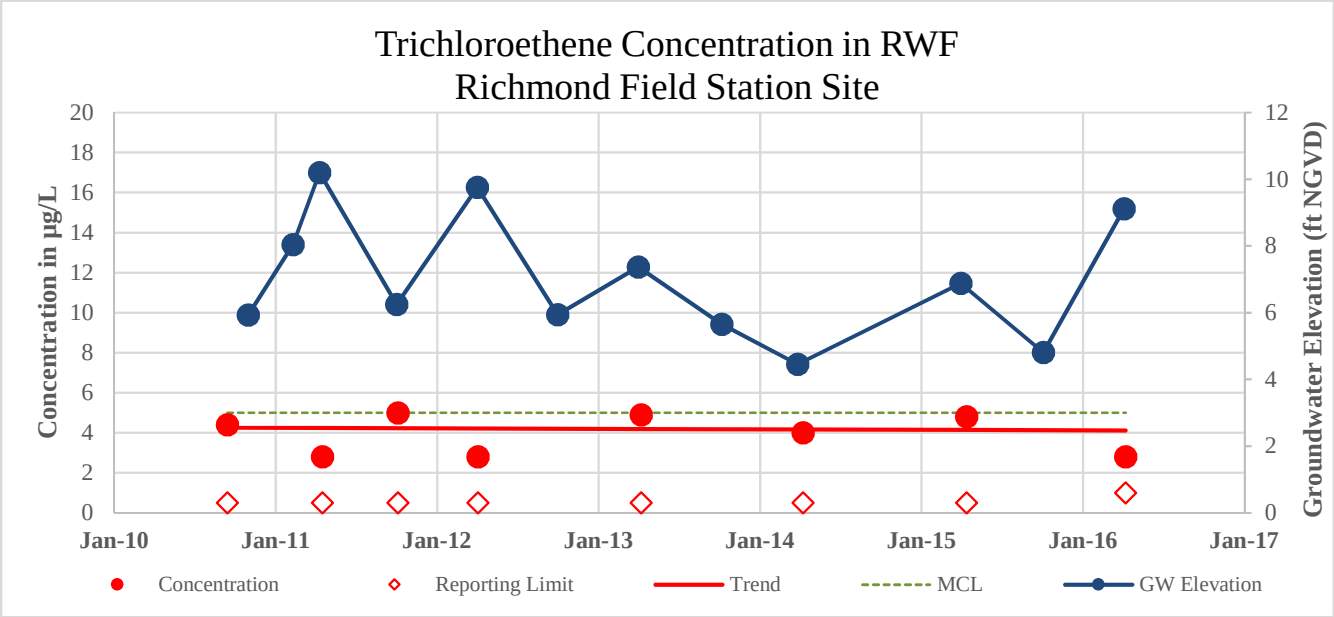

Trichloroethene Concentration in CCCT
Richmond Field Station Site
Concentration in µg/L
Groundwater Elevation (ft NGVD)
400
350
300
250
200
150
100
50
0
9
8
7
6
5
4
3
2
1
0
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Concentration
Reporting Limit
Trend
MCL
GW Elevation

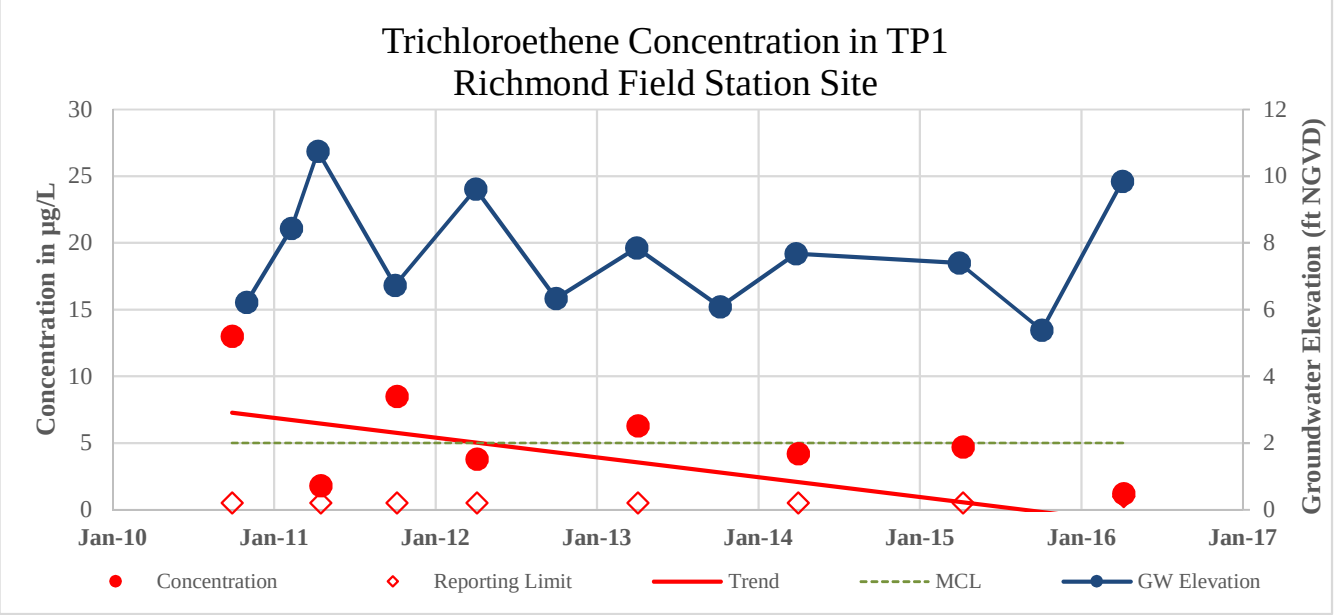

Trichloroethene Concentration in ETA
Richmond Field Station Site
Concentration in µg/L
Groundwater Elevation (ft NGVD)
50
45
40
35
30
25
20
15
10
5
0
6
5
4
3
2
1
0
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Concentration
Reporting Limit
Trend
MCL
GW Elevation

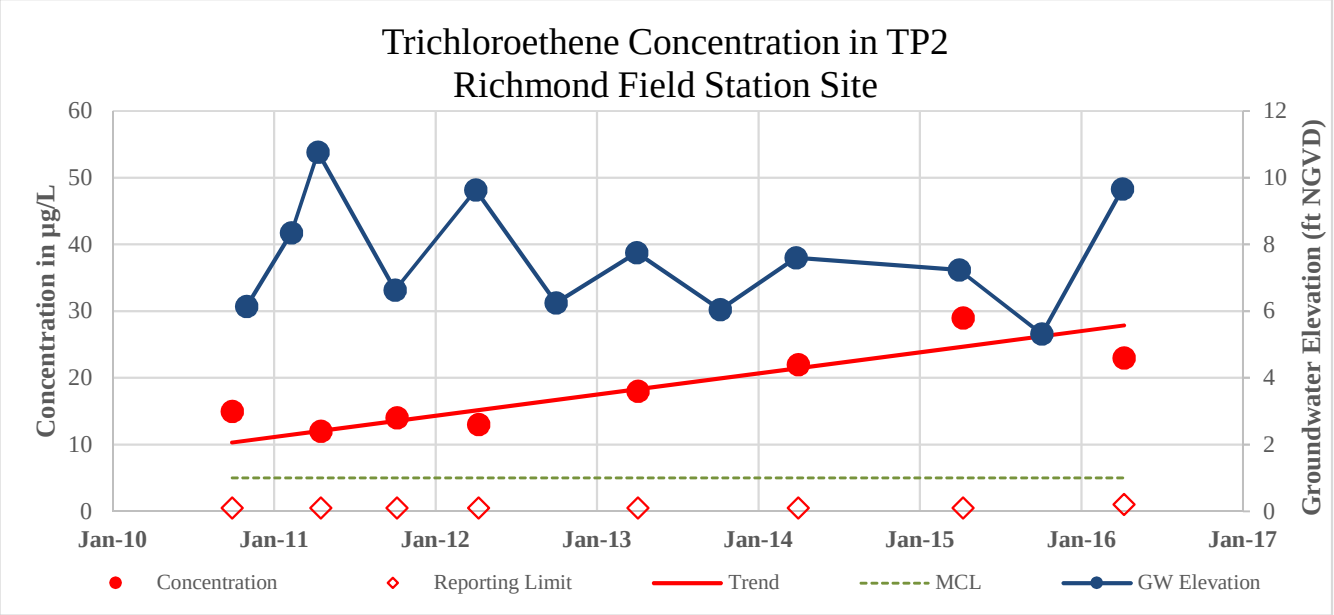

Trichloroethene Concentration in MFA
Richmond Field Station Site
Concentration in µg/L
Groundwater Elevation (ft NGVD)
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Concentration
Reporting Limit
Trend
MCL
GW Elevation


Trichloroethene Concentration in PZ11
Richmond Field Station Site
Concentration in µg/L
Groundwater Elevation (ft NGVD)
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Concentration
Reporting Limit
Trend
MCL
GW Elevation


Trichloroethene Concentration in PZ9
Richmond Field Station Site
Concentration in µg/L
Groundwater Elevation (ft NGVD)
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Concentration
Reporting Limit
Trend
MCL
GW Elevation


Trichloroethene Concentration in RWF
Richmond Field Station Site
Concentration in µg/L
Groundwater Elevation (ft NGVD)
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Concentration
Reporting Limit
Trend
MCL
GW Elevation


Trichloroethene Concentration in TP1
Richmond Field Station Site
Concentration in µg/L
Groundwater Elevation (ft NGVD)
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Concentration
Reporting Limit
Trend
MCL
GW Elevation


Trichloroethene Concentration in TP2
Richmond Field Station Site
Concentration in µg/L
Groundwater Elevation (ft NGVD)
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Concentration
Reporting Limit
Trend
MCL
GW Elevation

APPENDIX D
WATER LEVEL MEASUREMENT SAMPLING FORMS

TETRA TECH EM INC.
GROUNDWATER LEVEL MEASUREMENTS LOG

Type of organic vapor meter used (circle): PID FID

Well Identification Number	Organic Vapor Information		Water Level Information								
					Depth to Groundwater Information						
	PID/FID Reading (ppm)	Date	Well previously equilibrated? (Yes/No)	If not previously equilibrated, pressure detected when cap removed? (NA/Yes/No)	Time	Date	Depth to Groundwater[1] from Pump Platform or Riser, if present (feet)	Thickness of Pump Platform or Riser, if present (feet)	Depth to Groundwater[1] from Top of PVC Casing (feet)	Depth to Well Bottom from Top of PVC Casing[2] (feet)	Comments
~~B185~~					07:15	10.5.15				5.65	~~DRY~~
~~B178~~										5.90	
B120			Yes		07:30	10.5.15			7.57	13.08	
CCCT				Yes.	07:35	10.5.15			8.14	14.98	
B121					7:55				10.85	17.68	New lock needed
B175W					8:05				11.33	14.73	New lock needed
B177					8:10				12.68	18.71	
B150					8:20				11.92	15.04	
B158					8:30				11.67	14.82	
CCC 1					8:35				11.45	11.92	

Notes: 1 Where bladder pump sampling platform or riser is present, depth to water must be corrected to depth from top of PVC casing.
2 Note if access to well bottom is limited by presence of dedicated bladder pump.

Field Staff: Quinn Johnson **Field Staff Signature:** _____

Page No.: 1 **Date:** _____

TETRA TECH EM INC.
GROUNDWATER LEVEL MEASUREMENTS LOG

Type of organic vapor meter used (circle): PID FID

Well Identification Number	Organic Vapor Information		Water Level Information								
					Depth to Groundwater Information						
	PID/FID Reading (ppm)	Date	Well previously equilibrated? (Yes/No)	If not previously equilibrated, pressure detected when cap removed? (NA/Yes/No)	Time	Date	Depth to Groundwater[1] from Pump Platform or Riser, if present (feet)	Thickness of Pump Platform or Riser, if present (feet)	Depth to Groundwater[1] from Top of PVC Casing (feet)	Depth to Well Bottom from Top of PVC Casing[2] (feet)	Comments
CCC2			yes	yes	8:55	10.5.15			11.66	14.15	
CCC3			↓	↓	9:00	10.5.15			7.99	14.16	
B163			↓	↓	9:20	↓			6.77	16.51	
B180			↓	Yes	9:40	↓			10.13	15.99	Needs a new lock
B38 Deep			↓	Yes	9:45	↓			11:05	40.83	Needs a new lock
B38 shallow			↓	Yes.	9:50	↓			10.93	15.78	Water. Needs a new lock
B277			↓	↓	10:20	↓			10.78	17.48	
B278			↓	↓	10:25	↓			9.41	16.14	Needs new cap. 1 screw
~~DHRWTA~~			↓	↓	10:35	↓			5.86	~~14.98~~	14.93 New lock
EPA			↓	↓	10:45	↓			8.57	14.10	Needs lock (no lock

Notes: 1 Where bladder pump sampling platform or riser is present, depth to water must be corrected to depth from top of PVC casing.
2 Note if access to well bottom is limited by presence of dedicated bladder pump.

Field Staff: Quinn Johnson **Field Staff Signature:** _____

Page No.: 2 **Date:** _____

TETRA TECH EM INC.
GROUNDWATER LEVEL MEASUREMENTS LOG

Type of organic vapor meter used (circle): PID FID

Well Identification Number	Organic Vapor Information		Water Level Information								
					Depth to Groundwater Information						
	PID/FID Reading (ppm)	Date	Well previously equilibrated? (Yes/No)	If not previously equilibrated, pressure detected when cap removed? (NA/Yes/No)	Time	Date	Depth to Groundwater[1] from Pump Platform or Riser, if present (feet)	Thickness of Pump Platform or Riser, if present (feet)	Depth to Groundwater[1] from Top of PVC Casing (feet)	Depth to Well Bottom from Top of PVC Casing[2] (feet)	Comments
CTPS			yes		11:00	10.5.15			12.19	13.83	
B280A			↓		11:20	↓			11.00	13.54	
CTP Deep			↓		11:30	↓			12.43	42.33	
CTP Shallow			↓		11:32	↓			12.02	17.10	
B280B			↓		11:40	↓			13.24	15.90	
GEO			↓		12:00	↓			11.45	16.08	
NRLF			↓		12:05	↓			17.42	18.80	
B300			↓		12:10	↓			13.62	17.13	
RWF			↓		12:30	↓			11.65	17.65	Needs new cap
TP2			↓		12:35	↓			13.60	17.50	

Notes: 1 Where bladder pump sampling platform or riser is present, depth to water must be corrected to depth from top of PVC casing.
2 Note if access to well bottom is limited by presence of dedicated bladder pump.

Field Staff: Quinn Johnson **Field Staff Signature:** _____

Page No.: 3 **Date:** _____

TETRA TECH EM INC.
GROUNDWATER LEVEL MEASUREMENTS LOG

Type of organic vapor meter used (circle): PID FID

Well Identification Number	Organic Vapor Information		Water Level Information								
					Depth to Groundwater Information						
	PID/FID Reading (ppm)	Date	Well previously equilibrated? (Yes/No)	If not previously equilibrated, pressure detected when cap removed? (NA/Yes/No)	Time	Date	Depth to Groundwater[1] from Pump Platform or Riser, if present (feet)	Thickness of Pump Platform or Riser, if present (feet)	Depth to Groundwater[1] from Top of PVC Casing (feet)	Depth to Well Bottom from Top of PVC Casing[2] (feet)	Comments
TP1			yes	yes	12:40	10.5.15			13.95	15.98	
B194					13:45				13.85	17.02	left from cabinet
B128 shallow					14:00				8.23	15.91	
B128 deep					14:05				8.64	40.15	
MFA					14:10				4.91	13.78	
ETA03					14:25				7.59	20.19	
ETA02					14:30				6.58	20.03	

Notes: 1 Where bladder pump sampling platform or riser is present, depth to water must be corrected to depth from top of PVC casing.
2 Note if access to well bottom is limited by presence of dedicated bladder pump.

Field Staff: Quinn Glusa **Field Staff Signature:** _____

Page No.: 4 **Date:** _____

TETRA TECH EM INC.
GROUNDWATER LEVEL MEASUREMENTS LOG

Type of organic vapor meter used (circle): PID FID

Well Identification Number	Organic Vapor Information		Water Level Information								
					Depth to Groundwater Information						
	PID/FID Reading (ppm)	Date	Well previously equilibrated? (Yes/No)	If not previously equilibrated, pressure detected when cap removed? (NA/Yes/No)	Time	Date	Depth to Groundwater[1] from Pump Platform or Riser, if present (feet)	Thickness of Pump Platform or Riser, if present (feet)	Depth to Groundwater[1] from Top of PVC Casing (feet)	Depth to Well Bottom from Top of PVC Casing[2] (feet)	Comments
B185		10/5/15	Yes		0800				5.94	13.95	used snake to remove roots @ 5.15'
B178			↓		0830				6.45	13.55	" roots at 5.90 ft
B197R					0930				8.89	13.29	roots at 8.55ft. used snake to remove roots
B175~~#5~~					0950				11.06	14.90	
B195					1030				9.56	16.25	
~~B185#~~	P2-8				1040				9.42	20.63	
DHR					1100				10.49	13.73	Block @ 9ft by roots. Removed using snake
B473					1140				15.03	17.15	
P2-11					1144				13.59	18.91	
FG			↓						14.82	16.38	

Notes: 1 Where bladder pump sampling platform or riser is present, depth to water must be corrected to depth from top of PVC casing.
2 Note if access to well bottom is limited by presence of dedicated bladder pump.

Field Staff: Dayna Aragon **Field Staff Signature:** Dayna

Page No.: 5 **Date:** 10/5/15

TETRA TECH EM INC.
GROUNDWATER LEVEL MEASUREMENTS LOG

Type of organic vapor meter used (circle): PID FID

Well Identification Number	Organic Vapor Information		Water Level Information								
					Depth to Groundwater Information						
	PID/FID Reading (ppm)	Date	Well previously equilibrated? (Yes/No)	If not previously equilibrated, pressure detected when cap removed? (NA/Yes/No)	Time	Date	Depth to Groundwater[1] from Pump Platform or Riser, if present (feet)	Thickness of Pump Platform or Riser, if present (feet)	Depth to Groundwater[1] from Top of PVC Casing (feet)	Depth to Well Bottom from Top of PVC Casing[2] (feet)	Comments
~~B10~~ B490	0	10/5/15			1205				16.13	18.16	
B480 Deep					1215				10.88	40.49	
B480					1220				14.85	16.02	
~~B473~~	B474				1225				16.78	20.25	
P2-9					1230				15.00	19.73	
EERC					1235				16.03	17.01	
B460					1315				15.72	15.72	welding wet at bottom
B450					1319				15.20	15.77	
Bulb 1					1405				4.25	10.29	
Bulb 2					1410				4.72	18.63	

Notes: 1 Where bladder pump sampling platform or riser is present, depth to water must be corrected to depth from top of PVC casing.
2 Note if access to well bottom is limited by presence of dedicated bladder pump.

Field Staff: Dayra Aragon **Field Staff Signature:** Dayra A

Page No.: 6 **Date:** 10/5/15

TETRA TECH EM INC.
GROUNDWATER LEVEL MEASUREMENTS LOG

Type of organic vapor meter used (circle): PID FID

Well Identification Number	Organic Vapor Information		Water Level Information								
					Depth to Groundwater Information						
	PID/FID Reading (ppm)	Date	Well previously equilibrated? (Yes/No)	If not previously equilibrated, pressure detected when cap removed? (NA/Yes/No)	Time	Date	Depth to Groundwater[1] from Pump Platform or Riser, if present (feet)	Thickness of Pump Platform or Riser, if present (feet)	Depth to Groundwater[1] from Top of PVC Casing (feet)	Depth to Well Bottom from Top of PVC Casing[2] (feet)	Comments
ETA01		10/5/15	yes	~~yes~~	1430				2.96	15.30	
WSM01		↓	↓	~~N~~	1440				5.95	17.74	sediment at bottom
ETA		↓	↓	~~N~~	1450				4.34	13.56	

Notes: 1 Where bladder pump sampling platform or riser is present, depth to water must be corrected to depth from top of PVC casing.
2 Note if access to well bottom is limited by presence of dedicated bladder pump.

Field Staff: Dayna Aragon **Field Staff Signature:** [signature]

Page No.: 7 **Date:** 10/5/15

TETRA TECH EM INC.
GROUNDWATER LEVEL MEASUREMENTS LOG

Type of organic vapor meter used (circle): PID FID

Well Identification Number	Organic Vapor Information		Water Level Information								Comments
					Depth to Groundwater Information						
	PID/FID Reading (ppm)	Date	Well previously equilibrated? (Yes/No)	If not previously equilibrated, pressure detected when cap removed? (NA/Yes/No)	Time	Date	Depth to Groundwater[1] from Pump Platform or Riser, if present (feet)	Thickness of Pump Platform or Riser, if present (feet)	Depth to Groundwater[1] from Top of PVC Casing (feet)	Depth to Well Bottom from Top of PVC Casing[2] (feet)	
B4b1			Yes	Yes	1045	4/4/16			4.08	18.11	
B4b2			↓	↓	1040	↓			3.65	18.47	
B128 deep ~~deep~~					1116				6.86	40.17	
B128					1120				5.72	15.96	
CCC3					1130				5.61	14.24	
B163					1140				4.51	16.58	
B178			↓	↓	1320	↓			3.04	13.45	well was recorded w/ sist

Notes: 1 Where bladder pump sampling platform or riser is present, depth to water must be corrected to depth from top of PVC casing.
2 Note if access to well bottom is limited by presence of dedicated bladder pump.

Field Staff: Dayra Aragon **Field Staff Signature:** [signature]

Page No.: 1 **Date:** 4/4/16

TETRA TECH EM INC.
GROUNDWATER LEVEL MEASUREMENTS LOG

Type of organic vapor meter used (circle): PID FID NA

* Well Identification Number	Organic Vapor Information: PID/FID Reading (ppm)	Organic Vapor Information: Date	Water Level Information: * Well previously equilibrated? (Yes/No)	Water Level Information: * ~~If not previously~~ equilibrated, pressure detected when cap removed? (NA/Yes/No)	Depth to Groundwater Information: * Time	Depth to Groundwater Information: * Date	Depth to Groundwater Information: Depth to Groundwater[1] from Pump Platform or Riser, if present (feet)	Depth to Groundwater Information: Thickness of Pump Platform or Riser, if present (feet)	Depth to Groundwater Information: * Depth to Groundwater[1] from Top of PVC Casing (feet)	* Depth to Well Bottom from Top of PVC Casing[2] (feet)	* Comments
B185			Yes	Yes	0920	4/4/16			3.18	13.85	water overtopping cap blocked at 5.60ft, w/ sand
B120			↓	↓	0930	↓			4.19	13.12	blocked at 9.49ft - cleared itself w/ pressure from sonde
B197R			↓	↓	0935	↓			5.41	13.21	water overtopping cap
CCCT			↓	↓	0940	↓			5.0	15.10	
ETA03			↓	↓	1010	↓			6.15	20.26	
ETA02			↓	↓	1015	↓			4.95	20.57	
WSM01			↓	↓	1020	↓			4.01	17.48	
ETA			↓	↓	1023	↓			2.71	13.40	
MFA			↓	↓	1030	↓			3.08	13.72	
ETA01			↓	↓	1035	↓			1.45	15.20	

Notes: 1 Where bladder pump sampling platform or riser is present, depth to water must be corrected to depth from top of PVC casing.
2 Note if access to well bottom is limited by presence of dedicated bladder pump.

Field Staff: Dayna Aragon **Field Staff Signature:** [signature]

Page No.: 2 **Date:** 4/4/18

TETRA TECH EM INC.
GROUNDWATER LEVEL MEASUREMENTS LOG

Type of organic vapor meter used (circle): PID FID

Well Identification Number	Organic Vapor Information		Water Level Information								Comments
					Depth to Groundwater Information						
	PID/FID Reading (ppm)	Date	Well previously equilibrated? (Yes/No)	~~If not previously equilibrated,~~ pressure detected when cap removed? (NA/Yes/No)	Time	Date	Depth to Groundwater[1] from Pump Platform or Riser, if present (feet)	Thickness of Pump Platform or Riser, if present (feet)	Depth to Groundwater[1] from Top of PVC Casing (feet)	Depth to Well Bottom from Top of PVC Casing[2] (feet)	
NRLF	—	4-4-16	Yes	NO	935				12.75	15.81	one of two Bolts Secure
~~CTP~~ B280B	—	4-4-16	Yes	NO	948				12.17	15.95	
CTP	—			NO	956				10.78	17.02	one of two Bolts secure
CTP Deep	—			NO	1002				10.95	40.26	
B300	—			NO	1011				10.52	13.35	one of two Bolts Secure
RWF				Yes	1041				7.34	11.60	
TP2				NO	1046				9.25	17.09	
TP1	—			Yes	1058				9.49	16.03	one of two Bolts secure
B460	—			NO	1105				11.00	15.69	one of two Bolts secure
B450	—			NO	1111				11.04	15.61	one of two Bolts Secure

Notes: 1 Where bladder pump sampling platform or riser is present, depth to water must be corrected to depth from top of PVC casing.
2 Note if access to well bottom is limited by presence of dedicated bladder pump.

Field Staff: Mark Duffy **Field Staff Signature:** Mark Duffy

Page No.: 3 **Date:** 4-4-16

TETRA TECH EM INC.
GROUNDWATER LEVEL MEASUREMENTS LOG

Type of organic vapor meter used (circle): PID FID

Well Identification Number	Organic Vapor Information		Water Level Information								Comments
					Depth to Groundwater Information						
	PID/FID Reading (ppm)	Date	Well previously equilibrated? (Yes/No)	~~If not previously equilibrated,~~ pressure detected when cap removed? (NA/Yes/No)	Time	Date	Depth to Groundwater[1] from Pump Platform or Riser, if present (feet)	Thickness of Pump Platform or Riser, if present (feet)	Depth to Groundwater[1] from Top of PVC Casing (feet)	Depth to Well Bottom from Top of PVC Casing[2] (feet)	
B480	NA		Yes	~~If~~ NO	1245	4-4-16			10.35	15.88	
B480Deep				Yes	1240				7.86	40.29	
EERC				NO	1250				11.11	16.91	
B474				NO	1256				12.41	19.11	
B473				NO	1301				10.30	16.99	
PZ11				NO	1330				8.55	18.73	
PZ9				NO	1337				11.39	19.54	
B490				NO	1343				13.41	18.01	
FG				NO	1349				12.90	16.23	
B194	↓		↓	NO	1415	↓			8.26	19.05	

Notes: 1 Where bladder pump sampling platform or riser is present, depth to water must be corrected to depth from top of PVC casing.
2 Note if access to well bottom is limited by presence of dedicated bladder pump.

Field Staff: Mark Duffy **Field Staff Signature:** Mark Duffy

Page No.: 4 **Date:** 4-4-16

TETRA TECH EM INC.
GROUNDWATER LEVEL MEASUREMENTS LOG

Type of organic vapor meter used (circle): PID FID

Well Identification Number	Organic Vapor Information		Water Level Information								
					Depth to Groundwater Information						
	PID/FID Reading (ppm)	Date	Well previously equilibrated? (Yes/No)	If not previously equilibrated, pressure detected when cap removed? (NA/Yes/No)	Time	Date	Depth to Groundwater[1] from Pump Platform or Riser, if present (feet)	Thickness of Pump Platform or Riser, if present (feet)	Depth to Groundwater[1] from Top of PVC Casing (feet)	Depth to Well Bottom from Top of PVC Casing[2] (feet)	Comments
B195	-	4-4-16	Yes	~~1425~~	1425				5.53	16.15	water overtopping
PZ8	-	4-4-16	Yes	~~1430~~	1430				5.37	20.50	
B180	-	4-4-16	Yes		1440				5.87	15.97	Need new lock, water overtopping

Notes: 1 Where bladder pump sampling platform or riser is present, depth to water must be corrected to depth from top of PVC casing.
2 Note if access to well bottom is limited by presence of dedicated bladder pump.

Field Staff: Mark Duffy **Field Staff Signature:**

Page No.: 5 **Date:** 4-4-16

TETRA TECH EM INC.
GROUNDWATER LEVEL MEASUREMENTS LOG

Type of organic vapor meter used (circle): PID FID

Well Identification Number	Organic Vapor Information		Water Level Information								Comments
					Depth to Groundwater Information						
	PID/FID Reading (ppm)	Date	Well previously equilibrated? (Yes/No)	If not previously equilibrated, pressure detected when cap removed? (NA/Yes/No)	Time	Date	Depth to Groundwater[1] from Pump Platform or Riser, if present (feet)	Thickness of Pump Platform or Riser, if present (feet)	Depth to Groundwater[1] from Top of PVC Casing (feet)	Depth to Well Bottom from Top of PVC Casing[2] (feet)	
B150	—	—	yes	yes	1353	4/4/16	—	—	4.02	15.13	1 nut broken clean + lock
B175W	—	—	yes	yes	1402		—	—	6.93	14.81	clean, lock good condition
B175S	—	—	yes	yes	1408		—	—	7.81	14.82	" " - water
B121	—	—	yes	yes	1414		—	—	8.03	17.80	lock good condition
CCC2	—	—	yes	yes	1421		—	—	7.89	14.23	" " water overlapping
~~B13~~											
B38	—	—	yes	yes	1442		—	—	9.42	15.87	lock, good condition water overlapping
B38 deep	—	—			1445		—	—	7.22	40.97	" " ~~water~~

Notes: 1 Where bladder pump sampling platform or riser is present, depth to water must be corrected to depth from top of PVC casing.
2 Note if access to well bottom is limited by presence of dedicated bladder pump.

Field Staff: Cynthia Breene **Field Staff Signature:** C Breene

Page No.: 2 6 **Date:** 4/4/16

15 min to equil. bracket

TETRA TECH EM INC.
GROUNDWATER LEVEL MEASUREMENTS LOG

9th 5/16

Type of organic vapor meter used (circle): PID FID

Well Identification Number	Organic Vapor Information: PID/FID Reading (ppm)	Organic Vapor Information: Date	Water Level Information: Well previously equilibrated? (Yes/No)	Water Level Information: ~~If not previously equilibrated,~~ pressure detected when cap removed? (NA/Yes/No)	Depth to Groundwater Information: Time	Depth to Groundwater Information: Date	Depth to Groundwater[1] from Pump Platform or Riser, if present (feet)	Thickness of Pump Platform or Riser, if present (feet)	Depth to Groundwater[1] from Top of PVC Casing (feet)	Depth to Well Bottom from Top of PVC Casing[2] (feet)	Comments
B280A	—	—	yes	NA	0920	4/4/16	—	—	10.55	13.62	no cap; well not sealed no nuts/screws
EPA	—	—	yes	yes	1014	4/4/16	—	—	8.21	14.20	no lock, good condition sealed; water
WTA	—	—	yes	yes	1024		—	—	5.43	14.04	lock present, not locked, good condition; wate
DHR	—	—	yes	yes	1035		—	—	7.74	13.65	" "
B278	—	—	yes	yes	1112		—	—	8.46	16.21	only 1 nut, good condition
CCC1	—	—	yes	yes	1121		—	—	8.57	12.23	good condition lock present
B158	—	—	yes	yes	1130		—	—	8.98	15.01	lock present, good condition wate
B277	—	—	yes	yes	1325		—	—	9.78	17.59	lock, dry good condition
GEO	—	—	yes	yes	1334		—	—	8.40	16.14	" "
B177	—	—	yes	yes	1346		—	—	8.21	18.80	" "

Notes: 1 Where bladder pump sampling platform or riser is present, depth to water must be corrected to depth from top of PVC casing.
2 Note if access to well bottom is limited by presence of dedicated bladder pump.

Field Staff: Cynthia Breene **Field Staff Signature:** CBreene

Page No.: 1 of 7 **Date:** 4/4/16

APPENDIX E
COMMENT LETTER AND RESPONSE TO COMMENTS

Department of Toxic Substances Control

Barbara A. Lee, Director
700 Heinz Avenue
Berkeley, California 94710-2721

Matthew Rodriquez
Secretary for
Environmental Protection

Edmund G. Brown Jr.
Governor

September 25, 2015

Mr. Greg Haet
EH&S Associate Director, Environmental Protection
Office of Environment, Health & Safety
University of California, Berkeley
University Hall, 3rd Floor, #1150
Berkeley, California 94720

Dear Mr. Haet:

The Department of Toxic Substances Control (DTSC) received the *Draft 2015 Groundwater Sampling Results Technical Memorandum* (Memorandum), dated July 24, 2015, for the Richmond Field Station Site (also known as the Berkeley Global Campus at Richmond Bay) located at 1301 South 46th Street, Richmond, California. The Memorandum was prepared by Tetra Tech, Inc. on behalf of the Regents of the University of California, and presents the results of annual groundwater monitoring and maintenance conducted during the October 2014 to June 2015 time period. Specifically, groundwater water level measurements were collected in October 2014 and April 2015, and groundwater sampling was conducted in April 2015.

In October 2014, depth to water measurements was collected from both shallow and deep piezometers. In April 2015, water levels were measured, and included four new piezometers installed near the biologically active permeable barrier. Groundwater samples were collected in April 2015. DTSC has reviewed the report and has the following comments:

1. Section 2.0 Field Activities: The first paragraph of this section states that in October 2014, depth-to-water measures were collected from 50 shallow piezometers and four deep piezometers, whereas Section 2.1 states that depth to water was collected in 47 shallow and four deep piezometers. Table 2: Groundwater Elevation Data does not identify that any wells were measured in October 2014. In addition, the second paragraph of Section 2.0 states that 40 locations were sampled in April 2015; however, only 39 sample locations are identified in Table 1 (Groundwater Sampling Registry). Please resolve these discrepancies.

2. Figure 17, Carbon Tetrachloride Groundwater Concentrations: Include the carbon tetrachloride concentrations for location B195 to the figure.

3. Include a copy of the field log used to document the water level measurements.

Please submit a report within 30-days addressing these revisions.

If you have any questions, please contact Lynn Nakashima at lynn.nakashima@dtsc.ca.gov or (510) 540-3839.

Sincerely,

Lynn Nakashima, Project Manager
Senior Hazardous Substances Scientist
Brownfields and Environmental
Restoration Program
Berkeley Office - Cleanup Operations

Mark Vest, P.G.
Senior Engineering Geologist
Brownfields and Environmental
Restoration Program
Sacramento Office - Geologic Services

cc: Karl Hans
University of California, Berkeley
Environmental Health & Safety
317 University Hall, No 1150
Berkeley, California 94720

Jason Brodersen
Tetra Tech EM Inc.
1999 Harrison Street, Suite 500
Oakland, CA 94612

Draft 2015 Groundwater Sampling Results Technical Memorandum
University of California, Richmond Field Station
July 24, 2015

Response to Comments
Department of Toxic Substances Control
September 25, 2015

UC Berkeley Ref. No.	Page / Sect No.	DTSC Comment No.	DTSC Comment	UC Berkeley Response
LN 1	Section 2.0	1	The first paragraph of this section states that in October 2014, depth-to-water measures were collected from 50 shallow piezometers and four deep piezometers, whereas Section 2.1 states that depth to water was collected in 47 shallow and four deep piezometers. Table 2: Groundwater Elevation Data does not identify that any wells were measured in October 2014. In addition, the second paragraph of Section 2.0 states that 40 locations were sampled in April 2015; however, only 39 sample locations are identified in Table 1 (Groundwater Sampling Registry). Please resolve these discrepancies.	The text in Section 2.1 has been revised to indicate that depth-to-water measurements were completed at all 50 shallow piezometers and four deep piezometers. Text was deleted from Section 2.1 which previously differentiated between the 47 shallow piezometers installed during Phase I and the three piezometers installed prior to Phase I activities (for a total of 50). Table 2 has been updated to include the October 2014 water level measurements. Table 1 has been updated to include a row for piezometer B120, which was previously missing. Table 4 has also been updated to include the sampling date for piezometer B120.
LN 2	Figure 17	2	Include the carbon tetrachloride concentrations for location B195 to the figure.	Following clarification from DTSC, B195 was inadvertently identified in the comment letter – no revisions are necessary to Figure 17.
LN 3		3	Include a copy of the field log used to document the water level measurements.	The water level measurements field logs have been added as Appendix D.

ATTACHMENT 1
CURTIS & TOMPKINS, LTD. LABORATORY REPORTS

(Provided on CD only)


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 275719
ANALYTICAL REPORT
Volatile Organics by GC/MS

Tetra Tech EMI	Project : 1035225323.06
1999 Harrison Street	Location : RFS 2016 Groundwater
Oakland, CA 94612	Level : IV

Sample ID	Lab ID
20160405B185	275719-001
20160405B163	275719-002
20160405B197R	275719-003
20160405B197RD	275719-004
20160405B120	275719-005
20160405B178	275719-006
20160405WSM01	275719-007
20160405ETA	275719-008
20160405ETA01	275719-009
20160405ETA02	275719-010
20160405ETA03	275719-011
20160405ER	275719-012
20160405SWB	275719-013
20160405TB	275719-014

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: 05/09/2016

Mike Dahlquist
Project Manager
mike.dahlquist@ctberk.com

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE
VOLATILE ORGANICS BY GC/MS (EPA 8260B)

Laboratory number:	**275719**
Client:	**Tetra Tech EMI**
Project:	**1035225323.06**
Location:	**RFS 2016 Groundwater**
Request Date:	**04/05/16**
Samples Received:	**04/05/16**

This data package contains sample and QC results for fourteen water samples, requested for the above referenced project on 04/05/16. See attached cooler receipt form for any sample receipt problems or discrepancies.

Volatile Organics by GC/MS (EPA 8260B):

Low response was observed for chloromethane in the CCV analyzed 04/13/16 12:41; this analyte met minimum response criteria, and affected data was qualified with "b". High response was observed for bromomethane; this analyte was not detected at or above the RL in the associated samples, and affected data was qualified with "b".

High response was observed for acetone in the CCV analyzed 04/12/16 15:45; affected data was qualified with "b".

High recoveries were observed for a number of analytes in the BS/BSD for batch 234003; the associated RPDs were within limits, and these high recoveries were not associated with any reported results.

High recoveries were observed for acetone and bromomethane in the BS/BSD for batch 234049; the associated RPDs were within limits, and these analytes were not detected at or above the RL in the associated sample.

High surrogate recovery was observed for 1,2-dichloroethane-d4 in 20160405SWB (lab # 275719-013); no target analytes were detected at or above RL in the sample.

Carbon disulfide, 1,2-dichloroethane, and hexachlorobutadiene were detected between the MDL and the RL in the method blank for batch 233929; these analytes were either not detected in samples at or above the RL, or detected at a level at least 10 times that of the blank.

1,2-dichloroethane was detected between the MDL and the RL in the method blank for batch 234003; this analyte was not detected in the sample at or above the RL.

No other analytical problems were encountered.

Chain of Custody

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 # 276719

Project No: _____
Project Name: 519 Ellis St, San Francisco
Project P. O. No: _____
EDD Format: _____ Report Level ☐ II ☐ III ☐ IV
Turnaround Time: ☐ RUSH _____ ☒ Standard

Sampler: SEAN ESTIPONA
Report To: JAMES TOWER
Company: ENVIROCHECK, INC.
Telephone: 510-364-0607
Email: james@envirocheckinc.com

Lab No.	Sample ID.	SAMPLING		MATRIX				# of Containers	CHEMICAL PRESERVATIVE					ANALYTICAL REQUEST 103, 140 009 (LEAD)
		Date Collected	Time Collected	Water	Solid				HCl	H2SO4	HNO3	NaOH	None	
1	#214 Bath Faucet (1st)	5.9.16	8:17A	X										X
2	#214 Bath Faucet (2nd)	↓	8:17A	↓										↓
3	#302 Bath Faucet (1st)		8:25A											
4	#302 Bath Faucet (2nd)		8:25A											
5	#308 Kitchen Faucet (1st)		8:31A											
6	#308 Kitchen Faucet (2nd)		8:31A											
7	#310 Kitchen Faucet (1st)		9:03A											
8	#310 Kitchen Faucet (2nd)		9:03A											
9	#401 Bath Faucet (1st)		8:42A											
10	#401 Bath Faucet (2nd)		8:42A											
11	#409 Kitchen Faucet (1st)		9:00A											
12	#409 Kitchen Faucet (2nd)		9:00A											
13	#405 Kitchen Faucet (1st)	↓	8:53A	↓										

Notes:

SAMPLE RECEIPT
☐ Intact
☐ Cold
☐ On Ice
☐ Ambient

RELINQUISHED BY:
DATE: 5.9.16 TIME: 12:45P
DATE: TIME:
DATE: TIME:

RECEIVED BY:
Pat Hanly 5/9/16
DATE: TIME: 12:45
DATE: TIME:
DATE: TIME:

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 # 226719

Project No:

Project Name: 519 Ellis St. San Francisco

Project P. O. No:

EDD Format: Report Level ☐ II ☐ III ☐ IV

Turnaround Time: ☐ RUSH ☒ Standard

Sampler: SEAN ESTIPONA

Report To: JAMES TOWER

Company: ENVIROCHEM, INC.

Telephone: 510.364.0607

Email: james@envirochemkinc.com

ANALYTICAL REQUEST

Lab No.	Sample ID.	SAMPLING		MATRIX				# of Containers	CHEMICAL PRESERVATIVE					103.146 009 (LEAD)
		Date Collected	Time Collected	Water	Solid				HCl	H2SO4	HNO3	NaOH	None	
14	#405 Kitchen Faucet (2nd)	5.9.2016	8:53A	X										X
15	#411 Bath Faucet (1st)		8:47A											
16	#411 Bath Faucet (2nd)		8:47A											
17	#517 Bath Faucet (1st)		9:09A											
18	#517 Bath Faucet (2nd)		9:09A											
19	#612 Bath Faucet (1st)		9:15A											
20	#612 Bath Faucet (2nd)		9:15A											
21	5th Floor Community Kitchen (1st)		9:34A											
22	5th Floor Community Kitchen (2nd)		9:34A											
23	5th Floor Community Kitchen (3rd)		9:36A											
24	5th Floor Community Kitchen (4th)		9:42A											
25	~~5th~~ 2nd Floor Community Kitchen (1st)		9:48A											
26	2nd Floor Community Kitchen (2nd)		9:48A											

Notes:

SAMPLE RECEIPT
☐ Intact
☐ Cold
☐ On Ice
☐ Ambient

RELINQUISHED BY:
DATE: 5.9.16 TIME: 12:45PM
DATE: TIME:
DATE: TIME:

RECEIVED BY:
DATE: 5/9/16 TIME: 12:45
DATE: TIME:
DATE: TIME:

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 # _____

Project No:

Project Name: 519 Ellis St, San Francisco

Project P. O. No:

EDD Format: Report Level ☐ II ☐ III ☐ IV

Turnaround Time: ☐ RUSH _____ ☒ Standard

Sampler: SEAN ESTIPONA

Report To: JAMES TOWER

Company: ENVIROCHECK, INC.

Telephone: 510.364.0607

Email:

Lab No.	Sample ID.	SAMPLING		MATRIX				# of Containers	CHEMICAL PRESERVATIVE					ANALYTICAL REQUEST: 103.140 009 (LEAD)
		Date Collected	Time Collected	Water	Solid				HCl	H2SO4	HNO3	NaOH	None	
27	6th Floor Community Kitchen (1st)	5.9.2016	9:20A	X										X
28	6th Floor Community Kitchen (2nd)	↓	9:20A	↓										↓
29	7th Floor Community Kitchen (1st)		9:37A											
30	7th Floor Community Kitchen (2nd)	↓	9:37A	↓										

Notes:

SAMPLE RECEIPT
☐ Intact
☐ Cold
☐ On Ice
☐ Ambient

RELINQUISHED BY:
DATE: 5.9.16 TIME: 12:48P
DATE: TIME:
DATE: TIME:

RECEIVED BY:
Pat Hanley 5/9/16
DATE: TIME: 12:45
DATE: TIME:
DATE: TIME:

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 276719 Date Received 5/9/16 Number of coolers 1
Client EnviroCheck Inc. Project 519 Ellis St. San Francisco

Date Opened 5/9 By (print) CB (sign) [signature]
Date Logged in ↓ By (print) CJN (sign) [signature]

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) ____

☐ Temperature blank(s) included? ☐ Thermometer# ____ ☐ 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? (pH strip lot# HC957770) (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 Added HNO_3 #113021 on 5/9/16 to 1602 to pH<2 for all samples

Curtis & Tompkins Sample Preservation for 276719

Sample	pH: <2	>9	>12	Other
-001a	[X]	[ ]	[ ]	_____
-002a	[X]	[ ]	[ ]	_____
-003a	[X]	[ ]	[ ]	_____
-004a	[X]	[ ]	[ ]	_____
-005a	[X]	[ ]	[ ]	_____
-006a	[X]	[ ]	[ ]	_____
-007a	[X]	[ ]	[ ]	_____
-008a	[X]	[ ]	[ ]	_____
-009a	[X]	[ ]	[ ]	_____
-010a	[X]	[ ]	[ ]	_____
-011a	[X]	[ ]	[ ]	_____
-012a	[X]	[ ]	[ ]	_____
-013a	[X]	[ ]	[ ]	_____
-014a	[X]	[ ]	[ ]	_____
-015a	[X]	[ ]	[ ]	_____
-016a	[X]	[ ]	[ ]	_____
-017a	[X]	[ ]	[ ]	_____
-018a	[X]	[ ]	[ ]	_____
-019a	[X]	[ ]	[ ]	_____
-020a	[X]	[ ]	[ ]	_____
-021a	[X]	[ ]	[ ]	_____
-022a	[X]	[ ]	[ ]	_____
-023a	[X]	[ ]	[ ]	_____
-024a	[X]	[ ]	[ ]	_____
-025a	[X]	[ ]	[ ]	_____
-026a	[X]	[ ]	[ ]	_____

Analyst: CJN
Date: 5/9/16

Sample	pH: <2	>9	>12	Other
-027a	[x]	[ ]	[ ]	_____
-028a	[x]	[ ]	[ ]	_____
-029a	[x]	[ ]	[ ]	_____
-030a	[x]	[ ]	[ ]	_____

Analyst: CN
Date: 5/9/16

Results & QC Summary

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160405B185	Dil'n Fac:	1.000
Lab ID:	275719-001	Sampled:	04/05/16
Matrix:	Water	Received:	04/05/16
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Analyzed
Freon 12	ND	1.0	0.1	234049	04/13/16
Chloromethane	ND	1.0	0.2	234003	04/12/16
Vinyl Chloride	ND	1.0	0.1	234049	04/13/16
Bromomethane	ND	1.0	0.2	234049	04/13/16
Chloroethane	ND	1.0	0.1	234049	04/13/16
Trichlorofluoromethane	ND	1.0	0.1	234049	04/13/16
Acetone	ND	10	3.3	234049	04/13/16
Freon 113	ND	5.0	0.1	234049	04/13/16
1,1-Dichloroethene	0.3 J	1.0	0.1	234049	04/13/16
Methylene Chloride	ND	10	0.1	234049	04/13/16
Carbon Disulfide	ND	1.0	0.1	234049	04/13/16
MTBE	ND	1.0	0.1	234049	04/13/16
trans-1,2-Dichloroethene	ND	1.0	0.1	234049	04/13/16
Vinyl Acetate	ND	10	0.3	234049	04/13/16
1,1-Dichloroethane	ND	1.0	0.1	234049	04/13/16
2-Butanone	ND	10	0.3	234049	04/13/16
cis-1,2-Dichloroethene	1.5	1.0	0.1	234049	04/13/16
2,2-Dichloropropane	ND	1.0	0.1	234049	04/13/16
Chloroform	0.4 J	1.0	0.1	234049	04/13/16
Bromochloromethane	ND	1.0	0.2	234049	04/13/16
1,1,1-Trichloroethane	ND	1.0	0.1	234049	04/13/16
1,1-Dichloropropene	ND	1.0	0.1	234049	04/13/16
Carbon Tetrachloride	0.5 J	1.0	0.1	234049	04/13/16
1,2-Dichloroethane	0.8 J	1.0	0.1	234049	04/13/16
Benzene	ND	1.0	0.1	234049	04/13/16
Trichloroethene	65	1.0	0.1	234049	04/13/16
1,2-Dichloropropane	ND	1.0	0.1	234049	04/13/16
Bromodichloromethane	ND	1.0	0.1	234049	04/13/16
Dibromomethane	ND	1.0	0.1	234049	04/13/16
4-Methyl-2-Pentanone	ND	10	0.2	234049	04/13/16
cis-1,3-Dichloropropene	ND	1.0	0.1	234049	04/13/16
Toluene	ND	1.0	0.1	234049	04/13/16
trans-1,3-Dichloropropene	ND	1.0	0.1	234049	04/13/16
1,1,2-Trichloroethane	ND	1.0	0.1	234049	04/13/16
2-Hexanone	ND	10	0.2	234049	04/13/16
1,3-Dichloropropane	ND	1.0	0.1	234049	04/13/16
Tetrachloroethene	ND	1.0	0.1	234049	04/13/16
Dibromochloromethane	ND	1.0	0.1	234049	04/13/16
1,2-Dibromoethane	ND	1.0	0.1	234049	04/13/16
Chlorobenzene	0.4 J	1.0	0.1	234049	04/13/16
1,1,1,2-Tetrachloroethane	ND	1.0	0.1	234049	04/13/16
Ethylbenzene	ND	1.0	0.1	234049	04/13/16
m,p-Xylenes	ND	1.0	0.1	234049	04/13/16
o-Xylene	ND	1.0	0.1	234049	04/13/16
Styrene	ND	1.0	0.2	234049	04/13/16
Bromoform	ND	1.0	0.1	234049	04/13/16
Isopropylbenzene	ND	1.0	0.1	234049	04/13/16
1,1,2,2-Tetrachloroethane	ND	1.0	0.1	234049	04/13/16
1,2,3-Trichloropropane	ND	1.0	0.1	234049	04/13/16
Propylbenzene	ND	1.0	0.1	234049	04/13/16
Bromobenzene	ND	1.0	0.1	234049	04/13/16
1,3,5-Trimethylbenzene	ND	1.0	0.1	234049	04/13/16
2-Chlorotoluene	ND	1.0	0.1	234049	04/13/16

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160405B185	Dil'n Fac:	1.000
Lab ID:	275719-001	Sampled:	04/05/16
Matrix:	Water	Received:	04/05/16
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Analyzed
4-Chlorotoluene	ND	1.0	0.1	234049	04/13/16
tert-Butylbenzene	ND	1.0	0.1	234049	04/13/16
1,2,4-Trimethylbenzene	ND	1.0	0.1	234049	04/13/16
sec-Butylbenzene	ND	1.0	0.1	234049	04/13/16
para-Isopropyl Toluene	ND	1.0	0.1	234049	04/13/16
1,3-Dichlorobenzene	ND	1.0	0.1	234049	04/13/16
1,4-Dichlorobenzene	ND	1.0	0.1	234049	04/13/16
n-Butylbenzene	ND	1.0	0.1	234049	04/13/16
1,2-Dichlorobenzene	ND	1.0	0.1	234049	04/13/16
1,2-Dibromo-3-Chloropropane	ND	1.0	0.3	234049	04/13/16
1,2,4-Trichlorobenzene	ND	1.0	0.1	234049	04/13/16
Hexachlorobutadiene	ND	1.0	0.2	234049	04/13/16
Naphthalene	ND	1.0	0.3	234049	04/13/16
1,2,3-Trichlorobenzene	ND	1.0	0.1	234049	04/13/16

Tentatively Identified Compounds	Batch#	Analyzed
No TICs found.	234049	04/13/16

Surrogate	%REC	Limits	Batch#	Analyzed
Dibromofluoromethane	116	80-128	234049	04/13/16
1,2-Dichloroethane-d4	106	75-139	234049	04/13/16
Toluene-d8	105	80-120	234049	04/13/16
Bromofluorobenzene	107	80-120	234049	04/13/16

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160405B163	Batch#:	233929
Lab ID:	275719-002	Sampled:	04/05/16
Matrix:	Water	Received:	04/05/16
Units:	ug/L	Analyzed:	04/10/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
Freon 12	ND	1.0	0.1
Chloromethane	ND	1.0	0.1
Vinyl Chloride	0.9 J	1.0	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.1
Trichlorofluoromethane	ND	1.0	0.1
Acetone	ND	10	3.3
Freon 113	ND	5.0	0.1
1,1-Dichloroethene	0.8 J	1.0	0.1
Methylene Chloride	ND	10	0.2
Carbon Disulfide	ND	1.0	0.1
MTBE	ND	1.0	0.1
trans-1,2-Dichloroethene	0.5 J	1.0	0.1
Vinyl Acetate	ND	10	0.3
1,1-Dichloroethane	ND	1.0	0.1
2-Butanone	ND	10	0.3
cis-1,2-Dichloroethene	4.4	1.0	0.1
2,2-Dichloropropane	ND	1.0	0.1
Chloroform	1.3	1.0	0.1
Bromochloromethane	ND	1.0	0.1
1,1,1-Trichloroethane	ND	1.0	0.1
1,1-Dichloropropene	ND	1.0	0.1
Carbon Tetrachloride	ND	1.0	0.2
1,2-Dichloroethane	9.3	1.0	0.1
Benzene	0.3 J	1.0	0.1
Trichloroethene	89	1.0	0.1
1,2-Dichloropropane	ND	1.0	0.1
Bromodichloromethane	ND	1.0	0.1
Dibromomethane	ND	1.0	0.1
4-Methyl-2-Pentanone	ND	10	0.1
cis-1,3-Dichloropropene	ND	1.0	0.1
Toluene	ND	1.0	0.1
trans-1,3-Dichloropropene	ND	1.0	0.1
1,1,2-Trichloroethane	ND	1.0	0.1
2-Hexanone	ND	10	0.3
1,3-Dichloropropane	ND	1.0	0.1
Tetrachloroethene	8.6	1.0	0.2
Dibromochloromethane	ND	1.0	0.1
1,2-Dibromoethane	ND	1.0	0.1
Chlorobenzene	5.9	1.0	0.1
1,1,1,2-Tetrachloroethane	ND	1.0	0.1
Ethylbenzene	ND	1.0	0.1
m,p-Xylenes	ND	1.0	0.1
o-Xylene	ND	1.0	0.2
Styrene	ND	1.0	0.1
Bromoform	ND	1.0	0.2
Isopropylbenzene	ND	1.0	0.1
1,1,2,2-Tetrachloroethane	ND	1.0	0.1
1,2,3-Trichloropropane	ND	1.0	0.1
Propylbenzene	ND	1.0	0.1
Bromobenzene	ND	1.0	0.1
1,3,5-Trimethylbenzene	ND	1.0	0.1

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160405B163	Batch#:	233929
Lab ID:	275719-002	Sampled:	04/05/16
Matrix:	Water	Received:	04/05/16
Units:	ug/L	Analyzed:	04/10/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
2-Chlorotoluene	ND	1.0	0.2
4-Chlorotoluene	ND	1.0	0.1
tert-Butylbenzene	ND	1.0	0.1
1,2,4-Trimethylbenzene	ND	1.0	0.1
sec-Butylbenzene	ND	1.0	0.1
para-Isopropyl Toluene	ND	1.0	0.1
1,3-Dichlorobenzene	ND	1.0	0.2
1,4-Dichlorobenzene	ND	1.0	0.1
n-Butylbenzene	ND	1.0	0.1
1,2-Dichlorobenzene	ND	1.0	0.1
1,2-Dibromo-3-Chloropropane	ND	1.0	0.3
1,2,4-Trichlorobenzene	ND	1.0	0.1
Hexachlorobutadiene	ND	1.0	0.2
Naphthalene	ND	1.0	0.2
1,2,3-Trichlorobenzene	ND	1.0	0.2

Tentatively Identified Compounds

No TICs found.

Surrogate	%REC	Limits
Dibromofluoromethane	114	80-128
1,2-Dichloroethane-d4	135	75-139
Toluene-d8	104	80-120
Bromofluorobenzene	111	80-120

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160405B197R	Batch#:	234168
Lab ID:	275719-003	Sampled:	04/05/16
Matrix:	Water	Received:	04/05/16
Units:	ug/L	Analyzed:	04/17/16
Diln Fac:	2.000		

Analyte	Result	RL	MDL
Freon 12	ND	2.0	0.2
Chloromethane	ND	2.0	0.5
Vinyl Chloride	ND	2.0	0.2
Bromomethane	ND	2.0	0.4
Chloroethane	ND	2.0	0.5
Trichlorofluoromethane	ND	2.0	0.5
Acetone	ND	20	6.6
Freon 113	ND	10	0.3
1,1-Dichloroethene	0.4 J	2.0	0.3
Methylene Chloride	ND	20	0.4
Carbon Disulfide	ND	2.0	0.2
MTBE	ND	2.0	0.2
trans-1,2-Dichloroethene	ND	2.0	0.3
Vinyl Acetate	ND	20	2.3
1,1-Dichloroethane	ND	2.0	0.3
2-Butanone	ND	20	1.0
cis-1,2-Dichloroethene	3.2	2.0	0.3
2,2-Dichloropropane	ND	2.0	0.3
Chloroform	ND	2.0	0.2
Bromochloromethane	ND	2.0	0.3
1,1,1-Trichloroethane	ND	2.0	0.3
1,1-Dichloropropene	ND	2.0	0.3
Carbon Tetrachloride	ND	2.0	0.2
1,2-Dichloroethane	ND	2.0	0.2
Benzene	ND	2.0	0.2
Trichloroethene	84	2.0	0.2
1,2-Dichloropropane	ND	2.0	0.3
Bromodichloromethane	ND	2.0	0.2
Dibromomethane	ND	2.0	0.3
4-Methyl-2-Pentanone	ND	20	1.3
cis-1,3-Dichloropropene	ND	2.0	0.2
Toluene	ND	2.0	0.2
trans-1,3-Dichloropropene	ND	2.0	0.3
1,1,2-Trichloroethane	ND	2.0	0.3
2-Hexanone	ND	20	1.0
1,3-Dichloropropane	ND	2.0	0.3
Tetrachloroethene	0.9 J	2.0	0.2
Dibromochloromethane	ND	2.0	0.3
1,2-Dibromoethane	ND	2.0	0.3
Chlorobenzene	ND	2.0	0.3
1,1,1,2-Tetrachloroethane	ND	2.0	0.2
Ethylbenzene	ND	2.0	0.2
m,p-Xylenes	ND	2.0	0.3
o-Xylene	ND	2.0	0.2
Styrene	ND	2.0	0.2
Bromoform	ND	2.0	0.3
Isopropylbenzene	ND	2.0	0.2
1,1,2,2-Tetrachloroethane	ND	2.0	0.2
1,2,3-Trichloropropane	ND	2.0	0.3
Propylbenzene	ND	2.0	0.2
Bromobenzene	ND	2.0	0.2
1,3,5-Trimethylbenzene	ND	2.0	0.2

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160405B197R	Batch#:	234168
Lab ID:	275719-003	Sampled:	04/05/16
Matrix:	Water	Received:	04/05/16
Units:	ug/L	Analyzed:	04/17/16
Diln Fac:	2.000		

Analyte	Result	RL	MDL
2-Chlorotoluene	ND	2.0	0.2
4-Chlorotoluene	ND	2.0	0.2
tert-Butylbenzene	ND	2.0	0.2
1,2,4-Trimethylbenzene	ND	2.0	0.2
sec-Butylbenzene	ND	2.0	0.2
para-Isopropyl Toluene	ND	2.0	0.2
1,3-Dichlorobenzene	ND	2.0	0.2
1,4-Dichlorobenzene	ND	2.0	0.2
n-Butylbenzene	ND	2.0	0.2
1,2-Dichlorobenzene	ND	2.0	0.2
1,2-Dibromo-3-Chloropropane	ND	2.0	0.5
1,2,4-Trichlorobenzene	ND	2.0	0.3
Hexachlorobutadiene	ND	2.0	0.3
Naphthalene	ND	2.0	0.2
1,2,3-Trichlorobenzene	ND	2.0	0.3

Tentatively Identified Compounds

No TICs found.

Surrogate	%REC	Limits
Dibromofluoromethane	91	80-128
1,2-Dichloroethane-d4	96	75-139
Toluene-d8	98	80-120
Bromofluorobenzene	102	80-120

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160405B197RD	Batch#:	234168
Lab ID:	275719-004	Sampled:	04/05/16
Matrix:	Water	Received:	04/05/16
Units:	ug/L	Analyzed:	04/17/16
Diln Fac:	2.000		

Analyte	Result	RL	MDL
Freon 12	ND	2.0	0.2
Chloromethane	ND	2.0	0.5
Vinyl Chloride	ND	2.0	0.2
Bromomethane	ND	2.0	0.4
Chloroethane	ND	2.0	0.5
Trichlorofluoromethane	ND	2.0	0.5
Acetone	ND	20	6.6
Freon 113	ND	10	0.3
1,1-Dichloroethene	0.4 J	2.0	0.3
Methylene Chloride	ND	20	0.4
Carbon Disulfide	ND	2.0	0.2
MTBE	ND	2.0	0.2
trans-1,2-Dichloroethene	ND	2.0	0.3
Vinyl Acetate	ND	20	2.3
1,1-Dichloroethane	ND	2.0	0.3
2-Butanone	ND	20	1.0
cis-1,2-Dichloroethene	3.1	2.0	0.3
2,2-Dichloropropane	ND	2.0	0.3
Chloroform	ND	2.0	0.2
Bromochloromethane	ND	2.0	0.3
1,1,1-Trichloroethane	ND	2.0	0.3
1,1-Dichloropropene	ND	2.0	0.3
Carbon Tetrachloride	ND	2.0	0.2
1,2-Dichloroethane	ND	2.0	0.2
Benzene	ND	2.0	0.2
Trichloroethene	85	2.0	0.2
1,2-Dichloropropane	ND	2.0	0.3
Bromodichloromethane	ND	2.0	0.2
Dibromomethane	ND	2.0	0.3
4-Methyl-2-Pentanone	ND	20	1.3
cis-1,3-Dichloropropene	ND	2.0	0.2
Toluene	ND	2.0	0.2
trans-1,3-Dichloropropene	ND	2.0	0.3
1,1,2-Trichloroethane	ND	2.0	0.3
2-Hexanone	ND	20	1.0
1,3-Dichloropropane	ND	2.0	0.3
Tetrachloroethene	0.8 J	2.0	0.2
Dibromochloromethane	ND	2.0	0.3
1,2-Dibromoethane	ND	2.0	0.3
Chlorobenzene	ND	2.0	0.3
1,1,1,2-Tetrachloroethane	ND	2.0	0.2
Ethylbenzene	ND	2.0	0.2
m,p-Xylenes	ND	2.0	0.3
o-Xylene	ND	2.0	0.2
Styrene	ND	2.0	0.2
Bromoform	ND	2.0	0.3
Isopropylbenzene	ND	2.0	0.2
1,1,2,2-Tetrachloroethane	ND	2.0	0.2
1,2,3-Trichloropropane	ND	2.0	0.3
Propylbenzene	ND	2.0	0.2
Bromobenzene	ND	2.0	0.2
1,3,5-Trimethylbenzene	ND	2.0	0.2

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160405B197RD	Batch#:	234168
Lab ID:	275719-004	Sampled:	04/05/16
Matrix:	Water	Received:	04/05/16
Units:	ug/L	Analyzed:	04/17/16
Diln Fac:	2.000		

Analyte	Result	RL	MDL
2-Chlorotoluene	ND	2.0	0.2
4-Chlorotoluene	ND	2.0	0.2
tert-Butylbenzene	ND	2.0	0.2
1,2,4-Trimethylbenzene	ND	2.0	0.2
sec-Butylbenzene	ND	2.0	0.2
para-Isopropyl Toluene	ND	2.0	0.2
1,3-Dichlorobenzene	ND	2.0	0.2
1,4-Dichlorobenzene	ND	2.0	0.2
n-Butylbenzene	ND	2.0	0.2
1,2-Dichlorobenzene	ND	2.0	0.2
1,2-Dibromo-3-Chloropropane	ND	2.0	0.5
1,2,4-Trichlorobenzene	ND	2.0	0.3
Hexachlorobutadiene	ND	2.0	0.3
Naphthalene	ND	2.0	0.2
1,2,3-Trichlorobenzene	ND	2.0	0.3

Tentatively Identified Compounds

No TICs found.

Surrogate	%REC	Limits
Dibromofluoromethane	92	80-128
1,2-Dichloroethane-d4	100	75-139
Toluene-d8	99	80-120
Bromofluorobenzene	106	80-120

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160405B120	Batch#:	234168
Lab ID:	275719-005	Sampled:	04/05/16
Matrix:	Water	Received:	04/05/16
Units:	ug/L	Analyzed:	04/17/16
Diln Fac:	2.000		

Analyte	Result	RL	MDL
Freon 12	ND	2.0	0.2
Chloromethane	ND	2.0	0.5
Vinyl Chloride	ND	2.0	0.2
Bromomethane	ND	2.0	0.4
Chloroethane	ND	2.0	0.5
Trichlorofluoromethane	ND	2.0	0.5
Acetone	ND	20	6.6
Freon 113	ND	10	0.3
1,1-Dichloroethene	ND	2.0	0.3
Methylene Chloride	ND	20	0.4
Carbon Disulfide	ND	2.0	0.2
MTBE	ND	2.0	0.2
trans-1,2-Dichloroethene	0.4 J	2.0	0.3
Vinyl Acetate	ND	20	2.3
1,1-Dichloroethane	ND	2.0	0.3
2-Butanone	ND	20	1.0
cis-1,2-Dichloroethene	3.1	2.0	0.3
2,2-Dichloropropane	ND	2.0	0.3
Chloroform	ND	2.0	0.2
Bromochloromethane	ND	2.0	0.3
1,1,1-Trichloroethane	ND	2.0	0.3
1,1-Dichloropropene	ND	2.0	0.3
Carbon Tetrachloride	ND	2.0	0.2
1,2-Dichloroethane	0.4 J	2.0	0.2
Benzene	ND	2.0	0.2
Trichloroethene	120	2.0	0.2
1,2-Dichloropropane	ND	2.0	0.3
Bromodichloromethane	ND	2.0	0.2
Dibromomethane	ND	2.0	0.3
4-Methyl-2-Pentanone	ND	20	1.3
cis-1,3-Dichloropropene	ND	2.0	0.2
Toluene	ND	2.0	0.2
trans-1,3-Dichloropropene	ND	2.0	0.3
1,1,2-Trichloroethane	ND	2.0	0.3
2-Hexanone	ND	20	1.0
1,3-Dichloropropane	ND	2.0	0.3
Tetrachloroethene	0.5 J	2.0	0.2
Dibromochloromethane	ND	2.0	0.3
1,2-Dibromoethane	ND	2.0	0.3
Chlorobenzene	ND	2.0	0.3
1,1,1,2-Tetrachloroethane	ND	2.0	0.2
Ethylbenzene	ND	2.0	0.2
m,p-Xylenes	ND	2.0	0.3
o-Xylene	ND	2.0	0.2
Styrene	ND	2.0	0.2
Bromoform	ND	2.0	0.3
Isopropylbenzene	ND	2.0	0.2
1,1,2,2-Tetrachloroethane	ND	2.0	0.2
1,2,3-Trichloropropane	ND	2.0	0.3
Propylbenzene	ND	2.0	0.2
Bromobenzene	ND	2.0	0.2
1,3,5-Trimethylbenzene	ND	2.0	0.2

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160405B120	Batch#:	234168
Lab ID:	275719-005	Sampled:	04/05/16
Matrix:	Water	Received:	04/05/16
Units:	ug/L	Analyzed:	04/17/16
Diln Fac:	2.000		

Analyte	Result	RL	MDL
2-Chlorotoluene	ND	2.0	0.2
4-Chlorotoluene	ND	2.0	0.2
tert-Butylbenzene	ND	2.0	0.2
1,2,4-Trimethylbenzene	ND	2.0	0.2
sec-Butylbenzene	ND	2.0	0.2
para-Isopropyl Toluene	ND	2.0	0.2
1,3-Dichlorobenzene	ND	2.0	0.2
1,4-Dichlorobenzene	ND	2.0	0.2
n-Butylbenzene	ND	2.0	0.2
1,2-Dichlorobenzene	ND	2.0	0.2
1,2-Dibromo-3-Chloropropane	ND	2.0	0.5
1,2,4-Trichlorobenzene	ND	2.0	0.3
Hexachlorobutadiene	ND	2.0	0.3
Naphthalene	ND	2.0	0.2
1,2,3-Trichlorobenzene	ND	2.0	0.3

Tentatively Identified Compounds

No TICs found.

Surrogate	%REC	Limits
Dibromofluoromethane	94	80-128
1,2-Dichloroethane-d4	95	75-139
Toluene-d8	109	80-120
Bromofluorobenzene	105	80-120

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160405B178	Batch#:	234168
Lab ID:	275719-006	Sampled:	04/05/16
Matrix:	Water	Received:	04/05/16
Units:	ug/L	Analyzed:	04/17/16
Diln Fac:	2.000		

Analyte	Result	RL	MDL
Freon 12	ND	2.0	0.2
Chloromethane	ND	2.0	0.5
Vinyl Chloride	ND	2.0	0.2
Bromomethane	ND	2.0	0.4
Chloroethane	ND	2.0	0.5
Trichlorofluoromethane	ND	2.0	0.5
Acetone	ND	20	6.6
Freon 113	ND	10	0.3
1,1-Dichloroethene	0.8 J	2.0	0.3
Methylene Chloride	ND	20	0.4
Carbon Disulfide	ND	2.0	0.2
MTBE	ND	2.0	0.2
trans-1,2-Dichloroethene	0.5 J	2.0	0.3
Vinyl Acetate	ND	20	2.3
1,1-Dichloroethane	ND	2.0	0.3
2-Butanone	ND	20	1.0
cis-1,2-Dichloroethene	11	2.0	0.3
2,2-Dichloropropane	ND	2.0	0.3
Chloroform	ND	2.0	0.2
Bromochloromethane	ND	2.0	0.3
1,1,1-Trichloroethane	ND	2.0	0.3
1,1-Dichloropropene	ND	2.0	0.3
Carbon Tetrachloride	ND	2.0	0.2
1,2-Dichloroethane	ND	2.0	0.2
Benzene	ND	2.0	0.2
Trichloroethene	92	2.0	0.2
1,2-Dichloropropane	ND	2.0	0.3
Bromodichloromethane	ND	2.0	0.2
Dibromomethane	ND	2.0	0.3
4-Methyl-2-Pentanone	ND	20	1.3
cis-1,3-Dichloropropene	ND	2.0	0.2
Toluene	ND	2.0	0.2
trans-1,3-Dichloropropene	ND	2.0	0.3
1,1,2-Trichloroethane	ND	2.0	0.3
2-Hexanone	ND	20	1.0
1,3-Dichloropropane	ND	2.0	0.3
Tetrachloroethene	ND	2.0	0.2
Dibromochloromethane	ND	2.0	0.3
1,2-Dibromoethane	ND	2.0	0.3
Chlorobenzene	ND	2.0	0.3
1,1,1,2-Tetrachloroethane	ND	2.0	0.2
Ethylbenzene	ND	2.0	0.2
m,p-Xylenes	ND	2.0	0.3
o-Xylene	ND	2.0	0.2
Styrene	ND	2.0	0.2
Bromoform	ND	2.0	0.3
Isopropylbenzene	ND	2.0	0.2
1,1,2,2-Tetrachloroethane	ND	2.0	0.2
1,2,3-Trichloropropane	ND	2.0	0.3
Propylbenzene	ND	2.0	0.2
Bromobenzene	ND	2.0	0.2
1,3,5-Trimethylbenzene	ND	2.0	0.2

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160405B178	Batch#:	234168
Lab ID:	275719-006	Sampled:	04/05/16
Matrix:	Water	Received:	04/05/16
Units:	ug/L	Analyzed:	04/17/16
Diln Fac:	2.000		

Analyte	Result	RL	MDL
2-Chlorotoluene	ND	2.0	0.2
4-Chlorotoluene	ND	2.0	0.2
tert-Butylbenzene	ND	2.0	0.2
1,2,4-Trimethylbenzene	ND	2.0	0.2
sec-Butylbenzene	ND	2.0	0.2
para-Isopropyl Toluene	ND	2.0	0.2
1,3-Dichlorobenzene	ND	2.0	0.2
1,4-Dichlorobenzene	ND	2.0	0.2
n-Butylbenzene	ND	2.0	0.2
1,2-Dichlorobenzene	ND	2.0	0.2
1,2-Dibromo-3-Chloropropane	ND	2.0	0.5
1,2,4-Trichlorobenzene	ND	2.0	0.3
Hexachlorobutadiene	ND	2.0	0.3
Naphthalene	ND	2.0	0.2
1,2,3-Trichlorobenzene	ND	2.0	0.3

Tentatively Identified Compounds

No TICs found.

Surrogate	%REC	Limits
Dibromofluoromethane	91	80-128
1,2-Dichloroethane-d4	94	75-139
Toluene-d8	99	80-120
Bromofluorobenzene	99	80-120

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160405WSM01	Batch#:	233929
Lab ID:	275719-007	Sampled:	04/05/16
Matrix:	Water	Received:	04/05/16
Units:	ug/L	Analyzed:	04/10/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
Freon 12	ND	1.0	0.1
Chloromethane	ND	1.0	0.1
Vinyl Chloride	ND	1.0	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.1
Trichlorofluoromethane	ND	1.0	0.1
Acetone	ND	10	3.3
Freon 113	ND	5.0	0.1
1,1-Dichloroethene	0.4 J	1.0	0.1
Methylene Chloride	ND	10	0.2
Carbon Disulfide	ND	1.0	0.1
MTBE	ND	1.0	0.1
trans-1,2-Dichloroethene	ND	1.0	0.1
Vinyl Acetate	ND	10	0.3
1,1-Dichloroethane	ND	1.0	0.1
2-Butanone	ND	10	0.3
cis-1,2-Dichloroethene	3.6	1.0	0.1
2,2-Dichloropropane	ND	1.0	0.1
Chloroform	0.2 J	1.0	0.1
Bromochloromethane	ND	1.0	0.1
1,1,1-Trichloroethane	ND	1.0	0.1
1,1-Dichloropropene	ND	1.0	0.1
Carbon Tetrachloride	ND	1.0	0.2
1,2-Dichloroethane	2.8	1.0	0.1
Benzene	0.2 J	1.0	0.1
Trichloroethene	59	1.0	0.1
1,2-Dichloropropane	ND	1.0	0.1
Bromodichloromethane	ND	1.0	0.1
Dibromomethane	ND	1.0	0.1
4-Methyl-2-Pentanone	ND	10	0.1
cis-1,3-Dichloropropene	ND	1.0	0.1
Toluene	ND	1.0	0.1
trans-1,3-Dichloropropene	ND	1.0	0.1
1,1,2-Trichloroethane	ND	1.0	0.1
2-Hexanone	ND	10	0.3
1,3-Dichloropropane	ND	1.0	0.1
Tetrachloroethene	6.0	1.0	0.2
Dibromochloromethane	ND	1.0	0.1
1,2-Dibromoethane	ND	1.0	0.1
Chlorobenzene	26	1.0	0.1
1,1,1,2-Tetrachloroethane	ND	1.0	0.1
Ethylbenzene	ND	1.0	0.1
m,p-Xylenes	ND	1.0	0.1
o-Xylene	ND	1.0	0.2
Styrene	ND	1.0	0.1
Bromoform	ND	1.0	0.2
Isopropylbenzene	ND	1.0	0.1
1,1,2,2-Tetrachloroethane	ND	1.0	0.1
1,2,3-Trichloropropane	ND	1.0	0.1
Propylbenzene	ND	1.0	0.1
Bromobenzene	ND	1.0	0.1
1,3,5-Trimethylbenzene	ND	1.0	0.1

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160405WSM01	Batch#:	233929
Lab ID:	275719-007	Sampled:	04/05/16
Matrix:	Water	Received:	04/05/16
Units:	ug/L	Analyzed:	04/10/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
2-Chlorotoluene	ND	1.0	0.2
4-Chlorotoluene	ND	1.0	0.1
tert-Butylbenzene	ND	1.0	0.1
1,2,4-Trimethylbenzene	ND	1.0	0.1
sec-Butylbenzene	ND	1.0	0.1
para-Isopropyl Toluene	ND	1.0	0.1
1,3-Dichlorobenzene	ND	1.0	0.2
1,4-Dichlorobenzene	ND	1.0	0.1
n-Butylbenzene	ND	1.0	0.1
1,2-Dichlorobenzene	ND	1.0	0.1
1,2-Dibromo-3-Chloropropane	ND	1.0	0.3
1,2,4-Trichlorobenzene	ND	1.0	0.1
Hexachlorobutadiene	ND	1.0	0.2
Naphthalene	ND	1.0	0.2
1,2,3-Trichlorobenzene	ND	1.0	0.2

Tentatively Identified Compounds

No TICs found.

Surrogate	%REC	Limits
Dibromofluoromethane	116	80-128
1,2-Dichloroethane-d4	128	75-139
Toluene-d8	102	80-120
Bromofluorobenzene	112	80-120

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160405ETA	Batch#:	234168
Lab ID:	275719-008	Sampled:	04/05/16
Matrix:	Water	Received:	04/05/16
Units:	ug/L	Analyzed:	04/17/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
Freon 12	ND	1.0	0.1
Chloromethane	ND	1.0	0.3
Vinyl Chloride	ND	1.0	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.3
Trichlorofluoromethane	ND	1.0	0.2
Acetone	ND	10	3.3
Freon 113	ND	5.0	0.1
1,1-Dichloroethene	0.2 J	1.0	0.2
Methylene Chloride	ND	10	0.2
Carbon Disulfide	ND	1.0	0.1
MTBE	ND	1.0	0.1
trans-1,2-Dichloroethene	2.7	1.0	0.2
Vinyl Acetate	ND	10	1.1
1,1-Dichloroethane	ND	1.0	0.2
2-Butanone	ND	10	0.5
cis-1,2-Dichloroethene	5.6	1.0	0.1
2,2-Dichloropropane	ND	1.0	0.1
Chloroform	ND	1.0	0.1
Bromochloromethane	ND	1.0	0.1
1,1,1-Trichloroethane	ND	1.0	0.1
1,1-Dichloropropene	ND	1.0	0.1
Carbon Tetrachloride	ND	1.0	0.1
1,2-Dichloroethane	0.2 J	1.0	0.1
Benzene	ND	1.0	0.1
Trichloroethene	7.6	1.0	0.1
1,2-Dichloropropane	ND	1.0	0.1
Bromodichloromethane	ND	1.0	0.1
Dibromomethane	ND	1.0	0.1
4-Methyl-2-Pentanone	ND	10	0.7
cis-1,3-Dichloropropene	ND	1.0	0.1
Toluene	ND	1.0	0.1
trans-1,3-Dichloropropene	ND	1.0	0.1
1,1,2-Trichloroethane	ND	1.0	0.2
2-Hexanone	ND	10	0.5
1,3-Dichloropropane	ND	1.0	0.1
Tetrachloroethene	ND	1.0	0.1
Dibromochloromethane	ND	1.0	0.1
1,2-Dibromoethane	ND	1.0	0.1
Chlorobenzene	ND	1.0	0.1
1,1,1,2-Tetrachloroethane	ND	1.0	0.1
Ethylbenzene	ND	1.0	0.1
m,p-Xylenes	ND	1.0	0.1
o-Xylene	ND	1.0	0.1
Styrene	ND	1.0	0.1
Bromoform	ND	1.0	0.1
Isopropylbenzene	ND	1.0	0.1
1,1,2,2-Tetrachloroethane	ND	1.0	0.1
1,2,3-Trichloropropane	ND	1.0	0.2
Propylbenzene	ND	1.0	0.1
Bromobenzene	ND	1.0	0.1
1,3,5-Trimethylbenzene	ND	1.0	0.1

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160405ETA	Batch#:	234168
Lab ID:	275719-008	Sampled:	04/05/16
Matrix:	Water	Received:	04/05/16
Units:	ug/L	Analyzed:	04/17/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
2-Chlorotoluene	ND	1.0	0.1
4-Chlorotoluene	ND	1.0	0.1
tert-Butylbenzene	ND	1.0	0.1
1,2,4-Trimethylbenzene	ND	1.0	0.1
sec-Butylbenzene	ND	1.0	0.1
para-Isopropyl Toluene	ND	1.0	0.1
1,3-Dichlorobenzene	ND	1.0	0.1
1,4-Dichlorobenzene	ND	1.0	0.1
n-Butylbenzene	ND	1.0	0.1
1,2-Dichlorobenzene	ND	1.0	0.1
1,2-Dibromo-3-Chloropropane	ND	1.0	0.3
1,2,4-Trichlorobenzene	ND	1.0	0.1
Hexachlorobutadiene	ND	1.0	0.1
Naphthalene	ND	1.0	0.1
1,2,3-Trichlorobenzene	ND	1.0	0.1

Tentatively Identified Compounds

No TICs found.

Surrogate	%REC	Limits
Dibromofluoromethane	97	80-128
1,2-Dichloroethane-d4	101	75-139
Toluene-d8	98	80-120
Bromofluorobenzene	106	80-120

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160405ETA01	Batch#:	234168
Lab ID:	275719-009	Sampled:	04/05/16
Matrix:	Water	Received:	04/05/16
Units:	ug/L	Analyzed:	04/17/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
Freon 12	ND	1.0	0.1
Chloromethane	ND	1.0	0.3
Vinyl Chloride	0.1 J	1.0	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.3
Trichlorofluoromethane	ND	1.0	0.2
Acetone	ND	10	3.3
Freon 113	ND	5.0	0.1
1,1-Dichloroethene	0.2 J	1.0	0.2
Methylene Chloride	ND	10	0.2
Carbon Disulfide	ND	1.0	0.1
MTBE	0.1 J	1.0	0.1
trans-1,2-Dichloroethene	ND	1.0	0.2
Vinyl Acetate	ND	10	1.1
1,1-Dichloroethane	ND	1.0	0.2
2-Butanone	ND	10	0.5
cis-1,2-Dichloroethene	2.0	1.0	0.1
2,2-Dichloropropane	ND	1.0	0.1
Chloroform	ND	1.0	0.1
Bromochloromethane	ND	1.0	0.1
1,1,1-Trichloroethane	ND	1.0	0.1
1,1-Dichloropropene	ND	1.0	0.1
Carbon Tetrachloride	ND	1.0	0.1
1,2-Dichloroethane	0.2 J	1.0	0.1
Benzene	ND	1.0	0.1
Trichloroethene	14	1.0	0.1
1,2-Dichloropropane	ND	1.0	0.1
Bromodichloromethane	ND	1.0	0.1
Dibromomethane	ND	1.0	0.1
4-Methyl-2-Pentanone	ND	10	0.7
cis-1,3-Dichloropropene	ND	1.0	0.1
Toluene	ND	1.0	0.1
trans-1,3-Dichloropropene	ND	1.0	0.1
1,1,2-Trichloroethane	ND	1.0	0.2
2-Hexanone	ND	10	0.5
1,3-Dichloropropane	ND	1.0	0.1
Tetrachloroethene	ND	1.0	0.1
Dibromochloromethane	ND	1.0	0.1
1,2-Dibromoethane	ND	1.0	0.1
Chlorobenzene	ND	1.0	0.1
1,1,1,2-Tetrachloroethane	ND	1.0	0.1
Ethylbenzene	ND	1.0	0.1
m,p-Xylenes	ND	1.0	0.1
o-Xylene	ND	1.0	0.1
Styrene	ND	1.0	0.1
Bromoform	ND	1.0	0.1
Isopropylbenzene	ND	1.0	0.1
1,1,2,2-Tetrachloroethane	ND	1.0	0.1
1,2,3-Trichloropropane	ND	1.0	0.2
Propylbenzene	ND	1.0	0.1
Bromobenzene	ND	1.0	0.1
1,3,5-Trimethylbenzene	ND	1.0	0.1

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160405ETA01	Batch#:	234168
Lab ID:	275719-009	Sampled:	04/05/16
Matrix:	Water	Received:	04/05/16
Units:	ug/L	Analyzed:	04/17/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
2-Chlorotoluene	ND	1.0	0.1
4-Chlorotoluene	ND	1.0	0.1
tert-Butylbenzene	ND	1.0	0.1
1,2,4-Trimethylbenzene	ND	1.0	0.1
sec-Butylbenzene	ND	1.0	0.1
para-Isopropyl Toluene	ND	1.0	0.1
1,3-Dichlorobenzene	ND	1.0	0.1
1,4-Dichlorobenzene	ND	1.0	0.1
n-Butylbenzene	ND	1.0	0.1
1,2-Dichlorobenzene	ND	1.0	0.1
1,2-Dibromo-3-Chloropropane	ND	1.0	0.3
1,2,4-Trichlorobenzene	ND	1.0	0.1
Hexachlorobutadiene	ND	1.0	0.1
Naphthalene	ND	1.0	0.1
1,2,3-Trichlorobenzene	ND	1.0	0.1

Tentatively Identified Compounds

No TICs found.

Surrogate	%REC	Limits
Dibromofluoromethane	88	80-128
1,2-Dichloroethane-d4	93	75-139
Toluene-d8	107	80-120
Bromofluorobenzene	103	80-120

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160405ETA02	Batch#:	233929
Lab ID:	275719-010	Sampled:	04/05/16
Matrix:	Water	Received:	04/05/16
Units:	ug/L	Analyzed:	04/11/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
Freon 12	ND	1.0	0.1
Chloromethane	ND	1.0	0.1
Vinyl Chloride	ND	1.0	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.1
Trichlorofluoromethane	ND	1.0	0.1
Acetone	ND	10	3.3
Freon 113	ND	5.0	0.1
1,1-Dichloroethene	0.7 J	1.0	0.1
Methylene Chloride	ND	10	0.2
Carbon Disulfide	ND	1.0	0.1
MTBE	ND	1.0	0.1
trans-1,2-Dichloroethene	0.3 J	1.0	0.1
Vinyl Acetate	ND	10	0.3
1,1-Dichloroethane	ND	1.0	0.1
2-Butanone	ND	10	0.3
cis-1,2-Dichloroethene	14	1.0	0.1
2,2-Dichloropropane	ND	1.0	0.1
Chloroform	ND	1.0	0.1
Bromochloromethane	ND	1.0	0.1
1,1,1-Trichloroethane	ND	1.0	0.1
1,1-Dichloropropene	ND	1.0	0.1
Carbon Tetrachloride	ND	1.0	0.2
1,2-Dichloroethane	13	1.0	0.1
Benzene	ND	1.0	0.1
Trichloroethene	21	1.0	0.1
1,2-Dichloropropane	ND	1.0	0.1
Bromodichloromethane	ND	1.0	0.1
Dibromomethane	ND	1.0	0.1
4-Methyl-2-Pentanone	ND	10	0.1
cis-1,3-Dichloropropene	ND	1.0	0.1
Toluene	ND	1.0	0.1
trans-1,3-Dichloropropene	ND	1.0	0.1
1,1,2-Trichloroethane	ND	1.0	0.1
2-Hexanone	ND	10	0.3
1,3-Dichloropropane	ND	1.0	0.1
Tetrachloroethene	3.8	1.0	0.2
Dibromochloromethane	ND	1.0	0.1
1,2-Dibromoethane	ND	1.0	0.1
Chlorobenzene	1.4	1.0	0.1
1,1,1,2-Tetrachloroethane	ND	1.0	0.1
Ethylbenzene	ND	1.0	0.1
m,p-Xylenes	ND	1.0	0.1
o-Xylene	ND	1.0	0.2
Styrene	ND	1.0	0.1
Bromoform	ND	1.0	0.2
Isopropylbenzene	ND	1.0	0.1
1,1,2,2-Tetrachloroethane	ND	1.0	0.1
1,2,3-Trichloropropane	ND	1.0	0.1
Propylbenzene	ND	1.0	0.1
Bromobenzene	ND	1.0	0.1
1,3,5-Trimethylbenzene	ND	1.0	0.1

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160405ETA02	Batch#:	233929
Lab ID:	275719-010	Sampled:	04/05/16
Matrix:	Water	Received:	04/05/16
Units:	ug/L	Analyzed:	04/11/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
2-Chlorotoluene	ND	1.0	0.2
4-Chlorotoluene	ND	1.0	0.1
tert-Butylbenzene	ND	1.0	0.1
1,2,4-Trimethylbenzene	ND	1.0	0.1
sec-Butylbenzene	ND	1.0	0.1
para-Isopropyl Toluene	ND	1.0	0.1
1,3-Dichlorobenzene	ND	1.0	0.2
1,4-Dichlorobenzene	ND	1.0	0.1
n-Butylbenzene	ND	1.0	0.1
1,2-Dichlorobenzene	ND	1.0	0.1
1,2-Dibromo-3-Chloropropane	ND	1.0	0.3
1,2,4-Trichlorobenzene	ND	1.0	0.1
Hexachlorobutadiene	ND	1.0	0.2
Naphthalene	ND	1.0	0.2
1,2,3-Trichlorobenzene	ND	1.0	0.2

Tentatively Identified Compounds

No TICs found.

Surrogate	%REC	Limits
Dibromofluoromethane	117	80-128
1,2-Dichloroethane-d4	135	75-139
Toluene-d8	106	80-120
Bromofluorobenzene	117	80-120

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160405ETA03	Batch#:	233929
Lab ID:	275719-011	Sampled:	04/05/16
Matrix:	Water	Received:	04/05/16
Units:	ug/L	Analyzed:	04/11/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
Freon 12	ND	1.0	0.1
Chloromethane	ND	1.0	0.1
Vinyl Chloride	ND	1.0	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.1
Trichlorofluoromethane	ND	1.0	0.1
Acetone	ND	10	3.3
Freon 113	ND	5.0	0.1
1,1-Dichloroethene	1.2	1.0	0.1
Methylene Chloride	ND	10	0.2
Carbon Disulfide	ND	1.0	0.1
MTBE	ND	1.0	0.1
trans-1,2-Dichloroethene	1.0	1.0	0.1
Vinyl Acetate	ND	10	0.3
1,1-Dichloroethane	ND	1.0	0.1
2-Butanone	ND	10	0.3
cis-1,2-Dichloroethene	10	1.0	0.1
2,2-Dichloropropane	ND	1.0	0.1
Chloroform	0.3 J	1.0	0.1
Bromochloromethane	ND	1.0	0.1
1,1,1-Trichloroethane	ND	1.0	0.1
1,1-Dichloropropene	ND	1.0	0.1
Carbon Tetrachloride	ND	1.0	0.2
1,2-Dichloroethane	20	1.0	0.1
Benzene	0.2 J	1.0	0.1
Trichloroethene	69	1.0	0.1
1,2-Dichloropropane	ND	1.0	0.1
Bromodichloromethane	ND	1.0	0.1
Dibromomethane	ND	1.0	0.1
4-Methyl-2-Pentanone	ND	10	0.1
cis-1,3-Dichloropropene	ND	1.0	0.1
Toluene	ND	1.0	0.1
trans-1,3-Dichloropropene	ND	1.0	0.1
1,1,2-Trichloroethane	0.2 J	1.0	0.1
2-Hexanone	ND	10	0.3
1,3-Dichloropropane	ND	1.0	0.1
Tetrachloroethene	25	1.0	0.2
Dibromochloromethane	ND	1.0	0.1
1,2-Dibromoethane	ND	1.0	0.1
Chlorobenzene	5.0	1.0	0.1
1,1,1,2-Tetrachloroethane	ND	1.0	0.1
Ethylbenzene	ND	1.0	0.1
m,p-Xylenes	ND	1.0	0.1
o-Xylene	ND	1.0	0.2
Styrene	ND	1.0	0.1
Bromoform	ND	1.0	0.2
Isopropylbenzene	ND	1.0	0.1
1,1,2,2-Tetrachloroethane	ND	1.0	0.1
1,2,3-Trichloropropane	ND	1.0	0.1
Propylbenzene	ND	1.0	0.1
Bromobenzene	ND	1.0	0.1
1,3,5-Trimethylbenzene	ND	1.0	0.1

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160405ETA03	Batch#:	233929
Lab ID:	275719-011	Sampled:	04/05/16
Matrix:	Water	Received:	04/05/16
Units:	ug/L	Analyzed:	04/11/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
2-Chlorotoluene	ND	1.0	0.2
4-Chlorotoluene	ND	1.0	0.1
tert-Butylbenzene	ND	1.0	0.1
1,2,4-Trimethylbenzene	ND	1.0	0.1
sec-Butylbenzene	ND	1.0	0.1
para-Isopropyl Toluene	ND	1.0	0.1
1,3-Dichlorobenzene	ND	1.0	0.2
1,4-Dichlorobenzene	ND	1.0	0.1
n-Butylbenzene	ND	1.0	0.1
1,2-Dichlorobenzene	ND	1.0	0.1
1,2-Dibromo-3-Chloropropane	ND	1.0	0.3
1,2,4-Trichlorobenzene	ND	1.0	0.1
Hexachlorobutadiene	ND	1.0	0.2
Naphthalene	ND	1.0	0.2
1,2,3-Trichlorobenzene	ND	1.0	0.2

Tentatively Identified Compounds

No TICs found.

Surrogate	%REC	Limits
Dibromofluoromethane	119	80-128
1,2-Dichloroethane-d4	139	75-139
Toluene-d8	106	80-120
Bromofluorobenzene	117	80-120

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160405ER	Batch#:	234168
Lab ID:	275719-012	Sampled:	04/05/16
Matrix:	Water	Received:	04/05/16
Units:	ug/L	Analyzed:	04/17/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
Freon 12	ND	1.0	0.1
Chloromethane	ND	1.0	0.3
Vinyl Chloride	ND	1.0	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.3
Trichlorofluoromethane	ND	1.0	0.2
Acetone	ND	10	3.3
Freon 113	ND	5.0	0.1
1,1-Dichloroethene	ND	1.0	0.2
Methylene Chloride	ND	10	0.2
Carbon Disulfide	ND	1.0	0.1
MTBE	ND	1.0	0.1
trans-1,2-Dichloroethene	ND	1.0	0.2
Vinyl Acetate	ND	10	1.1
1,1-Dichloroethane	ND	1.0	0.2
2-Butanone	0.8 J	10	0.5
cis-1,2-Dichloroethene	ND	1.0	0.1
2,2-Dichloropropane	ND	1.0	0.1
Chloroform	0.2 J	1.0	0.1
Bromochloromethane	ND	1.0	0.1
1,1,1-Trichloroethane	ND	1.0	0.1
1,1-Dichloropropene	ND	1.0	0.1
Carbon Tetrachloride	ND	1.0	0.1
1,2-Dichloroethane	ND	1.0	0.1
Benzene	ND	1.0	0.1
Trichloroethene	ND	1.0	0.1
1,2-Dichloropropane	ND	1.0	0.1
Bromodichloromethane	ND	1.0	0.1
Dibromomethane	ND	1.0	0.1
4-Methyl-2-Pentanone	ND	10	0.7
cis-1,3-Dichloropropene	ND	1.0	0.1
Toluene	ND	1.0	0.1
trans-1,3-Dichloropropene	ND	1.0	0.1
1,1,2-Trichloroethane	ND	1.0	0.2
2-Hexanone	ND	10	0.5
1,3-Dichloropropane	ND	1.0	0.1
Tetrachloroethene	ND	1.0	0.1
Dibromochloromethane	ND	1.0	0.1
1,2-Dibromoethane	ND	1.0	0.1
Chlorobenzene	ND	1.0	0.1
1,1,1,2-Tetrachloroethane	ND	1.0	0.1
Ethylbenzene	ND	1.0	0.1
m,p-Xylenes	ND	1.0	0.1
o-Xylene	ND	1.0	0.1
Styrene	ND	1.0	0.1
Bromoform	ND	1.0	0.1
Isopropylbenzene	ND	1.0	0.1
1,1,2,2-Tetrachloroethane	ND	1.0	0.1
1,2,3-Trichloropropane	ND	1.0	0.2
Propylbenzene	ND	1.0	0.1
Bromobenzene	ND	1.0	0.1
1,3,5-Trimethylbenzene	ND	1.0	0.1

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160405ER	Batch#:	234168
Lab ID:	275719-012	Sampled:	04/05/16
Matrix:	Water	Received:	04/05/16
Units:	ug/L	Analyzed:	04/17/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
2-Chlorotoluene	ND	1.0	0.1
4-Chlorotoluene	ND	1.0	0.1
tert-Butylbenzene	ND	1.0	0.1
1,2,4-Trimethylbenzene	ND	1.0	0.1
sec-Butylbenzene	ND	1.0	0.1
para-Isopropyl Toluene	ND	1.0	0.1
1,3-Dichlorobenzene	ND	1.0	0.1
1,4-Dichlorobenzene	ND	1.0	0.1
n-Butylbenzene	ND	1.0	0.1
1,2-Dichlorobenzene	ND	1.0	0.1
1,2-Dibromo-3-Chloropropane	ND	1.0	0.3
1,2,4-Trichlorobenzene	ND	1.0	0.1
Hexachlorobutadiene	ND	1.0	0.1
Naphthalene	ND	1.0	0.1
1,2,3-Trichlorobenzene	ND	1.0	0.1

Tentatively Identified Compounds

No TICs found.

Surrogate	%REC	Limits
Dibromofluoromethane	89	80-128
1,2-Dichloroethane-d4	101	75-139
Toluene-d8	104	80-120
Bromofluorobenzene	98	80-120

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160405SWB	Batch#:	233929
Lab ID:	275719-013	Sampled:	04/05/16
Matrix:	Water	Received:	04/05/16
Units:	ug/L	Analyzed:	04/11/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
Freon 12	ND	1.0	0.1
Chloromethane	ND	1.0	0.1
Vinyl Chloride	ND	1.0	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.1
Trichlorofluoromethane	ND	1.0	0.1
Acetone	4.6 J	10	3.3
Freon 113	ND	5.0	0.1
1,1-Dichloroethene	ND	1.0	0.1
Methylene Chloride	ND	10	0.2
Carbon Disulfide	ND	1.0	0.1
MTBE	ND	1.0	0.1
trans-1,2-Dichloroethene	ND	1.0	0.1
Vinyl Acetate	ND	10	0.3
1,1-Dichloroethane	ND	1.0	0.1
2-Butanone	0.7 J	10	0.3
cis-1,2-Dichloroethene	ND	1.0	0.1
2,2-Dichloropropane	ND	1.0	0.1
Chloroform	0.2 J	1.0	0.1
Bromochloromethane	ND	1.0	0.1
1,1,1-Trichloroethane	ND	1.0	0.1
1,1-Dichloropropene	ND	1.0	0.1
Carbon Tetrachloride	ND	1.0	0.2
1,2-Dichloroethane	ND	1.0	0.1
Benzene	ND	1.0	0.1
Trichloroethene	ND	1.0	0.1
1,2-Dichloropropane	ND	1.0	0.1
Bromodichloromethane	ND	1.0	0.1
Dibromomethane	ND	1.0	0.1
4-Methyl-2-Pentanone	ND	10	0.1
cis-1,3-Dichloropropene	ND	1.0	0.1
Toluene	ND	1.0	0.1
trans-1,3-Dichloropropene	ND	1.0	0.1
1,1,2-Trichloroethane	ND	1.0	0.1
2-Hexanone	ND	10	0.3
1,3-Dichloropropane	ND	1.0	0.1
Tetrachloroethene	ND	1.0	0.2
Dibromochloromethane	ND	1.0	0.1
1,2-Dibromoethane	ND	1.0	0.1
Chlorobenzene	ND	1.0	0.1
1,1,1,2-Tetrachloroethane	ND	1.0	0.1
Ethylbenzene	ND	1.0	0.1
m,p-Xylenes	ND	1.0	0.1
o-Xylene	ND	1.0	0.2
Styrene	ND	1.0	0.1
Bromoform	ND	1.0	0.2
Isopropylbenzene	ND	1.0	0.1
1,1,2,2-Tetrachloroethane	ND	1.0	0.1
1,2,3-Trichloropropane	ND	1.0	0.1
Propylbenzene	ND	1.0	0.1
Bromobenzene	ND	1.0	0.1

*= Value outside of QC limits; see narrative
J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160405SWB	Batch#:	233929
Lab ID:	275719-013	Sampled:	04/05/16
Matrix:	Water	Received:	04/05/16
Units:	ug/L	Analyzed:	04/11/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
1,3,5-Trimethylbenzene	ND	1.0	0.1
2-Chlorotoluene	ND	1.0	0.2
4-Chlorotoluene	ND	1.0	0.1
tert-Butylbenzene	ND	1.0	0.1
1,2,4-Trimethylbenzene	ND	1.0	0.1
sec-Butylbenzene	ND	1.0	0.1
para-Isopropyl Toluene	ND	1.0	0.1
1,3-Dichlorobenzene	ND	1.0	0.2
1,4-Dichlorobenzene	ND	1.0	0.1
n-Butylbenzene	ND	1.0	0.1
1,2-Dichlorobenzene	ND	1.0	0.1
1,2-Dibromo-3-Chloropropane	ND	1.0	0.3
1,2,4-Trichlorobenzene	ND	1.0	0.1
Hexachlorobutadiene	ND	1.0	0.2
Naphthalene	ND	1.0	0.2
1,2,3-Trichlorobenzene	ND	1.0	0.2

Tentatively Identified Compounds

No TICs found.

Surrogate	%REC	Limits
Dibromofluoromethane	121	80-128
1,2-Dichloroethane-d4	146 *	75-139
Toluene-d8	106	80-120
Bromofluorobenzene	120	80-120

*= Value outside of QC limits; see narrative
J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160405TB	Batch#:	233929
Lab ID:	275719-014	Sampled:	04/05/16
Matrix:	Water	Received:	04/05/16
Units:	ug/L	Analyzed:	04/10/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
Freon 12	ND	1.0	0.1
Chloromethane	ND	1.0	0.1
Vinyl Chloride	ND	1.0	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.1
Trichlorofluoromethane	ND	1.0	0.1
Acetone	ND	10	3.3
Freon 113	ND	5.0	0.1
1,1-Dichloroethene	ND	1.0	0.1
Methylene Chloride	ND	10	0.2
Carbon Disulfide	ND	1.0	0.1
MTBE	ND	1.0	0.1
trans-1,2-Dichloroethene	ND	1.0	0.1
Vinyl Acetate	ND	10	0.3
1,1-Dichloroethane	ND	1.0	0.1
2-Butanone	ND	10	0.3
cis-1,2-Dichloroethene	ND	1.0	0.1
2,2-Dichloropropane	ND	1.0	0.1
Chloroform	ND	1.0	0.1
Bromochloromethane	ND	1.0	0.1
1,1,1-Trichloroethane	ND	1.0	0.1
1,1-Dichloropropene	ND	1.0	0.1
Carbon Tetrachloride	ND	1.0	0.2
1,2-Dichloroethane	ND	1.0	0.1
Benzene	ND	1.0	0.1
Trichloroethene	ND	1.0	0.1
1,2-Dichloropropane	ND	1.0	0.1
Bromodichloromethane	ND	1.0	0.1
Dibromomethane	ND	1.0	0.1
4-Methyl-2-Pentanone	ND	10	0.1
cis-1,3-Dichloropropene	ND	1.0	0.1
Toluene	ND	1.0	0.1
trans-1,3-Dichloropropene	ND	1.0	0.1
1,1,2-Trichloroethane	ND	1.0	0.1
2-Hexanone	ND	10	0.3
1,3-Dichloropropane	ND	1.0	0.1
Tetrachloroethene	ND	1.0	0.2
Dibromochloromethane	ND	1.0	0.1
1,2-Dibromoethane	ND	1.0	0.1
Chlorobenzene	ND	1.0	0.1
1,1,1,2-Tetrachloroethane	ND	1.0	0.1
Ethylbenzene	ND	1.0	0.1
m,p-Xylenes	ND	1.0	0.1
o-Xylene	ND	1.0	0.2
Styrene	ND	1.0	0.1
Bromoform	ND	1.0	0.2
Isopropylbenzene	ND	1.0	0.1
1,1,2,2-Tetrachloroethane	ND	1.0	0.1
1,2,3-Trichloropropane	ND	1.0	0.1
Propylbenzene	ND	1.0	0.1
Bromobenzene	ND	1.0	0.1
1,3,5-Trimethylbenzene	ND	1.0	0.1
2-Chlorotoluene	ND	1.0	0.2

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160405TB	Batch#:	233929
Lab ID:	275719-014	Sampled:	04/05/16
Matrix:	Water	Received:	04/05/16
Units:	ug/L	Analyzed:	04/10/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
4-Chlorotoluene	ND	1.0	0.1
tert-Butylbenzene	ND	1.0	0.1
1,2,4-Trimethylbenzene	ND	1.0	0.1
sec-Butylbenzene	ND	1.0	0.1
para-Isopropyl Toluene	ND	1.0	0.1
1,3-Dichlorobenzene	ND	1.0	0.2
1,4-Dichlorobenzene	ND	1.0	0.1
n-Butylbenzene	ND	1.0	0.1
1,2-Dichlorobenzene	ND	1.0	0.1
1,2-Dibromo-3-Chloropropane	ND	1.0	0.3
1,2,4-Trichlorobenzene	ND	1.0	0.1
Hexachlorobutadiene	ND	1.0	0.2
Naphthalene	ND	1.0	0.2
1,2,3-Trichlorobenzene	ND	1.0	0.2

Tentatively Identified Compounds

No TICs found.

Surrogate	%REC	Limits
Dibromofluoromethane	112	80-128
1,2-Dichloroethane-d4	126	75-139
Toluene-d8	102	80-120
Bromofluorobenzene	113	80-120

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	233929
Units:	ug/L	Analyzed:	04/10/16
Diln Fac:	1.000		

Type: BS Lab ID: QC830900

Analyte	Spiked	Result	%REC	Limits
Freon 12	10.00	11.34	113	45-131
Chloromethane	10.00	10.66	107	48-133
Vinyl Chloride	10.00	11.13	111	63-132
Bromomethane	10.00	9.142	91	38-161
Chloroethane	10.00	10.74	107	62-131
Trichlorofluoromethane	10.00	11.61	116	64-137
Acetone	12.50	14.87	119	46-151
Freon 113	12.50	12.18	97	61-138
1,1-Dichloroethene	12.50	14.01	112	66-135
Methylene Chloride	12.50	13.62	109	74-131
Carbon Disulfide	12.50	14.65	117	63-150
MTBE	12.50	14.47	116	65-120
trans-1,2-Dichloroethene	12.50	13.17	105	72-134
Vinyl Acetate	12.50	14.77	118	60-194
1,1-Dichloroethane	12.50	13.60	109	68-127
2-Butanone	12.50	14.94	119	50-141
cis-1,2-Dichloroethene	12.50	15.30	122	73-129
2,2-Dichloropropane	12.50	16.17	129	72-146
Chloroform	12.50	13.60	109	73-126
Bromochloromethane	12.50	12.26	98	78-127
1,1,1-Trichloroethane	12.50	14.38	115	72-134
1,1-Dichloropropene	12.50	13.25	106	79-135
Carbon Tetrachloride	12.50	15.50	124	72-142
1,2-Dichloroethane	12.50	13.33	107	74-133
Benzene	12.50	12.27	98	80-123
Trichloroethene	12.50	12.79	102	80-123
1,2-Dichloropropane	12.50	11.63	93	74-120
Bromodichloromethane	12.50	13.98	112	79-121
Dibromomethane	12.50	13.28	106	80-120
4-Methyl-2-Pentanone	12.50	14.03	112	57-129
cis-1,3-Dichloropropene	12.50	13.51	108	80-130
Toluene	12.50	13.66	109	80-121
trans-1,3-Dichloropropene	12.50	14.78	118	76-122
1,1,2-Trichloroethane	12.50	13.54	108	80-120
2-Hexanone	12.50	15.83	127	49-136

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	233929
Units:	ug/L	Analyzed:	04/10/16
Diln Fac:	1.000		

Analyte	Spiked	Result	%REC	Limits
1,3-Dichloropropane	12.50	14.69	118	80-120
Tetrachloroethene	12.50	14.72	118	78-130
Dibromochloromethane	12.50	13.94	112	80-123
1,2-Dibromoethane	12.50	13.59	109	80-120
Chlorobenzene	12.50	13.29	106	80-123
1,1,1,2-Tetrachloroethane	12.50	14.31	114	80-124
Ethylbenzene	12.50	14.27	114	80-123
m,p-Xylenes	25.00	27.36	109	80-126
o-Xylene	12.50	13.19	105	80-126
Styrene	12.50	14.42	115	80-122
Bromoform	12.50	14.26	114	72-132
Isopropylbenzene	12.50	14.14	113	79-130
1,1,2,2-Tetrachloroethane	12.50	13.47	108	72-129
1,2,3-Trichloropropane	12.50	14.66	117	72-124
Propylbenzene	12.50	14.06	112	79-128
Bromobenzene	12.50	13.07	105	80-122
1,3,5-Trimethylbenzene	12.50	14.45	116	80-129
2-Chlorotoluene	12.50	13.62	109	80-130
4-Chlorotoluene	12.50	14.01	112	79-125
tert-Butylbenzene	12.50	13.61	109	79-130
1,2,4-Trimethylbenzene	12.50	13.99	112	78-124
sec-Butylbenzene	12.50	14.53	116	79-134
para-Isopropyl Toluene	12.50	14.26	114	74-125
1,3-Dichlorobenzene	12.50	12.94	104	80-124
1,4-Dichlorobenzene	12.50	13.41	107	80-121
n-Butylbenzene	12.50	14.75	118	69-135
1,2-Dichlorobenzene	12.50	13.46	108	80-123
1,2-Dibromo-3-Chloropropane	12.50	14.36	115	59-125
1,2,4-Trichlorobenzene	12.50	14.45	116	66-133
Hexachlorobutadiene	12.50	16.19	130	70-152
Naphthalene	12.50	13.98	112	53-139
1,2,3-Trichlorobenzene	12.50	15.64	125	64-134

Surrogate	%REC	Limits
Dibromofluoromethane	109	80-128
1,2-Dichloroethane-d4	111	75-139
Toluene-d8	105	80-120
Bromofluorobenzene	101	80-120

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	233929
Units:	ug/L	Analyzed:	04/10/16
Diln Fac:	1.000		

Type: BSD Lab ID: QC830901

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Freon 12	10.00	10.69	107	45-131	6	29
Chloromethane	10.00	10.27	103	48-133	4	25
Vinyl Chloride	10.00	10.90	109	63-132	2	23
Bromomethane	10.00	9.562	96	38-161	4	32
Chloroethane	10.00	10.26	103	62-131	5	24
Trichlorofluoromethane	10.00	11.20	112	64-137	4	23
Acetone	12.50	13.98	112	46-151	6	29
Freon 113	12.50	11.75	94	61-138	4	25
1,1-Dichloroethene	12.50	13.55	108	66-135	3	24
Methylene Chloride	12.50	13.02	104	74-131	4	21
Carbon Disulfide	12.50	14.28	114	63-150	3	25
MTBE	12.50	14.01	112	65-120	3	22
trans-1,2-Dichloroethene	12.50	13.49	108	72-134	2	22
Vinyl Acetate	12.50	14.25	114	60-194	4	25
1,1-Dichloroethane	12.50	13.18	105	68-127	3	21
2-Butanone	12.50	14.12	113	50-141	6	24
cis-1,2-Dichloroethene	12.50	14.03	112	73-129	9	20
2,2-Dichloropropane	12.50	14.87	119	72-146	8	24
Chloroform	12.50	13.12	105	73-126	4	20
Bromochloromethane	12.50	12.60	101	78-127	3	20
1,1,1-Trichloroethane	12.50	13.27	106	72-134	8	22
1,1-Dichloropropene	12.50	12.50	100	79-135	6	23
Carbon Tetrachloride	12.50	15.25	122	72-142	2	22
1,2-Dichloroethane	12.50	13.23	106	74-133	1	20
Benzene	12.50	12.68	101	80-123	3	20
Trichloroethene	12.50	13.47	108	80-123	5	20
1,2-Dichloropropane	12.50	13.40	107	74-120	14	20
Bromodichloromethane	12.50	13.54	108	79-121	3	20
Dibromomethane	12.50	13.54	108	80-120	2	20
4-Methyl-2-Pentanone	12.50	13.02	104	57-129	7	23
cis-1,3-Dichloropropene	12.50	13.59	109	80-130	1	20
Toluene	12.50	13.37	107	80-121	2	20
trans-1,3-Dichloropropene	12.50	13.72	110	76-122	7	20
1,1,2-Trichloroethane	12.50	12.48	100	80-120	8	20
2-Hexanone	12.50	15.06	121	49-136	5	24

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	233929
Units:	ug/L	Analyzed:	04/10/16
Diln Fac:	1.000		

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,3-Dichloropropane	12.50	14.10	113	80-120	4	20
Tetrachloroethene	12.50	13.98	112	78-130	5	21
Dibromochloromethane	12.50	14.19	114	80-123	2	20
1,2-Dibromoethane	12.50	13.91	111	80-120	2	20
Chlorobenzene	12.50	13.00	104	80-123	2	20
1,1,1,2-Tetrachloroethane	12.50	14.14	113	80-124	1	20
Ethylbenzene	12.50	14.29	114	80-123	0	21
m,p-Xylenes	25.00	28.02	112	80-126	2	21
o-Xylene	12.50	13.84	111	80-126	5	20
Styrene	12.50	13.85	111	80-122	4	20
Bromoform	12.50	14.07	113	72-132	1	20
Isopropylbenzene	12.50	15.00	120	79-130	6	21
1,1,2,2-Tetrachloroethane	12.50	14.21	114	72-129	5	20
1,2,3-Trichloropropane	12.50	14.39	115	72-124	2	22
Propylbenzene	12.50	14.11	113	79-128	0	21
Bromobenzene	12.50	13.51	108	80-122	3	20
1,3,5-Trimethylbenzene	12.50	14.62	117	80-129	1	20
2-Chlorotoluene	12.50	14.07	113	80-130	3	20
4-Chlorotoluene	12.50	13.42	107	79-125	4	20
tert-Butylbenzene	12.50	14.17	113	79-130	4	23
1,2,4-Trimethylbenzene	12.50	14.17	113	78-124	1	22
sec-Butylbenzene	12.50	13.88	111	79-134	5	23
para-Isopropyl Toluene	12.50	15.00	120	74-125	5	24
1,3-Dichlorobenzene	12.50	13.89	111	80-124	7	20
1,4-Dichlorobenzene	12.50	13.66	109	80-121	2	20
n-Butylbenzene	12.50	14.36	115	69-135	3	28
1,2-Dichlorobenzene	12.50	13.67	109	80-123	2	20
1,2-Dibromo-3-Chloropropane	12.50	14.73	118	59-125	2	23
1,2,4-Trichlorobenzene	12.50	14.08	113	66-133	3	24
Hexachlorobutadiene	12.50	15.97	128	70-152	1	26
Naphthalene	12.50	13.83	111	53-139	1	25
1,2,3-Trichlorobenzene	12.50	15.62	125	64-134	0	25

Surrogate	%REC	Limits
Dibromofluoromethane	109	80-128
1,2-Dichloroethane-d4	114	75-139
Toluene-d8	107	80-120
Bromofluorobenzene	103	80-120

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Type:	BLANK	Dil'n Fac:	1.000
Lab ID:	QC830902	Batch#:	233929
Matrix:	Water	Analyzed:	04/10/16
Units:	ug/L		

Analyte	Result	RL	MDL
Freon 12	ND	1.0	0.1
Chloromethane	ND	1.0	0.1
Vinyl Chloride	ND	1.0	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.1
Trichlorofluoromethane	ND	1.0	0.1
Acetone	ND	10	3.3
Freon 113	ND	5.0	0.1
1,1-Dichloroethene	ND	1.0	0.1
Methylene Chloride	ND	10	0.2
Carbon Disulfide	0.2 J	1.0	0.1
MTBE	ND	1.0	0.1
trans-1,2-Dichloroethene	ND	1.0	0.1
Vinyl Acetate	ND	10	0.3
1,1-Dichloroethane	ND	1.0	0.1
2-Butanone	ND	10	0.3
cis-1,2-Dichloroethene	ND	1.0	0.1
2,2-Dichloropropane	ND	1.0	0.1
Chloroform	ND	1.0	0.1
Bromochloromethane	ND	1.0	0.1
1,1,1-Trichloroethane	ND	1.0	0.1
1,1-Dichloropropene	ND	1.0	0.1
Carbon Tetrachloride	ND	1.0	0.2
1,2-Dichloroethane	0.1 J	1.0	0.1
Benzene	ND	1.0	0.1
Trichloroethene	ND	1.0	0.1
1,2-Dichloropropane	ND	1.0	0.1
Bromodichloromethane	ND	1.0	0.1
Dibromomethane	ND	1.0	0.1
4-Methyl-2-Pentanone	ND	10	0.1
cis-1,3-Dichloropropene	ND	1.0	0.1
Toluene	ND	1.0	0.1
trans-1,3-Dichloropropene	ND	1.0	0.1
1,1,2-Trichloroethane	ND	1.0	0.1
2-Hexanone	ND	10	0.3
1,3-Dichloropropane	ND	1.0	0.1
Tetrachloroethene	ND	1.0	0.2
Dibromochloromethane	ND	1.0	0.1
1,2-Dibromoethane	ND	1.0	0.1
Chlorobenzene	ND	1.0	0.1
1,1,1,2-Tetrachloroethane	ND	1.0	0.1
Ethylbenzene	ND	1.0	0.1
m,p-Xylenes	ND	1.0	0.1
o-Xylene	ND	1.0	0.2
Styrene	ND	1.0	0.1
Bromoform	ND	1.0	0.2
Isopropylbenzene	ND	1.0	0.1
1,1,2,2-Tetrachloroethane	ND	1.0	0.1
1,2,3-Trichloropropane	ND	1.0	0.1
Propylbenzene	ND	1.0	0.1
Bromobenzene	ND	1.0	0.1
1,3,5-Trimethylbenzene	ND	1.0	0.1

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC830902	Batch#:	233929
Matrix:	Water	Analyzed:	04/10/16
Units:	ug/L		

Analyte	Result	RL	MDL
2-Chlorotoluene	ND	1.0	0.2
4-Chlorotoluene	ND	1.0	0.1
tert-Butylbenzene	ND	1.0	0.1
1,2,4-Trimethylbenzene	ND	1.0	0.1
sec-Butylbenzene	ND	1.0	0.1
para-Isopropyl Toluene	ND	1.0	0.1
1,3-Dichlorobenzene	ND	1.0	0.2
1,4-Dichlorobenzene	ND	1.0	0.1
n-Butylbenzene	ND	1.0	0.1
1,2-Dichlorobenzene	ND	1.0	0.1
1,2-Dibromo-3-Chloropropane	ND	1.0	0.3
1,2,4-Trichlorobenzene	ND	1.0	0.1
Hexachlorobutadiene	0.2 J	1.0	0.2
Naphthalene	ND	1.0	0.2
1,2,3-Trichlorobenzene	ND	1.0	0.2

Tentatively Identified Compounds

No TICs found.

Surrogate	%REC	Limits
Dibromofluoromethane	111	80-128
1,2-Dichloroethane-d4	122	75-139
Toluene-d8	108	80-120
Bromofluorobenzene	109	80-120

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	234003
Units:	ug/L	Analyzed:	04/12/16
Diln Fac:	1.000		

Type: BS Lab ID: QC831192

Analyte	Spiked	Result	%REC	Limits
Freon 12	10.00	12.66	127	45-131
Chloromethane	10.00	10.25	102	48-133
Vinyl Chloride	10.00	13.30	133 *	63-132
Bromomethane	10.00	12.22	122	38-161
Chloroethane	10.00	10.99	110	62-131
Trichlorofluoromethane	10.00	12.55	126	64-137
Acetone	12.50	24.27 b	194 *	46-151
Freon 113	12.50	11.93	95	61-138
1,1-Dichloroethene	12.50	13.27	106	66-135
Methylene Chloride	12.50	12.87	103	74-131
Carbon Disulfide	12.50	14.93	119	63-150
MTBE	12.50	12.41	99	65-120
trans-1,2-Dichloroethene	12.50	12.51	100	72-134
Vinyl Acetate	12.50	16.23	130	60-194
1,1-Dichloroethane	12.50	14.45	116	68-127
2-Butanone	12.50	19.77	158 *	50-141
cis-1,2-Dichloroethene	12.50	13.53	108	73-129
2,2-Dichloropropane	12.50	15.92	127	72-146
Chloroform	12.50	13.87	111	73-126
Bromochloromethane	12.50	12.73	102	78-127
1,1,1-Trichloroethane	12.50	14.45	116	72-134
1,1-Dichloropropene	12.50	13.27	106	79-135
Carbon Tetrachloride	12.50	14.14	113	72-142
1,2-Dichloroethane	12.50	15.24	122	74-133
Benzene	12.50	13.70	110	80-123
Trichloroethene	12.50	13.25	106	80-123
1,2-Dichloropropane	12.50	13.23	106	74-120
Bromodichloromethane	12.50	13.75	110	79-121
Dibromomethane	12.50	13.18	105	80-120
4-Methyl-2-Pentanone	12.50	15.21	122	57-129
cis-1,3-Dichloropropene	12.50	14.39	115	80-130
Toluene	12.50	13.20	106	80-121
trans-1,3-Dichloropropene	12.50	14.19	113	76-122
1,1,2-Trichloroethane	12.50	12.70	102	80-120
2-Hexanone	12.50	20.31	162 *	49-136
1,3-Dichloropropane	12.50	14.33	115	80-120
Tetrachloroethene	12.50	12.21	98	78-130
Dibromochloromethane	12.50	12.61	101	80-123
1,2-Dibromoethane	12.50	12.45	100	80-120
Chlorobenzene	12.50	12.02	96	80-123
1,1,1,2-Tetrachloroethane	12.50	12.43	99	80-124
Ethylbenzene	12.50	13.20	106	80-123
m,p-Xylenes	25.00	25.89	104	80-126
o-Xylene	12.50	12.13	97	80-126
Styrene	12.50	12.55	100	80-122
Bromoform	12.50	12.23	98	72-132
Isopropylbenzene	12.50	12.93	103	79-130
1,1,2,2-Tetrachloroethane	12.50	13.30	106	72-129
1,2,3-Trichloropropane	12.50	13.09	105	72-124
Propylbenzene	12.50	12.97	104	79-128

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

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	234003
Units:	ug/L	Analyzed:	04/12/16
Diln Fac:	1.000		

Analyte	Spiked	Result	%REC	Limits
Bromobenzene	12.50	12.34	99	80-122
1,3,5-Trimethylbenzene	12.50	13.45	108	80-129
2-Chlorotoluene	12.50	13.52	108	80-130
4-Chlorotoluene	12.50	14.12	113	79-125
tert-Butylbenzene	12.50	12.65	101	79-130
1,2,4-Trimethylbenzene	12.50	13.24	106	78-124
sec-Butylbenzene	12.50	12.60	101	79-134
para-Isopropyl Toluene	12.50	12.70	102	74-125
1,3-Dichlorobenzene	12.50	11.97	96	80-124
1,4-Dichlorobenzene	12.50	12.39	99	80-121
n-Butylbenzene	12.50	13.36	107	69-135
1,2-Dichlorobenzene	12.50	11.68	93	80-123
1,2-Dibromo-3-Chloropropane	12.50	14.22	114	59-125
1,2,4-Trichlorobenzene	12.50	11.54	92	66-133
Hexachlorobutadiene	12.50	12.37	99	70-152
Naphthalene	12.50	10.65	85	53-139
1,2,3-Trichlorobenzene	12.50	11.53	92	64-134

Surrogate	%REC	Limits
Dibromofluoromethane	107	80-128
1,2-Dichloroethane-d4	120	75-139
Toluene-d8	97	80-120
Bromofluorobenzene	101	80-120

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

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	234003
Units:	ug/L	Analyzed:	04/12/16
Diln Fac:	1.000		

Type: BSD Lab ID: QC831193

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Freon 12	10.00	11.46	115	45-131	10	29
Chloromethane	10.00	9.322	93	48-133	9	25
Vinyl Chloride	10.00	12.32	123	63-132	8	23
Bromomethane	10.00	11.44	114	38-161	7	32
Chloroethane	10.00	9.997	100	62-131	9	24
Trichlorofluoromethane	10.00	11.44	114	64-137	9	23
Acetone	12.50	23.26 b	186 *	46-151	4	29
Freon 113	12.50	10.81	87	61-138	10	25
1,1-Dichloroethene	12.50	11.95	96	66-135	10	24
Methylene Chloride	12.50	12.60	101	74-131	2	21
Carbon Disulfide	12.50	13.69	110	63-150	9	25
MTBE	12.50	13.14	105	65-120	6	22
trans-1,2-Dichloroethene	12.50	11.35	91	72-134	10	22
Vinyl Acetate	12.50	16.09	129	60-194	1	25
1,1-Dichloroethane	12.50	13.26	106	68-127	9	21
2-Butanone	12.50	18.98	152 *	50-141	4	24
cis-1,2-Dichloroethene	12.50	12.58	101	73-129	7	20
2,2-Dichloropropane	12.50	14.56	117	72-146	9	24
Chloroform	12.50	13.02	104	73-126	6	20
Bromochloromethane	12.50	12.55	100	78-127	1	20
1,1,1-Trichloroethane	12.50	13.22	106	72-134	9	22
1,1-Dichloropropene	12.50	11.78	94	79-135	12	23
Carbon Tetrachloride	12.50	13.05	104	72-142	8	22
1,2-Dichloroethane	12.50	14.78	118	74-133	3	20
Benzene	12.50	12.95	104	80-123	6	20
Trichloroethene	12.50	11.97	96	80-123	10	20
1,2-Dichloropropane	12.50	12.31	99	74-120	7	20
Bromodichloromethane	12.50	13.25	106	79-121	4	20
Dibromomethane	12.50	12.90	103	80-120	2	20
4-Methyl-2-Pentanone	12.50	15.27	122	57-129	0	23
cis-1,3-Dichloropropene	12.50	13.75	110	80-130	5	20
Toluene	12.50	11.47	92	80-121	14	20
trans-1,3-Dichloropropene	12.50	13.49	108	76-122	5	20
1,1,2-Trichloroethane	12.50	12.34	99	80-120	3	20
2-Hexanone	12.50	18.42	147 *	49-136	10	24
1,3-Dichloropropane	12.50	13.36	107	80-120	7	20
Tetrachloroethene	12.50	11.01	88	78-130	10	21
Dibromochloromethane	12.50	12.10	97	80-123	4	20
1,2-Dibromoethane	12.50	11.96	96	80-120	4	20
Chlorobenzene	12.50	11.32	91	80-123	6	20
1,1,1,2-Tetrachloroethane	12.50	11.60	93	80-124	7	20
Ethylbenzene	12.50	12.19	98	80-123	8	21
m,p-Xylenes	25.00	23.90	96	80-126	8	21
o-Xylene	12.50	11.58	93	80-126	5	20
Styrene	12.50	11.89	95	80-122	5	20
Bromoform	12.50	11.86	95	72-132	3	20
Isopropylbenzene	12.50	12.37	99	79-130	4	21
1,1,2,2-Tetrachloroethane	12.50	12.97	104	72-129	2	20
1,2,3-Trichloropropane	12.50	13.13	105	72-124	0	22
Propylbenzene	12.50	12.18	97	79-128	6	21

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

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	234003
Units:	ug/L	Analyzed:	04/12/16
Diln Fac:	1.000		

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Bromobenzene	12.50	11.97	96	80-122	3	20
1,3,5-Trimethylbenzene	12.50	12.50	100	80-129	7	20
2-Chlorotoluene	12.50	12.46	100	80-130	8	20
4-Chlorotoluene	12.50	13.00	104	79-125	8	20
tert-Butylbenzene	12.50	11.32	91	79-130	11	23
1,2,4-Trimethylbenzene	12.50	12.40	99	78-124	7	22
sec-Butylbenzene	12.50	12.02	96	79-134	5	23
para-Isopropyl Toluene	12.50	12.04	96	74-125	5	24
1,3-Dichlorobenzene	12.50	11.51	92	80-124	4	20
1,4-Dichlorobenzene	12.50	11.64	93	80-121	6	20
n-Butylbenzene	12.50	12.68	101	69-135	5	28
1,2-Dichlorobenzene	12.50	11.60	93	80-123	1	20
1,2-Dibromo-3-Chloropropane	12.50	14.12	113	59-125	1	23
1,2,4-Trichlorobenzene	12.50	10.95	88	66-133	5	24
Hexachlorobutadiene	12.50	11.63	93	70-152	6	26
Naphthalene	12.50	10.61	85	53-139	0	25
1,2,3-Trichlorobenzene	12.50	11.07	89	64-134	4	25

Surrogate	%REC	Limits
Dibromofluoromethane	106	80-128
1,2-Dichloroethane-d4	118	75-139
Toluene-d8	100	80-120
Bromofluorobenzene	104	80-120

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

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Type:	BLANK	Dil'n Fac:	1.000
Lab ID:	QC831194	Batch#:	234003
Matrix:	Water	Analyzed:	04/12/16
Units:	ug/L		

Analyte	Result	RL	MDL
Freon 12	ND	1.0	0.2
Chloromethane	ND	1.0	0.2
Vinyl Chloride	ND	1.0	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.2
Trichlorofluoromethane	ND	1.0	0.2
Acetone	ND	10	3.3
Freon 113	ND	5.0	0.2
1,1-Dichloroethene	ND	1.0	0.1
Methylene Chloride	ND	10	0.1
Carbon Disulfide	ND	1.0	0.1
MTBE	ND	1.0	0.1
trans-1,2-Dichloroethene	ND	1.0	0.1
Vinyl Acetate	ND	10	0.5
1,1-Dichloroethane	ND	1.0	0.1
2-Butanone	ND	10	0.5
cis-1,2-Dichloroethene	ND	1.0	0.1
2,2-Dichloropropane	ND	1.0	0.1
Chloroform	ND	1.0	0.1
Bromochloromethane	ND	1.0	0.2
1,1,1-Trichloroethane	ND	1.0	0.1
1,1-Dichloropropene	ND	1.0	0.1
Carbon Tetrachloride	ND	1.0	0.1
1,2-Dichloroethane	0.2 J	1.0	0.1
Benzene	ND	1.0	0.1
Trichloroethene	ND	1.0	0.1
1,2-Dichloropropane	ND	1.0	0.2
Bromodichloromethane	ND	1.0	0.1
Dibromomethane	ND	1.0	0.1
4-Methyl-2-Pentanone	ND	10	0.2
cis-1,3-Dichloropropene	ND	1.0	0.1
Toluene	ND	1.0	0.1
trans-1,3-Dichloropropene	ND	1.0	0.1
1,1,2-Trichloroethane	ND	1.0	0.2
2-Hexanone	ND	10	0.2
1,3-Dichloropropane	ND	1.0	0.1
Tetrachloroethene	ND	1.0	0.1
Dibromochloromethane	ND	1.0	0.1
1,2-Dibromoethane	ND	1.0	0.1
Chlorobenzene	ND	1.0	0.1
1,1,1,2-Tetrachloroethane	ND	1.0	0.1
Ethylbenzene	ND	1.0	0.2
m,p-Xylenes	ND	1.0	0.1
o-Xylene	ND	1.0	0.1
Styrene	ND	1.0	0.1
Bromoform	ND	1.0	0.1
Isopropylbenzene	ND	1.0	0.1
1,1,2,2-Tetrachloroethane	ND	1.0	0.1
1,2,3-Trichloropropane	ND	1.0	0.1
Propylbenzene	ND	1.0	0.1
Bromobenzene	ND	1.0	0.1
1,3,5-Trimethylbenzene	ND	1.0	0.1

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC831194	Batch#:	234003
Matrix:	Water	Analyzed:	04/12/16
Units:	ug/L		

Analyte	Result	RL	MDL
2-Chlorotoluene	ND	1.0	0.1
4-Chlorotoluene	ND	1.0	0.2
tert-Butylbenzene	ND	1.0	0.1
1,2,4-Trimethylbenzene	ND	1.0	0.2
sec-Butylbenzene	ND	1.0	0.1
para-Isopropyl Toluene	ND	1.0	0.1
1,3-Dichlorobenzene	ND	1.0	0.1
1,4-Dichlorobenzene	ND	1.0	0.1
n-Butylbenzene	ND	1.0	0.1
1,2-Dichlorobenzene	ND	1.0	0.1
1,2-Dibromo-3-Chloropropane	ND	1.0	0.2
1,2,4-Trichlorobenzene	ND	1.0	0.1
Hexachlorobutadiene	ND	1.0	0.1
Naphthalene	ND	1.0	0.1
1,2,3-Trichlorobenzene	ND	1.0	0.1

Tentatively Identified Compounds

No TICs found.

Surrogate	%REC	Limits
Dibromofluoromethane	107	80-128
1,2-Dichloroethane-d4	122	75-139
Toluene-d8	101	80-120
Bromofluorobenzene	107	80-120

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	234049
Units:	ug/L	Analyzed:	04/13/16
Diln Fac:	1.000		

Type: BS Lab ID: QC831376

Analyte	Spiked	Result	%REC	Limits
Freon 12	10.00	8.164	82	45-131
Chloromethane	10.00	5.996 b	60	48-133
Vinyl Chloride	10.00	9.207	92	63-132
Bromomethane	10.00	18.84 b	188 *	38-161
Chloroethane	10.00	9.826	98	62-131
Trichlorofluoromethane	10.00	9.821	98	64-137
Acetone	12.50	16.83	135	46-151
Freon 113	12.50	11.08	89	61-138
1,1-Dichloroethene	12.50	12.56	100	66-135
Methylene Chloride	12.50	12.64	101	74-131
Carbon Disulfide	12.50	14.32	115	63-150
MTBE	12.50	11.68	93	65-120
trans-1,2-Dichloroethene	12.50	11.95	96	72-134
Vinyl Acetate	12.50	13.78	110	60-194
1,1-Dichloroethane	12.50	12.58	101	68-127
2-Butanone	12.50	14.67	117	50-141
cis-1,2-Dichloroethene	12.50	13.27	106	73-129
2,2-Dichloropropane	12.50	13.89	111	72-146
Chloroform	12.50	12.31	98	73-126
Bromochloromethane	12.50	13.87	111	78-127
1,1,1-Trichloroethane	12.50	12.17	97	72-134
1,1-Dichloropropene	12.50	10.44	84	79-135
Carbon Tetrachloride	12.50	11.11	89	72-142
1,2-Dichloroethane	12.50	11.72	94	74-133
Benzene	12.50	11.92	95	80-123
Trichloroethene	12.50	11.22	90	80-123
1,2-Dichloropropane	12.50	11.61	93	74-120
Bromodichloromethane	12.50	11.46	92	79-121
Dibromomethane	12.50	12.09	97	80-120
4-Methyl-2-Pentanone	12.50	10.81	87	57-129
cis-1,3-Dichloropropene	12.50	12.60	101	80-130
Toluene	12.50	11.17	89	80-121
trans-1,3-Dichloropropene	12.50	11.68	93	76-122
1,1,2-Trichloroethane	12.50	11.13	89	80-120
2-Hexanone	12.50	12.51	100	49-136
1,3-Dichloropropane	12.50	11.83	95	80-120
Tetrachloroethene	12.50	10.75	86	78-130
Dibromochloromethane	12.50	11.32	91	80-123
1,2-Dibromoethane	12.50	10.94	88	80-120
Chlorobenzene	12.50	11.36	91	80-123
1,1,1,2-Tetrachloroethane	12.50	11.00	88	80-124
Ethylbenzene	12.50	11.16	89	80-123
m,p-Xylenes	25.00	22.62	90	80-126
o-Xylene	12.50	11.07	89	80-126
Styrene	12.50	11.73	94	80-122
Bromoform	12.50	11.87	95	72-132
Isopropylbenzene	12.50	11.25	90	79-130
1,1,2,2-Tetrachloroethane	12.50	11.78	94	72-129
1,2,3-Trichloropropane	12.50	11.19	90	72-124
Propylbenzene	12.50	11.12	89	79-128

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

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	234049
Units:	ug/L	Analyzed:	04/13/16
Diln Fac:	1.000		

Analyte	Spiked	Result	%REC	Limits
Bromobenzene	12.50	11.10	89	80-122
1,3,5-Trimethylbenzene	12.50	11.73	94	80-129
2-Chlorotoluene	12.50	11.40	91	80-130
4-Chlorotoluene	12.50	11.59	93	79-125
tert-Butylbenzene	12.50	11.32	91	79-130
1,2,4-Trimethylbenzene	12.50	11.51	92	78-124
sec-Butylbenzene	12.50	11.44	92	79-134
para-Isopropyl Toluene	12.50	11.62	93	74-125
1,3-Dichlorobenzene	12.50	11.46	92	80-124
1,4-Dichlorobenzene	12.50	11.63	93	80-121
n-Butylbenzene	12.50	11.83	95	69-135
1,2-Dichlorobenzene	12.50	11.59	93	80-123
1,2-Dibromo-3-Chloropropane	12.50	10.82	87	59-125
1,2,4-Trichlorobenzene	12.50	9.853	79	66-133
Hexachlorobutadiene	12.50	10.36	83	70-152
Naphthalene	12.50	9.348	75	53-139
1,2,3-Trichlorobenzene	12.50	10.20	82	64-134

Surrogate	%REC	Limits
Dibromofluoromethane	108	80-128
1,2-Dichloroethane-d4	99	75-139
Toluene-d8	97	80-120
Bromofluorobenzene	98	80-120

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

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	234049
Units:	ug/L	Analyzed:	04/13/16
Diln Fac:	1.000		

Type: BSD Lab ID: QC831377

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Freon 12	10.00	8.281	83	45-131	1	29
Chloromethane	10.00	5.912 b	59	48-133	1	25
Vinyl Chloride	10.00	9.291	93	63-132	1	23
Bromomethane	10.00	18.00 b	180 *	38-161	5	32
Chloroethane	10.00	9.963	100	62-131	1	24
Trichlorofluoromethane	10.00	9.883	99	64-137	1	23
Acetone	12.50	19.48	156 *	46-151	15	29
Freon 113	12.50	10.96	88	61-138	1	25
1,1-Dichloroethene	12.50	12.49	100	66-135	1	24
Methylene Chloride	12.50	12.68	101	74-131	0	21
Carbon Disulfide	12.50	14.29	114	63-150	0	25
MTBE	12.50	12.44	100	65-120	6	22
trans-1,2-Dichloroethene	12.50	12.16	97	72-134	2	22
Vinyl Acetate	12.50	14.69	118	60-194	6	25
1,1-Dichloroethane	12.50	12.55	100	68-127	0	21
2-Butanone	12.50	15.82	127	50-141	8	24
cis-1,2-Dichloroethene	12.50	13.30	106	73-129	0	20
2,2-Dichloropropane	12.50	13.52	108	72-146	3	24
Chloroform	12.50	12.27	98	73-126	0	20
Bromochloromethane	12.50	14.08	113	78-127	2	20
1,1,1-Trichloroethane	12.50	11.82	95	72-134	3	22
1,1-Dichloropropene	12.50	9.981	80	79-135	4	23
Carbon Tetrachloride	12.50	10.51	84	72-142	6	22
1,2-Dichloroethane	12.50	11.69	94	74-133	0	20
Benzene	12.50	11.59	93	80-123	3	20
Trichloroethene	12.50	10.80	86	80-123	4	20
1,2-Dichloropropane	12.50	11.31	90	74-120	3	20
Bromodichloromethane	12.50	11.42	91	79-121	0	20
Dibromomethane	12.50	11.66	93	80-120	4	20
4-Methyl-2-Pentanone	12.50	11.31	90	57-129	4	23
cis-1,3-Dichloropropene	12.50	12.41	99	80-130	1	20
Toluene	12.50	10.84	87	80-121	3	20
trans-1,3-Dichloropropene	12.50	11.46	92	76-122	2	20
1,1,2-Trichloroethane	12.50	10.93	87	80-120	2	20
2-Hexanone	12.50	13.00	104	49-136	4	24
1,3-Dichloropropane	12.50	11.48	92	80-120	3	20
Tetrachloroethene	12.50	9.939	80	78-130	8	21
Dibromochloromethane	12.50	10.97	88	80-123	3	20
1,2-Dibromoethane	12.50	11.04	88	80-120	1	20
Chlorobenzene	12.50	10.87	87	80-123	4	20
1,1,1,2-Tetrachloroethane	12.50	10.89	87	80-124	1	20
Ethylbenzene	12.50	10.83	87	80-123	3	21
m,p-Xylenes	25.00	21.94	88	80-126	3	21
o-Xylene	12.50	10.59	85	80-126	4	20
Styrene	12.50	11.18	89	80-122	5	20
Bromoform	12.50	11.62	93	72-132	2	20
Isopropylbenzene	12.50	10.89	87	79-130	3	21
1,1,2,2-Tetrachloroethane	12.50	11.86	95	72-129	1	20
1,2,3-Trichloropropane	12.50	11.02	88	72-124	2	22
Propylbenzene	12.50	10.85	87	79-128	2	21

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

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	234049
Units:	ug/L	Analyzed:	04/13/16
Diln Fac:	1.000		

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Bromobenzene	12.50	10.91	87	80-122	2	20
1,3,5-Trimethylbenzene	12.50	11.42	91	80-129	3	20
2-Chlorotoluene	12.50	11.15	89	80-130	2	20
4-Chlorotoluene	12.50	11.40	91	79-125	2	20
tert-Butylbenzene	12.50	10.91	87	79-130	4	23
1,2,4-Trimethylbenzene	12.50	11.08	89	78-124	4	22
sec-Butylbenzene	12.50	11.01	88	79-134	4	23
para-Isopropyl Toluene	12.50	11.07	89	74-125	5	24
1,3-Dichlorobenzene	12.50	10.98	88	80-124	4	20
1,4-Dichlorobenzene	12.50	11.28	90	80-121	3	20
n-Butylbenzene	12.50	11.33	91	69-135	4	28
1,2-Dichlorobenzene	12.50	11.16	89	80-123	4	20
1,2-Dibromo-3-Chloropropane	12.50	11.16	89	59-125	3	23
1,2,4-Trichlorobenzene	12.50	9.441	76	66-133	4	24
Hexachlorobutadiene	12.50	9.393	75	70-152	10	26
Naphthalene	12.50	8.860	71	53-139	5	25
1,2,3-Trichlorobenzene	12.50	9.235	74	64-134	10	25

Surrogate	%REC	Limits
Dibromofluoromethane	109	80-128
1,2-Dichloroethane-d4	101	75-139
Toluene-d8	96	80-120
Bromofluorobenzene	99	80-120

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

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Type:	BLANK	Dil'n Fac:	1.000
Lab ID:	QC831378	Batch#:	234049
Matrix:	Water	Analyzed:	04/13/16
Units:	ug/L		

Analyte	Result	RL	MDL
Freon 12	ND	1.0	0.1
Chloromethane	ND	1.0	0.1
Vinyl Chloride	ND	1.0	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.1
Trichlorofluoromethane	ND	1.0	0.1
Acetone	ND	10	3.3
Freon 113	ND	5.0	0.1
1,1-Dichloroethene	ND	1.0	0.1
Methylene Chloride	ND	10	0.1
Carbon Disulfide	ND	1.0	0.1
MTBE	ND	1.0	0.1
trans-1,2-Dichloroethene	ND	1.0	0.1
Vinyl Acetate	ND	10	0.3
1,1-Dichloroethane	ND	1.0	0.1
2-Butanone	ND	10	0.3
cis-1,2-Dichloroethene	ND	1.0	0.1
2,2-Dichloropropane	ND	1.0	0.1
Chloroform	ND	1.0	0.1
Bromochloromethane	ND	1.0	0.2
1,1,1-Trichloroethane	ND	1.0	0.1
1,1-Dichloropropene	ND	1.0	0.1
Carbon Tetrachloride	ND	1.0	0.1
1,2-Dichloroethane	ND	1.0	0.1
Benzene	ND	1.0	0.1
Trichloroethene	ND	1.0	0.1
1,2-Dichloropropane	ND	1.0	0.1
Bromodichloromethane	ND	1.0	0.1
Dibromomethane	ND	1.0	0.1
4-Methyl-2-Pentanone	ND	10	0.2
cis-1,3-Dichloropropene	ND	1.0	0.1
Toluene	ND	1.0	0.1
trans-1,3-Dichloropropene	ND	1.0	0.1
1,1,2-Trichloroethane	ND	1.0	0.1
2-Hexanone	ND	10	0.2
1,3-Dichloropropane	ND	1.0	0.1
Tetrachloroethene	ND	1.0	0.1
Dibromochloromethane	ND	1.0	0.1
1,2-Dibromoethane	ND	1.0	0.1
Chlorobenzene	ND	1.0	0.1
1,1,1,2-Tetrachloroethane	ND	1.0	0.1
Ethylbenzene	ND	1.0	0.1
m,p-Xylenes	ND	1.0	0.1
o-Xylene	ND	1.0	0.1
Styrene	ND	1.0	0.2
Bromoform	ND	1.0	0.1
Isopropylbenzene	ND	1.0	0.1
1,1,2,2-Tetrachloroethane	ND	1.0	0.1
1,2,3-Trichloropropane	ND	1.0	0.1
Propylbenzene	ND	1.0	0.1
Bromobenzene	ND	1.0	0.1
1,3,5-Trimethylbenzene	ND	1.0	0.1
2-Chlorotoluene	ND	1.0	0.1

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC831378	Batch#:	234049
Matrix:	Water	Analyzed:	04/13/16
Units:	ug/L		

Analyte	Result	RL	MDL
4-Chlorotoluene	ND	1.0	0.1
tert-Butylbenzene	ND	1.0	0.1
1,2,4-Trimethylbenzene	ND	1.0	0.1
sec-Butylbenzene	ND	1.0	0.1
para-Isopropyl Toluene	ND	1.0	0.1
1,3-Dichlorobenzene	ND	1.0	0.1
1,4-Dichlorobenzene	ND	1.0	0.1
n-Butylbenzene	ND	1.0	0.1
1,2-Dichlorobenzene	ND	1.0	0.1
1,2-Dibromo-3-Chloropropane	ND	1.0	0.3
1,2,4-Trichlorobenzene	ND	1.0	0.1
Hexachlorobutadiene	ND	1.0	0.2
Naphthalene	ND	1.0	0.3
1,2,3-Trichlorobenzene	ND	1.0	0.1

Tentatively Identified Compounds

No TICs found.

Surrogate	%REC	Limits
Dibromofluoromethane	111	80-128
1,2-Dichloroethane-d4	101	75-139
Toluene-d8	102	80-120
Bromofluorobenzene	106	80-120

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	234168
Units:	ug/L	Analyzed:	04/17/16
Diln Fac:	1.000		

Type: BS Lab ID: QC831857

Analyte	Spiked	Result	%REC	Limits
Freon 12	10.00	9.666	97	45-131
Chloromethane	10.00	10.41	104	48-133
Vinyl Chloride	10.00	10.50	105	63-132
Bromomethane	10.00	11.49	115	38-161
Chloroethane	10.00	10.57	106	62-131
Trichlorofluoromethane	10.00	9.590	96	64-137
Acetone	12.50	17.43	139	46-151
Freon 113	12.50	9.779	78	61-138
1,1-Dichloroethene	12.50	11.89	95	66-135
Methylene Chloride	12.50	13.11	105	74-131
Carbon Disulfide	12.50	12.71	102	63-150
MTBE	12.50	12.27	98	65-120
trans-1,2-Dichloroethene	12.50	12.00	96	72-134
Vinyl Acetate	12.50	15.39	123	60-194
1,1-Dichloroethane	12.50	12.38	99	68-127
2-Butanone	12.50	15.71	126	50-141
cis-1,2-Dichloroethene	12.50	12.64	101	73-129
2,2-Dichloropropane	12.50	15.14	121	72-146
Chloroform	12.50	12.34	99	73-126
Bromochloromethane	12.50	12.75	102	78-127
1,1,1-Trichloroethane	12.50	11.89	95	72-134
1,1-Dichloropropene	12.50	10.61	85	79-135
Carbon Tetrachloride	12.50	10.99	88	72-142
1,2-Dichloroethane	12.50	11.90	95	74-133
Benzene	12.50	12.18	97	80-123
Trichloroethene	12.50	11.22	90	80-123
1,2-Dichloropropane	12.50	11.79	94	74-120
Bromodichloromethane	12.50	12.49	100	79-121
Dibromomethane	12.50	12.31	98	80-120
4-Methyl-2-Pentanone	12.50	12.60	101	57-129
cis-1,3-Dichloropropene	12.50	13.12	105	80-130
Toluene	12.50	13.22	106	80-121
trans-1,3-Dichloropropene	12.50	13.92	111	76-122
1,1,2-Trichloroethane	12.50	14.41	115	80-120
2-Hexanone	12.50	15.25	122	49-136

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	234168
Units:	ug/L	Analyzed:	04/17/16
Diln Fac:	1.000		

Analyte	Spiked	Result	%REC	Limits
1,3-Dichloropropane	12.50	14.11	113	80-120
Tetrachloroethene	12.50	12.50	100	78-130
Dibromochloromethane	12.50	12.59	101	80-123
1,2-Dibromoethane	12.50	13.37	107	80-120
Chlorobenzene	12.50	13.13	105	80-123
1,1,1,2-Tetrachloroethane	12.50	13.04	104	80-124
Ethylbenzene	12.50	12.76	102	80-123
m,p-Xylenes	25.00	26.30	105	80-126
o-Xylene	12.50	12.94	103	80-126
Styrene	12.50	13.45	108	80-122
Bromoform	12.50	12.20	98	72-132
Isopropylbenzene	12.50	13.02	104	79-130
1,1,2,2-Tetrachloroethane	12.50	14.32	115	72-129
1,2,3-Trichloropropane	12.50	13.74	110	72-124
Propylbenzene	12.50	12.47	100	79-128
Bromobenzene	12.50	12.73	102	80-122
1,3,5-Trimethylbenzene	12.50	13.71	110	80-129
2-Chlorotoluene	12.50	13.48	108	80-130
4-Chlorotoluene	12.50	13.43	107	79-125
tert-Butylbenzene	12.50	12.68	101	79-130
1,2,4-Trimethylbenzene	12.50	12.99	104	78-124
sec-Butylbenzene	12.50	13.29	106	79-134
para-Isopropyl Toluene	12.50	12.91	103	74-125
1,3-Dichlorobenzene	12.50	13.07	105	80-124
1,4-Dichlorobenzene	12.50	12.91	103	80-121
n-Butylbenzene	12.50	13.91	111	69-135
1,2-Dichlorobenzene	12.50	13.62	109	80-123
1,2-Dibromo-3-Chloropropane	12.50	12.60	101	59-125
1,2,4-Trichlorobenzene	12.50	12.60	101	66-133
Hexachlorobutadiene	12.50	13.08	105	70-152
Naphthalene	12.50	12.66	101	53-139
1,2,3-Trichlorobenzene	12.50	12.69	102	64-134

Surrogate	%REC	Limits
Dibromofluoromethane	92	80-128
1,2-Dichloroethane-d4	93	75-139
Toluene-d8	103	80-120
Bromofluorobenzene	101	80-120

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	234168
Units:	ug/L	Analyzed:	04/17/16
Diln Fac:	1.000		

Type: BSD Lab ID: QC831858

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Freon 12	10.00	8.050	81	45-131	18	29
Chloromethane	10.00	8.193	82	48-133	24	25
Vinyl Chloride	10.00	9.161	92	63-132	14	23
Bromomethane	10.00	9.571	96	38-161	18	32
Chloroethane	10.00	8.747	87	62-131	19	24
Trichlorofluoromethane	10.00	8.883	89	64-137	8	23
Acetone	12.50	15.64	125	46-151	11	29
Freon 113	12.50	9.376	75	61-138	4	25
1,1-Dichloroethene	12.50	11.67	93	66-135	2	24
Methylene Chloride	12.50	10.76	86	74-131	20	21
Carbon Disulfide	12.50	11.64	93	63-150	9	25
MTBE	12.50	11.04	88	65-120	11	22
trans-1,2-Dichloroethene	12.50	10.76	86	72-134	11	22
Vinyl Acetate	12.50	13.28	106	60-194	15	25
1,1-Dichloroethane	12.50	11.44	92	68-127	8	21
2-Butanone	12.50	13.26	106	50-141	17	24
cis-1,2-Dichloroethene	12.50	11.27	90	73-129	11	20
2,2-Dichloropropane	12.50	13.35	107	72-146	13	24
Chloroform	12.50	10.81	86	73-126	13	20
Bromochloromethane	12.50	10.90	87	78-127	16	20
1,1,1-Trichloroethane	12.50	11.28	90	72-134	5	22
1,1-Dichloropropene	12.50	10.57	85	79-135	0	23
Carbon Tetrachloride	12.50	11.23	90	72-142	2	22
1,2-Dichloroethane	12.50	10.80	86	74-133	10	20
Benzene	12.50	12.08	97	80-123	1	20
Trichloroethene	12.50	11.44	92	80-123	2	20
1,2-Dichloropropane	12.50	11.03	88	74-120	7	20
Bromodichloromethane	12.50	11.10	89	79-121	12	20
Dibromomethane	12.50	11.56	92	80-120	6	20
4-Methyl-2-Pentanone	12.50	12.83	103	57-129	2	23
cis-1,3-Dichloropropene	12.50	12.53	100	80-130	5	20
Toluene	12.50	12.68	101	80-121	4	20
trans-1,3-Dichloropropene	12.50	12.16	97	76-122	14	20
1,1,2-Trichloroethane	12.50	12.96	104	80-120	11	20
2-Hexanone	12.50	14.88	119	49-136	2	24

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	234168
Units:	ug/L	Analyzed:	04/17/16
Diln Fac:	1.000		

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,3-Dichloropropane	12.50	12.72	102	80-120	10	20
Tetrachloroethene	12.50	12.89	103	78-130	3	21
Dibromochloromethane	12.50	11.25	90	80-123	11	20
1,2-Dibromoethane	12.50	12.39	99	80-120	8	20
Chlorobenzene	12.50	12.46	100	80-123	5	20
1,1,1,2-Tetrachloroethane	12.50	11.94	96	80-124	9	20
Ethylbenzene	12.50	13.02	104	80-123	2	21
m,p-Xylenes	25.00	23.81	95	80-126	10	21
o-Xylene	12.50	12.16	97	80-126	6	20
Styrene	12.50	12.54	100	80-122	7	20
Bromoform	12.50	12.09	97	72-132	1	20
Isopropylbenzene	12.50	13.96	112	79-130	7	21
1,1,2,2-Tetrachloroethane	12.50	14.49	116	72-129	1	20
1,2,3-Trichloropropane	12.50	14.08	113	72-124	2	22
Propylbenzene	12.50	13.70	110	79-128	9	21
Bromobenzene	12.50	13.75	110	80-122	8	20
1,3,5-Trimethylbenzene	12.50	14.59	117	80-129	6	20
2-Chlorotoluene	12.50	14.00	112	80-130	4	20
4-Chlorotoluene	12.50	13.82	111	79-125	3	20
tert-Butylbenzene	12.50	13.31	106	79-130	5	23
1,2,4-Trimethylbenzene	12.50	13.26	106	78-124	2	22
sec-Butylbenzene	12.50	13.67	109	79-134	3	23
para-Isopropyl Toluene	12.50	14.07	113	74-125	9	24
1,3-Dichlorobenzene	12.50	13.22	106	80-124	1	20
1,4-Dichlorobenzene	12.50	12.97	104	80-121	0	20
n-Butylbenzene	12.50	13.92	111	69-135	0	28
1,2-Dichlorobenzene	12.50	13.29	106	80-123	2	20
1,2-Dibromo-3-Chloropropane	12.50	14.29	114	59-125	13	23
1,2,4-Trichlorobenzene	12.50	12.66	101	66-133	0	24
Hexachlorobutadiene	12.50	14.45	116	70-152	10	26
Naphthalene	12.50	12.79	102	53-139	1	25
1,2,3-Trichlorobenzene	12.50	12.91	103	64-134	2	25

Surrogate	%REC	Limits
Dibromofluoromethane	87	80-128
1,2-Dichloroethane-d4	86	75-139
Toluene-d8	103	80-120
Bromofluorobenzene	106	80-120

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Type:	BLANK	Dil'n Fac:	1.000
Lab ID:	QC831859	Batch#:	234168
Matrix:	Water	Analyzed:	04/17/16
Units:	ug/L		

Analyte	Result	RL	MDL
Freon 12	ND	1.0	0.1
Chloromethane	ND	1.0	0.3
Vinyl Chloride	ND	1.0	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.3
Trichlorofluoromethane	ND	1.0	0.2
Acetone	ND	10	3.3
Freon 113	ND	5.0	0.1
1,1-Dichloroethene	ND	1.0	0.2
Methylene Chloride	ND	10	0.2
Carbon Disulfide	ND	1.0	0.1
MTBE	ND	1.0	0.1
trans-1,2-Dichloroethene	ND	1.0	0.2
Vinyl Acetate	ND	10	1.1
1,1-Dichloroethane	ND	1.0	0.2
2-Butanone	ND	10	0.5
cis-1,2-Dichloroethene	ND	1.0	0.1
2,2-Dichloropropane	ND	1.0	0.1
Chloroform	ND	1.0	0.1
Bromochloromethane	ND	1.0	0.1
1,1,1-Trichloroethane	ND	1.0	0.1
1,1-Dichloropropene	ND	1.0	0.1
Carbon Tetrachloride	ND	1.0	0.1
1,2-Dichloroethane	ND	1.0	0.1
Benzene	ND	1.0	0.1
Trichloroethene	ND	1.0	0.1
1,2-Dichloropropane	ND	1.0	0.1
Bromodichloromethane	ND	1.0	0.1
Dibromomethane	ND	1.0	0.1
4-Methyl-2-Pentanone	ND	10	0.7
cis-1,3-Dichloropropene	ND	1.0	0.1
Toluene	ND	1.0	0.1
trans-1,3-Dichloropropene	ND	1.0	0.1
1,1,2-Trichloroethane	ND	1.0	0.2
2-Hexanone	ND	10	0.5
1,3-Dichloropropane	ND	1.0	0.1
Tetrachloroethene	ND	1.0	0.1
Dibromochloromethane	ND	1.0	0.1
1,2-Dibromoethane	ND	1.0	0.1
Chlorobenzene	ND	1.0	0.1
1,1,1,2-Tetrachloroethane	ND	1.0	0.1
Ethylbenzene	ND	1.0	0.1
m,p-Xylenes	ND	1.0	0.1
o-Xylene	ND	1.0	0.1
Styrene	ND	1.0	0.1
Bromoform	ND	1.0	0.1
Isopropylbenzene	ND	1.0	0.1
1,1,2,2-Tetrachloroethane	ND	1.0	0.1
1,2,3-Trichloropropane	ND	1.0	0.2
Propylbenzene	ND	1.0	0.1
Bromobenzene	ND	1.0	0.1
1,3,5-Trimethylbenzene	ND	1.0	0.1
2-Chlorotoluene	ND	1.0	0.1

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC831859	Batch#:	234168
Matrix:	Water	Analyzed:	04/17/16
Units:	ug/L		

Analyte	Result	RL	MDL
4-Chlorotoluene	ND	1.0	0.1
tert-Butylbenzene	ND	1.0	0.1
1,2,4-Trimethylbenzene	ND	1.0	0.1
sec-Butylbenzene	ND	1.0	0.1
para-Isopropyl Toluene	ND	1.0	0.1
1,3-Dichlorobenzene	ND	1.0	0.1
1,4-Dichlorobenzene	ND	1.0	0.1
n-Butylbenzene	ND	1.0	0.1
1,2-Dichlorobenzene	ND	1.0	0.1
1,2-Dibromo-3-Chloropropane	ND	1.0	0.3
1,2,4-Trichlorobenzene	ND	1.0	0.1
Hexachlorobutadiene	ND	1.0	0.1
Naphthalene	ND	1.0	0.1
1,2,3-Trichlorobenzene	ND	1.0	0.1

Tentatively Identified Compounds

No TICs found.

Surrogate	%REC	Limits
Dibromofluoromethane	89	80-128
1,2-Dichloroethane-d4	92	75-139
Toluene-d8	98	80-120
Bromofluorobenzene	101	80-120

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

CURTIS & TOMPKINS BFB TUNE FOR 275719 MSVOA Water
EPA 8260B

Inst : MSVOA06 Run Name : BFB IDF : 1.0
Seqnum : 456138592013 File : fd513 Time : 05-APR-2016 17:48

Standards: S29058

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
50	15% - 40% of mass 95	44442	20.46	
75	30% - 60% of mass 95	99957	46.01	
95		217237	100.00	
96	5% - 9% of mass 95	14656	6.75	
173	< 2% of mass 174	0	0.00	
174	> 50% and < 100% of mass 95	196650	90.52	
175	5% - 9% of mass 174	15812	8.04	
176	> 95% and < 101% of mass 174	192960	98.12	
177	5% - 9% of mass 176	12401	6.43	

Analyst: MCT Date: 04/07/16 Reviewer: LW Date: 04/07/16

CURTIS & TOMPKINS BFB TUNE FOR 275719 MSVOA Water
EPA 8260B

Inst : MSVOA06 Run Name : BFB IDF : 1.0
Seqnum : 456141494003 File : fd703 Time : 07-APR-2016 07:19

Standards: S29058

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
50	15% - 40% of mass 95	25384	23.29	
75	30% - 60% of mass 95	55464	50.89	
95		108986	100.00	
96	5% - 9% of mass 95	7441	6.83	
173	< 2% of mass 174	0	0.00	
174	> 50% and < 100% of mass 95	85397	78.36	
175	5% - 9% of mass 174	6874	8.05	
176	> 95% and < 101% of mass 174	85973	100.67	
177	5% - 9% of mass 176	5540	6.44	

Analyst: MCT Date: 04/07/16 Reviewer: LW Date: 04/07/16

CURTIS & TOMPKINS BFB TUNE FOR 275719 MSVOA Water
EPA 8260B

Inst : MSVOA06 Run Name : BFB IDF : 1.0
Seqnum : 456146518002 File : fda02 Time : 10-APR-2016 18:49

Standards: S29058

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
50	15% - 40% of mass 95	40765	25.60	
75	30% - 60% of mass 95	86400	54.27	
95		159210	100.00	
96	5% - 9% of mass 95	10134	6.37	
173	< 2% of mass 174	0	0.00	
174	> 50% and < 100% of mass 95	119653	75.15	
175	5% - 9% of mass 174	9839	8.22	
176	> 95% and < 101% of mass 174	115813	96.79	
177	5% - 9% of mass 176	7448	6.43	

Analyst: MCT Date: 04/11/16 Reviewer: LW Date: 04/12/16

CURTIS & TOMPKINS BFB TUNE FOR 275719 MSVOA Water
EPA 8260B

Inst : MSVOA08 Run Name : BFB IDF : 1.0
Seqnum : 476138895001 File : hd501 Time : 05-APR-2016 10:55

Standards: S29058

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
50	15% - 40% of mass 95	6620	22.99	
75	30% - 60% of mass 95	13286	46.14	
95		28792	100.00	
96	5% - 9% of mass 95	1802	6.26	
173	< 2% of mass 174	0	0.00	
174	> 50% and < 100% of mass 95	23522	81.70	
175	5% - 9% of mass 174	1845	7.84	
176	> 95% and < 101% of mass 174	23157	98.45	
177	5% - 9% of mass 176	1806	7.80	

Analyst: DAR Date: 04/07/16 Reviewer: LW Date: 04/07/16

CURTIS & TOMPKINS BFB TUNE FOR 275719 MSVOA Water
EPA 8260B

Inst : MSVOA08 Run Name : BFB IDF : 1.0
Seqnum : 476140541004 File : hd604 Time : 06-APR-2016 17:03

Standards: S29058

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
50	15% - 40% of mass 95	6450	24.27	
75	30% - 60% of mass 95	13487	50.74	
95		26581	100.00	
96	5% - 9% of mass 95	1789	6.73	
173	< 2% of mass 174	0	0.00	
174	> 50% and < 100% of mass 95	22722	85.48	
175	5% - 9% of mass 174	1624	7.15	
176	> 95% and < 101% of mass 174	22306	98.17	
177	5% - 9% of mass 176	1519	6.81	

Analyst: DAR Date: 04/07/16 Reviewer: LW Date: 04/07/16

CURTIS & TOMPKINS BFB TUNE FOR 275719 MSVOA Water
EPA 8260B

Inst : MSVOA08 Run Name : BFB IDF : 1.0
Seqnum : 476156274003 File : hdh03 Time : 17-APR-2016 14:39

Standards: S29058

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
50	15% - 40% of mass 95	10332	23.73	
75	30% - 60% of mass 95	20218	46.43	
95		43544	100.00	
96	5% - 9% of mass 95	2863	6.57	
173	< 2% of mass 174	182	0.52	
174	> 50% and < 100% of mass 95	34904	80.16	
175	5% - 9% of mass 174	2510	7.19	
176	> 95% and < 101% of mass 174	33837	96.94	
177	5% - 9% of mass 176	2103	6.22	

Analyst: KKM Date: 04/18/16 Reviewer: LW Date: 04/18/16

CURTIS & TOMPKINS BFB TUNE FOR 275719 MSVOA Water
EPA 8260B

Inst : MSVOA09 Run Name : BFB IDF : 1.0
Seqnum : 486100040006 File : ic906 Time : 09-MAR-2016 14:17

Standards: S29058

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
50	15% - 40% of mass 95	16868	22.88	
75	30% - 60% of mass 95	34221	46.42	
95		73720	100.00	
96	5% - 9% of mass 95	4845	6.57	
173	< 2% of mass 174	0	0.00	
174	> 50% and < 100% of mass 95	48202	65.39	
175	5% - 9% of mass 174	3501	7.26	
176	> 95% and < 101% of mass 174	46181	95.81	
177	5% - 9% of mass 176	3196	6.92	

Analyst: NJT Date: 03/10/16 Reviewer: LW Date: 03/16/16

CURTIS & TOMPKINS BFB TUNE FOR 275719 MSVOA Water
EPA 8260B

Inst : MSVOA09 Run Name : BFB IDF : 1.0
Seqnum : 486101497002 File : ica02 Time : 10-MAR-2016 14:39

Standards: S29058

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
50	15% - 40% of mass 95	18480	21.80	
75	30% - 60% of mass 95	38744	45.70	
95		84784	100.00	
96	5% - 9% of mass 95	5580	6.58	
173	< 2% of mass 174	0	0.00	
174	> 50% and < 100% of mass 95	57240	67.51	
175	5% - 9% of mass 174	4349	7.60	
176	> 95% and < 101% of mass 174	55520	97.00	
177	5% - 9% of mass 176	3701	6.67	

Analyst: NJT Date: 03/10/16 Reviewer: LW Date: 03/16/16

CURTIS & TOMPKINS BFB TUNE FOR 275719 MSVOA Water
EPA 8260B

Inst : MSVOA09 Run Name : BFB IDF : 1.0
Seqnum : 486149016006 File : idc06 Time : 12-APR-2016 15:19

Standards: S29058

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
50	15% - 40% of mass 95	14324	28.60	
75	30% - 60% of mass 95	26698	53.31	
95		50085	100.00	
96	5% - 9% of mass 95	3564	7.12	
173	< 2% of mass 174	0	0.00	
174	> 50% and < 100% of mass 95	26911	53.73	
175	5% - 9% of mass 174	2133	7.93	
176	> 95% and < 101% of mass 174	25985	96.56	
177	5% - 9% of mass 176	1746	6.72	

Analyst: NJT Date: 04/13/16 Reviewer: LW Date: 04/13/16

CURTIS & TOMPKINS BFB TUNE FOR 275719 MSVOA Water
EPA 8260B

Inst : MSVOA11 Run Name : BFB IDF : 1.0
Seqnum : 836098562007 File : kc807 Time : 08-MAR-2016 18:13

Standards: S29058

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
50	15% - 40% of mass 95	3959	22.07	
75	30% - 60% of mass 95	9246	51.54	
95		17940	100.00	
96	5% - 9% of mass 95	1105	6.16	
173	< 2% of mass 174	118	0.88	
174	> 50% and < 100% of mass 95	13373	74.54	
175	5% - 9% of mass 174	1112	8.32	
176	> 95% and < 101% of mass 174	13346	99.80	
177	5% - 9% of mass 176	897	6.72	

Analyst: DAR Date: 03/10/16 Reviewer: LW Date: 03/14/16

CURTIS & TOMPKINS BFB TUNE FOR 275719 MSVOA Water
EPA 8260B

Inst : MSVOA11 Run Name : BFB IDF : 1.0
Seqnum : 836100345004 File : kc904 Time : 09-MAR-2016 17:49

Standards: S29058

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
50	15% - 40% of mass 95	4702	20.26	
75	30% - 60% of mass 95	12094	52.12	
95		23203	100.00	
96	5% - 9% of mass 95	1729	7.45	
173	< 2% of mass 174	87	0.46	
174	> 50% and < 100% of mass 95	18989	81.84	
175	5% - 9% of mass 174	1420	7.48	
176	> 95% and < 101% of mass 174	19107	100.62	
177	5% - 9% of mass 176	1264	6.62	

Analyst: DAR Date: 03/10/16 Reviewer: LW Date: 03/14/16

CURTIS & TOMPKINS BFB TUNE FOR 275719 MSVOA Water
EPA 8260B

Inst : MSVOA11 Run Name : BFB IDF : 1.0
Seqnum : 836150370003 File : kdd03 Time : 13-APR-2016 11:43

Standards: S29058

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
50	15% - 40% of mass 95	3875	23.24	
75	30% - 60% of mass 95	8829	52.95	
95		16674	100.00	
96	5% - 9% of mass 95	1034	6.20	
173	< 2% of mass 174	122	1.07	
174	> 50% and < 100% of mass 95	11398	68.36	
175	5% - 9% of mass 174	932	8.18	
176	> 95% and < 101% of mass 174	11183	98.11	
177	5% - 9% of mass 176	746	6.67	

Analyst: CAR Date: 04/14/16 Reviewer: LW Date: 04/14/16

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 275719 MSVOA Water: EPA 8260B

Inst : MSVOA06 Name : 826GOX6W
Calnum : 456138592001 Date : 05-APR-2016 21:30 Type : WATER
Units : ug/L X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	fd520	456138592020		05-APR-2016 21:30	S29228 (2000000X), S29427 (2000000X), S28620 (2000000X), S28142 (1000000X), S29263 (5000X)
L2	fd521	456138592021		05-APR-2016 22:02	S29228 (1000000X), S29427 (1000000X), S28620 (1000000X), S28142 (500000X), S29263 (5000X)
L3	fd522	456138592022		05-APR-2016 22:35	S29228 (250000X), S29427 (250000X), S28620 (500000X), S28142 (250000X), S29263 (5000X)
L4	fd523	456138592023		05-APR-2016 23:07	S29228 (100000X), S29427 (100000X), S28620 (200000X), S28142 (100000X), S29263 (5000X)
L5	fd524	456138592024		05-APR-2016 23:39	S29228 (50000X), S29427 (50000X), S28620 (100000X), S28142 (50000X), S29263 (5000X)
L6	fd525	456138592025		06-APR-2016 00:11	S29228 (25000X), S29427 (25000X), S28620 (50000X), S28142 (25000X), S29263 (5000X)
L7	fd526	456138592026		06-APR-2016 00:43	S29228 (10000X), S29427 (10000X), S28620 (20000X), S28142 (10000X), S29263 (5000X)
L8	fd527	456138592027		06-APR-2016 01:16	S29228 (6667X), S29427 (6667X), S28620 (13330X), S28142 (6667X), S29263 (5000X)
L9	fd528	456138592028		06-APR-2016 01:48	S29228 (5000X), S29427 (5000X), S28620 (10000X), S28142 (5000X), S29263 (5000X)

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Freon 12		2.1175m	2.1273m	2.0871	2.0521m	1.9317	1.7307	1.5375	1.4224	AVRG		0.53312		1.8758	15	15	0.05	0.99	
Chloromethane	1.1395m	1.2226m	1.2990m	1.1490	1.2099m	1.1533	1.1160	1.0010	0.9671m	AVRG		0.87742		1.1397	9	15	0.10	0.99	
Vinyl Chloride	0.7931m	1.1063m	1.0922m	1.0742m	1.0325	1.0434	0.9820	0.9233	0.8830	AVRG		1.00782		0.9922	11	15	0.05	0.99	
Bromomethane		0.5628m	0.5854m	0.5828	0.6806	0.6529	0.6691	0.6222	0.5893	AVRG		1.61779		0.6181	7	15	0.05	0.99	
Chloroethane		0.4918	0.5755m	0.5587m	0.5299	0.5239	0.5169	0.4924	0.4883	AVRG		1.91507		0.5222	6	15	0.05	0.99	
Trichlorofluoromethane		1.9544	2.0400m	2.0926m	1.9718	1.8533	1.6381	1.5253	1.3615	AVRG		0.55413		1.8046	15	15	0.05	0.99	
Acetone			0.5263	0.4677	0.4416	0.4322	0.3763	0.4184	0.4193	AVRG		2.27149		0.4402	11	15	0.05	0.99	
Freon 113		0.7189	0.7905	0.8619m	0.8199	0.7834	0.7070	0.7127	0.6841	AVRG		1.31613		0.7598	8	15	0.05	0.99	
1,1-Dichloroethene		0.4755	0.6056	0.6067m	0.5808	0.5424	0.5405	0.5471	0.5328	AVRG		1.80532		0.5539	8	15	0.05	0.99	
Methylene Chloride		0.7087	0.6364	0.7529	0.7634	0.6898	0.6691	0.6595	0.6421	AVRG		1.44878		0.6902	7	15	0.05	0.99	
Carbon Disulfide		2.2911	2.0422	1.9628	1.9541	1.9160	1.8132	1.8097	1.7760	AVRG		0.51397		1.9456	9	15	0.05	0.99	
MTBE		1.8524	2.0169	2.2248	2.3321	2.2198	2.1251	2.0119	1.8656	AVRG		0.48052		2.0811	8	15	0.05	0.99	
trans-1,2-Dichloroethene		0.5587	0.6134	0.6191	0.6482	0.5904	0.5635	0.5627	0.5528	AVRG		1.69894		0.5886	6	15	0.05	0.99	
Vinyl Acetate			1.4389	1.4642	1.7346	1.7872	1.8450	1.7046	1.4502	AVRG		0.61271		1.6321	11	15	0.05	0.99	
1,1-Dichloroethane		1.4378	1.5094	1.4352	1.4693	1.3706	1.2635	1.1796	1.1348	AVRG		0.74072		1.3500	10	15	0.10	0.99	
2-Butanone			0.4340	0.4982m	0.5072	0.4552	0.4616	0.5143	0.4948	AVRG		2.08003		0.4808	6	15	0.05	0.99	
2,2-Dichloropropane		1.4287	1.3647	1.3334	1.2825	1.2031	1.0553	1.0069		AVRG		0.80695		1.2392	13	15	0.05	0.99	
cis-1,2-Dichloroethene		0.6755	0.6545	0.7197	0.7274	0.6713	0.6513	0.6833	0.6473	AVRG		1.47323		0.6788	4	15	0.05	0.99	
Chloroform		1.7429	1.7467	1.7450	1.7186	1.5851	1.4688	1.3375	1.2303	AVRG		0.63618		1.5719	13	15	0.05	0.99	
Bromochloromethane		0.4085	0.3630	0.3879	0.4001	0.3851	0.3567	0.3553	0.3378	AVRG		2.67167		0.3743	7	15	0.05	0.99	
1,1,1-Trichloroethane		1.5271	1.5379	1.5480	1.5139	1.3240	1.2133	1.1416		AVRG		0.71386		1.4008	12	15	0.05	0.99	
1,1-Dichloropropene		0.6521	0.7805	0.7338	0.7047	0.7085	0.6687	0.6347	0.6116	AVRG		1.45596		0.6868	8	15	0.05	0.99	
Carbon Tetrachloride		0.7804	0.9111	0.9093	0.8982	0.8582	0.7716	0.7154	0.6551	AVRG		1.23089		0.8124	12	15	0.05	0.99	
1,2-Dichloroethane		1.1872	1.0895	1.0469	1.0998	1.0050	0.8527	0.7945		AVRG		0.98931		1.0108	14	15	0.05	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Benzene		1.5242	1.5710	1.5098	1.4935	1.5274	1.4196	1.4867	1.4791	AVRG		0.66603		1.5014	3	15	0.05	0.99	
Trichloroethene		0.5294	0.5000	0.5192	0.4674	0.4953	0.4671	0.4467	0.4497	AVRG		2.06463		0.4843	6	15	0.05	0.99	
1,2-Dichloropropane		0.4677	0.4223	0.4624	0.4449	0.4425	0.4254	0.4301	0.4081	AVRG		2.28355		0.4379	5	15	0.05	0.99	
Bromodichloromethane		0.7499	0.9168	0.8583	0.8787	0.8167	0.7603	0.7234	0.6578	AVRG		1.25746		0.7953	11	15	0.05	0.99	
Dibromomethane		0.3696	0.4694	0.4284	0.4151	0.3831	0.3553	0.3482	0.3347	AVRG		2.57743		0.3880	12	15	0.05	0.99	
4-Methyl-2-Pentanone			0.6828	0.7235	0.7130	0.6864	0.6378	0.6589	0.6333	AVRG		1.47815		0.6765	5	15	0.05	0.99	
cis-1,3-Dichloropropene		0.7167	0.7252	0.8358	0.8143	0.7528	0.7152	0.7042	0.6698	AVRG		1.34816		0.7418	8	15	0.05	0.99	
Toluene		1.0158	1.1037	1.0735	1.1255	0.9762	0.9715	1.0064	0.9284	AVRG		0.97548		1.0251	7	15	0.05	0.99	
trans-1,3-Dichloropropene		0.7666	0.8556	0.8829	0.9015	0.8310	0.8023	0.7751	0.6981	AVRG		1.22830		0.8141	8	15	0.05	0.99	
1,1,2-Trichloroethane		0.2424	0.2624	0.2708	0.2588	0.2594	0.2441	0.2496	0.2368	AVRG		3.95186		0.2530	5	15	0.05	0.99	
2-Hexanone			0.5330	0.6303	0.6060	0.6027	0.5390	0.5860	0.5315	AVRG		1.73758		0.5755	7	15	0.05	0.99	
1,3-Dichloropropane		0.5883	0.7722	0.8344	0.8006	0.7852	0.7453	0.7517	0.6750	AVRG		1.34391		0.7441	11	15	0.05	0.99	
Tetrachloroethene		0.5136	0.4977	0.5560	0.5130	0.5044	0.4962	0.5245	0.5051	AVRG		1.94627		0.5138	4	15	0.05	0.99	
Dibromochloromethane		0.6139	0.6522	0.7293	0.7114	0.7128	0.6927	0.7003	0.6302	AVRG		1.46983		0.6804	6	15	0.05	0.99	
1,2-Dibromoethane		0.6043	0.5453	0.5956	0.6054	0.5715	0.5547	0.5717	0.5178	AVRG		1.75199		0.5708	5	15	0.05	0.99	
Chlorobenzene		1.2461	1.4398	1.4633	1.3322	1.2710	1.2137	1.2412	1.1469	AVRG		0.77263		1.2943	9	15	0.30	0.99	
1,1,1,2-Tetrachloroethane		0.4997	0.5406	0.5796	0.5425	0.5380	0.5161	0.5144	0.4772	AVRG		1.90109		0.5260	6	15	0.05	0.99	
Ethylbenzene		2.3523	2.4450	2.4113	2.2816	2.2744	2.1014	2.1021	1.8316	AVRG		0.44945		2.2250	9	15	0.05	0.99	
m,p-Xylenes	0.8761	0.7991	0.8170	0.8668	0.8794	0.8027	0.7719	0.7523	0.6879	AVRG		1.24083		0.8059	8	15	0.05	0.99	
o-Xylene		0.8163	0.7708	0.7874	0.8673	0.8298	0.7948	0.7761	0.7401	AVRG		1.25340		0.7978	5	15	0.05	0.99	
Styrene		1.1761	1.2367	1.3518	1.3534	1.4225	1.3513	1.4083	1.2258	AVRG		0.76003		1.3157	7	15	0.05	0.99	
Bromoform		0.5552	0.4889	0.5256	0.5459	0.5410	0.5426	0.5473	0.4966	AVRG		1.88545		0.5304	5	15	0.10	0.99	
Isopropylbenzene		3.4774	3.2039	3.4772	3.5091	3.3663	3.1080	3.0910	3.0161	AVRG		0.30477		3.2811	6	15	0.05	0.99	
1,1,2,2-Tetrachloroethane		1.0211	0.9745	1.0123	1.0624	1.0214	1.0422	1.0872	1.0206	AVRG		0.97067		1.0302	3	15	0.30	0.99	
1,2,3-Trichloropropane		1.1203	1.0712	1.0243	1.0855	0.9765	0.9020	0.9246	0.8468	AVRG		1.00612		0.9939	10	15	0.05	0.99	
Propylbenzene		4.4379	3.9744	4.1427	4.3563	4.0667	3.6580	3.6879	3.4800	AVRG		0.25154		3.9755	9	15	0.05	0.99	
Bromobenzene		1.0422	0.9581	0.9466	0.9684	0.9288	0.9235	0.9344	0.9198	AVRG		1.04961		0.9527	4	15	0.05	0.99	
1,3,5-Trimethylbenzene		2.9253	3.0458	3.0287	2.9599	2.7890	2.7511	2.6153	2.4990	AVRG		0.35376		2.8268	7	15	0.05	0.99	
2-Chlorotoluene		3.2534	3.2670	3.2698	3.2119	2.9085	2.8306	2.6636	2.5332	AVRG		0.33420		2.9922	10	15	0.05	0.99	
4-Chlorotoluene		3.2450	2.9954	3.0527	3.2053	2.8293	2.6991	2.5733	2.3934	AVRG		0.34792		2.8742	11	15	0.05	0.99	
tert-Butylbenzene		2.3505	2.2828	2.3280	2.4225	2.3159	2.1453	2.1871	2.0080	AVRG		0.44346		2.2550	6	15	0.05	0.99	
1,2,4-Trimethylbenzene		2.9490	3.0027	3.2311	3.2587	2.8208	2.8584	2.8093	2.6881	AVRG		0.33872		2.9523	7	15	0.05	0.99	
sec-Butylbenzene		3.0632	3.3303	3.3224	3.4057	3.2876	3.0906	2.9916	2.8390	AVRG		0.31583		3.1663	6	15	0.05	0.99	
para-Isopropyl Toluene		2.5976	2.5721	2.7427	2.7853	2.6357	2.7003	2.5791	2.5080	AVRG		0.37878		2.6401	4	15	0.05	0.99	
1,3-Dichlorobenzene		1.7039	1.6554	1.7387	1.7021	1.6804	1.7056	1.6775	1.6650	AVRG		0.59134		1.6911	2	15	0.05	0.99	
1,4-Dichlorobenzene		1.7842	1.7380	1.7833	1.8199	1.7392	1.6843	1.7233	1.6731	AVRG		0.57367		1.7431	3	15	0.05	0.99	
n-Butylbenzene		2.7169	2.1740	2.4929	2.5376	2.4629	2.4122	2.3125	2.1333	AVRG		0.41575		2.4053	8	15	0.05	0.99	
1,2-Dichlorobenzene		1.3802	1.6834	1.5938	1.7614	1.6361	1.6350	1.6042	1.6024	AVRG		0.62032		1.6121	7	15	0.05	0.99	
1,2-Dibromo-3-Chloropropane		0.4748	0.3433	0.3302	0.3417	0.3296	0.3070	0.3146	0.2818	QUAD	0.36804	2.71239	0.026354	0.3404	0.997	15	0.05	0.99	
1,2,4-Trichlorobenzene		0.7788	0.8170	0.7647	0.8665	0.8955	0.8393	0.8810	0.8361	AVRG		1.19781		0.8349	6	15	0.05	0.99	
Hexachlorobutadiene		0.3562	0.3641	0.3766	0.4217	0.4037	0.3741	0.3880	0.3596	AVRG		2.62816		0.3805	6	15	0.05	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Naphthalene		2.0396	2.0900	2.2753	2.4985	2.4770	2.2462	2.4993	2.2484	AVRG		0.43539		2.2968	8	15	0.05	0.99	
1,2,3-Trichlorobenzene		0.5529	0.5554	0.6560	0.7056	0.6711	0.6734	0.7603	0.6771	AVRG		1.52331		0.6565	11	15	0.05	0.99	
Dibromofluoromethane	0.7092	0.7236	0.7221	0.7238	0.7257	0.7091	0.6716	0.6276	0.5923	AVRG		1.45046		0.6894	7	15	0.05	0.99	
1,2-Dichloroethane-d4	0.6923	0.6663	0.6825	0.6627	0.6566	0.6272	0.5556	0.5039	0.4513	AVRG		1.63684		0.6109	14	15	0.05	0.99	
Toluene-d8	1.2031	1.2051	1.1895	1.2249	1.2049	1.2269	1.1871	1.1504	1.1427	AVRG		0.83841		1.1927	2	15	0.05	0.99	
Bromofluorobenzene	1.0785	1.0913	1.0656	1.0495	1.0487	1.0007	0.9934	0.9415	0.9109	AVRG		0.98038		1.0200	6	15	0.05	0.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
Freon 12			1.0000	13	2.0000	13	5.0000	11	10.000	9	20.000	3	50.000	-8	75.000	-18	100.00	**-24**
Chloromethane	0.5000	0	1.0000	7	2.0000	14	5.0000	1	10.000	6	20.000	1	50.000	-2	75.000	-12	100.00	-15
Vinyl Chloride	0.5000	-20	1.0000	11	2.0000	10	5.0000	8	10.000	4	20.000	5	50.000	-1	75.000	-7	100.00	-11
Bromomethane			1.0000	-9	2.0000	-5	5.0000	-6	10.000	10	20.000	6	50.000	8	75.000	1	100.00	-5
Chloroethane			1.0000	-6	2.0000	10	5.0000	7	10.000	1	20.000	0	50.000	-1	75.000	-6	100.00	-6
Trichlorofluoromethane			1.0000	8	2.0000	13	5.0000	16	10.000	9	20.000	3	50.000	-9	75.000	-15	100.00	**-25**
Acetone					2.0000	20	5.0000	6	10.000	0	20.000	-2	50.000	-15	75.000	-5	100.00	-5
Freon 113			0.5000	-5	2.0000	4	5.0000	13	10.000	8	20.000	3	50.000	-7	75.000	-6	100.00	-10
1,1-Dichloroethene			0.5000	-14	2.0000	9	5.0000	10	10.000	5	20.000	-2	50.000	-2	75.000	-1	100.00	-4
Methylene Chloride			0.5000	3	2.0000	-8	5.0000	9	10.000	11	20.000	0	50.000	-3	75.000	-4	100.00	-7
Carbon Disulfide			0.5000	18	2.0000	5	5.0000	1	10.000	0	20.000	-2	50.000	-7	75.000	-7	100.00	-9
MTBE			0.5000	-11	2.0000	-3	5.0000	7	10.000	12	20.000	7	50.000	2	75.000	-3	100.00	-10
trans-1,2-Dichloroethene			0.5000	-5	2.0000	4	5.0000	5	10.000	10	20.000	0	50.000	-4	75.000	-4	100.00	-6
Vinyl Acetate					2.0000	-12	5.0000	-10	10.000	6	20.000	10	50.000	13	75.000	4	100.00	-11
1,1-Dichloroethane			0.5000	6	2.0000	12	5.0000	6	10.000	9	20.000	2	50.000	-6	75.000	-13	100.00	-16
2-Butanone					2.0000	-10	5.0000	4	10.000	5	20.000	-5	50.000	-4	75.000	7	100.00	3
2,2-Dichloropropane			0.5000	15	2.0000	10	5.0000	8	10.000	3	20.000	-3	50.000	-15	75.000	-19		
cis-1,2-Dichloroethene			0.5000	0	2.0000	-4	5.0000	6	10.000	7	20.000	-1	50.000	-4	75.000	1	100.00	-5
Chloroform			0.5000	11	2.0000	11	5.0000	11	10.000	9	20.000	1	50.000	-7	75.000	-15	100.00	**-22**
Bromochloromethane			0.5000	9	2.0000	-3	5.0000	4	10.000	7	20.000	3	50.000	-5	75.000	-5	100.00	-10
1,1,1-Trichloroethane			0.5000	9	2.0000	10	5.0000	11	10.000	8	20.000	-5	50.000	-13	75.000	-19		
1,1-Dichloropropene			0.5000	-5	2.0000	14	5.0000	7	10.000	3	20.000	3	50.000	-3	75.000	-8	100.00	-11
Carbon Tetrachloride			0.5000	-4	2.0000	12	5.0000	12	10.000	11	20.000	6	50.000	-5	75.000	-12	100.00	-19
1,2-Dichloroethane			0.5000	17	2.0000	8	5.0000	4	10.000	9	20.000	-1	50.000	-16	75.000	**-21**		
Benzene			0.5000	2	2.0000	5	5.0000	1	10.000	-1	20.000	2	50.000	-5	75.000	-1	100.00	-1
Trichloroethene			0.5000	9	2.0000	3	5.0000	7	10.000	-3	20.000	2	50.000	-4	75.000	-8	100.00	-7
1,2-Dichloropropane			0.5000	7	2.0000	-4	5.0000	6	10.000	2	20.000	1	50.000	-3	75.000	-2	100.00	-7
Bromodichloromethane			0.5000	-6	2.0000	15	5.0000	8	10.000	10	20.000	3	50.000	-4	75.000	-9	100.00	-17
Dibromomethane			0.5000	-5	2.0000	**21**	5.0000	10	10.000	7	20.000	-1	50.000	-8	75.000	-10	100.00	-14
4-Methyl-2-Pentanone					2.0000	1	5.0000	7	10.000	5	20.000	1	50.000	-6	75.000	-3	100.00	-6
cis-1,3-Dichloropropene			0.5000	-3	2.0000	-2	5.0000	13	10.000	10	20.000	1	50.000	-4	75.000	-5	100.00	-10
Toluene			0.5000	-1	2.0000	8	5.0000	5	10.000	10	20.000	-5	50.000	-5	75.000	-2	100.00	-9
trans-1,3-Dichloropropene			0.5000	-6	2.0000	5	5.0000	8	10.000	11	20.000	2	50.000	-1	75.000	-5	100.00	-14
1,1,2-Trichloroethane			0.5000	-4	2.0000	4	5.0000	7	10.000	2	20.000	3	50.000	-4	75.000	-1	100.00	-6
2-Hexanone					2.0000	-7	5.0000	10	10.000	5	20.000	5	50.000	-6	75.000	2	100.00	-8
1,3-Dichloropropane			0.5000	**-21**	2.0000	4	5.0000	12	10.000	8	20.000	6	50.000	0	75.000	1	100.00	-9
Tetrachloroethene			0.5000	0	2.0000	-3	5.0000	8	10.000	0	20.000	-2	50.000	-3	75.000	2	100.00	-2
Dibromochloromethane			0.5000	-10	2.0000	-4	5.0000	7	10.000	5	20.000	5	50.000	2	75.000	3	100.00	-7
1,2-Dibromoethane			0.5000	6	2.0000	-4	5.0000	4	10.000	6	20.000	0	50.000	-3	75.000	0	100.00	-9
Chlorobenzene			0.5000	-4	2.0000	11	5.0000	13	10.000	3	20.000	-2	50.000	-6	75.000	-4	100.00	-11
1,1,1,2-Tetrachloroethane			0.5000	-5	2.0000	3	5.0000	10	10.000	3	20.000	2	50.000	-2	75.000	-2	100.00	-9
Ethylbenzene			0.5000	6	2.0000	10	5.0000	8	10.000	3	20.000	2	50.000	-6	75.000	-6	100.00	-18

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
m,p-Xylenes	0.5000	9	1.0000	-1	4.0000	1	10.000	8	20.000	9	40.000	0	100.00	-4	150.00	-7	200.00	-15
o-Xylene			0.5000	2	2.0000	-3	5.0000	-1	10.000	9	20.000	4	50.000	0	75.000	-3	100.00	-7
Styrene			0.5000	-11	2.0000	-6	5.0000	3	10.000	3	20.000	8	50.000	3	75.000	7	100.00	-7
Bromoform			0.5000	5	2.0000	-8	5.0000	-1	10.000	3	20.000	2	50.000	2	75.000	3	100.00	-6
Isopropylbenzene			0.5000	6	2.0000	-2	5.0000	6	10.000	7	20.000	3	50.000	-5	75.000	-6	100.00	-8
1,1,2,2-Tetrachloroethane			0.5000	-1	2.0000	-5	5.0000	-2	10.000	3	20.000	-1	50.000	1	75.000	6	100.00	-1
1,2,3-Trichloropropane			0.5000	13	2.0000	8	5.0000	3	10.000	9	20.000	-2	50.000	-9	75.000	-7	100.00	-15
Propylbenzene			0.5000	12	2.0000	0	5.0000	4	10.000	10	20.000	2	50.000	-8	75.000	-7	100.00	-12
Bromobenzene			0.5000	9	2.0000	1	5.0000	-1	10.000	2	20.000	-3	50.000	-3	75.000	-2	100.00	-3
1,3,5-Trimethylbenzene			0.5000	3	2.0000	8	5.0000	7	10.000	5	20.000	-1	50.000	-3	75.000	-7	100.00	-12
2-Chlorotoluene			0.5000	9	2.0000	9	5.0000	9	10.000	7	20.000	-3	50.000	-5	75.000	-11	100.00	-15
4-Chlorotoluene			0.5000	13	2.0000	4	5.0000	6	10.000	12	20.000	-2	50.000	-6	75.000	-10	100.00	-17
tert-Butylbenzene			0.5000	4	2.0000	1	5.0000	3	10.000	7	20.000	3	50.000	-5	75.000	-3	100.00	-11
1,2,4-Trimethylbenzene			0.5000	0	2.0000	2	5.0000	9	10.000	10	20.000	-4	50.000	-3	75.000	-5	100.00	-9
sec-Butylbenzene			0.5000	-3	2.0000	5	5.0000	5	10.000	8	20.000	4	50.000	-2	75.000	-6	100.00	-10
para-Isopropyl Toluene			0.5000	-2	2.0000	-3	5.0000	4	10.000	6	20.000	0	50.000	2	75.000	-2	100.00	-5
1,3-Dichlorobenzene			0.5000	1	2.0000	-2	5.0000	3	10.000	1	20.000	-1	50.000	1	75.000	-1	100.00	-2
1,4-Dichlorobenzene			0.5000	2	2.0000	0	5.0000	2	10.000	4	20.000	0	50.000	-3	75.000	-1	100.00	-4
n-Butylbenzene			0.5000	13	2.0000	-10	5.0000	4	10.000	6	20.000	2	50.000	0	75.000	-4	100.00	-11
1,2-Dichlorobenzene			0.5000	-14	2.0000	4	5.0000	-1	10.000	9	20.000	1	50.000	1	75.000	0	100.00	-1
1,2-Dibromo-3-Chloropropane			0.5000	**103**	2.0000	12	5.0000	-2	10.000	-1	20.000	-3	50.000	-4	75.000	5	100.00	-2
1,2,4-Trichlorobenzene			0.5000	-7	2.0000	-2	5.0000	-8	10.000	4	20.000	7	50.000	1	75.000	6	100.00	0
Hexachlorobutadiene			0.5000	-6	2.0000	-4	5.0000	-1	10.000	11	20.000	6	50.000	-2	75.000	2	100.00	-5
Naphthalene			0.5000	-11	2.0000	-9	5.0000	-1	10.000	9	20.000	8	50.000	-2	75.000	9	100.00	-2
1,2,3-Trichlorobenzene			0.5000	-16	2.0000	-15	5.0000	0	10.000	7	20.000	2	50.000	3	75.000	16	100.00	3
Dibromofluoromethane	50.000	3	50.000	5	50.000	5	50.000	5	50.000	5	50.000	3	50.000	-3	50.000	-9	50.000	-14
1,2-Dichloroethane-d4	50.000	13	50.000	9	50.000	12	50.000	8	50.000	7	50.000	3	50.000	-9	50.000	-18	50.000	**-26**
Toluene-d8	50.000	1	50.000	1	50.000	0	50.000	3	50.000	1	50.000	3	50.000	0	50.000	-4	50.000	-4
Bromofluorobenzene	50.000	6	50.000	7	50.000	4	50.000	3	50.000	3	50.000	-2	50.000	-3	50.000	-8	50.000	-11

MCT 04/07/16 [Freon 12]: Combined split peak in multiple levels.

MCT 04/07/16 [Chloromethane]: Combined split peak in multiple levels.

MCT 04/07/16 [Vinyl Chloride]: Combined split peak in multiple levels.

MCT 04/07/16 [Bromomethane]: Combined split peak in multiple levels.

MCT 04/07/16 [Ethanol]: Combined split peak in multiple levels.

MCT 04/07/16 [Acetone]: Corrected fronting or tailing peak integration in (fd521).

MCT 04/07/16 [Iodomethane]: Combined split peak in multiple levels.

MCT 04/07/16 [Isopropanol]: Combined split peak in multiple levels.

MCT 04/07/16 [Vinyl Acetate]: Corrected fronting or tailing peak integration in (fd521).

MCT 04/07/16 [2-Butanone]: Combined split peak in multiple levels.

MCT 04/07/16 [Chloroethane]: Combined split peak in multiple levels.

MCT 04/07/16 [Trichlorofluoromethane]: Combined split peak in multiple levels.

MCT 04/07/16 [tert-Butyl Alcohol (TBA)]: Combined split peak in (fd522).

MCT 04/07/16 [Freon 113]: Combined split peak in (fd523).

MCT 04/07/16 [1,1-Dichloroethene]: Combined split peak in (fd523).

MCT 04/07/16 [n-Hexane]: Corrected fronting or tailing peak integration in (fd524).

MCT 04/07/16 [1,2-Dibromo-3-Chloropropane]: Will be rerun if the compound is detected <or = 2ppb.

Analyst: MCT Date: 04/08/16 Reviewer: LW Date: 04/08/16

m=manual integration

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor; QUAD=Quadratic regression

456138592001

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 275719 MSVOA Water
EPA 8260B

Inst : MSVOA06 Name : 826GOX6W
Calnum : 456138592001 Cal Date : 05-APR-2016 Type : WATER

ICV 456141494004 (fd704 07-APR-2016) stds: S28625 (10000X), S29263 (5000X)
ICV 456141494005 (fd705 07-APR-2016) stds: S29207 (10000X), S29448 (10000X), S29290 (10000X), S29263 (5000X)
ICV 456141494007 (fd707 07-APR-2016) stds: S26946 (50000X), S29263 (5000X)

Analyte	ICV Seqnum	Spiked	Quant	Units	%D	Max	Flags
Freon 12	456141494004	20.00	15.10	ug/L	**-25**	30	!v-
Chloromethane	456141494004	20.00	16.51	ug/L	-17	30	
Vinyl Chloride	456141494004	20.00	18.25	ug/L	-9	20	
Bromomethane	456141494004	20.00	15.88	ug/L	**-21**	30	!v-
Chloroethane	456141494004	20.00	17.69	ug/L	-12	30	
Trichlorofluoromethane	456141494004	20.00	19.94	ug/L	0	30	
Acetone	456141494007	40.00	33.88	ug/L	-15	40	
Freon 113	456141494005	25.00	22.63	ug/L	-9	30	
1,1-Dichloroethene	456141494005	25.00	24.34	ug/L	-3	20	
Methylene Chloride	456141494005	25.00	22.86	ug/L	-9	30	
Carbon Disulfide	456141494005	25.00	25.28	ug/L	1	30	
MTBE	456141494005	25.00	26.39	ug/L	6	30	
trans-1,2-Dichloroethene	456141494005	25.00	22.92	ug/L	-8	30	
Vinyl Acetate	456141494005	25.00	28.30	ug/L	13	40	
1,1-Dichloroethane	456141494005	25.00	24.53	ug/L	-2	30	
2-Butanone	456141494007	40.00	33.88	ug/L	-15	40	
2,2-Dichloropropane	456141494005	25.00	29.38	ug/L	18	30	
cis-1,2-Dichloroethene	456141494005	25.00	25.02	ug/L	0	30	
Chloroform	456141494005	25.00	25.30	ug/L	1	20	
Bromochloromethane	456141494005	25.00	22.71	ug/L	-9	30	
1,1,1-Trichloroethane	456141494005	25.00	25.90	ug/L	4	30	
1,1-Dichloropropene	456141494005	25.00	25.37	ug/L	1	30	
Carbon Tetrachloride	456141494005	25.00	28.91	ug/L	16	30	
1,2-Dichloroethane	456141494005	25.00	26.28	ug/L	5	30	
Benzene	456141494005	25.00	23.74	ug/L	-5	30	
Trichloroethene	456141494005	25.00	26.65	ug/L	7	30	
1,2-Dichloropropane	456141494005	25.00	24.22	ug/L	-3	20	
Bromodichloromethane	456141494005	25.00	26.37	ug/L	5	30	
Dibromomethane	456141494005	25.00	25.91	ug/L	4	30	
4-Methyl-2-Pentanone	456141494007	40.00	34.39	ug/L	-14	40	
cis-1,3-Dichloropropene	456141494005	25.00	28.41	ug/L	14	30	
Toluene	456141494005	25.00	24.22	ug/L	-3	20	
trans-1,3-Dichloropropene	456141494005	25.00	26.62	ug/L	6	30	
1,1,2-Trichloroethane	456141494005	25.00	24.43	ug/L	-2	30	
2-Hexanone	456141494007	40.00	37.76	ug/L	-6	40	
1,3-Dichloropropane	456141494005	25.00	26.89	ug/L	8	30	
Tetrachloroethene	456141494005	25.00	25.40	ug/L	2	30	
Dibromochloromethane	456141494005	25.00	25.66	ug/L	3	30	
1,2-Dibromoethane	456141494005	25.00	25.13	ug/L	1	30	
Chlorobenzene	456141494005	25.00	23.60	ug/L	-6	30	
1,1,1,2-Tetrachloroethane	456141494005	25.00	25.08	ug/L	0	30	
Ethylbenzene	456141494005	25.00	24.77	ug/L	-1	20	
m,p-Xylenes	456141494005	50.00	50.15	ug/L	0	30	
o-Xylene	456141494005	25.00	25.14	ug/L	1	30	
Styrene	456141494005	25.00	26.80	ug/L	7	30	
Bromoform	456141494005	25.00	25.76	ug/L	3	30	

Analyte	ICV Seqnum	Spiked	Quant	Units	%D	Max	Flags
Isopropylbenzene	456141494005	25.00	23.57	ug/L	-6	30	
1,1,2,2-Tetrachloroethane	456141494005	25.00	25.29	ug/L	1	30	
1,2,3-Trichloropropane	456141494005	25.00	23.06	ug/L	-8	30	
Propylbenzene	456141494005	25.00	23.90	ug/L	-4	30	
Bromobenzene	456141494005	25.00	23.63	ug/L	-5	30	
1,3,5-Trimethylbenzene	456141494005	25.00	25.94	ug/L	4	30	
2-Chlorotoluene	456141494005	25.00	24.23	ug/L	-3	30	
4-Chlorotoluene	456141494005	25.00	23.92	ug/L	-4	30	
tert-Butylbenzene	456141494005	25.00	24.77	ug/L	-1	30	
1,2,4-Trimethylbenzene	456141494005	25.00	24.08	ug/L	-4	30	
sec-Butylbenzene	456141494005	25.00	23.95	ug/L	-4	30	
para-Isopropyl Toluene	456141494005	25.00	25.17	ug/L	1	30	
1,3-Dichlorobenzene	456141494005	25.00	24.11	ug/L	-4	30	
1,4-Dichlorobenzene	456141494005	25.00	24.45	ug/L	-2	30	
n-Butylbenzene	456141494005	25.00	25.49	ug/L	2	30	
1,2-Dichlorobenzene	456141494005	25.00	24.65	ug/L	-1	30	
1,2-Dibromo-3-Chloropropane	456141494005	25.00	24.44	ug/L	-2	30	
1,2,4-Trichlorobenzene	456141494005	25.00	24.84	ug/L	-1	30	
Hexachlorobutadiene	456141494005	25.00	26.87	ug/L	7	30	
Naphthalene	456141494005	25.00	21.22	ug/L	-15	30	
1,2,3-Trichlorobenzene	456141494005	25.00	24.38	ug/L	-2	30	

456141494004: Analyst: MCT Date: 04/08/16 Reviewer: LW Date: 04/08/16
456141494005: Analyst: MCT Date: 04/08/16 Reviewer: LW Date: 04/08/16
456141494007: Analyst: MCT Date: 04/08/16 Reviewer: LW Date: 04/08/16

!=warning -=low bias v=ICV

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 275719 MSVOA Water: EPA 8260B

Inst : MSVOA08 Name : 826GOX8
Calnum : 476138895001 Date : 05-APR-2016 17:23 Type : WATER
Units : ug/L X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	hd507	476138895007	.25/.5	05-APR-2016 17:23	S28620 (2000000X), S29427 (2000000X), S29559 (2000000X), S28142 (1000000X), S29486 (5000X)
L2	hd508	476138895008	.5/1	05-APR-2016 17:57	S28620 (1000000X), S29427 (1000000X), S29559 (1000000X), S28142 (500000X), S29486 (5000X)
L3	hd509	476138895009	2PPB	05-APR-2016 18:31	S28620 (500000X), S29427 (250000X), S29559 (250000X), S28142 (250000X), S29486 (5000X)
L4	hd510	476138895010	5PPB	05-APR-2016 19:06	S29486 (5000X), S28620 (200000X), S29427 (100000X), S29559 (100000X), S28142 (100000X)
L5	hd511	476138895011	10PPB	05-APR-2016 19:40	S29486 (5000X), S28620 (100000X), S29427 (50000X), S29559 (50000X), S28142 (50000X)
L6	hd512	476138895012	20PPB	05-APR-2016 20:14	S29486 (5000X), S28620 (50000X), S29427 (25000X), S29559 (25000X), S28142 (25000X)
L7	hd513	476138895013	50PPB	05-APR-2016 20:48	S29486 (5000X), S28620 (20000X), S29427 (10000X), S29559 (10000X), S28142 (10000X)
L8	hd514	476138895014	75PPB	05-APR-2016 21:23	S29486 (5000X), S28620 (13330X), S29427 (6667X), S29559 (6667X), S28142 (6667X)
L9	hd515	476138895015	100PPB	05-APR-2016 21:57	S29486 (5000X), S28620 (10000X), S29427 (5000X), S29559 (5000X), S28142 (5000X)

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Freon 12		0.9836	0.9520	1.0724	1.0542	1.0013	1.0174	0.9778	0.9803	AVRG		0.99515		1.0049	4	15	0.05	0.99	
Chloromethane	1.1188	1.1825	1.1202	1.0441	1.0633	1.0727	1.0608	1.1220	1.0829	AVRG		0.91211		1.0964	4	15	0.10	0.99	
Vinyl Chloride	0.8257	0.8258	0.8399	0.8697	0.8287	0.8650	0.8810	0.8811	0.8692	AVRG		1.17097		0.8540	3	15	0.05	0.99	
Bromomethane		0.3926	0.4629	0.4752	0.5036	0.5417	0.5446	0.5593	0.5911	AVRG		1.96512		0.5089	13	15	0.05	0.99	
Chloroethane		0.4697	0.4462	0.4350	0.4782	0.4649	0.4830	0.4603	0.5000	AVRG		2.14062		0.4672	4	15	0.05	0.99	
Trichlorofluoromethane		0.9725	0.9628	0.9558	0.9605	0.9734	0.9540	0.9500	0.9423	AVRG		1.04285		0.9589	1	15	0.05	0.99	
Acetone			0.1611	0.1595	0.1874	0.1790	0.1771	0.1685	0.1646	AVRG		5.84662		0.1710	6	15	0.05	0.99	
Freon 113		0.4499	0.4821	0.4738	0.4764	0.4330	0.4324	0.4456	0.4534	AVRG		2.19388		0.4558	4	15	0.05	0.99	
1,1-Dichloroethene		0.3759	0.4113	0.4092	0.4280	0.4137	0.4030	0.4050	0.4179	AVRG		2.45096		0.4080	4	15	0.05	0.99	
Methylene Chloride		0.5052	0.5584	0.5213	0.5374	0.5254	0.5060	0.5205	0.5123	AVRG		1.91085		0.5233	3	15	0.05	0.99	
Carbon Disulfide		1.8757	1.7577	1.6224	1.7848	1.7623	1.7138	1.8179	1.8679	AVRG		0.56328		1.7753	5	15	0.05	0.99	
MTBE		1.1567	1.2947	1.2848	1.3382	1.2874	1.1724	1.2249	1.1897	AVRG		0.80411		1.2436	5	15	0.05	0.99	
trans-1,2-Dichloroethene		0.5124	0.4596	0.4306	0.4671	0.4575	0.4595	0.4610	0.4855	AVRG		2.14292		0.4667	5	15	0.05	0.99	
Vinyl Acetate			1.0990	1.1090	1.1562	1.0756	1.0691	0.9557	1.0937	AVRG		0.92615		1.0797	6	15	0.05	0.99	
1,1-Dichloroethane		1.0557	1.0285	0.9557	1.0006	0.9922	0.9664	0.9913	0.9986	AVRG		1.00136		0.9986	3	15	0.10	0.99	
2-Butanone			0.2168	0.2358	0.2433	0.2203	0.2155	0.2076	0.2117	AVRG		4.51310		0.2216	6	15	0.05	0.99	
2,2-Dichloropropane		0.7030	0.6504	0.6488	0.6428	0.6099	0.5793	0.5871	0.5788	AVRG		1.59999		0.6250	7	15	0.05	0.99	
cis-1,2-Dichloroethene		0.5262	0.5217	0.5224	0.5295	0.5215	0.5158	0.5083	0.5389	AVRG		1.91193		0.5230	2	15	0.05	0.99	
Chloroform		1.0556	0.9586	0.9315	0.9675	0.9883	0.9216	0.9017	0.9487	AVRG		1.04253		0.9592	5	15	0.05	0.99	
Bromochloromethane		0.2870	0.2460	0.2682	0.2720	0.2589	0.2621	0.2654	0.2655	AVRG		3.76446		0.2656	4	15	0.05	0.99	
1,1,1-Trichloroethane		0.7362	0.8425	0.7988	0.7866	0.7861	0.7544	0.7494	0.7468	AVRG		1.29017		0.7751	5	15	0.05	0.99	
1,1-Dichloropropene		0.5662	0.5473	0.5664	0.5266	0.5376	0.5136	0.5069	0.4905	AVRG		1.88012		0.5319	5	15	0.05	0.99	
Carbon Tetrachloride		0.5110	0.5658	0.5659	0.5459	0.5295	0.5117	0.5017	0.4880	AVRG		1.89591		0.5275	6	15	0.05	0.99	
1,2-Dichloroethane		0.6299	0.5803	0.5297	0.5289	0.5350	0.5214	0.4971	0.4882	AVRG		1.85588		0.5388	9	15	0.05	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Benzene		1.4199	1.3984	1.2868	1.3414	1.2724	1.2642	1.2073	1.2744	AVRG		0.76447		1.3081	6	15	0.05	0.99	
Trichloroethene		0.4250	0.4271	0.4099	0.3957	0.3946	0.3705	0.3899	0.3516	AVRG		2.52815		0.3955	7	15	0.05	0.99	
1,2-Dichloropropane		0.4013	0.4229	0.4210	0.4119	0.3982	0.3772	0.4033	0.3607	AVRG		2.50279		0.3996	5	15	0.05	0.99	
Bromodichloromethane		0.4800	0.5114	0.5033	0.5300	0.5326	0.4931	0.4763	0.4848	AVRG		1.99430		0.5014	4	15	0.05	0.99	
Dibromomethane		0.2286	0.2462	0.2200	0.2303	0.2334	0.2198	0.2133	0.2132	AVRG		4.43245		0.2256	5	15	0.05	0.99	
4-Methyl-2-Pentanone			0.3505	0.3732	0.3672	0.3676	0.3647	0.3538	0.3493	AVRG		2.77078		0.3609	3	15	0.05	0.99	
cis-1,3-Dichloropropene		0.5841	0.5986	0.5681	0.5578	0.5626	0.5424	0.5518	0.5265	AVRG		1.78095		0.5615	4	15	0.05	0.99	
Toluene		0.9588	1.0793	1.0132	1.0299	0.9784	1.0254	0.9919	0.9287	AVRG		0.99930		1.0007	5	15	0.05	0.99	
trans-1,3-Dichloropropene		0.5958	0.6353	0.6027	0.5926	0.5745	0.5780	0.5910	0.5766	AVRG		1.68545		0.5933	3	15	0.05	0.99	
1,1,2-Trichloroethane		0.1346	0.1787	0.1920	0.1930	0.1826	0.1859	0.1851	0.1775	AVRG		5.59661		0.1787	10	15	0.05	0.99	
2-Hexanone			0.2948	0.3271	0.3277	0.3014	0.3219	0.3152	0.2823	AVRG		3.22541		0.3100	6	15	0.05	0.99	
1,3-Dichloropropane		0.5838	0.6097	0.6103	0.5885	0.5674	0.5947	0.5822	0.5261	AVRG		1.71574		0.5828	5	15	0.05	0.99	
Tetrachloroethene		0.4434	0.4726	0.4860	0.4742	0.4358	0.4639	0.4766	0.4465	AVRG		2.16276		0.4624	4	15	0.05	0.99	
Dibromochloromethane		0.5110	0.5176	0.5216	0.5177	0.4928	0.4863	0.4761	0.4876	AVRG		1.99469		0.5013	4	15	0.05	0.99	
1,2-Dibromoethane		0.3400	0.3868	0.3998	0.4013	0.3900	0.3837	0.3793	0.3757	AVRG		2.61735		0.3821	5	15	0.05	0.99	
Chlorobenzene		1.1775	1.2475	1.1669	1.1436	1.1863	1.1159	1.1706	1.1189	AVRG		0.85771		1.1659	4	15	0.30	0.99	
1,1,1,2-Tetrachloroethane		0.4603	0.4393	0.4671	0.4608	0.4354	0.4456	0.4468	0.4410	AVRG		2.22452		0.4495	3	15	0.05	0.99	
Ethylbenzene		2.0339	2.0640	2.1171	2.1000	1.9901	1.9644	1.9687	1.9204	AVRG		0.49509		2.0198	3	15	0.05	0.99	
m,p-Xylenes	0.8157	0.7809	0.8159	0.7876	0.8065	0.7175	0.7475	0.7433	0.7090	AVRG		1.29986		0.7693	5	15	0.05	0.99	
o-Xylene		0.7091	0.8488	0.7762	0.8025	0.7435	0.8154	0.7495	0.7357	AVRG		1.29436		0.7726	6	15	0.05	0.99	
Styrene		1.1067	1.2717	1.2992	1.3181	1.2994	1.2714	1.2699	1.2596	AVRG		0.79239		1.2620	5	15	0.05	0.99	
Bromoform		0.2795	0.3485	0.3343	0.3521	0.3298	0.3435	0.3361	0.3232	AVRG		3.02232		0.3309	7	15	0.10	0.99	
Isopropylbenzene		3.5587	3.8652	3.7463	3.6660	3.4895	3.5764	3.4592	3.4574	AVRG		0.27760		3.6023	4	15	0.05	0.99	
1,1,2,2-Tetrachloroethane		0.6964	0.7981	0.7692	0.7975	0.7262	0.7551	0.7406	0.7561	AVRG		1.32470		0.7549	5	15	0.30	0.99	
1,2,3-Trichloropropane		0.2540	0.2217	0.2180	0.2213	0.1896	0.2062	0.1917	0.1972	AVRG		4.70675		0.2125	10	15	0.05	0.99	
Propylbenzene		4.6001	4.7016	4.3930	4.4605	4.1420	4.2517	4.1918	3.9524	AVRG		0.23059		4.3366	6	15	0.05	0.99	
Bromobenzene		0.9984	0.9523	0.9478	0.9415	0.9034	0.9266	0.9248	0.8987	AVRG		1.06759		0.9367	3	15	0.05	0.99	
1,3,5-Trimethylbenzene		2.8982	3.2245	3.1979	3.0621	2.9552	2.8140	2.9668	2.9610	AVRG		0.33223		3.0100	5	15	0.05	0.99	
2-Chlorotoluene		3.1321	3.0615	3.0354	2.8355	2.7118	2.6900	2.7783	2.7844	AVRG		0.34739		2.8786	6	15	0.05	0.99	
4-Chlorotoluene		2.6537	2.6897	2.7765	2.8466	2.5561	2.6625	2.4877	2.5915	AVRG		0.37622		2.6580	4	15	0.05	0.99	
tert-Butylbenzene		2.8671	2.8006	2.7986	2.8848	2.7219	2.6214	2.6111	2.6933	AVRG		0.36366		2.7499	4	15	0.05	0.99	
1,2,4-Trimethylbenzene		3.1869	3.2621	3.2673	3.3623	3.1171	3.0753	3.1388	3.0188	AVRG		0.31461		3.1786	4	15	0.05	0.99	
sec-Butylbenzene		3.9849	4.2108	4.2490	4.2039	3.9334	3.9149	3.8524	3.7645	AVRG		0.24912		4.0142	5	15	0.05	0.99	
para-Isopropyl Toluene		3.3506	3.2535	3.5267	3.3617	3.2574	3.2992	3.1083	3.0230	AVRG		0.30557		3.2726	5	15	0.05	0.99	
1,3-Dichlorobenzene		1.8067	1.8070	1.7952	1.8331	1.7805	1.7710	1.7245	1.7237	AVRG		0.56173		1.7802	2	15	0.05	0.99	
1,4-Dichlorobenzene		1.8274	1.8789	1.8371	1.8796	1.7746	1.7419	1.6679	1.7529	AVRG		0.55709		1.7950	4	15	0.05	0.99	
n-Butylbenzene	2.7736	2.6823	3.0263	2.9871	2.9703	2.7424	2.7481	2.6460	2.6642	AVRG		0.35657		2.8045	5	15	0.05	0.99	
1,2-Dichlorobenzene		1.5988	1.8193	1.7781	1.7314	1.6587	1.6741	1.6805	1.6276	AVRG		0.58961		1.6960	4	15	0.05	0.99	
1,2-Dibromo-3-Chloropropane		0.1474	0.1460	0.1500	0.1428	0.1387	0.1370	0.1410	0.1376	AVRG		7.01480		0.1426	3	15	0.05	0.99	
1,2,4-Trichlorobenzene		1.0347	1.0808	1.1035	1.1315	1.0525	1.0984	1.0726	1.1007	AVRG		0.92222		1.0843	3	15	0.05	0.99	
Hexachlorobutadiene		0.5102	0.5567	0.5869	0.5692	0.5175	0.5311	0.5270	0.5274	AVRG		1.84932		0.5407	5	15	0.05	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Naphthalene		2.0888	2.0690	2.1968	2.3497	2.2831	2.2497	2.2902	2.3612	AVRG		0.44722		2.2361	5	15	0.05	0.99	
1,2,3-Trichlorobenzene		0.9374	0.9743	1.0165	1.0886	1.0062	1.0217	1.0700	1.0402	AVRG		0.98101		1.0194	5	15	0.05	0.99	
Dibromofluoromethane	0.4724	0.4702	0.4502	0.4507	0.4607	0.5006	0.4591	0.4761	0.4671	AVRG		2.13927		0.4674	3	15	0.05	0.99	
1,2-Dichloroethane-d4	0.3601	0.3651	0.3576	0.3395	0.3515	0.3710	0.3446	0.3243	0.3221	AVRG		2.87022		0.3484	5	15	0.05	0.99	
Toluene-d8	1.2301	1.3108	1.3021	1.2930	1.2696	1.2987	1.3162	1.3005	1.2806	AVRG		0.77576		1.2891	2	15	0.05	0.99	
Bromofluorobenzene	0.9575	0.9554	0.9113	0.9122	0.9656	0.9182	0.9402	0.9409	0.9595	AVRG		1.06373		0.9401	2	15	0.05	0.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
Freon 12			1.0000	-2	2.0000	-5	5.0000	7	10.000	5	20.000	0	50.000	1	75.000	-3	100.00	-2
Chloromethane	0.5000	2	1.0000	8	2.0000	2	5.0000	-5	10.000	-3	20.000	-2	50.000	-3	75.000	2	100.00	-1
Vinyl Chloride	0.5000	-3	1.0000	-3	2.0000	-2	5.0000	2	10.000	-3	20.000	1	50.000	3	75.000	3	100.00	2
Bromomethane			1.0000	**-23**	2.0000	-9	5.0000	-7	10.000	-1	20.000	6	50.000	7	75.000	10	100.00	16
Chloroethane			1.0000	1	2.0000	-4	5.0000	-7	10.000	2	20.000	0	50.000	3	75.000	-1	100.00	7
Trichlorofluoromethane			1.0000	1	2.0000	0	5.0000	0	10.000	0	20.000	2	50.000	-1	75.000	-1	100.00	-2
Acetone					2.0000	-6	5.0000	-7	10.000	10	20.000	5	50.000	4	75.000	-1	100.00	-4
Freon 113			0.5000	-1	2.0000	6	5.0000	4	10.000	5	20.000	-5	50.000	-5	75.000	-2	100.00	-1
1,1-Dichloroethene			0.5000	-8	2.0000	1	5.0000	0	10.000	5	20.000	1	50.000	-1	75.000	-1	100.00	2
Methylene Chloride			0.5000	-3	2.0000	7	5.0000	0	10.000	3	20.000	0	50.000	-3	75.000	-1	100.00	-2
Carbon Disulfide			0.5000	6	2.0000	-1	5.0000	-9	10.000	1	20.000	-1	50.000	-3	75.000	2	100.00	5
MTBE			0.5000	-7	2.0000	4	5.0000	3	10.000	8	20.000	4	50.000	-6	75.000	-2	100.00	-4
trans-1,2-Dichloroethene			0.5000	10	2.0000	-2	5.0000	-8	10.000	0	20.000	-2	50.000	-2	75.000	-1	100.00	4
Vinyl Acetate					2.0000	2	5.0000	3	10.000	7	20.000	0	50.000	-1	75.000	-11	100.00	1
1,1-Dichloroethane			0.5000	6	2.0000	3	5.0000	-4	10.000	0	20.000	-1	50.000	-3	75.000	-1	100.00	0
2-Butanone					2.0000	-2	5.0000	6	10.000	10	20.000	-1	50.000	-3	75.000	-6	100.00	-4
2,2-Dichloropropane			0.5000	12	2.0000	4	5.0000	4	10.000	3	20.000	-2	50.000	-7	75.000	-6	100.00	-7
cis-1,2-Dichloroethene			0.5000	1	2.0000	0	5.0000	0	10.000	1	20.000	0	50.000	-1	75.000	-3	100.00	3
Chloroform			0.5000	10	2.0000	0	5.0000	-3	10.000	1	20.000	3	50.000	-4	75.000	-6	100.00	-1
Bromochloromethane			0.5000	8	2.0000	-7	5.0000	1	10.000	2	20.000	-3	50.000	-1	75.000	0	100.00	0
1,1,1-Trichloroethane			0.5000	-5	2.0000	9	5.0000	3	10.000	1	20.000	1	50.000	-3	75.000	-3	100.00	-4
1,1-Dichloropropene			0.5000	6	2.0000	3	5.0000	6	10.000	-1	20.000	1	50.000	-3	75.000	-5	100.00	-8
Carbon Tetrachloride			0.5000	-3	2.0000	7	5.0000	7	10.000	4	20.000	0	50.000	-3	75.000	-5	100.00	-7
1,2-Dichloroethane			0.5000	17	2.0000	8	5.0000	-2	10.000	-2	20.000	-1	50.000	-3	75.000	-8	100.00	-9
Benzene			0.5000	9	2.0000	7	5.0000	-2	10.000	3	20.000	-3	50.000	-3	75.000	-8	100.00	-3
Trichloroethene			0.5000	7	2.0000	8	5.0000	4	10.000	0	20.000	0	50.000	-6	75.000	-1	100.00	-11
1,2-Dichloropropane			0.5000	0	2.0000	6	5.0000	5	10.000	3	20.000	0	50.000	-6	75.000	1	100.00	-10
Bromodichloromethane			0.5000	-4	2.0000	2	5.0000	0	10.000	6	20.000	6	50.000	-2	75.000	-5	100.00	-3
Dibromomethane			0.5000	1	2.0000	9	5.0000	-2	10.000	2	20.000	3	50.000	-3	75.000	-5	100.00	-5
4-Methyl-2-Pentanone					2.0000	-3	5.0000	3	10.000	2	20.000	2	50.000	1	75.000	-2	100.00	-3
cis-1,3-Dichloropropene			0.5000	4	2.0000	7	5.0000	1	10.000	-1	20.000	0	50.000	-3	75.000	-2	100.00	-6
Toluene			0.5000	-4	2.0000	8	5.0000	1	10.000	3	20.000	-2	50.000	2	75.000	-1	100.00	-7
trans-1,3-Dichloropropene			0.5000	0	2.0000	7	5.0000	2	10.000	0	20.000	-3	50.000	-3	75.000	0	100.00	-3
1,1,2-Trichloroethane			0.5000	**-25**	2.0000	0	5.0000	7	10.000	8	20.000	2	50.000	4	75.000	4	100.00	-1
2-Hexanone					2.0000	-5	5.0000	5	10.000	6	20.000	-3	50.000	4	75.000	2	100.00	-9
1,3-Dichloropropane			0.5000	0	2.0000	5	5.0000	5	10.000	1	20.000	-3	50.000	2	75.000	0	100.00	-10
Tetrachloroethene			0.5000	-4	2.0000	2	5.0000	5	10.000	3	20.000	-6	50.000	0	75.000	3	100.00	-3
Dibromochloromethane			0.5000	2	2.0000	3	5.0000	4	10.000	3	20.000	-2	50.000	-3	75.000	-5	100.00	-3
1,2-Dibromoethane			0.5000	-11	2.0000	1	5.0000	5	10.000	5	20.000	2	50.000	0	75.000	-1	100.00	-2
Chlorobenzene			0.5000	1	2.0000	7	5.0000	0	10.000	-2	20.000	2	50.000	-4	75.000	0	100.00	-4
1,1,1,2-Tetrachloroethane			0.5000	2	2.0000	-2	5.0000	4	10.000	3	20.000	-3	50.000	-1	75.000	-1	100.00	-2
Ethylbenzene			0.5000	1	2.0000	2	5.0000	5	10.000	4	20.000	-1	50.000	-3	75.000	-3	100.00	-5

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
m,p-Xylenes	0.5000	6	1.0000	2	4.0000	6	10.000	2	20.000	5	40.000	-7	100.00	-3	150.00	-3	200.00	-8
o-Xylene			0.5000	-8	2.0000	10	5.0000	0	10.000	4	20.000	-4	50.000	6	75.000	-3	100.00	-5
Styrene			0.5000	-12	2.0000	1	5.0000	3	10.000	4	20.000	3	50.000	1	75.000	1	100.00	0
Bromoform			0.5000	-16	2.0000	5	5.0000	1	10.000	6	20.000	0	50.000	4	75.000	2	100.00	-2
Isopropylbenzene			0.5000	-1	2.0000	7	5.0000	4	10.000	2	20.000	-3	50.000	-1	75.000	-4	100.00	-4
1,1,2,2-Tetrachloroethane			0.5000	-8	2.0000	6	5.0000	2	10.000	6	20.000	-4	50.000	0	75.000	-2	100.00	0
1,2,3-Trichloropropane			0.5000	20	2.0000	4	5.0000	3	10.000	4	20.000	-11	50.000	-3	75.000	-10	100.00	-7
Propylbenzene			0.5000	6	2.0000	8	5.0000	1	10.000	3	20.000	-4	50.000	-2	75.000	-3	100.00	-9
Bromobenzene			0.5000	7	2.0000	2	5.0000	1	10.000	1	20.000	-4	50.000	-1	75.000	-1	100.00	-4
1,3,5-Trimethylbenzene			0.5000	-4	2.0000	7	5.0000	6	10.000	2	20.000	-2	50.000	-7	75.000	-1	100.00	-2
2-Chlorotoluene			0.5000	9	2.0000	6	5.0000	5	10.000	-1	20.000	-6	50.000	-7	75.000	-3	100.00	-3
4-Chlorotoluene			0.5000	0	2.0000	1	5.0000	4	10.000	7	20.000	-4	50.000	0	75.000	-6	100.00	-3
tert-Butylbenzene			0.5000	4	2.0000	2	5.0000	2	10.000	5	20.000	-1	50.000	-5	75.000	-5	100.00	-2
1,2,4-Trimethylbenzene			0.5000	0	2.0000	3	5.0000	3	10.000	6	20.000	-2	50.000	-3	75.000	-1	100.00	-5
sec-Butylbenzene			0.5000	-1	2.0000	5	5.0000	6	10.000	5	20.000	-2	50.000	-2	75.000	-4	100.00	-6
para-Isopropyl Toluene			0.5000	2	2.0000	-1	5.0000	8	10.000	3	20.000	0	50.000	1	75.000	-5	100.00	-8
1,3-Dichlorobenzene			0.5000	1	2.0000	2	5.0000	1	10.000	3	20.000	0	50.000	-1	75.000	-3	100.00	-3
1,4-Dichlorobenzene			0.5000	2	2.0000	5	5.0000	2	10.000	5	20.000	-1	50.000	-3	75.000	-7	100.00	-2
n-Butylbenzene	0.2500	-1	0.5000	-4	2.0000	8	5.0000	7	10.000	6	20.000	-2	50.000	-2	75.000	-6	100.00	-5
1,2-Dichlorobenzene			0.5000	-6	2.0000	7	5.0000	5	10.000	2	20.000	-2	50.000	-1	75.000	-1	100.00	-4
1,2-Dibromo-3-Chloropropane			0.5000	3	2.0000	2	5.0000	5	10.000	0	20.000	-3	50.000	-4	75.000	-1	100.00	-3
1,2,4-Trichlorobenzene			0.5000	-5	2.0000	0	5.0000	2	10.000	4	20.000	-3	50.000	1	75.000	-1	100.00	2
Hexachlorobutadiene			0.5000	-6	2.0000	3	5.0000	9	10.000	5	20.000	-4	50.000	-2	75.000	-3	100.00	-2
Naphthalene			0.5000	-7	2.0000	-7	5.0000	-2	10.000	5	20.000	2	50.000	1	75.000	2	100.00	6
1,2,3-Trichlorobenzene			0.5000	-8	2.0000	-4	5.0000	0	10.000	7	20.000	-1	50.000	0	75.000	5	100.00	2
Dibromofluoromethane	50.000	1	50.000	1	50.000	-4	50.000	-4	50.000	-1	50.000	7	50.000	-2	50.000	2	50.000	0
1,2-Dichloroethane-d4	50.000	3	50.000	5	50.000	3	50.000	-3	50.000	1	50.000	6	50.000	-1	50.000	-7	50.000	-8
Toluene-d8	50.000	-5	50.000	2	50.000	1	50.000	0	50.000	-2	50.000	1	50.000	2	50.000	1	50.000	-1
Bromofluorobenzene	50.000	2	50.000	2	50.000	-3	50.000	-3	50.000	3	50.000	-2	50.000	0	50.000	0	50.000	2

DAR 04/07/16 : used third source ICV for Ketones and IODO ICV rerun

Analyst: DAR Date: 04/07/16 Reviewer: LW Date: 04/07/16

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

476138895001

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 275719 MSVOA Water
EPA 8260B

Inst : MSVOA08 Name : 826GOX8
Calnum : 476138895001 Cal Date : 05-APR-2016 Type : WATER

ICV 476138895016 (hd516 05-APR-2016) stds: S29486 (5000X), S28625 (10000X)
ICV 476140541005 (hd605 06-APR-2016) stds: S29448 (10000X), S29207 (10000X), S29290 (10000X), S29486 (5000X)
ICV 476140541006 (hd606 06-APR-2016) stds: S29486 (5000X), S26946 (50000X)

Analyte	ICV Seqnum	Date	Spiked	Quant	Units	%D	Max	Flags
Freon 12	476138895016	05-APR-2016	20.00	14.63	ug/L	**-27**	30	!v-
Chloromethane	476138895016	05-APR-2016	20.00	17.05	ug/L	-15	30	
Vinyl Chloride	476138895016	05-APR-2016	20.00	19.66	ug/L	-2	20	
Bromomethane	476138895016	05-APR-2016	20.00	16.56	ug/L	-17	30	
Chloroethane	476138895016	05-APR-2016	20.00	19.85	ug/L	-1	30	
Trichlorofluoromethane	476138895016	05-APR-2016	20.00	18.10	ug/L	-9	30	
Acetone	476140541006	06-APR-2016	40.00	30.52	ug/L	**-24**	40	!v-
Freon 113	476140541005	06-APR-2016	25.00	20.73	ug/L	-17	30	
1,1-Dichloroethene	476140541005	06-APR-2016	25.00	23.93	ug/L	-4	20	
Methylene Chloride	476140541005	06-APR-2016	25.00	24.84	ug/L	-1	30	
Carbon Disulfide	476140541005	06-APR-2016	25.00	24.04	ug/L	-4	30	
MTBE	476140541005	06-APR-2016	25.00	25.60	ug/L	2	30	
trans-1,2-Dichloroethene	476140541005	06-APR-2016	25.00	22.88	ug/L	-8	30	
Vinyl Acetate	476140541005	06-APR-2016	25.00	30.06	ug/L	20	40	
1,1-Dichloroethane	476140541005	06-APR-2016	25.00	24.44	ug/L	-2	30	
2-Butanone	476140541006	06-APR-2016	40.00	36.19	ug/L	-10	40	
2,2-Dichloropropane	476140541005	06-APR-2016	25.00	31.09	ug/L	**24**	30	!v+
cis-1,2-Dichloroethene	476140541005	06-APR-2016	25.00	24.92	ug/L	0	30	
Chloroform	476140541005	06-APR-2016	25.00	24.21	ug/L	-3	20	
Bromochloromethane	476140541005	06-APR-2016	25.00	24.32	ug/L	-3	30	
1,1,1-Trichloroethane	476140541005	06-APR-2016	25.00	25.23	ug/L	1	30	
1,1-Dichloropropene	476140541005	06-APR-2016	25.00	21.46	ug/L	-14	30	
Carbon Tetrachloride	476140541005	06-APR-2016	25.00	24.16	ug/L	-3	30	
1,2-Dichloroethane	476140541005	06-APR-2016	25.00	23.76	ug/L	-5	30	
Benzene	476140541005	06-APR-2016	25.00	24.01	ug/L	-4	30	
Trichloroethene	476140541005	06-APR-2016	25.00	22.47	ug/L	-10	30	
1,2-Dichloropropane	476140541005	06-APR-2016	25.00	21.92	ug/L	-12	20	
Bromodichloromethane	476140541005	06-APR-2016	25.00	24.02	ug/L	-4	30	
Dibromomethane	476140541005	06-APR-2016	25.00	23.83	ug/L	-5	30	
4-Methyl-2-Pentanone	476140541006	06-APR-2016	40.00	38.23	ug/L	-4	40	
cis-1,3-Dichloropropene	476140541005	06-APR-2016	25.00	26.04	ug/L	4	30	
Toluene	476140541005	06-APR-2016	25.00	23.72	ug/L	-5	20	
trans-1,3-Dichloropropene	476140541005	06-APR-2016	25.00	24.62	ug/L	-2	30	
1,1,2-Trichloroethane	476140541005	06-APR-2016	25.00	24.44	ug/L	-2	30	
2-Hexanone	476140541006	06-APR-2016	40.00	39.30	ug/L	-2	40	
1,3-Dichloropropane	476140541005	06-APR-2016	25.00	25.28	ug/L	1	30	
Tetrachloroethene	476140541005	06-APR-2016	25.00	23.07	ug/L	-8	30	
Dibromochloromethane	476140541005	06-APR-2016	25.00	23.88	ug/L	-4	30	
1,2-Dibromoethane	476140541005	06-APR-2016	25.00	23.93	ug/L	-4	30	
Chlorobenzene	476140541005	06-APR-2016	25.00	24.35	ug/L	-3	30	
1,1,1,2-Tetrachloroethane	476140541005	06-APR-2016	25.00	24.99	ug/L	0	30	
Ethylbenzene	476140541005	06-APR-2016	25.00	23.93	ug/L	-4	20	
m,p-Xylenes	476140541005	06-APR-2016	50.00	45.77	ug/L	-8	30	
o-Xylene	476140541005	06-APR-2016	25.00	22.88	ug/L	-8	30	
Styrene	476140541005	06-APR-2016	25.00	24.39	ug/L	-2	30	
Bromoform	476140541005	06-APR-2016	25.00	26.38	ug/L	6	30	

Analyte	ICV Seqnum	Date	Spiked	Quant	Units	%D	Max	Flags
Isopropylbenzene	476140541005	06-APR-2016	25.00	22.81	ug/L	-9	30	
1,1,2,2-Tetrachloroethane	476140541005	06-APR-2016	25.00	24.64	ug/L	-1	30	
1,2,3-Trichloropropane	476140541005	06-APR-2016	25.00	24.35	ug/L	-3	30	
Propylbenzene	476140541005	06-APR-2016	25.00	22.79	ug/L	-9	30	
Bromobenzene	476140541005	06-APR-2016	25.00	24.14	ug/L	-3	30	
1,3,5-Trimethylbenzene	476140541005	06-APR-2016	25.00	24.75	ug/L	-1	30	
2-Chlorotoluene	476140541005	06-APR-2016	25.00	23.35	ug/L	-7	30	
4-Chlorotoluene	476140541005	06-APR-2016	25.00	24.68	ug/L	-1	30	
tert-Butylbenzene	476140541005	06-APR-2016	25.00	22.88	ug/L	-8	30	
1,2,4-Trimethylbenzene	476140541005	06-APR-2016	25.00	24.08	ug/L	-4	30	
sec-Butylbenzene	476140541005	06-APR-2016	25.00	23.82	ug/L	-5	30	
para-Isopropyl Toluene	476140541005	06-APR-2016	25.00	24.55	ug/L	-2	30	
1,3-Dichlorobenzene	476140541005	06-APR-2016	25.00	23.78	ug/L	-5	30	
1,4-Dichlorobenzene	476140541005	06-APR-2016	25.00	24.65	ug/L	-1	30	
n-Butylbenzene	476140541005	06-APR-2016	25.00	23.98	ug/L	-4	30	
1,2-Dichlorobenzene	476140541005	06-APR-2016	25.00	24.62	ug/L	-2	30	
1,2-Dibromo-3-Chloropropane	476140541005	06-APR-2016	25.00	24.07	ug/L	-4	30	
1,2,4-Trichlorobenzene	476140541005	06-APR-2016	25.00	24.49	ug/L	-2	30	
Hexachlorobutadiene	476140541005	06-APR-2016	25.00	24.06	ug/L	-4	30	
Naphthalene	476140541005	06-APR-2016	25.00	23.53	ug/L	-6	30	
1,2,3-Trichlorobenzene	476140541005	06-APR-2016	25.00	24.96	ug/L	0	30	

476138895016: Analyst: DAR Date: 04/07/16 Reviewer: LW Date: 04/07/16
476140541005: Analyst: DAR Date: 04/07/16 Reviewer: LW Date: 04/07/16
476140541006: Analyst: DAR Date: 04/07/16 Reviewer: LW Date: 04/07/16

!=warning +=high bias -=low bias v=ICV

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 275719 MSVOA Water: EPA 8260B

Inst : MSVOA09 Name : 826GOX9W
Calnum : 486100040001 Date : 09-MAR-2016 17:47 Type : WATER
Units : ug/L X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	ic911	486100040011	0.25/.5PPB	09-MAR-2016 17:47	S28620 (2000000X), S29042 (2000000X), S29228 (2000000X), S27830 (1000000X), S29226 (5000X)
L2	ic912	486100040012	0.5/1.0PPB	09-MAR-2016 18:21	S28620 (1000000X), S29042 (1000000X), S29228 (1000000X), S27830 (500000X), S29226 (5000X)
L3	ic913	486100040013	2PPB	09-MAR-2016 18:56	S28620 (500000X), S29042 (250000X), S29228 (250000X), S27830 (250000X), S29226 (5000X)
L4	ic914	486100040014	5PPB	09-MAR-2016 19:30	S28620 (200000X), S29042 (100000X), S29228 (100000X), S27830 (100000X), S29226 (5000X)
L5	ic915	486100040015	10PPB	09-MAR-2016 20:04	S28620 (100000X), S29042 (50000X), S29228 (50000X), S27830 (50000X), S29226 (5000X)
L6	ic916	486100040016	20PPB	09-MAR-2016 20:39	S28620 (50000X), S29042 (25000X), S29228 (25000X), S27830 (25000X), S29226 (5000X)
L7	ic917	486100040017	50PPB	09-MAR-2016 21:13	S28620 (20000X), S29042 (10000X), S29228 (10000X), S27830 (10000X), S29226 (5000X)
L8	ic918	486100040018	75PPB	09-MAR-2016 21:47	S28620 (13330X), S29042 (6667X), S29228 (6667X), S27830 (6667X), S29226 (5000X)
L9	ic919	486100040019	100PPB	09-MAR-2016 22:21	S28620 (10000X), S29042 (5000X), S29228 (5000X), S27830 (5000X), S29226 (5000X)

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Freon 12		0.8276	0.7491m	0.7919	0.8019	0.7632	0.7487	0.7764	0.7496	AVRG		1.28858		0.7761	4	15	0.05	0.99	
Chloromethane	0.8547m	0.8061m	0.7062m	0.7253m	0.7194m	0.6738m	0.6658m	0.6896m	0.7049m	AVRG		1.37491		0.7273	9	15	0.10	0.99	
Vinyl Chloride	0.7240	0.7019	0.6542	0.6942	0.7069	0.6697	0.6629	0.6956	0.6935	AVRG		1.45095		0.6892	3	15	0.05	0.99	
Bromomethane		0.2462	0.2693	0.2637	0.2904	0.3028	0.3509			AVRG		3.48163		0.2872	13	15	0.05	0.99	
Chloroethane		0.6653	0.6099m	0.6271	0.6324	0.6118	0.5654	0.5967	0.5470	AVRG		1.64762		0.6069	6	15	0.05	0.99	
Trichlorofluoromethane		1.0356	0.9616	1.0124	1.0253	0.9412	0.9197	0.9353	0.8751	AVRG		1.03814		0.9633	6	15	0.05	0.99	
Acetone			0.2364	0.2178	0.2238	0.2384	0.2290	0.1989	0.1958	AVRG		4.54504		0.2200	8	15	0.05	0.99	
Freon 113		0.5269	0.5653	0.5474	0.5828	0.5390	0.5327	0.4639	0.4446	AVRG		1.90359		0.5253	9	15	0.05	0.99	
1,1-Dichloroethene		0.5583	0.5479	0.5451	0.5665	0.5465	0.5459	0.4733	0.4470	AVRG		1.89106		0.5288	8	15	0.05	0.99	
Methylene Chloride		0.6860	0.7598	0.7702	0.8110	0.7932	0.7318	0.6598	0.6169	AVRG		1.37252		0.7286	9	15	0.05	0.99	
Carbon Disulfide		2.3938	2.3608	2.3310	2.5810	2.3813	2.3959	2.0765m	1.9547m	AVRG		0.43302		2.3094	9	15	0.05	0.99	
MTBE		1.5577	1.6585	1.6346	1.7103	1.6785	1.6107	1.4483	1.4093	AVRG		0.62953		1.5885	7	15	0.05	0.99	
trans-1,2-Dichloroethene		0.6075	0.6530	0.6343	0.6701	0.6443	0.6117	0.5375	0.5108	AVRG		1.64294		0.6087	9	15	0.05	0.99	
Vinyl Acetate			1.9953	1.7172	2.0747	1.7697	1.9020	1.4545	1.5014	AVRG		0.56384		1.7735	13	15	0.05	0.99	
1,1-Dichloroethane		1.3422	1.4170	1.3414	1.4470	1.3278	1.3067	1.0991	1.0663	AVRG		0.77313		1.2934	11	15	0.10	0.99	
2-Butanone			0.3516	0.3596	0.3793	0.3604	0.3476	0.2958	0.2851	AVRG		2.94195		0.3399	10	15	0.05	0.99	
2,2-Dichloropropane		0.8325	0.8517	0.8581	0.9111	0.8539	0.8156	0.7013	0.6511	AVRG		1.23548		0.8094	11	15	0.05	0.99	
cis-1,2-Dichloroethene		0.6941	0.7425	0.7588	0.7742	0.7633	0.7434	0.6532	0.6297	AVRG		1.38909		0.7199	8	15	0.05	0.99	
Chloroform		1.2492	1.2270	1.2559	1.2410	1.2663	1.2202	1.0882	1.0382	AVRG		0.83456		1.1982	7	15	0.05	0.99	
Bromochloromethane		0.3467	0.3548	0.3613	0.3739	0.3653	0.3335	0.3005	0.2774	AVRG		2.94834		0.3392	10	15	0.05	0.99	
1,1,1-Trichloroethane		0.8450	0.8369	0.8253	0.8355	0.8164	0.7796	0.6843	0.6683	AVRG		1.27164		0.7864	9	15	0.05	0.99	
1,1-Dichloropropene		0.4979	0.5129	0.5066	0.4955	0.4954	0.4595	0.3987	0.3688	AVRG		2.14176		0.4669	12	15	0.05	0.99	
Carbon Tetrachloride		0.3957	0.3924	0.3886	0.4015	0.4049	0.3674	0.3363	0.3187	AVRG		2.66186		0.3757	9	15	0.05	0.99	
1,2-Dichloroethane		0.4530	0.5044	0.4736	0.4730	0.4798	0.4454	0.4048	0.3848	AVRG		2.21065		0.4524	9	15	0.05	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Benzene		1.3803	1.4147	1.3866	1.2876	1.3636	1.2270	1.1044	1.0159	AVRG		0.78585		1.2725	11	15	0.05	0.99	
Trichloroethene		0.3863	0.3707	0.3781	0.3664	0.3826	0.3401	0.3119	0.2963	AVRG		2.82442		0.3541	10	15	0.05	0.99	
1,2-Dichloropropane		0.4909	0.5048	0.4799	0.4754	0.4932	0.4256	0.3686	0.3416	AVRG		2.23458		0.4475	14	15	0.05	0.99	
Bromodichloromethane		0.4685	0.5157	0.4974	0.5016	0.5316	0.4747	0.4365	0.4277	AVRG		2.07592		0.4817	8	15	0.05	0.99	
Dibromomethane		0.2623	0.2897	0.2821	0.2862	0.2918	0.2626	0.2434	0.2287	AVRG		3.72642		0.2684	9	15	0.05	0.99	
4-Methyl-2-Pentanone			0.4309	0.4261	0.4122	0.4367	0.3890	0.3587	0.3456	AVRG		2.50077		0.3999	9	15	0.05	0.99	
cis-1,3-Dichloropropene		0.6022	0.6328	0.6273	0.6295	0.6686	0.5856	0.5167	0.5178	AVRG		1.67346		0.5976	9	15	0.05	0.99	
Toluene		0.8912	0.9733	0.8978	0.9146	0.9222	0.7825	0.7025	0.6737	AVRG		1.18382		0.8447	13	15	0.05	0.99	
trans-1,3-Dichloropropene		0.5338	0.6265	0.5975	0.6293	0.6121	0.5529	0.4837	0.4988	AVRG		1.76428		0.5668	10	15	0.05	0.99	
1,1,2-Trichloroethane		0.2101	0.2385	0.2207	0.2342	0.2291	0.2123	0.1847	0.1795	AVRG		4.68066		0.2136	10	15	0.05	0.99	
2-Hexanone			0.3363	0.3245	0.3359	0.3307	0.3144	0.2665	0.2517	AVRG		3.24081		0.3086	11	15	0.05	0.99	
1,3-Dichloropropane		0.6160	0.6646	0.6416	0.6500	0.6275	0.5977	0.5203	0.4850	AVRG		1.66570		0.6003	11	15	0.05	0.99	
Tetrachloroethene		0.3002	0.3522	0.3188	0.3366	0.3316	0.2995	0.2735	0.2680	AVRG		3.22545		0.3100	10	15	0.05	0.99	
Dibromochloromethane		0.3660	0.4336	0.4011	0.4397	0.4435	0.4196	0.3719	0.3792	AVRG		2.45802		0.4068	8	15	0.05	0.99	
1,2-Dibromoethane		0.3729	0.4292	0.4004	0.4103	0.4260	0.3999	0.3475	0.3403	AVRG		2.55875		0.3908	9	15	0.05	0.99	
Chlorobenzene		0.9616	1.1025	1.0168	1.0483	1.0223	0.9438	0.8221	0.7661	AVRG		1.04118		0.9604	12	15	0.30	0.99	
1,1,1,2-Tetrachloroethane		0.3113	0.3681	0.3267	0.3601	0.3555	0.3316	0.2952	0.2928	AVRG		3.02873		0.3302	9	15	0.05	0.99	
Ethylbenzene		1.6530	1.9211	1.7206	1.7736	1.7315	1.5764	1.3083	1.2597	AVRG		0.61804		1.6180	14	15	0.05	0.99	
m,p-Xylenes	0.4820	0.5523	0.6175	0.5990	0.5931	0.5835	0.4926	0.4085		AVRG		1.84823		0.5411	13	15	0.05	0.99	
o-Xylene		0.5335	0.6372	0.5758	0.6166	0.6318	0.5630	0.4856	0.4539	AVRG		1.77879		0.5622	12	15	0.05	0.99	
Styrene		0.8854	1.0376	1.0019	1.0483	1.0950	0.9752	0.8361	0.7864	AVRG		1.04358		0.9582	12	15	0.05	0.99	
Bromoform		0.2323	0.2630	0.2546	0.2673	0.2816	0.2602	0.2350	0.2490	AVRG		3.91595		0.2554	6	15	0.10	0.99	
Isopropylbenzene		3.1716	3.5294	3.2086	3.2389	3.2469	2.8863	2.6086	2.3596	AVRG		0.32990		3.0312	13	15	0.05	0.99	
1,1,2,2-Tetrachloroethane		1.1556	1.2371	1.1623	1.2005	1.1473	1.0213	0.8812	0.8328	AVRG		0.92613		1.0798	14	15	0.30	0.99	
1,2,3-Trichloropropane		0.2275	0.2442	0.2411	0.2375	0.2370	0.2147	0.1811	0.1828	AVRG		4.53017		0.2207	12	15	0.05	0.99	
Propylbenzene		3.8954	4.2015	3.9303	4.1426	3.8855	3.3552	2.7721		AVRG		0.26735		3.7404	14	15	0.05	0.99	
Bromobenzene		0.8710	0.9582	0.8907	0.9155	0.8841	0.7791	0.6641	0.6297	AVRG		1.21353		0.8240	15	15	0.05	0.99	
1,3,5-Trimethylbenzene		2.5166	2.6121	2.4069	2.5141	2.3994	2.1589	1.8083		AVRG		0.42641		2.3452	12	15	0.05	0.99	
2-Chlorotoluene		2.9143	3.0490	2.7978	2.7878	2.6521	2.3040	1.8969		AVRG		0.38039		2.6289	15	15	0.05	0.99	
4-Chlorotoluene		2.4898	2.6539	2.4127	2.5961	2.4956	2.2431	1.9432	1.8494	AVRG		0.42818		2.3355	13	15	0.05	0.99	
tert-Butylbenzene		1.9708	1.9906	1.9852	2.0754	2.0681	1.8571	1.6075	1.6271	AVRG		0.52695		1.8977	10	15	0.05	0.99	
1,2,4-Trimethylbenzene		2.3168	2.3740	2.3769	2.4153	2.4320	2.2661	1.9316	1.8906	AVRG		0.44436		2.2504	10	15	0.05	0.99	
sec-Butylbenzene		2.9549	3.0317	3.0411	3.0091	3.2632	2.9083	2.6448	2.4871	AVRG		0.34276		2.9175	8	15	0.05	0.99	
para-Isopropyl Toluene		1.9742	2.1378	2.0561	2.1144	2.1713	2.0009	1.9034	1.8752	AVRG		0.49282		2.0292	5	15	0.05	0.99	
1,3-Dichlorobenzene		1.3934	1.5212	1.4333	1.4676	1.4674	1.3732	1.2033	1.2171	AVRG		0.72226		1.3846	8	15	0.05	0.99	
1,4-Dichlorobenzene		1.4189	1.4595	1.4048	1.4380	1.4338	1.3441	1.1916	1.1628	AVRG		0.73709		1.3567	9	15	0.05	0.99	
n-Butylbenzene		2.2788	2.2461	2.0816	2.0405	2.1114	1.8889	1.8138	1.6713	AVRG		0.49590		2.0166	10	15	0.05	0.99	
1,2-Dichlorobenzene		1.3595	1.4891	1.4243	1.4498	1.4291	1.3769	1.2006	1.2024	AVRG		0.73182		1.3665	8	15	0.05	0.99	
1,2-Dibromo-3-Chloropropane		0.1500	0.1540	0.1535	0.1573	0.1618	0.1484	0.1328	0.1363	AVRG		6.69929		0.1493	7	15	0.05	0.99	
1,2,4-Trichlorobenzene		0.7546	0.7729	0.7137	0.7499	0.7530	0.6877	0.6473	0.6463	AVRG		1.39730		0.7157	7	15	0.05	0.99	
Hexachlorobutadiene		0.2866	0.3123	0.2931	0.3037	0.3152	0.2836	0.2694	0.2692	AVRG		3.42895		0.2916	6	15	0.05	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Naphthalene		1.7466	1.8495	1.8358	1.8835	1.8547	1.6815	1.5205	1.4985	AVRG		0.57676		1.7338	9	15	0.05	0.99	
1,2,3-Trichlorobenzene		0.7085	0.7405	0.6892	0.7272	0.7003	0.6794	0.6139	0.6006	AVRG		1.46527		0.6825	7	15	0.05	0.99	
Dibromofluoromethane	0.7487	0.7537	0.7502	0.7444	0.7537	0.7545	0.7440	0.7469	0.7306	AVRG		1.33795		0.7474	1	15	0.05	0.99	
1,2-Dichloroethane-d4	0.4179	0.4201	0.4106	0.4041	0.3866	0.3943	0.3775	0.3745	0.3479	AVRG		2.54712		0.3926	6	15	0.05	0.99	
Toluene-d8	1.3174	1.2588	1.4102	1.3065	1.3302	1.3606	1.3502	1.3128	1.3153	AVRG		0.75239		1.3291	3	15	0.05	0.99	
Bromofluorobenzene	1.2465	1.2197	1.2612	1.1767	1.1331	1.1722	1.1474	1.1231	1.1484	AVRG		0.84681		1.1809	4	15	0.05	0.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
Freon 12			1.0000	7	2.0000	-3	5.0000	2	10.000	3	20.000	-2	50.000	-4	75.000	0	100.00	-3
Chloromethane	0.5000	18	1.0000	11	2.0000	-3	5.0000	0	10.000	-1	20.000	-7	50.000	-8	75.000	-5	100.00	-3
Vinyl Chloride	0.5000	5	1.0000	2	2.0000	-5	5.0000	1	10.000	3	20.000	-3	50.000	-4	75.000	1	100.00	1
Bromomethane			1.0000	-14	2.0000	-6	5.0000	-8	10.000	1	20.000	5	50.000	**22**				
Chloroethane			1.0000	10	2.0000	0	5.0000	3	10.000	4	20.000	1	50.000	-7	75.000	-2	100.00	-10
Trichlorofluoromethane			1.0000	8	2.0000	0	5.0000	5	10.000	6	20.000	-2	50.000	-5	75.000	-3	100.00	-9
Acetone					2.0000	7	5.0000	-1	10.000	2	20.000	8	50.000	4	75.000	-10	100.00	-11
Freon 113			0.5000	0	2.0000	8	5.0000	4	10.000	11	20.000	3	50.000	1	75.000	-12	100.00	-15
1,1-Dichloroethene			0.5000	6	2.0000	4	5.0000	3	10.000	7	20.000	3	50.000	3	75.000	-10	100.00	-15
Methylene Chloride			0.5000	-6	2.0000	4	5.0000	6	10.000	11	20.000	9	50.000	0	75.000	-9	100.00	-15
Carbon Disulfide			0.5000	4	2.0000	2	5.0000	1	10.000	12	20.000	3	50.000	4	75.000	-10	100.00	-15
MTBE			0.5000	-2	2.0000	4	5.0000	3	10.000	8	20.000	6	50.000	1	75.000	-9	100.00	-11
trans-1,2-Dichloroethene			0.5000	0	2.0000	7	5.0000	4	10.000	10	20.000	6	50.000	1	75.000	-12	100.00	-16
Vinyl Acetate					2.0000	13	5.0000	-3	10.000	17	20.000	0	50.000	7	75.000	-18	100.00	-15
1,1-Dichloroethane			0.5000	4	2.0000	10	5.0000	4	10.000	12	20.000	3	50.000	1	75.000	-15	100.00	-18
2-Butanone					2.0000	3	5.0000	6	10.000	12	20.000	6	50.000	2	75.000	-13	100.00	-16
2,2-Dichloropropane			0.5000	3	2.0000	5	5.0000	6	10.000	13	20.000	5	50.000	1	75.000	-13	100.00	-20
cis-1,2-Dichloroethene			0.5000	-4	2.0000	3	5.0000	5	10.000	8	20.000	6	50.000	3	75.000	-9	100.00	-13
Chloroform			0.5000	4	2.0000	2	5.0000	5	10.000	4	20.000	6	50.000	2	75.000	-9	100.00	-13
Bromochloromethane			0.5000	2	2.0000	5	5.0000	7	10.000	10	20.000	8	50.000	-2	75.000	-11	100.00	-18
1,1,1-Trichloroethane			0.5000	7	2.0000	6	5.0000	5	10.000	6	20.000	4	50.000	-1	75.000	-13	100.00	-15
1,1-Dichloropropene			0.5000	7	2.0000	10	5.0000	8	10.000	6	20.000	6	50.000	-2	75.000	-15	100.00	**-21**
Carbon Tetrachloride			0.5000	5	2.0000	4	5.0000	3	10.000	7	20.000	8	50.000	-2	75.000	-10	100.00	-15
1,2-Dichloroethane			0.5000	0	2.0000	11	5.0000	5	10.000	5	20.000	6	50.000	-2	75.000	-11	100.00	-15
Benzene			0.5000	8	2.0000	11	5.0000	9	10.000	1	20.000	7	50.000	-4	75.000	-13	100.00	-20
Trichloroethene			0.5000	9	2.0000	5	5.0000	7	10.000	3	20.000	8	50.000	-4	75.000	-12	100.00	-16
1,2-Dichloropropane			0.5000	10	2.0000	13	5.0000	7	10.000	6	20.000	10	50.000	-5	75.000	-18	100.00	**-24**
Bromodichloromethane			0.5000	-3	2.0000	7	5.0000	3	10.000	4	20.000	10	50.000	-1	75.000	-9	100.00	-11
Dibromomethane			0.5000	-2	2.0000	8	5.0000	5	10.000	7	20.000	9	50.000	-2	75.000	-9	100.00	-15
4-Methyl-2-Pentanone					2.0000	8	5.0000	7	10.000	3	20.000	9	50.000	-3	75.000	-10	100.00	-14
cis-1,3-Dichloropropene			0.5000	1	2.0000	6	5.0000	5	10.000	5	20.000	12	50.000	-2	75.000	-14	100.00	-13
Toluene			0.5000	6	2.0000	15	5.0000	6	10.000	8	20.000	9	50.000	-7	75.000	-17	100.00	-20
trans-1,3-Dichloropropene			0.5000	-6	2.0000	11	5.0000	5	10.000	11	20.000	8	50.000	-2	75.000	-15	100.00	-12
1,1,2-Trichloroethane			0.5000	-2	2.0000	12	5.0000	3	10.000	10	20.000	7	50.000	-1	75.000	-14	100.00	-16
2-Hexanone					2.0000	9	5.0000	5	10.000	9	20.000	7	50.000	2	75.000	-14	100.00	-18
1,3-Dichloropropane			0.5000	3	2.0000	11	5.0000	7	10.000	8	20.000	5	50.000	0	75.000	-13	100.00	-19
Tetrachloroethene			0.5000	-3	2.0000	14	5.0000	3	10.000	9	20.000	7	50.000	-3	75.000	-12	100.00	-14
Dibromochloromethane			0.5000	-10	2.0000	7	5.0000	-1	10.000	8	20.000	9	50.000	3	75.000	-9	100.00	-7
1,2-Dibromoethane			0.5000	-5	2.0000	10	5.0000	2	10.000	5	20.000	9	50.000	2	75.000	-11	100.00	-13
Chlorobenzene			0.5000	0	2.0000	15	5.0000	6	10.000	9	20.000	6	50.000	-2	75.000	-14	100.00	-20
1,1,1,2-Tetrachloroethane			0.5000	-6	2.0000	11	5.0000	-1	10.000	9	20.000	8	50.000	0	75.000	-11	100.00	-11
Ethylbenzene			0.5000	2	2.0000	19	5.0000	6	10.000	10	20.000	7	50.000	-3	75.000	-19	100.00	**-22**

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
m,p-Xylenes	0.5000	-11	1.0000	2	4.0000	14	10.000	11	20.000	10	40.000	8	100.00	-9	150.00	**-25**		
o-Xylene			0.5000	-5	2.0000	13	5.0000	2	10.000	10	20.000	12	50.000	0	75.000	-14	100.00	-19
Styrene			0.5000	-8	2.0000	8	5.0000	5	10.000	9	20.000	14	50.000	2	75.000	-13	100.00	-18
Bromoform			0.5000	-9	2.0000	3	5.0000	0	10.000	5	20.000	10	50.000	2	75.000	-8	100.00	-2
Isopropylbenzene			0.5000	5	2.0000	16	5.0000	6	10.000	7	20.000	7	50.000	-5	75.000	-14	100.00	**-22**
1,1,2,2-Tetrachloroethane			0.5000	7	2.0000	15	5.0000	8	10.000	11	20.000	6	50.000	-5	75.000	-18	100.00	**-23**
1,2,3-Trichloropropane			0.5000	3	2.0000	11	5.0000	9	10.000	8	20.000	7	50.000	-3	75.000	-18	100.00	-17
Propylbenzene			0.5000	4	2.0000	12	5.0000	5	10.000	11	20.000	4	50.000	-10	75.000	**-26**		
Bromobenzene			0.5000	6	2.0000	16	5.0000	8	10.000	11	20.000	7	50.000	-5	75.000	-19	100.00	**-24**
1,3,5-Trimethylbenzene			0.5000	7	2.0000	11	5.0000	3	10.000	7	20.000	2	50.000	-8	75.000	**-23**		
2-Chlorotoluene			0.5000	11	2.0000	16	5.0000	6	10.000	6	20.000	1	50.000	-12	75.000	**-28**		
4-Chlorotoluene			0.5000	7	2.0000	14	5.0000	3	10.000	11	20.000	7	50.000	-4	75.000	-17	100.00	**-21**
tert-Butylbenzene			0.5000	4	2.0000	5	5.0000	5	10.000	9	20.000	9	50.000	-2	75.000	-15	100.00	-14
1,2,4-Trimethylbenzene			0.5000	3	2.0000	5	5.0000	6	10.000	7	20.000	8	50.000	1	75.000	-14	100.00	-16
sec-Butylbenzene			0.5000	1	2.0000	4	5.0000	4	10.000	3	20.000	12	50.000	0	75.000	-9	100.00	-15
para-Isopropyl Toluene			0.5000	-3	2.0000	5	5.0000	1	10.000	4	20.000	7	50.000	-1	75.000	-6	100.00	-8
1,3-Dichlorobenzene			0.5000	1	2.0000	10	5.0000	4	10.000	6	20.000	6	50.000	-1	75.000	-13	100.00	-12
1,4-Dichlorobenzene			0.5000	5	2.0000	8	5.0000	4	10.000	6	20.000	6	50.000	-1	75.000	-12	100.00	-14
n-Butylbenzene			0.5000	13	2.0000	11	5.0000	3	10.000	1	20.000	5	50.000	-6	75.000	-10	100.00	-17
1,2-Dichlorobenzene			0.5000	-1	2.0000	9	5.0000	4	10.000	6	20.000	5	50.000	1	75.000	-12	100.00	-12
1,2-Dibromo-3-Chloropropane			0.5000	1	2.0000	3	5.0000	3	10.000	5	20.000	8	50.000	-1	75.000	-11	100.00	-9
1,2,4-Trichlorobenzene			0.5000	5	2.0000	8	5.0000	0	10.000	5	20.000	5	50.000	-4	75.000	-10	100.00	-10
Hexachlorobutadiene			0.5000	-2	2.0000	7	5.0000	0	10.000	4	20.000	8	50.000	-3	75.000	-8	100.00	-8
Naphthalene			0.5000	1	2.0000	7	5.0000	6	10.000	9	20.000	7	50.000	-3	75.000	-12	100.00	-14
1,2,3-Trichlorobenzene			0.5000	4	2.0000	9	5.0000	1	10.000	7	20.000	3	50.000	0	75.000	-10	100.00	-12
Dibromofluoromethane	50.000	0	50.000	1	50.000	0	50.000	0	50.000	1	50.000	1	50.000	0	50.000	0	50.000	-2
1,2-Dichloroethane-d4	50.000	6	50.000	7	50.000	5	50.000	3	50.000	-2	50.000	0	50.000	-4	50.000	-5	50.000	-11
Toluene-d8	50.000	-1	50.000	-5	50.000	6	50.000	-2	50.000	0	50.000	2	50.000	2	50.000	-1	50.000	-1
Bromofluorobenzene	50.000	6	50.000	3	50.000	7	50.000	0	50.000	-4	50.000	-1	50.000	-3	50.000	-5	50.000	-3

NJT 03/16/16 [Freon 12]: Combined split peak in 2PPB (ic913).

NJT 03/16/16 [Chloromethane]: Combined split peak in all levels.

NJT 03/16/16 [Acetone]: Combined split peak.5PPB (ic911).

NJT 03/16/16 [Chloroethane]: Combined split peak in 2PPB (ic913).

NJT 03/16/16 [Iodomethane]: Combined split peak in 5PPB (ic914).

NJT 03/16/16 [Ethanol]: Combined split peak.5PPB (ic911).

NJT 03/16/16 [Carbon Disulfide]: Corrected fronting or tailing peak integration in multiple levels.

Analyst: NJT Date: 03/16/16 Reviewer: LW Date: 03/16/16

m=manual integration

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 275719 MSVOA Water
EPA 8260B

Inst : MSVOA09 Name : 826GOX9W
Calnum : 486100040001 Cal Date : 09-MAR-2016 Type : WATER

ICV 486100040020 (ic920 09-MAR-2016) stds: S29123 (10000X), S29226 (5000X)
ICV 486100040021 (ic921 09-MAR-2016) stds: S29230 (10000X), S29207 (10000X), S29290 (10000X), S29226 (5000X)
ICV 486101497003 (ica03 10-MAR-2016) stds: S26946 (50000X), S27395 (100000X), S29226 (5000X)

Analyte	ICV Seqnum	Date	Spiked	Quant	Units	%D	Max	Flags
Freon 12	486100040020	09-MAR-2016	20.00	15.28	ug/L	**-24**	30	!v-
Chloromethane	486100040020	09-MAR-2016	20.00	18.10	ug/L	-10	30	
Vinyl Chloride	486100040020	09-MAR-2016	20.00	19.14	ug/L	-4	20	
Bromomethane	486100040020	09-MAR-2016	20.00	16.44	ug/L	-18	30	m
Chloroethane	486100040020	09-MAR-2016	20.00	19.20	ug/L	-4	30	
Trichlorofluoromethane	486100040020	09-MAR-2016	20.00	18.19	ug/L	-9	30	
Acetone	486101497003	10-MAR-2016	40.00	26.03	ug/L	**-35**	40	!v-
Freon 113	486100040021	09-MAR-2016	25.00	18.80	ug/L	**-25**	30	!v-
1,1-Dichloroethene	486100040021	09-MAR-2016	25.00	21.13	ug/L	-15	20	
Methylene Chloride	486100040021	09-MAR-2016	25.00	22.15	ug/L	-11	30	
Carbon Disulfide	486100040021	09-MAR-2016	25.00	19.64	ug/L	**-21**	30	!v- m
MTBE	486100040021	09-MAR-2016	25.00	24.83	ug/L	-1	30	
trans-1,2-Dichloroethene	486100040021	09-MAR-2016	25.00	20.25	ug/L	-19	30	
Vinyl Acetate	486100040021	09-MAR-2016	25.00	21.49	ug/L	-14	40	
1,1-Dichloroethane	486100040021	09-MAR-2016	25.00	21.58	ug/L	-14	30	
2-Butanone	486101497003	10-MAR-2016	40.00	31.03	ug/L	**-22**	40	!v-
2,2-Dichloropropane	486100040021	09-MAR-2016	25.00	20.34	ug/L	-19	30	
cis-1,2-Dichloroethene	486100040021	09-MAR-2016	25.00	23.31	ug/L	-7	30	
Chloroform	486100040021	09-MAR-2016	25.00	21.30	ug/L	-15	20	
Bromochloromethane	486100040021	09-MAR-2016	25.00	23.17	ug/L	-7	30	
1,1,1-Trichloroethane	486100040021	09-MAR-2016	25.00	22.10	ug/L	-12	30	
1,1-Dichloropropene	486100040021	09-MAR-2016	25.00	20.74	ug/L	-17	30	
Carbon Tetrachloride	486100040021	09-MAR-2016	25.00	23.70	ug/L	-5	30	
1,2-Dichloroethane	486100040021	09-MAR-2016	25.00	23.30	ug/L	-7	30	
Benzene	486100040021	09-MAR-2016	25.00	23.58	ug/L	-6	30	
Trichloroethene	486100040021	09-MAR-2016	25.00	23.38	ug/L	-6	30	
1,2-Dichloropropane	486100040021	09-MAR-2016	25.00	22.36	ug/L	-11	20	
Bromodichloromethane	486100040021	09-MAR-2016	25.00	22.78	ug/L	-9	30	
Dibromomethane	486100040021	09-MAR-2016	25.00	23.95	ug/L	-4	30	
4-Methyl-2-Pentanone	486101497003	10-MAR-2016	40.00	31.44	ug/L	**-21**	40	!v-
cis-1,3-Dichloropropene	486100040021	09-MAR-2016	25.00	24.55	ug/L	-2	30	
Toluene	486100040021	09-MAR-2016	25.00	22.15	ug/L	-11	20	
trans-1,3-Dichloropropene	486100040021	09-MAR-2016	25.00	22.63	ug/L	-9	30	
1,1,2-Trichloroethane	486100040021	09-MAR-2016	25.00	22.58	ug/L	-10	30	
2-Hexanone	486101497003	10-MAR-2016	40.00	31.99	ug/L	-20	40	
1,3-Dichloropropane	486100040021	09-MAR-2016	25.00	23.90	ug/L	-4	30	
Tetrachloroethene	486100040021	09-MAR-2016	25.00	23.69	ug/L	-5	30	
Dibromochloromethane	486100040021	09-MAR-2016	25.00	23.39	ug/L	-6	30	
1,2-Dibromoethane	486100040021	09-MAR-2016	25.00	23.45	ug/L	-6	30	
Chlorobenzene	486100040021	09-MAR-2016	25.00	22.81	ug/L	-9	30	
1,1,1,2-Tetrachloroethane	486100040021	09-MAR-2016	25.00	23.29	ug/L	-7	30	
Ethylbenzene	486100040021	09-MAR-2016	25.00	22.97	ug/L	-8	20	
m,p-Xylenes	486100040021	09-MAR-2016	50.00	45.85	ug/L	-8	30	
o-Xylene	486100040021	09-MAR-2016	25.00	23.34	ug/L	-7	30	
Styrene	486100040021	09-MAR-2016	25.00	24.82	ug/L	-1	30	

Analyte	ICV Seqnum	Date	Spiked	Quant	Units	%D	Max	Flags
Bromoform	486100040021	09-MAR-2016	25.00	24.86	ug/L	-1	30	
Isopropylbenzene	486100040021	09-MAR-2016	25.00	23.51	ug/L	-6	30	
1,1,2,2-Tetrachloroethane	486100040021	09-MAR-2016	25.00	24.07	ug/L	-4	30	
1,2,3-Trichloropropane	486100040021	09-MAR-2016	25.00	24.70	ug/L	-1	30	
Propylbenzene	486100040021	09-MAR-2016	25.00	22.50	ug/L	-10	30	
Bromobenzene	486100040021	09-MAR-2016	25.00	24.35	ug/L	-3	30	
1,3,5-Trimethylbenzene	486100040021	09-MAR-2016	25.00	23.79	ug/L	-5	30	
2-Chlorotoluene	486100040021	09-MAR-2016	25.00	22.62	ug/L	-10	30	
4-Chlorotoluene	486100040021	09-MAR-2016	25.00	24.33	ug/L	-3	30	
tert-Butylbenzene	486100040021	09-MAR-2016	25.00	24.14	ug/L	-3	30	
1,2,4-Trimethylbenzene	486100040021	09-MAR-2016	25.00	23.16	ug/L	-7	30	
sec-Butylbenzene	486100040021	09-MAR-2016	25.00	23.28	ug/L	-7	30	
para-Isopropyl Toluene	486100040021	09-MAR-2016	25.00	23.65	ug/L	-5	30	
1,3-Dichlorobenzene	486100040021	09-MAR-2016	25.00	23.90	ug/L	-4	30	
1,4-Dichlorobenzene	486100040021	09-MAR-2016	25.00	23.21	ug/L	-7	30	
n-Butylbenzene	486100040021	09-MAR-2016	25.00	22.73	ug/L	-9	30	
1,2-Dichlorobenzene	486100040021	09-MAR-2016	25.00	24.34	ug/L	-3	30	
1,2-Dibromo-3-Chloropropane	486100040021	09-MAR-2016	25.00	24.30	ug/L	-3	30	
1,2,4-Trichlorobenzene	486100040021	09-MAR-2016	25.00	23.16	ug/L	-7	30	
Hexachlorobutadiene	486100040021	09-MAR-2016	25.00	23.54	ug/L	-6	30	
Naphthalene	486100040021	09-MAR-2016	25.00	22.38	ug/L	-10	30	
1,2,3-Trichlorobenzene	486100040021	09-MAR-2016	25.00	24.26	ug/L	-3	30	

486100040020: Analyst: NJT Date: 03/16/16 Reviewer: LW Date: 03/16/16
486100040021: Analyst: NJT Date: 03/16/16 Reviewer: LW Date: 03/16/16
486101497003: Analyst: NJT Date: 03/16/16 Reviewer: LW Date: 03/16/16

!=warning -=low bias m=manual integration v=ICV

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 275719 MSVOA Water: EPA 8260B

Inst : MSVOA11 Name : 8260 hexraised
Calnum : 836098562001 Date : 08-MAR-2016 21:28 Type : WATER
Units : ug/L X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	kc814	836098562014	.25PPB	08-MAR-2016 21:28	S28620 (2000000X), S29042 (2000000X), S29228 (2000000X), S27830 (1000000X), S29284 (2500X)
L2	kc815	836098562015	.5PPB	08-MAR-2016 21:56	S29284 (2500X), S28620 (1000000X), S29042 (1000000X), S29228 (1000000X), S27830 (500000X)
L3	kc816	836098562016	2PPB	08-MAR-2016 22:25	S28620 (500000X), S29042 (250000X), S29228 (250000X), S27830 (250000X), S29284 (2500X)
L4	kc817	836098562017	5PPB	08-MAR-2016 22:53	S29284 (2500X), S28620 (200000X), S29042 (100000X), S29228 (100000X), S27830 (100000X)
L5	kc818	836098562018	10PPB	08-MAR-2016 23:21	S29284 (2500X), S28620 (100000X), S29042 (50000X), S29228 (50000X), S27830 (50000X)
L6	kc819	836098562019	20PPB	08-MAR-2016 23:50	S29284 (2500X), S28620 (50000X), S29042 (25000X), S29228 (25000X), S27830 (25000X)
L7	kc820	836098562020	50PPB	09-MAR-2016 00:18	S29284 (2500X), S28620 (20000X), S29042 (10000X), S29228 (10000X), S27830 (10000X)
L8	kc821	836098562021	75PPB	09-MAR-2016 00:46	S29284 (2500X), S28620 (13330X), S29042 (6667X), S29228 (6667X), S27830 (6667X)
L9	kc822	836098562022	100PPB	09-MAR-2016 01:14	S29284 (2500X), S28620 (10000X), S29042 (5000X), S29228 (5000X), S27830 (5000X)

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Freon 12		1.0114m	0.9959m	0.9848m	0.9347	0.8563	0.9420	0.9177	0.9095	AVRG		1.05928		0.9440	5	15	0.05	0.99	
Chloromethane	1.4383m	1.4910	1.3909m	1.3584	1.3560m	1.3198m	1.2750	1.1904	1.1692	AVRG		0.75069		1.3321	8	15	0.10	0.99	
Vinyl Chloride	0.9128	0.9460	0.9153	0.9259	0.9045	0.9040	0.8972	0.8718	0.8538	AVRG		1.10682		0.9035	3	15	0.05	0.99	
Bromomethane		0.2363	0.2778	0.2736	0.2910	0.2703	0.2903	0.2964m	0.3176m	AVRG		3.55045		0.2817	8	15	0.05	0.99	
Chloroethane	0.4547	0.5019	0.5082	0.5204	0.5099	0.5129	0.5074	0.4920	0.4885	AVRG		2.00180		0.4996	4	15	0.05	0.99	
Trichlorofluoromethane		1.0472	1.0088	1.0024	0.9669	0.9290	0.9761	0.9446	0.9381	AVRG		1.02393		0.9766	4	15	0.05	0.99	
Acetone			0.2536	0.2324	0.2334	0.2775	0.2304	0.2326	0.2334	AVRG		4.13408		0.2419	7	15	0.05	0.99	
Freon 113		0.5580	0.4884	0.5495	0.5257	0.5423	0.5035	0.5122	0.5161	AVRG		1.90676		0.5245	5	15	0.05	0.99	
1,1-Dichloroethene		0.5176	0.4861	0.5105	0.5006	0.5152	0.4896	0.4966	0.4929	AVRG		1.99546		0.5011	2	15	0.05	0.99	
Methylene Chloride		0.6506	0.6551	0.6420	0.6881	0.6781	0.6477	0.6436	0.6361	AVRG		1.52635		0.6552	3	15	0.05	0.99	
Carbon Disulfide		1.8918	1.7716	1.8712	1.8899	1.9251	1.8096	1.8165	1.8040	AVRG		0.54128		1.8475	3	15	0.05	0.99	
MTBE		1.9467	1.7681	1.7732	1.9200	1.9321	1.8812	1.9067	1.9261	AVRG		0.53142		1.8818	4	15	0.05	0.99	
trans-1,2-Dichloroethene		0.6152	0.5658	0.5830	0.6072	0.5990	0.5743	0.5794	0.5734	AVRG		1.70313		0.5872	3	15	0.05	0.99	
Vinyl Acetate			1.2568	1.1703	1.4012	1.2040	1.2432	1.4124	1.3005	AVRG		0.77877		1.2841	7	15	0.05	0.99	
1,1-Dichloroethane		1.2071	1.1288	1.1719	1.2124	1.1966	1.1494	1.1577	1.1564	AVRG		0.85286		1.1725	3	15	0.10	0.99	
2-Butanone			0.3201	0.3012	0.3564	0.3728	0.3304	0.3478	0.3490	AVRG		2.94404		0.3397	7	15	0.05	0.99	
2,2-Dichloropropane		0.8920	0.8488	0.8582	0.8714	0.8815	0.8428	0.8512	0.8296	AVRG		1.16355		0.8594	2	15	0.05	0.99	
cis-1,2-Dichloroethene		0.6910	0.6830	0.6744	0.6904	0.6852	0.6735	0.6759	0.6718	AVRG		1.46922		0.6806	1	15	0.05	0.99	
Chloroform		1.2451	1.1304	1.1360	1.1734	1.1556	1.1113	1.1123	1.1165	AVRG		0.87141		1.1476	4	15	0.05	0.99	
Bromochloromethane		0.2714	0.2874	0.2982	0.3005	0.2802	0.2829	0.2755	0.2769	AVRG		3.51951		0.2841	4	15	0.05	0.99	
1,1,1-Trichloroethane		1.0418	0.9104	0.9078	0.9351	0.9403	0.8896	0.9001	0.8997	AVRG		1.07748		0.9281	5	15	0.05	0.99	
1,1-Dichloropropene		0.5240	0.5167	0.5428	0.5403	0.5543	0.5253	0.5394	0.5346	AVRG		1.87028		0.5347	2	15	0.05	0.99	
Carbon Tetrachloride		0.4758	0.4272	0.4489	0.4433	0.4539	0.4297	0.4474	0.4462	AVRG		2.23939		0.4465	3	15	0.05	0.99	
1,2-Dichloroethane		0.5820	0.5390	0.5487	0.5620	0.5569	0.5403	0.5406	0.5361	AVRG		1.81588		0.5507	3	15	0.05	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Benzene		1.7005	1.5927	1.6260	1.6603	1.6292	1.5601	1.5712	1.5523	AVRG		0.62052		1.6115	3	15	0.05	0.99	
Trichloroethene		0.4111	0.4023	0.3949	0.3945	0.4032	0.3901	0.3918	0.3912	AVRG		2.51641		0.3974	2	15	0.05	0.99	
1,2-Dichloropropane		0.4361	0.4187	0.4180	0.4255	0.4276	0.4186	0.4209	0.4169	AVRG		2.36515		0.4228	2	15	0.05	0.99	
Bromodichloromethane		0.5289	0.5080	0.5168	0.5236	0.5236	0.5136	0.5201	0.5191	AVRG		1.92595		0.5192	1	15	0.05	0.99	
Dibromomethane		0.2279	0.2450	0.2398	0.2496	0.2502	0.2394	0.2424	0.2401	AVRG		4.13568		0.2418	3	15	0.05	0.99	
4-Methyl-2-Pentanone			0.3791	0.3697	0.4310	0.4475	0.4053	0.4312	0.4246	AVRG		2.42347		0.4126	7	15	0.05	0.99	
cis-1,3-Dichloropropene		0.6129	0.5931	0.6275	0.6495	0.6589	0.6543	0.6580	0.6520	AVRG		1.56673		0.6383	4	15	0.05	0.99	
Toluene		2.1404	2.0141	1.9775	1.9899	1.9837	1.8573	1.8724	1.8700	AVRG		0.50938		1.9632	5	15	0.05	0.99	
trans-1,3-Dichloropropene		0.6036	0.5951	0.6315	0.6641	0.6701	0.6631	0.6717	0.6709	AVRG		1.54739		0.6463	5	15	0.05	0.99	
1,1,2-Trichloroethane		0.2270	0.2260	0.2316	0.2360	0.2332	0.2240	0.2242	0.2259	AVRG		4.37672		0.2285	2	15	0.05	0.99	
2-Hexanone			0.3004	0.2913	0.3359	0.3610	0.3281	0.3411	0.3483	AVRG		3.03530		0.3295	8	15	0.05	0.99	
1,3-Dichloropropane		0.7541	0.7056	0.7136	0.7443	0.7387	0.6984	0.7019	0.7037	AVRG		1.38880		0.7200	3	15	0.05	0.99	
Tetrachloroethene		0.4116	0.4178	0.4195	0.4119	0.4174	0.3963	0.4045	0.4068	AVRG		2.43485		0.4107	2	15	0.05	0.99	
Dibromochloromethane		0.3881	0.3723	0.3838	0.4059	0.4118	0.4044	0.4130	0.4185	AVRG		2.50173		0.3997	4	15	0.05	0.99	
1,2-Dibromoethane		0.3970	0.3910	0.3886	0.4154	0.4151	0.3912	0.3975	0.3978	AVRG		2.50499		0.3992	3	15	0.05	0.99	
Chlorobenzene		1.2965	1.2385	1.2177	1.2141	1.2140	1.1594	1.1790	1.1820	AVRG		0.82464		1.2126	4	15	0.30	0.99	
1,1,1,2-Tetrachloroethane		0.4334	0.3761	0.3794	0.4007	0.3952	0.3838	0.3914	0.3913	AVRG		2.53859		0.3939	5	15	0.05	0.99	
Ethylbenzene		2.2745	2.2640	2.2223	2.2190	2.2085	2.1001	2.1261	2.1519	AVRG		0.45541		2.1958	3	15	0.05	0.99	
m,p-Xylenes	0.8275	0.7878	0.8020	0.8051	0.8058	0.8080	0.7768	0.7905	0.8105	AVRG		1.24756		0.8016	2	15	0.05	0.99	
o-Xylene		0.7770	0.7709	0.7607	0.7812	0.7874	0.7598	0.7765	0.7894	AVRG		1.28972		0.7754	1	15	0.05	0.99	
Styrene		1.1993	1.2491	1.2781	1.3298	1.3378	1.2931	1.3302	1.3445	AVRG		0.77207		1.2952	4	15	0.05	0.99	
Bromoform		0.2475	0.2309	0.2365	0.2641	0.2749	0.2679	0.2839	0.2928	AVRG		3.81239		0.2623	8	15	0.10	0.99	
Isopropylbenzene		3.9386	3.9369	3.9986	4.0152	4.1169	3.9081	4.0362	4.0721	AVRG		0.24982		4.0028	2	15	0.05	0.99	
1,1,2,2-Tetrachloroethane		1.1094	1.1624	1.0412	1.1423	1.1212	1.0181	1.0885	1.0713	AVRG		0.91385		1.0943	5	15	0.30	0.99	
1,2,3-Trichloropropane		0.9328m	0.9153m	0.8459m	0.8967m	0.9261m	0.8204m	0.8550m	0.8494m	AVRG		1.13610		0.8802	5	15	0.05	0.99	
Propylbenzene		5.3681	5.1324	5.0930	5.1035	5.1442	4.9002	5.0358	5.0121	AVRG		0.19613		5.0987	3	15	0.05	0.99	
Bromobenzene		1.0832	1.0453	1.0046	1.0014	0.9956	0.9410	0.9566	0.9514	AVRG		1.00264		0.9974	5	15	0.05	0.99	
1,3,5-Trimethylbenzene		3.1830	3.3705	3.3250	3.3769	3.3953	3.2500	3.3375	3.3526	AVRG		0.30086		3.3239	2	15	0.05	0.99	
2-Chlorotoluene		3.4770	3.3098	3.3047	3.2555	3.2528	3.1123	3.1758	3.1691	AVRG		0.30702		3.2571	3	15	0.05	0.99	
4-Chlorotoluene		3.0076	3.0042	2.9573	3.0068	3.0221	2.8492	2.9302	2.9038	AVRG		0.33782		2.9601	2	15	0.05	0.99	
tert-Butylbenzene		2.7037	2.7739	2.8650	2.8679	2.8878	2.8023	2.8781	2.8969	AVRG		0.35280		2.8344	2	15	0.05	0.99	
1,2,4-Trimethylbenzene		3.1823	3.4327	3.3587	3.4904	3.4922	3.3218	3.4079	3.4112	AVRG		0.29523		3.3872	3	15	0.05	0.99	
sec-Butylbenzene		4.4491	4.1664	4.4408	4.4376	4.4705	4.2943	4.4086	4.3876	AVRG		0.22821		4.3819	2	15	0.05	0.99	
para-Isopropyl Toluene		3.2297	3.3900	3.5055	3.5153	3.5799	3.4693	3.5511	3.5518	AVRG		0.28785		3.4741	3	15	0.05	0.99	
1,3-Dichlorobenzene		1.9591	1.8579	1.8216	1.8494	1.8276	1.7280	1.7542	1.7482	AVRG		0.54998		1.8182	4	15	0.05	0.99	
1,4-Dichlorobenzene		2.0075	1.9514	1.8616	1.8783	1.8674	1.7488	1.7803	1.7725	AVRG		0.53808		1.8585	5	15	0.05	0.99	
n-Butylbenzene		3.4674	3.3205	3.4080	3.4828	3.4524	3.3450	3.3885	3.3537	AVRG		0.29392		3.4023	2	15	0.05	0.99	
1,2-Dichlorobenzene		1.6881	1.7817	1.6932	1.7236	1.7156	1.6308	1.6644	1.6412	AVRG		0.59090		1.6923	3	15	0.05	0.99	
1,2-Dibromo-3-Chloropropane		0.1818	0.1889	0.1659	0.1868	0.1959	0.1767	0.1896	0.1880	AVRG		5.42884		0.1842	5	15	0.05	0.99	
1,2,4-Trichlorobenzene		1.0294	0.9856	0.9679	1.0035	1.0116	0.9659	1.0091	0.9901	AVRG		1.00465		0.9954	2	15	0.05	0.99	
Hexachlorobutadiene		0.5306	0.5054	0.5172	0.5180	0.5229	0.4992	0.5173	0.5103	AVRG		1.94132		0.5151	2	15	0.05	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Naphthalene		1.9919	2.0817	1.9879	2.4206	2.5649	2.3268	2.5318	2.4217	AVRG		0.43650		2.2909	10	15	0.05	0.99	
1,2,3-Trichlorobenzene		0.6976	0.7919	0.7428	0.8191	0.8189	0.7480	0.8104	0.7598	AVRG		1.29270		0.7736	6	15	0.05	0.99	
Dibromofluoromethane	0.5006	0.5030	0.4904	0.4860	0.4927	0.4934	0.4965	0.4976	0.4984	AVRG		2.01854		0.4954	1	15	0.05	0.99	
1,2-Dichloroethane-d4	0.3840	0.3815	0.3887	0.3825	0.3870	0.3890	0.3895	0.3958	0.3937	AVRG		2.57763		0.3880	1	15	0.05	0.99	
Toluene-d8	1.3894	1.3861	1.4042	1.3917	1.3848	1.3876	1.3815	1.3718	1.3761	AVRG		0.72154		1.3859	1	15	0.05	0.99	
Bromofluorobenzene	1.0091	1.0095	1.0152	1.0092	0.9937	1.0018	0.9970	1.0003	1.0056	AVRG		0.99543		1.0046	1	15	0.05	0.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
Freon 12			1.0000	7	2.0000	5	5.0000	4	10.000	-1	20.000	-9	50.000	0	75.000	-3	100.00	-4
Chloromethane	0.5000	8	1.0000	12	2.0000	4	5.0000	2	10.000	2	20.000	-1	50.000	-4	75.000	-11	100.00	-12
Vinyl Chloride	0.5000	1	1.0000	5	2.0000	1	5.0000	2	10.000	0	20.000	0	50.000	-1	75.000	-4	100.00	-5
Bromomethane			1.0000	-16	2.0000	-1	5.0000	-3	10.000	3	20.000	-4	50.000	3	75.000	5	100.00	13
Chloroethane	0.5000	-9	1.0000	0	2.0000	2	5.0000	4	10.000	2	20.000	3	50.000	2	75.000	-2	100.00	-2
Trichlorofluoromethane			1.0000	7	2.0000	3	5.0000	3	10.000	-1	20.000	-5	50.000	0	75.000	-3	100.00	-4
Acetone					2.0000	5	5.0000	-4	10.000	-4	20.000	15	50.000	-5	75.000	-4	100.00	-4
Freon 113			0.5000	6	2.0000	-7	5.0000	5	10.000	0	20.000	3	50.000	-4	75.000	-2	100.00	-2
1,1-Dichloroethene			0.5000	3	2.0000	-3	5.0000	2	10.000	0	20.000	3	50.000	-2	75.000	-1	100.00	-2
Methylene Chloride			0.5000	-1	2.0000	0	5.0000	-2	10.000	5	20.000	3	50.000	-1	75.000	-2	100.00	-3
Carbon Disulfide			0.5000	2	2.0000	-4	5.0000	1	10.000	2	20.000	4	50.000	-2	75.000	-2	100.00	-2
MTBE			0.5000	3	2.0000	-6	5.0000	-6	10.000	2	20.000	3	50.000	0	75.000	1	100.00	2
trans-1,2-Dichloroethene			0.5000	5	2.0000	-4	5.0000	-1	10.000	3	20.000	2	50.000	-2	75.000	-1	100.00	-2
Vinyl Acetate					2.0000	-2	5.0000	-9	10.000	9	20.000	-6	50.000	-3	75.000	10	100.00	1
1,1-Dichloroethane			0.5000	3	2.0000	-4	5.0000	0	10.000	3	20.000	2	50.000	-2	75.000	-1	100.00	-1
2-Butanone					2.0000	-6	5.0000	-11	10.000	5	20.000	10	50.000	-3	75.000	2	100.00	3
2,2-Dichloropropane			0.5000	4	2.0000	-1	5.0000	0	10.000	1	20.000	3	50.000	-2	75.000	-1	100.00	-3
cis-1,2-Dichloroethene			0.5000	2	2.0000	0	5.0000	-1	10.000	1	20.000	1	50.000	-1	75.000	-1	100.00	-1
Chloroform			0.5000	8	2.0000	-1	5.0000	-1	10.000	2	20.000	1	50.000	-3	75.000	-3	100.00	-3
Bromochloromethane			0.5000	-4	2.0000	1	5.0000	5	10.000	6	20.000	-1	50.000	0	75.000	-3	100.00	-3
1,1,1-Trichloroethane			0.5000	12	2.0000	-2	5.0000	-2	10.000	1	20.000	1	50.000	-4	75.000	-3	100.00	-3
1,1-Dichloropropene			0.5000	-2	2.0000	-3	5.0000	2	10.000	1	20.000	4	50.000	-2	75.000	1	100.00	0
Carbon Tetrachloride			0.5000	7	2.0000	-4	5.0000	1	10.000	-1	20.000	2	50.000	-4	75.000	0	100.00	0
1,2-Dichloroethane			0.5000	6	2.0000	-2	5.0000	0	10.000	2	20.000	1	50.000	-2	75.000	-2	100.00	-3
Benzene			0.5000	6	2.0000	-1	5.0000	1	10.000	3	20.000	1	50.000	-3	75.000	-3	100.00	-4
Trichloroethene			0.5000	3	2.0000	1	5.0000	-1	10.000	-1	20.000	1	50.000	-2	75.000	-1	100.00	-2
1,2-Dichloropropane			0.5000	3	2.0000	-1	5.0000	-1	10.000	1	20.000	1	50.000	-1	75.000	0	100.00	-1
Bromodichloromethane			0.5000	2	2.0000	-2	5.0000	0	10.000	1	20.000	1	50.000	-1	75.000	0	100.00	0
Dibromomethane			0.5000	-6	2.0000	1	5.0000	-1	10.000	3	20.000	3	50.000	-1	75.000	0	100.00	-1
4-Methyl-2-Pentanone					2.0000	-8	5.0000	-10	10.000	4	20.000	8	50.000	-2	75.000	4	100.00	3
cis-1,3-Dichloropropene			0.5000	-4	2.0000	-7	5.0000	-2	10.000	2	20.000	3	50.000	3	75.000	3	100.00	2
Toluene			0.5000	9	2.0000	3	5.0000	1	10.000	1	20.000	1	50.000	-5	75.000	-5	100.00	-5
trans-1,3-Dichloropropene			0.5000	-7	2.0000	-8	5.0000	-2	10.000	3	20.000	4	50.000	3	75.000	4	100.00	4
1,1,2-Trichloroethane			0.5000	-1	2.0000	-1	5.0000	1	10.000	3	20.000	2	50.000	-2	75.000	-2	100.00	-1
2-Hexanone					2.0000	-9	5.0000	-12	10.000	2	20.000	10	50.000	0	75.000	4	100.00	6
1,3-Dichloropropane			0.5000	5	2.0000	-2	5.0000	-1	10.000	3	20.000	3	50.000	-3	75.000	-3	100.00	-2
Tetrachloroethene			0.5000	0	2.0000	2	5.0000	2	10.000	0	20.000	2	50.000	-4	75.000	-2	100.00	-1
Dibromochloromethane			0.5000	-3	2.0000	-7	5.0000	-4	10.000	2	20.000	3	50.000	1	75.000	3	100.00	5
1,2-Dibromoethane			0.5000	-1	2.0000	-2	5.0000	-3	10.000	4	20.000	4	50.000	-2	75.000	0	100.00	0
Chlorobenzene			0.5000	7	2.0000	2	5.0000	0	10.000	0	20.000	0	50.000	-4	75.000	-3	100.00	-3
1,1,1,2-Tetrachloroethane			0.5000	10	2.0000	-5	5.0000	-4	10.000	2	20.000	0	50.000	-3	75.000	-1	100.00	-1
Ethylbenzene			0.5000	4	2.0000	3	5.0000	1	10.000	1	20.000	1	50.000	-4	75.000	-3	100.00	-2

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
m,p-Xylenes	0.5000	3	1.0000	-2	4.0000	0	10.000	0	20.000	1	40.000	1	100.00	-3	150.00	-1	200.00	1
o-Xylene			0.5000	0	2.0000	-1	5.0000	-2	10.000	1	20.000	2	50.000	-2	75.000	0	100.00	2
Styrene			0.5000	-7	2.0000	-4	5.0000	-1	10.000	3	20.000	3	50.000	0	75.000	3	100.00	4
Bromoform			0.5000	-6	2.0000	-12	5.0000	-10	10.000	1	20.000	5	50.000	2	75.000	8	100.00	12
Isopropylbenzene			0.5000	-2	2.0000	-2	5.0000	0	10.000	0	20.000	3	50.000	-2	75.000	1	100.00	2
1,1,2,2-Tetrachloroethane			0.5000	1	2.0000	6	5.0000	-5	10.000	4	20.000	2	50.000	-7	75.000	-1	100.00	-2
1,2,3-Trichloropropane			0.5000	6	2.0000	4	5.0000	-4	10.000	2	20.000	5	50.000	-7	75.000	-3	100.00	-4
Propylbenzene			0.5000	5	2.0000	1	5.0000	0	10.000	0	20.000	1	50.000	-4	75.000	-1	100.00	-2
Bromobenzene			0.5000	9	2.0000	5	5.0000	1	10.000	0	20.000	0	50.000	-6	75.000	-4	100.00	-5
1,3,5-Trimethylbenzene			0.5000	-4	2.0000	1	5.0000	0	10.000	2	20.000	2	50.000	-2	75.000	0	100.00	1
2-Chlorotoluene			0.5000	7	2.0000	2	5.0000	1	10.000	0	20.000	0	50.000	-4	75.000	-2	100.00	-3
4-Chlorotoluene			0.5000	2	2.0000	1	5.0000	0	10.000	2	20.000	2	50.000	-4	75.000	-1	100.00	-2
tert-Butylbenzene			0.5000	-5	2.0000	-2	5.0000	1	10.000	1	20.000	2	50.000	-1	75.000	2	100.00	2
1,2,4-Trimethylbenzene			0.5000	-6	2.0000	1	5.0000	-1	10.000	3	20.000	3	50.000	-2	75.000	1	100.00	1
sec-Butylbenzene			0.5000	2	2.0000	-5	5.0000	1	10.000	1	20.000	2	50.000	-2	75.000	1	100.00	0
para-Isopropyl Toluene			0.5000	-7	2.0000	-2	5.0000	1	10.000	1	20.000	3	50.000	0	75.000	2	100.00	2
1,3-Dichlorobenzene			0.5000	8	2.0000	2	5.0000	0	10.000	2	20.000	1	50.000	-5	75.000	-4	100.00	-4
1,4-Dichlorobenzene			0.5000	8	2.0000	5	5.0000	0	10.000	1	20.000	0	50.000	-6	75.000	-4	100.00	-5
n-Butylbenzene			0.5000	2	2.0000	-2	5.0000	0	10.000	2	20.000	1	50.000	-2	75.000	0	100.00	-1
1,2-Dichlorobenzene			0.5000	0	2.0000	5	5.0000	0	10.000	2	20.000	1	50.000	-4	75.000	-2	100.00	-3
1,2-Dibromo-3-Chloropropane			0.5000	-1	2.0000	3	5.0000	-10	10.000	1	20.000	6	50.000	-4	75.000	3	100.00	2
1,2,4-Trichlorobenzene			0.5000	3	2.0000	-1	5.0000	-3	10.000	1	20.000	2	50.000	-3	75.000	1	100.00	-1
Hexachlorobutadiene			0.5000	3	2.0000	-2	5.0000	0	10.000	1	20.000	2	50.000	-3	75.000	0	100.00	-1
Naphthalene			0.5000	-13	2.0000	-9	5.0000	-13	10.000	6	20.000	12	50.000	2	75.000	11	100.00	6
1,2,3-Trichlorobenzene			0.5000	-10	2.0000	2	5.0000	-4	10.000	6	20.000	6	50.000	-3	75.000	5	100.00	-2
Dibromofluoromethane	50.000	1	50.000	2	50.000	-1	50.000	-2	50.000	-1	50.000	0	50.000	0	50.000	0	50.000	1
1,2-Dichloroethane-d4	50.000	-1	50.000	-2	50.000	0	50.000	-1	50.000	0	50.000	0	50.000	0	50.000	2	50.000	1
Toluene-d8	50.000	0	50.000	0	50.000	1	50.000	0	50.000	0	50.000	0	50.000	0	50.000	-1	50.000	-1
Bromofluorobenzene	50.000	0	50.000	0	50.000	1	50.000	0	50.000	-1	50.000	0	50.000	-1	50.000	0	50.000	0

DAR 03/10/16 [Freon 12]: Combined split peak in multiple levels.

DAR 03/10/16 [Chloromethane]: Combined split peak in multiple levels.

DAR 03/10/16 [Bromomethane]: Combined split peak in multiple levels.

DAR 03/10/16 [1,2,3-Trichloropropane]: Separated from coeluting peak in multiple levels.

DAR 03/10/16 [Iodomethane]: Combined split peak in multiple levels.

Analyst: DAR Date: 03/10/16 Reviewer: LW Date: 03/14/16

m=manual integration

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

836098562001

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 275719 MSVOA Water
EPA 8260B

Inst : MSVOA11 Name : 8260 hexraised
Calnum : 836098562001 Cal Date : 08-MAR-2016 Type : WATER

ICV 836098562023 (kc823 09-MAR-2016) stds: S29123 (10000X), S29284 (2500X)
ICV 836098562024 (kc824 09-MAR-2016) stds: S29207 (10000X), S29290 (10000X), S29230 (10000X), S29284 (2500X)
ICV 836100345005 (kc905 09-MAR-2016) stds: S26946 (50000X), S29284 (2500X)

Analyte	ICV Seqnum	Spiked	Quant	Units	%D	Max	Flags
Freon 12	836098562023	20.00	14.35	ug/L	**-28**	30	!v-
Chloromethane	836098562023	20.00	15.01	ug/L	**-25**	30	!v-
Vinyl Chloride	836098562023	20.00	19.41	ug/L	-3	20	
Bromomethane	836098562023	20.00	18.29	ug/L	-9	30	m
Chloroethane	836098562023	20.00	19.36	ug/L	-3	30	
Trichlorofluoromethane	836098562023	20.00	19.73	ug/L	-1	30	
Acetone	836100345005	40.00	27.70	ug/L	**-31**	40	!v-
Freon 113	836098562024	25.00	20.62	ug/L	-18	30	
1,1-Dichloroethene	836098562024	25.00	23.61	ug/L	-6	20	
Methylene Chloride	836098562024	25.00	24.62	ug/L	-2	30	
Carbon Disulfide	836098562024	25.00	21.71	ug/L	-13	30	
MTBE	836098562024	25.00	24.92	ug/L	0	30	
trans-1,2-Dichloroethene	836098562024	25.00	22.82	ug/L	-9	30	
Vinyl Acetate	836098562024	25.00	25.77	ug/L	3	40	
1,1-Dichloroethane	836098562024	25.00	24.51	ug/L	-2	30	
2-Butanone	836100345005	40.00	31.17	ug/L	**-22**	40	!v-
2,2-Dichloropropane	836098562024	25.00	23.27	ug/L	-7	30	
cis-1,2-Dichloroethene	836098562024	25.00	25.94	ug/L	4	30	
Chloroform	836098562024	25.00	24.29	ug/L	-3	20	
Bromochloromethane	836098562024	25.00	25.18	ug/L	1	30	
1,1,1-Trichloroethane	836098562024	25.00	24.54	ug/L	-2	30	
1,1-Dichloropropene	836098562024	25.00	22.05	ug/L	-12	30	
Carbon Tetrachloride	836098562024	25.00	25.34	ug/L	1	30	
1,2-Dichloroethane	836098562024	25.00	24.57	ug/L	-2	30	
Benzene	836098562024	25.00	24.76	ug/L	-1	30	
Trichloroethene	836098562024	25.00	24.80	ug/L	-1	30	
1,2-Dichloropropane	836098562024	25.00	25.12	ug/L	0	20	
Bromodichloromethane	836098562024	25.00	24.49	ug/L	-2	30	
Dibromomethane	836098562024	25.00	25.18	ug/L	1	30	
4-Methyl-2-Pentanone	836100345005	40.00	33.80	ug/L	-16	40	
cis-1,3-Dichloropropene	836098562024	25.00	26.28	ug/L	5	30	
Toluene	836098562024	25.00	24.81	ug/L	-1	20	
trans-1,3-Dichloropropene	836098562024	25.00	25.51	ug/L	2	30	
1,1,2-Trichloroethane	836098562024	25.00	25.00	ug/L	0	30	
2-Hexanone	836100345005	40.00	34.67	ug/L	-13	40	
1,3-Dichloropropane	836098562024	25.00	26.03	ug/L	4	30	
Tetrachloroethene	836098562024	25.00	25.39	ug/L	2	30	
Dibromochloromethane	836098562024	25.00	25.67	ug/L	3	30	
1,2-Dibromoethane	836098562024	25.00	25.63	ug/L	3	30	
Chlorobenzene	836098562024	25.00	25.05	ug/L	0	30	
1,1,1,2-Tetrachloroethane	836098562024	25.00	25.36	ug/L	1	30	
Ethylbenzene	836098562024	25.00	24.77	ug/L	-1	20	
m,p-Xylenes	836098562024	50.00	50.43	ug/L	1	30	
o-Xylene	836098562024	25.00	25.13	ug/L	1	30	
Styrene	836098562024	25.00	26.38	ug/L	6	30	
Bromoform	836098562024	25.00	26.46	ug/L	6	30	

Analyte	ICV Seqnum	Spiked	Quant	Units	%D	Max	Flags
Isopropylbenzene	836098562024	25.00	25.82	ug/L	3	30	
1,1,2,2-Tetrachloroethane	836098562024	25.00	26.12	ug/L	4	30	
1,2,3-Trichloropropane	836098562024	25.00	25.94	ug/L	4	30	m
Propylbenzene	836098562024	25.00	24.75	ug/L	-1	30	
Bromobenzene	836098562024	25.00	25.29	ug/L	1	30	
1,3,5-Trimethylbenzene	836098562024	25.00	26.69	ug/L	7	30	
2-Chlorotoluene	836098562024	25.00	25.30	ug/L	1	30	
4-Chlorotoluene	836098562024	25.00	25.84	ug/L	3	30	
tert-Butylbenzene	836098562024	25.00	26.10	ug/L	4	30	
1,2,4-Trimethylbenzene	836098562024	25.00	25.58	ug/L	2	30	
sec-Butylbenzene	836098562024	25.00	25.57	ug/L	2	30	
para-Isopropyl Toluene	836098562024	25.00	26.27	ug/L	5	30	
1,3-Dichlorobenzene	836098562024	25.00	25.23	ug/L	1	30	
1,4-Dichlorobenzene	836098562024	25.00	25.39	ug/L	2	30	
n-Butylbenzene	836098562024	25.00	25.52	ug/L	2	30	
1,2-Dichlorobenzene	836098562024	25.00	25.79	ug/L	3	30	
1,2-Dibromo-3-Chloropropane	836098562024	25.00	26.49	ug/L	6	30	
1,2,4-Trichlorobenzene	836098562024	25.00	26.28	ug/L	5	30	
Hexachlorobutadiene	836098562024	25.00	26.63	ug/L	7	30	
Naphthalene	836098562024	25.00	26.73	ug/L	7	30	
1,2,3-Trichlorobenzene	836098562024	25.00	28.38	ug/L	14	30	

836098562023: Analyst: DAR Date: 03/10/16 Reviewer: LW Date: 03/14/16
836098562024: Analyst: DAR Date: 03/10/16 Reviewer: LW Date: 03/14/16
836100345005: Analyst: DAR Date: 03/10/16 Reviewer: LW Date: 03/14/16

!=warning -=low bias m=manual integration v=ICV

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275719 MSVOA Water
EPA 8260B

Inst : MSVOA06 IDF : 1.0
Seqnum : 456146518003 File : fda03 Time : 10-APR-2016 20:13
Cal : 456138592001 Caldate : 05-APR-2016 Caltype : WATER
Standards: S29048 (20000X), S29427 (20000X), S29559 (20000X), S28142 (20000X), S29263 (5000X)

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Freon 12	1.8758	1.9016	25.00	25.34	ug/L	1	30	0.0500	!v-
Chloromethane	1.1397	1.0850	25.00	23.80	ug/L	-5	30	0.1000	
Vinyl Chloride	0.9922	0.9171	25.00	23.11	ug/L	-8	20	0.0500	
Bromomethane	0.6181	0.4336	25.00	17.54	ug/L	**-30**	30	0.0500	!c- !v-
Chloroethane	0.5222	0.4735	25.00	22.67	ug/L	-9	30	0.0500	
Trichlorofluoromethane	1.8046	2.0775	25.00	28.78	ug/L	15	30	0.0500	
Acetone	0.4402	0.4693	25.00	26.65	ug/L	7	40	0.0500	
Freon 113	0.7598	0.7597	25.00	25.00	ug/L	0	30	0.0500	
1,1-Dichloroethene	0.5539	0.4721	25.00	21.31	ug/L	-15	20	0.0500	
Methylene Chloride	0.6902	0.6258	25.00	22.66	ug/L	-9	30	0.0500	
Carbon Disulfide	1.9456	1.7445	25.00	22.42	ug/L	-10	30	0.0500	
MTBE	2.0811	2.2299	25.00	26.79	ug/L	7	30	0.0500	
trans-1,2-Dichloroethene	0.5886	0.5653	25.00	24.01	ug/L	-4	30	0.0500	
Vinyl Acetate	1.6321	1.9376	25.00	29.68	ug/L	19	40	0.0500	
1,1-Dichloroethane	1.3500	1.3297	25.00	24.62	ug/L	-2	30	0.1000	
2-Butanone	0.4808	0.5246	25.00	27.28	ug/L	9	40	0.0500	
2,2-Dichloropropane	1.2392	1.4741	25.00	29.74	ug/L	19	30	0.0500	
cis-1,2-Dichloroethene	0.6788	0.6248	25.00	23.01	ug/L	-8	30	0.0500	
Chloroform	1.5719	1.7104	25.00	27.20	ug/L	9	20	0.0500	
Bromochloromethane	0.3743	0.3366	25.00	22.48	ug/L	-10	30	0.0500	
1,1,1-Trichloroethane	1.4008	1.5244	25.00	27.21	ug/L	9	30	0.0500	
1,1-Dichloropropene	0.6868	0.7493	25.00	27.27	ug/L	9	30	0.0500	
Carbon Tetrachloride	0.8124	1.0079	25.00	31.01	ug/L	**24**	30	0.0500	!c+
1,2-Dichloroethane	1.0108	1.1374	25.00	28.13	ug/L	13	30	0.0500	
Benzene	1.5014	1.4405	25.00	23.99	ug/L	-4	30	0.0500	
Trichloroethene	0.4843	0.5245	25.00	27.07	ug/L	8	30	0.0500	
1,2-Dichloropropane	0.4379	0.4237	25.00	24.19	ug/L	-3	20	0.0500	
Bromodichloromethane	0.7953	0.9097	25.00	28.60	ug/L	14	30	0.0500	
Dibromomethane	0.3880	0.3987	25.00	25.69	ug/L	3	30	0.0500	
4-Methyl-2-Pentanone	0.6765	0.7188	25.00	26.56	ug/L	6	40	0.0500	
cis-1,3-Dichloropropene	0.7418	0.7853	25.00	26.47	ug/L	6	30	0.0500	
Toluene	1.0251	0.9806	25.00	23.91	ug/L	-4	20	0.0500	
trans-1,3-Dichloropropene	0.8141	0.9713	25.00	29.83	ug/L	19	30	0.0500	
1,1,2-Trichloroethane	0.2530	0.2513	25.00	24.82	ug/L	-1	30	0.0500	
2-Hexanone	0.5755	0.6353	25.00	27.60	ug/L	10	40	0.0500	
1,3-Dichloropropane	0.7441	0.7947	25.00	26.70	ug/L	7	30	0.0500	
Tetrachloroethene	0.5138	0.5165	25.00	25.13	ug/L	1	30	0.0500	
Dibromochloromethane	0.6804	0.7854	25.00	28.86	ug/L	15	30	0.0500	
1,2-Dibromoethane	0.5708	0.5969	25.00	26.14	ug/L	5	30	0.0500	
Chlorobenzene	1.2943	1.2178	25.00	23.52	ug/L	-6	30	0.3000	
1,1,1,2-Tetrachloroethane	0.5260	0.5977	25.00	28.41	ug/L	14	30	0.0500	
Ethylbenzene	2.2250	2.3390	25.00	26.28	ug/L	5	20	0.0500	
m,p-Xylenes	0.8059	0.8145	50.00	50.53	ug/L	1	30	0.0500	
o-Xylene	0.7978	0.8084	25.00	25.33	ug/L	1	30	0.0500	
Styrene	1.3157	1.4465	25.00	27.48	ug/L	10	30	0.0500	
Bromoform	0.5304	0.6100	25.00	28.75	ug/L	15	30	0.1000	
Isopropylbenzene	3.2811	3.3800	25.00	25.75	ug/L	3	30	0.0500	

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
1,1,2,2-Tetrachloroethane	1.0302	1.0216	25.00	24.79	ug/L	-1	30	0.3000	
1,2,3-Trichloropropane	0.9939	0.9929	25.00	24.97	ug/L	0	30	0.0500	
Propylbenzene	3.9755	3.9823	25.00	25.04	ug/L	0	30	0.0500	
Bromobenzene	0.9527	0.8711	25.00	22.86	ug/L	-9	30	0.0500	
1,3,5-Trimethylbenzene	2.8268	2.9905	25.00	26.45	ug/L	6	30	0.0500	
2-Chlorotoluene	2.9922	3.0838	25.00	25.76	ug/L	3	30	0.0500	
4-Chlorotoluene	2.8742	2.9965	25.00	26.06	ug/L	4	30	0.0500	
tert-Butylbenzene	2.2550	2.2812	25.00	25.29	ug/L	1	30	0.0500	
1,2,4-Trimethylbenzene	2.9523	3.1754	25.00	26.89	ug/L	8	30	0.0500	
sec-Butylbenzene	3.1663	3.3287	25.00	26.28	ug/L	5	30	0.0500	
para-Isopropyl Toluene	2.6401	2.9307	25.00	27.75	ug/L	11	30	0.0500	
1,3-Dichlorobenzene	1.6911	1.6600	25.00	24.54	ug/L	-2	30	0.0500	
1,4-Dichlorobenzene	1.7431	1.6953	25.00	24.31	ug/L	-3	30	0.0500	
n-Butylbenzene	2.4053	2.7161	25.00	28.23	ug/L	13	30	0.0500	
1,2-Dichlorobenzene	1.6121	1.6296	25.00	25.27	ug/L	1	30	0.0500	
1,2-Dibromo-3-Chloropropane	0.3404	0.3887	25.00	29.22	ug/L	17	30	0.0500	
1,2,4-Trichlorobenzene	0.8349	0.8560	25.00	25.63	ug/L	3	30	0.0500	
Hexachlorobutadiene	0.3805	0.4479	25.00	29.43	ug/L	18	30	0.0500	
Naphthalene	2.2968	2.4428	25.00	26.59	ug/L	6	30	0.0500	
1,2,3-Trichlorobenzene	0.6565	0.7195	25.00	27.40	ug/L	10	30	0.0500	
Dibromofluoromethane	0.6894	0.7677	50.00	55.68	ug/L	11	30	0.0500	
1,2-Dichloroethane-d4	0.6109	0.7785	50.00	63.71	ug/L	**27**	30	0.0500	!c+
Toluene-d8	1.1927	1.2565	50.00	52.67	ug/L	5	30	0.0500	
Bromofluorobenzene	1.0200	1.0838	50.00	53.13	ug/L	6	30	0.0500	

ISTD (ICAL fd526)	ICAL Area	Area	%Drift	ICAL RT	RT	Drift
Pentafluorobenzene	433820	510672	17.72	11.69	11.71	0.02
1,4-Difluorobenzene	628085	705898	12.39	13.02	13.03	0.01
Chlorobenzene-d5	565449	628868	11.22	17.74	17.75	0.01
1,4-Dichlorobenzene-d4	376985	434019	15.13	20.48	20.49	0.01

Analyst: MCT Date: 04/12/16 Reviewer: LW Date: 04/12/16

!=warning +=high bias -=low bias c=CCV v=ICV

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275719 MSVOA Water
EPA 8260B

Inst : MSVOA08 IDF : 1.0
Seqnum : 476156274004 File : hdh04 Time : 17-APR-2016 15:11
Cal : 476138895001 Caldate : 05-APR-2016 Caltype : WATER
Standards: S28620 (20000X), S29427 (20000X), S29559 (20000X), S28142 (20000X), S29654 (5000X)

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Freon 12	1.0049	0.9354	25.00	23.27	ug/L	-7	30	0.0500	!v-
Chloromethane	1.0964	1.1249	25.00	25.65	ug/L	3	30	0.1000	
Vinyl Chloride	0.8540	0.8072	25.00	23.63	ug/L	-5	20	0.0500	
Bromomethane	0.5089	0.5744	25.00	28.22	ug/L	13	30	0.0500	
Chloroethane	0.4672	0.4606	25.00	24.65	ug/L	-1	30	0.0500	
Trichlorofluoromethane	0.9589	0.8213	25.00	21.41	ug/L	-14	30	0.0500	
Acetone	0.1710	0.1789	25.00	26.14	ug/L	5	40	0.0500	!v-
Freon 113	0.4558	0.3574	25.00	19.60	ug/L	**-22**	30	0.0500	!c-
1,1-Dichloroethene	0.4080	0.3485	25.00	21.35	ug/L	-15	20	0.0500	
Methylene Chloride	0.5233	0.4935	25.00	23.58	ug/L	-6	30	0.0500	
Carbon Disulfide	1.7753	1.3904	25.00	19.58	ug/L	**-22**	30	0.0500	!c-
MTBE	1.2436	1.1941	25.00	24.01	ug/L	-4	30	0.0500	
trans-1,2-Dichloroethene	0.4667	0.4245	25.00	22.74	ug/L	-9	30	0.0500	
Vinyl Acetate	1.0797	1.2026	25.00	27.85	ug/L	11	40	0.0500	
1,1-Dichloroethane	0.9986	0.8719	25.00	21.83	ug/L	-13	30	0.1000	
2-Butanone	0.2216	0.2282	25.00	25.75	ug/L	3	40	0.0500	
2,2-Dichloropropane	0.6250	0.7082	25.00	28.33	ug/L	13	30	0.0500	!v+
cis-1,2-Dichloroethene	0.5230	0.4700	25.00	22.47	ug/L	-10	30	0.0500	
Chloroform	0.9592	0.8580	25.00	22.36	ug/L	-11	20	0.0500	
Bromochloromethane	0.2656	0.2497	25.00	23.50	ug/L	-6	30	0.0500	
1,1,1-Trichloroethane	0.7751	0.6799	25.00	21.93	ug/L	-12	30	0.0500	
1,1-Dichloropropene	0.5319	0.4448	25.00	20.91	ug/L	-16	30	0.0500	
Carbon Tetrachloride	0.5275	0.4313	25.00	20.44	ug/L	-18	30	0.0500	
1,2-Dichloroethane	0.5388	0.4750	25.00	22.04	ug/L	-12	30	0.0500	
Benzene	1.3081	1.1925	25.00	22.79	ug/L	-9	30	0.0500	
Trichloroethene	0.3955	0.3278	25.00	20.72	ug/L	-17	30	0.0500	
1,2-Dichloropropane	0.3996	0.3611	25.00	22.60	ug/L	-10	20	0.0500	
Bromodichloromethane	0.5014	0.4763	25.00	23.75	ug/L	-5	30	0.0500	
Dibromomethane	0.2256	0.2066	25.00	22.90	ug/L	-8	30	0.0500	
4-Methyl-2-Pentanone	0.3609	0.3525	25.00	24.41	ug/L	-2	40	0.0500	
cis-1,3-Dichloropropene	0.5615	0.5374	25.00	23.93	ug/L	-4	30	0.0500	
Toluene	1.0007	0.9435	25.00	23.57	ug/L	-6	20	0.0500	
trans-1,3-Dichloropropene	0.5933	0.5830	25.00	24.57	ug/L	-2	30	0.0500	
1,1,2-Trichloroethane	0.1787	0.1798	25.00	25.15	ug/L	1	30	0.0500	
2-Hexanone	0.3100	0.3317	25.00	26.74	ug/L	7	40	0.0500	
1,3-Dichloropropane	0.5828	0.5727	25.00	24.57	ug/L	-2	30	0.0500	
Tetrachloroethene	0.4624	0.3977	25.00	21.50	ug/L	-14	30	0.0500	
Dibromochloromethane	0.5013	0.4661	25.00	23.24	ug/L	-7	30	0.0500	
1,2-Dibromoethane	0.3821	0.3760	25.00	24.60	ug/L	-2	30	0.0500	
Chlorobenzene	1.1659	1.0757	25.00	23.07	ug/L	-8	30	0.3000	
1,1,1,2-Tetrachloroethane	0.4495	0.4090	25.00	22.75	ug/L	-9	30	0.0500	
Ethylbenzene	2.0198	1.8230	25.00	22.56	ug/L	-10	20	0.0500	
m,p-Xylenes	0.7693	0.6823	50.00	44.34	ug/L	-11	30	0.0500	
o-Xylene	0.7726	0.7050	25.00	22.81	ug/L	-9	30	0.0500	
Styrene	1.2620	1.1895	25.00	23.56	ug/L	-6	30	0.0500	
Bromoform	0.3309	0.2981	25.00	22.52	ug/L	-10	30	0.1000	
Isopropylbenzene	3.6023	3.3666	25.00	23.36	ug/L	-7	30	0.0500	

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
1,1,2,2-Tetrachloroethane	0.7549	0.8076	25.00	26.75	ug/L	7	30	0.3000	
1,2,3-Trichloropropane	0.2125	0.2118	25.00	24.92	ug/L	0	30	0.0500	
Propylbenzene	4.3366	4.0979	25.00	23.62	ug/L	-6	30	0.0500	
Bromobenzene	0.9367	0.8826	25.00	23.56	ug/L	-6	30	0.0500	
1,3,5-Trimethylbenzene	3.0100	2.8948	25.00	24.04	ug/L	-4	30	0.0500	
2-Chlorotoluene	2.8786	2.7049	25.00	23.49	ug/L	-6	30	0.0500	
4-Chlorotoluene	2.6580	2.5009	25.00	23.52	ug/L	-6	30	0.0500	
tert-Butylbenzene	2.7499	2.5540	25.00	23.22	ug/L	-7	30	0.0500	
1,2,4-Trimethylbenzene	3.1786	3.0383	25.00	23.90	ug/L	-4	30	0.0500	
sec-Butylbenzene	4.0142	3.7808	25.00	23.55	ug/L	-6	30	0.0500	
para-Isopropyl Toluene	3.2726	3.0257	25.00	23.11	ug/L	-8	30	0.0500	
1,3-Dichlorobenzene	1.7802	1.6234	25.00	22.80	ug/L	-9	30	0.0500	
1,4-Dichlorobenzene	1.7950	1.6392	25.00	22.83	ug/L	-9	30	0.0500	
n-Butylbenzene	2.8045	2.6836	25.00	23.92	ug/L	-4	30	0.0500	
1,2-Dichlorobenzene	1.6960	1.6217	25.00	23.90	ug/L	-4	30	0.0500	
1,2-Dibromo-3-Chloropropane	0.1426	0.1365	25.00	23.93	ug/L	-4	30	0.0500	
1,2,4-Trichlorobenzene	1.0843	1.0042	25.00	23.15	ug/L	-7	30	0.0500	
Hexachlorobutadiene	0.5407	0.4890	25.00	22.61	ug/L	-10	30	0.0500	
Naphthalene	2.2361	2.1961	25.00	24.55	ug/L	-2	30	0.0500	
1,2,3-Trichlorobenzene	1.0194	0.9592	25.00	23.52	ug/L	-6	30	0.0500	
Dibromofluoromethane	0.4674	0.4385	50.00	46.91	ug/L	-6	30	0.0500	
1,2-Dichloroethane-d4	0.3484	0.3312	50.00	47.53	ug/L	-5	30	0.0500	
Toluene-d8	1.2891	1.2595	50.00	48.85	ug/L	-2	30	0.0500	
Bromofluorobenzene	0.9401	0.9507	50.00	50.57	ug/L	1	30	0.0500	

ISTD (ICAL hd513)	ICAL Area	Area	%Drift	ICAL RT	RT	Drift
Pentafluorobenzene	581578	876652	50.74	10.05	10.05	0.01
1,4-Difluorobenzene	813297	1245494	53.14	11.25	11.25	0.00
Chlorobenzene-d5	655806	987415	50.57	15.74	15.75	0.01
1,4-Dichlorobenzene-d4	375808	539702	43.61	18.59	18.60	0.01

Analyst: KKM Date: 04/18/16 Reviewer: LW Date: 04/18/16

!=warning +=high bias -=low bias c=CCV v=ICV

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275719 MSVOA Water
EPA 8260B

Inst : MSVOA09 IDF : 1.0
Seqnum : 486149016007 File : idc07 Time : 12-APR-2016 15:45
Cal : 486100040001 Caldate : 09-MAR-2016 Caltype : WATER
Standards: S29048 (20000X), S29427 (20000X), S29559 (20000X), S28142 (20000X), S29549 (5000X)

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Freon 12	0.7761	0.9474	25.00	30.52	ug/L	**22**	30	0.0500	!c+ !v-
Chloromethane	0.7273	0.6504	25.00	22.36	ug/L	-11	30	0.1000	m
Vinyl Chloride	0.6892	0.7700	25.00	27.93	ug/L	12	20	0.0500	
Bromomethane	0.2872	0.3160	25.00	27.51	ug/L	10	30	0.0500	
Chloroethane	0.6069	0.6191	25.00	25.50	ug/L	2	30	0.0500	
Trichlorofluoromethane	0.9633	1.0489	25.00	27.22	ug/L	9	30	0.0500	
Acetone	0.2200	0.3178	25.00	36.11	ug/L	**44**	40	0.0500	!v- c+ ***
Freon 113	0.5253	0.5467	25.00	26.02	ug/L	4	30	0.0500	!v-
1,1-Dichloroethene	0.5288	0.5465	25.00	25.84	ug/L	3	20	0.0500	
Methylene Chloride	0.7286	0.7753	25.00	26.60	ug/L	6	30	0.0500	
Carbon Disulfide	2.3094	2.4577	25.00	26.61	ug/L	6	30	0.0500	!v-
MTBE	1.5885	1.8075	25.00	28.45	ug/L	14	30	0.0500	
trans-1,2-Dichloroethene	0.6087	0.6413	25.00	26.34	ug/L	5	30	0.0500	
Vinyl Acetate	1.7735	2.1833	25.00	30.78	ug/L	**23**	40	0.0500	!c+
1,1-Dichloroethane	1.2934	1.4961	25.00	28.92	ug/L	16	30	0.1000	
2-Butanone	0.3399	0.4361	25.00	32.08	ug/L	**28**	40	0.0500	!c+ !v-
2,2-Dichloropropane	0.8094	0.9892	25.00	30.55	ug/L	**22**	30	0.0500	!c+
cis-1,2-Dichloroethene	0.7199	0.7600	25.00	26.39	ug/L	6	30	0.0500	
Chloroform	1.1982	1.3793	25.00	28.78	ug/L	15	20	0.0500	
Bromochloromethane	0.3392	0.3528	25.00	26.00	ug/L	4	30	0.0500	
1,1,1-Trichloroethane	0.7864	0.9150	25.00	29.09	ug/L	16	30	0.0500	
1,1-Dichloropropene	0.4669	0.5309	25.00	28.43	ug/L	14	30	0.0500	
Carbon Tetrachloride	0.3757	0.4195	25.00	27.92	ug/L	12	30	0.0500	
1,2-Dichloroethane	0.4524	0.5509	25.00	30.45	ug/L	**22**	30	0.0500	!c+
Benzene	1.2725	1.3760	25.00	27.03	ug/L	8	30	0.0500	
Trichloroethene	0.3541	0.3800	25.00	26.83	ug/L	7	30	0.0500	
1,2-Dichloropropane	0.4475	0.4857	25.00	27.13	ug/L	9	20	0.0500	
Bromodichloromethane	0.4817	0.5778	25.00	29.98	ug/L	20	30	0.0500	
Dibromomethane	0.2684	0.2958	25.00	27.55	ug/L	10	30	0.0500	
4-Methyl-2-Pentanone	0.3999	0.5159	25.00	32.25	ug/L	**29**	40	0.0500	!c+ !v-
cis-1,3-Dichloropropene	0.5976	0.6672	25.00	27.91	ug/L	12	30	0.0500	
Toluene	0.8447	0.8543	25.00	25.28	ug/L	1	20	0.0500	
trans-1,3-Dichloropropene	0.5668	0.6758	25.00	29.81	ug/L	19	30	0.0500	
1,1,2-Trichloroethane	0.2136	0.2250	25.00	26.33	ug/L	5	30	0.0500	
2-Hexanone	0.3086	0.3822	25.00	30.96	ug/L	**24**	40	0.0500	!c+
1,3-Dichloropropane	0.6003	0.6416	25.00	26.72	ug/L	7	30	0.0500	
Tetrachloroethene	0.3100	0.3061	25.00	24.68	ug/L	-1	30	0.0500	
Dibromochloromethane	0.4068	0.4335	25.00	26.64	ug/L	7	30	0.0500	
1,2-Dibromoethane	0.3908	0.4078	25.00	26.09	ug/L	4	30	0.0500	
Chlorobenzene	0.9604	0.9414	25.00	24.51	ug/L	-2	30	0.3000	
1,1,1,2-Tetrachloroethane	0.3302	0.3340	25.00	25.29	ug/L	1	30	0.0500	
Ethylbenzene	1.6180	1.7224	25.00	26.61	ug/L	6	20	0.0500	
m,p-Xylenes	0.5411	0.5481	50.00	50.65	ug/L	1	30	0.0500	
o-Xylene	0.5622	0.5582	25.00	24.82	ug/L	-1	30	0.0500	
Styrene	0.9582	0.9890	25.00	25.80	ug/L	3	30	0.0500	
Bromoform	0.2554	0.2704	25.00	26.47	ug/L	6	30	0.1000	
Isopropylbenzene	3.0312	3.2973	25.00	27.19	ug/L	9	30	0.0500	

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
1,1,2,2-Tetrachloroethane	1.0798	1.1444	25.00	26.50	ug/L	6	30	0.3000	
1,2,3-Trichloropropane	0.2207	0.2365	25.00	26.78	ug/L	7	30	0.0500	
Propylbenzene	3.7404	4.0952	25.00	27.37	ug/L	9	30	0.0500	
Bromobenzene	0.8240	0.8581	25.00	26.03	ug/L	4	30	0.0500	
1,3,5-Trimethylbenzene	2.3452	2.4914	25.00	26.56	ug/L	6	30	0.0500	
2-Chlorotoluene	2.6289	2.8254	25.00	26.87	ug/L	7	30	0.0500	
4-Chlorotoluene	2.3355	2.6475	25.00	28.34	ug/L	13	30	0.0500	
tert-Butylbenzene	1.8977	1.8559	25.00	24.45	ug/L	-2	30	0.0500	
1,2,4-Trimethylbenzene	2.2504	2.5199	25.00	27.99	ug/L	12	30	0.0500	
sec-Butylbenzene	2.9175	3.2032	25.00	27.45	ug/L	10	30	0.0500	
para-Isopropyl Toluene	2.0292	2.2292	25.00	27.46	ug/L	10	30	0.0500	
1,3-Dichlorobenzene	1.3846	1.4265	25.00	25.76	ug/L	3	30	0.0500	
1,4-Dichlorobenzene	1.3567	1.3267	25.00	24.45	ug/L	-2	30	0.0500	
n-Butylbenzene	2.0166	2.3197	25.00	28.76	ug/L	15	30	0.0500	
1,2-Dichlorobenzene	1.3665	1.3717	25.00	25.10	ug/L	0	30	0.0500	
1,2-Dibromo-3-Chloropropane	0.1493	0.1833	25.00	30.70	ug/L	**23**	30	0.0500	!c+
1,2,4-Trichlorobenzene	0.7157	0.7016	25.00	24.51	ug/L	-2	30	0.0500	
Hexachlorobutadiene	0.2916	0.2892	25.00	24.80	ug/L	-1	30	0.0500	
Naphthalene	1.7338	1.6800	25.00	24.22	ug/L	-3	30	0.0500	
1,2,3-Trichlorobenzene	0.6825	0.6603	25.00	24.19	ug/L	-3	30	0.0500	
Dibromofluoromethane	0.7474	0.7895	50.00	52.81	ug/L	6	30	0.0500	
1,2-Dichloroethane-d4	0.3926	0.4397	50.00	56.00	ug/L	12	30	0.0500	
Toluene-d8	1.3291	1.2945	50.00	48.70	ug/L	-3	30	0.0500	
Bromofluorobenzene	1.1809	1.1815	50.00	50.02	ug/L	0	30	0.0500	

ISTD (ICAL ic917)	ICAL Area	Area	%Drift	ICAL RT	RT	Drift
Pentafluorobenzene	1306782	996390	-23.75	11.03	11.00	-0.03
1,4-Difluorobenzene	2575850	1881292	-26.96	12.29	12.26	-0.03
Chlorobenzene-d5	2256850	1694279	-24.93	16.65	16.63	-0.02
1,4-Dichlorobenzene-d4	1074105	755547	-29.66	19.09	19.07	-0.02

NJT 04/13/16 [Chloromethane]: Combined split peak.

Analyst: NJT Date: 04/13/16 Reviewer: LW Date: 04/13/16

!=warning +=high bias -=low bias c=CCV m=manual integration v=ICV

CURTIS & TOMPKINS SPIKE USER REPORT FOR 275719 MSVOA Water
EPA 8260B

Inst : MSVOA11 Run Name : QC831376 IDF : 1.0
Seqnum : 836150370005.6 File : kdd05 Time : 13-APR-2016 12:41
Cal : 836098562001 Caldate : 08-MAR-2016 Caltype : WATER
Standards: S29448 (20000X), S29207 (20000X), S29290 (20000X), S29123 (20000X), S29550 (2500X)

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Freon 12	0.9440	0.7707	10.00	8.164	ug/L	-18	30	0.0500	!v- u
Chloromethane	1.3321	0.7988	10.00	5.996	ug/L	**-40**	30	0.1000	!v- c- u ***
Vinyl Chloride	0.9035	0.8318	10.00	9.207	ug/L	-8	20	0.0500	u
Bromomethane	0.2817	0.5305	10.00	18.84	ug/L	**88**	30	0.0500	c+ u ***
Chloroethane	0.4996	0.4909	10.00	9.826	ug/L	-2	30	0.0500	u
Trichlorofluoromethane	0.9766	0.9591	10.00	9.821	ug/L	-2	30	0.0500	u
Acetone	0.2419	0.3258	12.50	16.83	ug/L	35	40	0.0500	!v- u
Freon 113	0.5245	0.4647	12.50	11.08	ug/L	-11	30	0.0500	u
1,1-Dichloroethene	0.5011	0.5035	12.50	12.56	ug/L	0	20	0.0500	u
Methylene Chloride	0.6552	0.6624	12.50	12.64	ug/L	1	30	0.0500	u
Carbon Disulfide	1.8475	2.1157	12.50	14.32	ug/L	15	30	0.0500	u
MTBE	1.8818	1.7589	12.50	11.68	ug/L	-7	30	0.0500	u
trans-1,2-Dichloroethene	0.5872	0.5615	12.50	11.95	ug/L	-4	30	0.0500	u
Vinyl Acetate	1.2841	1.4160	12.50	13.78	ug/L	10	40	0.0500	u
1,1-Dichloroethane	1.1725	1.1796	12.50	12.58	ug/L	1	30	0.1000	u
2-Butanone	0.3397	0.3986	12.50	14.67	ug/L	17	40	0.0500	!v- u
cis-1,2-Dichloroethene	0.6806	0.7226	12.50	13.27	ug/L	6	30	0.0500	u
2,2-Dichloropropane	0.8594	0.9547	12.50	13.89	ug/L	11	30	0.0500	u
Chloroform	1.1476	1.1300	12.50	12.31	ug/L	-2	20	0.0500	u
Bromochloromethane	0.2841	0.3154	12.50	13.87	ug/L	11	30	0.0500	u
1,1,1-Trichloroethane	0.9281	0.9036	12.50	12.17	ug/L	-3	30	0.0500	u
1,1-Dichloropropene	0.5347	0.4466	12.50	10.44	ug/L	-16	30	0.0500	u
Carbon Tetrachloride	0.4465	0.3968	12.50	11.11	ug/L	-11	30	0.0500	u
1,2-Dichloroethane	0.5507	0.5162	12.50	11.72	ug/L	-6	30	0.0500	u
Benzene	1.6115	1.5364	12.50	11.92	ug/L	-5	30	0.0500	u
Trichloroethene	0.3974	0.3567	12.50	11.22	ug/L	-10	30	0.0500	u
1,2-Dichloropropane	0.4228	0.3927	12.50	11.61	ug/L	-7	20	0.0500	u
Bromodichloromethane	0.5192	0.4759	12.50	11.46	ug/L	-8	30	0.0500	u
Dibromomethane	0.2418	0.2340	12.50	12.09	ug/L	-3	30	0.0500	u
4-Methyl-2-Pentanone	0.4126	0.3570	12.50	10.81	ug/L	-13	40	0.0500	u
cis-1,3-Dichloropropene	0.6383	0.6433	12.50	12.60	ug/L	1	30	0.0500	u
Toluene	1.9632	1.7540	12.50	11.17	ug/L	-11	20	0.0500	u
trans-1,3-Dichloropropene	0.6463	0.6039	12.50	11.68	ug/L	-7	30	0.0500	u
1,1,2-Trichloroethane	0.2285	0.2034	12.50	11.13	ug/L	-11	30	0.0500	u
2-Hexanone	0.3295	0.3297	12.50	12.51	ug/L	0	40	0.0500	u
1,3-Dichloropropane	0.7200	0.6814	12.50	11.83	ug/L	-5	30	0.0500	u
Tetrachloroethene	0.4107	0.3533	12.50	10.75	ug/L	-14	30	0.0500	u
Dibromochloromethane	0.3997	0.3619	12.50	11.32	ug/L	-9	30	0.0500	u
1,2-Dibromoethane	0.3992	0.3495	12.50	10.94	ug/L	-12	30	0.0500	u
Chlorobenzene	1.2126	1.1022	12.50	11.36	ug/L	-9	30	0.3000	u
1,1,1,2-Tetrachloroethane	0.3939	0.3467	12.50	11.00	ug/L	-12	30	0.0500	u
Ethylbenzene	2.1958	1.9602	12.50	11.16	ug/L	-11	20	0.0500	u
m,p-Xylenes	0.8016	0.7254	25.00	22.62	ug/L	-10	30	0.0500	u
o-Xylene	0.7754	0.6869	12.50	11.07	ug/L	-11	30	0.0500	u
Styrene	1.2952	1.2156	12.50	11.73	ug/L	-6	30	0.0500	u
Bromoform	0.2623	0.2490	12.50	11.87	ug/L	-5	30	0.1000	u
Isopropylbenzene	4.0028	3.6036	12.50	11.25	ug/L	-10	30	0.0500	u

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
1,1,2,2-Tetrachloroethane	1.0943	1.0311	12.50	11.78	ug/L	-6	30	0.3000	u
1,2,3-Trichloropropane	0.8802	0.7881	12.50	11.19	ug/L	-10	30	0.0500	m u
Propylbenzene	5.0987	4.5354	12.50	11.12	ug/L	-11	30	0.0500	u
Bromobenzene	0.9974	0.8855	12.50	11.10	ug/L	-11	30	0.0500	u
1,3,5-Trimethylbenzene	3.3239	3.1191	12.50	11.73	ug/L	-6	30	0.0500	u
2-Chlorotoluene	3.2571	2.9715	12.50	11.40	ug/L	-9	30	0.0500	u
4-Chlorotoluene	2.9601	2.7439	12.50	11.59	ug/L	-7	30	0.0500	u
tert-Butylbenzene	2.8344	2.5672	12.50	11.32	ug/L	-9	30	0.0500	u
1,2,4-Trimethylbenzene	3.3872	3.1184	12.50	11.51	ug/L	-8	30	0.0500	u
sec-Butylbenzene	4.3819	4.0110	12.50	11.44	ug/L	-8	30	0.0500	u
para-Isopropyl Toluene	3.4741	3.2308	12.50	11.62	ug/L	-7	30	0.0500	u
1,3-Dichlorobenzene	1.8182	1.6672	12.50	11.46	ug/L	-8	30	0.0500	u
1,4-Dichlorobenzene	1.8585	1.7284	12.50	11.63	ug/L	-7	30	0.0500	u
n-Butylbenzene	3.4023	3.2187	12.50	11.83	ug/L	-5	30	0.0500	u
1,2-Dichlorobenzene	1.6923	1.5686	12.50	11.59	ug/L	-7	30	0.0500	u
1,2-Dibromo-3-Chloropropane	0.1842	0.1594	12.50	10.82	ug/L	-13	30	0.0500	u
1,2,4-Trichlorobenzene	0.9954	0.7846	12.50	9.853	ug/L	-21	30	0.0500	u
Hexachlorobutadiene	0.5151	0.4270	12.50	10.36	ug/L	-17	30	0.0500	u
Naphthalene	2.2909	1.7132	12.50	9.348	ug/L	-25	30	0.0500	u
1,2,3-Trichlorobenzene	0.7736	0.6313	12.50	10.20	ug/L	-18	30	0.0500	u
Dibromofluoromethane	0.4954	0.5363	50.00	54.12	ug/L	8	30	0.0500	u
1,2-Dichloroethane-d4	0.3880	0.3844	50.00	49.54	ug/L	-1	30	0.0500	u
Toluene-d8	1.3859	1.3406	50.00	48.36	ug/L	-3	30	0.0500	u
Bromofluorobenzene	1.0046	0.9864	50.00	49.09	ug/L	-2	30	0.0500	u

ISTD (ICAL kc820)	ICAL Area	Area	%Drift	ICAL RT	RT	Drift
Pentafluorobenzene	395404	344184	-12.95	10.58	10.57	-0.01
1,4-Difluorobenzene	660265	630065	-4.57	11.51	11.51	0.00
Chlorobenzene-d5	595282	590538	-0.80	14.62	14.62	0.00
1,4-Dichlorobenzene-d4	299473	292940	-2.18	16.88	16.87	-0.01

CAR 04/14/16 [1,2,3-Trichloropropane]: Separated from coeluting peak. [general version]

Analyst: KKM Date: 04/18/16 Reviewer: LW Date: 04/20/16

!=warning +=high bias -=low bias c=CCV m=manual integration u=use v=ICV

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 456146518

Date : 04/10/16 Reference : fd526
Sequence : MSVOA06 fda Analyzed : 04/06/16 00:43

#	Type	Sample ID	PFLBZ	RT	14DFB	RT	CLBZD5	RT	DCBZ14D4	RT
		ICAL STD	433820	11.69	628085	13.02	565449	17.74	376985	20.48
		LOWER LIMIT	216910	11.19	314043	12.52	282725	17.24	188493	19.98
		UPPER LIMIT	867640	12.19	1256170	13.52	1130898	18.24	753970	20.98
003	CCV		510672	11.71	705898	13.03	628868	17.75	434019	20.49
004	BS	QC830900	526265	11.71	769822	13.03	653188	17.75	428827	20.49
005	BSD	QC830901	542932	11.71	761841	13.03	664218	17.75	430887	20.49
007	BLANK	QC830902	495095	11.70	677751	13.03	607128	17.75	370596	20.49
008	SAMPLE	275719-014	457891	11.70	640837	13.02	575529	17.75	338933	20.49
009	SAMPLE	275719-002	430401	11.71	598997	13.03	538855	17.75	321241	20.49
010	SAMPLE	275719-007	417628	11.71	594543	13.03	523362	17.75	319718	20.49
011	SAMPLE	275719-008	400795	11.71	556903	13.03	514295	17.75	310941	20.49
012	SAMPLE	275719-009	398780	11.71	564022	13.03	497633	17.75	291535	20.48
013	SAMPLE	275719-010	376684	11.70	551538	13.02	493780	17.75	286395	20.49
014	SAMPLE	275719-011	379351	11.70	534518	13.02	474371	17.75	273891	20.49
015	SAMPLE	275719-012	353560	11.71	514542	13.03	453466	17.74	267466	20.48
016	SAMPLE	275719-013	359968	11.70	492447	13.02	444214	17.75	260563	20.49
017	SAMPLE	275719-001	357184	11.70	507509	13.02	451320	17.75	262183	20.49
018	SAMPLE	275719-003	331528	11.70	466230	13.02	409988	17.75	251037	20.49
019	SAMPLE	275719-004	331133	11.70	463251	13.02	411873	17.74	239597	20.48
020	SAMPLE	275719-005	345131	11.71	489529	13.03	442083	17.75	254847	20.48
021	SAMPLE	275719-006	320815	11.70	462174	13.02	426115	17.75	249092	20.49
022	IB		369102	11.70	514735	13.02	462134	17.75	279833	20.49
023	IB		364587	11.70	511600	13.02	457677	17.74	264829	20.48
024	IB		462333	11.70	650327	13.02	573694	17.75	325268	20.49

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 476156274

Date : 04/17/16 Reference : hd513
Sequence : MSVOA08 hdh Analyzed : 04/05/16 20:48

#	Type	Sample ID	PFLBZ	RT	14DFB	RT	CLBZD5	RT	DCBZ14D4	RT
		ICAL STD	581578	10.05	813297	11.25	655806	15.74	375808	18.59
		LOWER LIMIT	290789	9.55	406649	10.75	327903	15.24	187904	18.09
		UPPER LIMIT	1163156	10.55	1626594	11.75	1311612	16.24	751616	19.09
002	IB		891014	10.05	1275313	11.25	1001825	15.75	556611	18.60
004	CCV		876652	10.05	1245494	11.25	987415	15.75	539702	18.60
005	BS	QC831857	859368	10.05	1237210	11.25	926820	15.75	514819	18.60
006	BSD	QC831858	949638	10.06	1261756	11.25	971756	15.76	490578	18.60
007	IB	A/A	933387	10.06	1255016	11.25	983210	15.76	538582	18.60
008	IB	A/A	862039	10.05	1205103	11.25	958896	15.75	550080	18.61
009	BLANK	QC831859	855825	10.05	1154518	11.25	897808	15.76	487664	18.60
010	SAMPLE	275711-005	806122	10.05	1006107	11.24	952114	15.75	538946	18.60
011	SAMPLE	275819-006	873911	10.05	1203185	11.25	903271	15.75	473318	18.60
012	SAMPLE	275719-003	842293	10.05	1085660	11.25	893297	15.75	478897	18.60
013	SAMPLE	275719-004	812080	10.05	1107893	11.25	850498	15.75	447666	18.60
014	SAMPLE	275719-005	787414	10.05	1111212	11.25	786053	15.75	435195	18.60
015	SAMPLE	275719-006	768257	10.06	1086297	11.25	808377	15.75	435357	18.60
016	SAMPLE	275719-008	760282	10.05	1074118	11.25	850541	15.75	438374	18.60
017	SAMPLE	275719-009	707742	10.05	919620	11.25	695180	15.76	380311	18.60
018	SAMPLE	275719-012	726967	10.05	958647	11.25	757322	15.75	425719	18.60
019	SAMPLE	275848-002	698290	10.05	996684	11.25	810139	15.75	453022	18.60
020	SAMPLE	275848-004	700889	10.05	938070	11.25	685458	15.75	357776	18.60
021	SAMPLE	275848-005	724902	10.05	979337	11.25	759768	15.75	414645	18.60
022	IB	1/1	643244	10.05	971410	11.25	909995	15.75	487360	18.60
023	IB		806093	10.06	1225478	11.25	949627	15.75	497010	18.60

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 486149016

Date : 04/12/16 Reference : ic917
Sequence : MSVOA09 idc Analyzed : 03/09/16 21:13

#	Type	Sample ID	PFLBZ	RT	14DFB	RT	CLBZD5	RT	DCBZ14D4	RT
		ICAL STD	1306782	11.03	2575850	12.29	2256850	16.65	1074105	19.09
		LOWER LIMIT	653391	10.53	1287925	11.79	1128425	16.15	537053	18.59
		UPPER LIMIT	2613564	11.53	5151700	12.79	4513700	17.15	2148210	19.59
003	CCV		1061395	10.99	2053236	12.26	1844261	16.63	826307	19.07
004	BS	QC831192	1086682	11.00	2093617	12.27	1851495	16.64	804846	19.07
005	BSD	QC831193	1064263	11.02	2072262	12.27	1777787	16.64	819277	19.08
007	CCV		996390	11.00	1881292	12.26	1694279	16.63	755547	19.07
008	BS	QC831192	1005963	11.01	1906097	12.27	1694887	16.63	776316	19.08
009	BSD	QC831193	1036355	11.02	1965575	12.28	1741848	16.64	781229	19.07
010	IB	A/A	1025585	11.01	1940548	12.27	1744839	16.65	720279	19.08
011	BLANK	QC831194	1028511	11.02	1946697	12.28	1705196	16.64	714956	19.07
012	SAMPLE	275804-004	1022201	11.02	1883716	12.28	1671804	16.64	731388	19.07
013	SAMPLE	275892-001	1013736	11.02	1913257	12.28	1727380	16.64	762649	19.08
014	SAMPLE	275801-007	1027541	11.02	1946981	12.28	1728470	16.64	766308	19.08
015	SAMPLE	275569-005	1012796	11.02	1968195	12.27	1754310	16.65	736517	19.08
016	SAMPLE	275719-001	1011413	11.02	1980724	12.27	1726436	16.65	714503	19.08
017	SAMPLE	275719-003	1016468	11.02	1911237	12.28	1733628	16.64	736719	19.07
018	SAMPLE	275719-004	1026429	11.02	1960665	12.28	1761667	16.65	726054	19.08
019	SAMPLE	275719-005	1023524	11.01	1961286	12.28	1733410	16.64	715626	19.08
020	SAMPLE	275719-006	1018687	11.01	1949888	12.28	1683168	16.64	727914	19.07
021	SAMPLE	275804-010	1008311	11.02	1940270	12.28	1722546	16.64	720656	19.07
022	SAMPLE	275804-006	1002438	11.01	1883060	12.28	1725462	16.64	723536	19.08
023	SAMPLE	275804-007	995791	11.01	1905422	12.28	1715575	16.64	717243	19.07
024	SAMPLE	275804-011	996329	11.02	1899339	12.28	1669322	16.64	719997	19.08
025	SAMPLE	275804-008	996883	11.02	1978897	12.28	1720516	16.64	746474	19.08
026	SAMPLE	275804-009	1034223	11.01	1954792	12.28	1711038	16.64	764987	19.08

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 836150370

Date : 04/13/16 Reference : kc820
Sequence : MSVOA11 kdd Analyzed : 03/09/16 00:18

#	Type	Sample ID	PFLBZ	RT	14DFB	RT	CLBZD5	RT	DCBZ14D4	RT
		ICAL STD	395404	10.58	660265	11.51	595282	14.62	299473	16.88
		LOWER LIMIT	197702	10.08	330133	11.01	297641	14.12	149737	16.38
		UPPER LIMIT	790808	11.08	1320530	12.01	1190564	15.12	598946	17.38
002	IB		286432	10.58	550837	11.51	503030	14.62	225786	16.87
005	CCV/BS	QC831376	344184	10.57	630065	11.51	590538	14.62	292940	16.87
006	BSD	QC831377	325485	10.57	608585	11.51	576340	14.62	280680	16.87
007	IB		338758	10.58	629608	11.51	578910	14.62	267785	16.87
008	IB	A/A	295503	10.58	568306	11.51	495919	14.62	222080	16.87
009	BLANK	QC831378	303865	10.58	576300	11.51	509430	14.62	220191	16.87
010	SAMPLE	275969-001	332492	10.58	612629	11.51	559794	14.62	262508	16.87
011	SAMPLE	275969-002	306838	10.58	586632	11.51	546491	14.62	251384	16.87
012	SAMPLE	275969-003	306189	10.58	577948	11.51	515527	14.62	242452	16.87
013	SAMPLE	275856-001	296364	10.58	558040	11.51	517938	14.62	233991	16.87
014	SAMPLE	275856-002	288077	10.58	546692	11.51	491093	14.62	203909	16.87
015	SAMPLE	275719-001	259862	10.58	500387	11.51	456100	14.62	199210	16.87
016	SAMPLE	275804-008	336322	10.58	607575	11.51	569295	14.62	270413	16.87
017	SAMPLE	275921-002	323067	10.58	592353	11.51	499115	14.62	236389	16.87
018	SAMPLE	275921-007	283273	10.58	529713	11.51	510167	14.62	217003	16.87
019	SAMPLE	275921-008	287082	10.58	563856	11.51	514064	14.62	243232	16.87
020	SAMPLE	275921-009	334048	10.58	618605	11.51	564058	14.62	262133	16.87
021	SAMPLE	275921-010	271637	10.58	521492	11.51	470116	14.62	225694	16.87
022	SAMPLE	275976-002	253819	10.58	492764	11.51	454560	14.62	203788	16.87
023	SAMPLE	275921-005	256963	10.58	508069	11.51	455703	14.62	209567	16.87
024	SAMPLE	275921-001	277117	10.58	552578	11.51	540469	14.62	257546	16.87
025	SAMPLE	275804-009	321946	10.58	578639	11.51	549424	14.62	270684	16.87
026	SAMPLE	275715-005	367508	10.58	663273	11.51	612217	14.62	288690	16.87
027	IB		359229	10.58	656256	11.51	600256	14.62	282259	16.87
028	IB		344436	10.58	637025	11.51	575818	14.62	269645	16.87

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 456138592

Instrument : MSVOA06 Begun : 04/05/16 05:52
Method : EPA 8260B SOP Version : TVH_8260B_rv1

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	fd501	X	IB			04/05/16 05:52	1.0	1	
002	fd502	X	IB			04/05/16 06:24	1.0	1	
003	fd503	TUN	BFB			04/05/16 12:00	1.0	2	
004	fd504	CCV/BS	QC830216	Water	233764	04/05/16 12:26	1.0	3 1	
005	fd505	BSD	QC830217	Water	233764	04/05/16 13:18	1.0	3 1	
006	fd506	X	IB			04/05/16 13:50	1.0	1	
007	fd507	BLANK	QC830218	Water	233764	04/05/16 14:22	1.0	1	
008	fd508	SAMPLE	275494-013	Water	233764	04/05/16 14:54	12.50	1	pH > 2
009	fd509	SAMPLE	275494-004	Water	233764	04/05/16 15:26	1.0	1	
010	fd510	SAMPLE	275494-012	Water	233764	04/05/16 15:58	1.0	1	
011	fd511	TUN	BFB			04/05/16 17:20	1.0	2	
012	fd512	TUN	BFB			04/05/16 17:37	1.0	2	
013	fd513	TUN	BFB			04/05/16 17:48	1.0	2	
014	fd514	X	IB			04/05/16 18:17	1.0	1	
015	fd515	X	LOW POINT			04/05/16 18:49	1.0	4 5 6 7 1	
016	fd516	X	IB			04/05/16 19:21	1.0	1	
017	fd517	X	IB			04/05/16 19:53	1.0	1	
018	fd518	IB	CALIB			04/05/16 20:25	1.0	1	
019	fd519	IB	CALIB			04/05/16 20:58	1.0	1	
020	fd520	ICAL				04/05/16 21:30	1.0	4 5 6 7 1	
021	fd521	ICAL				04/05/16 22:02	1.0	4 5 6 7 1	
022	fd522	ICAL				04/05/16 22:35	1.0	4 5 6 7 1	
023	fd523	ICAL				04/05/16 23:07	1.0	4 5 6 7 1	
024	fd524	ICAL				04/05/16 23:39	1.0	4 5 6 7 1	
025	fd525	ICAL				04/06/16 00:11	1.0	4 5 6 7 1	
026	fd526	ICAL				04/06/16 00:43	1.0	4 5 6 7 1	
027	fd527	ICAL				04/06/16 01:16	1.0	4 5 6 7 1	
028	fd528	ICAL				04/06/16 01:48	1.0	4 5 6 7 1	
029	fd529	ICV	GAS			04/06/16 02:19	1.0	8 1	
030	fd530	ICV				04/06/16 02:52	1.0	9 10 11 1	
031	fd531	X	IB			04/06/16 03:23	1.0	1	
032	fd532	X	IB			04/06/16 03:56	1.0	1	

MCT 04/06/16 : Matrix spikes were not performed for this analysis in batch 233764 due to insufficient sample amount.

MCT 04/06/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 10.

LW 04/06/16 : Reviewed through file10

MCT 04/07/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 11 through 32.

Analyst: MCT Date: 04/06/16 Reviewer: LW Date: 04/07/16

Standards used: 1=S29263 2=S29058 3=S28894 4=S29228 5=S29427 6=S28620 7=S28142 8=S28625 9=S29207 10=S29448 11=S29290

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 456141494

Instrument : MSVOA06 Begun : 04/07/16 06:14
Method : EPA 8260B SOP Version : TVH_8260B_rv1

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	fd701	X	IB			04/07/16 06:14	1.0	1	
002	fd702	X	IB			04/07/16 06:46	1.0	1	
003	fd703	TUN	BFB			04/07/16 07:19	1.0	2	
004	fd704	ICV				04/07/16 07:45	1.0	3 1	
005	fd705	ICV				04/07/16 08:17	1.0	4 5 6 1	
006	fd706	X	IB			04/07/16 09:49	1.0	1	
007	fd707	ICV				04/07/16 12:06	1.0	7 1	
008	fd708	TUN	BFB			04/07/16 13:23	1.0	2	t
009	fd709	TUN	BFB			04/07/16 13:38	1.0	2	
010	fd710	CCV				04/07/16 14:03	1.0	8 9 10 1 11	
011	fd711	BS	QC830603	Water	233854	04/07/16 14:52	1.0	5 4 6 3 1	
012	fd712	BSD	QC830604	Water	233854	04/07/16 15:24	1.0	5 4 6 3 1	
013	fd713	CCV/BS	QC830605	Water	233854	04/07/16 15:56	1.0	12 1	
014	fd714	BSD	QC830606	Water	233854	04/07/16 16:28	1.0	12 1	
015	fd715	X	IB			04/07/16 17:00	1.0	1	
016	fd716	BLANK	QC830607	Water	233854	04/07/16 17:32	1.0	1	
017	fd717	SAMPLE	275492-002	Water	233854	04/07/16 18:04	1.0	1	headspace <= 1 mL
018	fd718	SAMPLE	275698-009	Water	233854	04/07/16 18:36	1.0	1	
019	fd719	SAMPLE	275698-010	Water	233854	04/07/16 19:08	1.0	1	
020	fd720	SAMPLE	275698-007	Water	233854	04/07/16 19:40	1.0	1	
021	fd721	SAMPLE	275698-008	Water	233854	04/07/16 20:13	1.0	1	1:TCE=130
022	fd722	SAMPLE	275746-030	Water	233854	04/07/16 20:45	1.0	1	headspace <= 1 mL
023	fd723	SAMPLE	275746-035	Water	233854	04/07/16 21:17	1.0	1	headspace <= 1 mL
024	fd724	SAMPLE	275746-040	Water	233854	04/07/16 21:49	1.0	1	
025	fd725	SAMPLE	275746-045	Water	233854	04/07/16 22:21	1.0	1	
026	fd726	SAMPLE	275698-006	Water	233854	04/07/16 22:53	2.0	1	
027	fd727	MSS	275492-001	Water	233854	04/07/16 23:25	10.0	1	foamer
028	fd728	SAMPLE	275492-004	Water	233854	04/07/16 23:57	100.0	1	foamer
029	fd729	SAMPLE	275492-003	Water	233854	04/08/16 00:29	200.0	1	foamer
030	fd730	MS	QC830694	Water	233854	04/08/16 01:01	10.0	5 4 6 3 1	
031	fd731	MSD	QC830695	Water	233854	04/08/16 01:34	10.0	5 4 6 3 1	
032	fd732	X	IB			04/08/16 02:06	1.0	1	
033	fd733	X	IB			04/08/16 02:38	1.0	1	
034	fd734	LOD	244812-018	Water	233854	04/08/16 03:10	1.0	9 1	<<t
035	fd735	X	IB			04/08/16 03:42	1.0	1	
036	fd736	X	IB			04/08/16 05:32	1.0	1	

MCT 04/07/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 7.

MCT 04/08/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 8 through 36.

Analyst: MCT Date: 04/07/16 Reviewer: LW Date: 04/08/16

Standards used: 1=S29263 2=S29058 3=S28625 4=S29207 5=S29448 6=S29290 7=S26946 8=S28620 9=S29427 10=S29228 11=S28142 12=S28894

Flags used: <<t=out of clock t=tune failure

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 456146518

Instrument : MSVOA06 Begun : 04/10/16 17:58
Method : EPA 8260B SOP Version : TVH_8260B_rv1

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	fda01	X	IB			04/10/16 17:58	1.0	1	
002	fda02	TUN	BFB			04/10/16 18:49	1.0	2	
003	fda03	CCV				04/10/16 20:13	1.0	3 4 5 6 1	
004	fda04	BS	QC830900	Water	233929	04/10/16 20:45	1.0	7 8 9 10 1	
005	fda05	BSD	QC830901	Water	233929	04/10/16 21:17	1.0	7 8 9 10 1	
006	fda06	X	IB			04/10/16 21:51	1.0	1	
007	fda07	BLANK	QC830902	Water	233929	04/10/16 22:23	1.0	1	
008	fda08	SAMPLE	275719-014	Water	233929	04/10/16 22:55	1.0	1	
009	fda09	SAMPLE	275719-002	Water	233929	04/10/16 23:27	1.0	1	
010	fda10	SAMPLE	275719-007	Water	233929	04/10/16 23:59	1.0	1	
011	fda11	SAMPLE	275719-008	Water	233929	04/11/16 00:31	1.0	1	
012	fda12	SAMPLE	275719-009	Water	233929	04/11/16 01:03	1.0	1	
013	fda13	SAMPLE	275719-010	Water	233929	04/11/16 01:35	1.0	1	
014	fda14	SAMPLE	275719-011	Water	233929	04/11/16 02:07	1.0	1	
015	fda15	SAMPLE	275719-012	Water	233929	04/11/16 02:39	1.0	1	
016	fda16	SAMPLE	275719-013	Water	233929	04/11/16 03:11	1.0	1	
017	fda17	SAMPLE	275719-001	Water	233929	04/11/16 03:43	2.0	1	
018	fda18	SAMPLE	275719-003	Water	233929	04/11/16 04:15	2.0	1	
019	fda19	SAMPLE	275719-004	Water	233929	04/11/16 04:47	2.0	1	
020	fda20	SAMPLE	275719-005	Water	233929	04/11/16 05:19	2.0	1	
021	fda21	SAMPLE	275719-006	Water	233929	04/11/16 05:51	2.0	1	
022	fda22	IB				04/11/16 06:23	1.0	1	
023	fda23	IB				04/11/16 06:55	1.0	1	<<t
024	fda24	IB				04/11/16 07:27	1.0	1	<<t

DAR 04/10/16 : adjusted tune before file 1

MCT 04/12/16 : Matrix spikes were not performed for this analysis in batch 233929 due to insufficient sample amount.

MCT 04/12/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 24.

Analyst: MCT Date: 04/12/16 Reviewer: LW Date: 04/12/16

Standards used: 1=S29263 2=S29058 3=S29048 4=S29427 5=S29559 6=S28142 7=S29448 8=S29207 9=S29290 10=S29123

Flags used: <<t=out of clock

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 476138895

Instrument : MSVOA08 Begun : 04/05/16 10:55
Method : EPA 8260B SOP Version : TVH_8260B_rv1

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	hd501	TUN	BFB			04/05/16 10:55	1.0	1	
002	hd502	IB				04/05/16 12:17	1.0	2	
003	hd503	X	LOWPT			04/05/16 12:51	1.0	2	
004	hd504	X	IB			04/05/16 13:25	1.0	2	
005	hd505	X	IB			04/05/16 16:15	1.0	2	
006	hd506	IB	CALIB			04/05/16 16:49	1.0	2	
007	hd507	ICAL	.25/.5			04/05/16 17:23	1.0	3 4 5 6 2	
008	hd508	ICAL	.5/1			04/05/16 17:57	1.0	3 4 5 6 2	
009	hd509	ICAL	2PPB			04/05/16 18:31	1.0	3 4 5 6 2	
010	hd510	ICAL	5PPB			04/05/16 19:06	1.0	2 3 4 5 6	
011	hd511	ICAL	10PPB			04/05/16 19:40	1.0	2 3 4 5 6	
012	hd512	ICAL	20PPB			04/05/16 20:14	1.0	2 3 4 5 6	
013	hd513	ICAL	50PPB			04/05/16 20:48	1.0	2 3 4 5 6	
014	hd514	ICAL	75PPB			04/05/16 21:23	1.0	2 3 4 5 6	
015	hd515	ICAL	100PPB			04/05/16 21:57	1.0	2 3 4 5 6	
016	hd516	ICV	GAS			04/05/16 22:31	1.0	2 7	
017	hd517	X	MIX			04/05/16 23:05	1.0	2 8 9 10	<<t
019	hd519	IB				04/06/16 00:13	1.0	2	<<t
020	hd520	IB				04/06/16 00:47	1.0	2	<<t

DAR 04/06/16 : file 18, an IB, cannot be brought into LIMS due to a chemstation bug

DAR 04/06/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 20.

DAR 04/07/16 : file 17 ICV mix out of clock, Xed out so it wouldn't be used

Analyst: DAR Date: 04/06/16 Reviewer: LW Date: 04/07/16

Standards used: 1=S29058 2=S29486 3=S28620 4=S29427 5=S29559 6=S28142 7=S28625 8=S29448 9=S29207 10=S29290

Flags used: <<t=out of clock

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 476140541

Instrument : MSVOA08 Begun : 04/06/16 14:21
Method : EPA 8260B SOP Version : TVH_8260B_rv1

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	hd601	IB				04/06/16 14:21	1.0	1	?t
002	hd602	IB				04/06/16 14:56	1.0	1	?t
003	hd603	TUN	BFB			04/06/16 16:51	1.0	2	t
004	hd604	TUN	BFB			04/06/16 17:03	1.0	2	
005	hd605	ICV				04/06/16 17:28	1.0	3 4 5 1	
006	hd606	ICV	KET			04/06/16 20:01	1.0	1 6	
007	hd607	ICV	IODO			04/06/16 20:36	1.0	1 7	

DAR 04/07/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 7.

Analyst: DAR Date: 04/07/16 Reviewer: LW Date: 04/07/16

Standards used: 1=S29486 2=S29058 3=S29448 4=S29207 5=S29290 6=S26946 7=S28619

Flags used: ?t=missing tune t=tune failure

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 476156274

Instrument : MSVOA08 Begun : 04/17/16 12:34
Method : EPA 8260B SOP Version : TVH_8260B_rv1

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	hdh01	X	HG			04/17/16 12:34	1.0	1	
002	hdh02	IB				04/17/16 13:08	1.0	1	?t
003	hdh03	TUN	BFB			04/17/16 14:39	1.0	2	
004	hdh04	CCV				04/17/16 15:11	1.0	3 4 5 6 1	
005	hdh05	BS	QC831857	Water	234168	04/17/16 15:46	1.0	7 8 9 10 1	
006	hdh06	BSD	QC831858	Water	234168	04/17/16 16:20	1.0	7 8 9 10 1	
007	hdh07	IB	A/A			04/17/16 16:54	1.0	1	
008	hdh08	IB	A/A			04/17/16 17:29	1.0	1	
009	hdh09	BLANK	QC831859	Water	234168	04/17/16 18:39	1.0	1	
010	hdh10	SAMPLE	275711-005	Water	234168	04/17/16 19:14	1.0	1	spk
011	hdh11	SAMPLE	275819-006	Water	234168	04/17/16 19:48	1.0	1	
012	hdh12	SAMPLE	275719-003	Water	234168	04/17/16 20:22	2.0	1	
013	hdh13	SAMPLE	275719-004	Water	234168	04/17/16 20:57	2.0	1	headspace <= 1 mL
014	hdh14	SAMPLE	275719-005	Water	234168	04/17/16 21:31	2.0	1	
015	hdh15	SAMPLE	275719-006	Water	234168	04/17/16 22:05	2.0	1	headspace <= 1 mL
016	hdh16	SAMPLE	275719-008	Water	234168	04/17/16 22:39	1.0	1	
017	hdh17	SAMPLE	275719-009	Water	234168	04/17/16 23:13	1.0	1	
018	hdh18	SAMPLE	275719-012	Water	234168	04/17/16 23:47	1.0	1	
019	hdh19	SAMPLE	275848-002	Water	234168	04/18/16 00:22	1.0	1	
020	hdh20	SAMPLE	275848-004	Water	234168	04/18/16 00:56	1.0	1	
021	hdh21	SAMPLE	275848-005	Water	234168	04/18/16 01:30	1.0	1	
022	hdh22	IB	1/1	Water	234168	04/18/16 02:04	1.0	1	
023	hdh23	IB				04/18/16 02:38	1.0	1	
024	hdh24	HIGAS				04/18/16 03:12	1.0	1	<<t , 6:FC12=130

DAR 04/18/16 : fixed sequence for skipped sample files 18-24

KKM 04/18/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 24.

KKM 04/18/16 : Matrix spikes were not performed for this analysis in batch 234168 due to insufficient sample amount.

Analyst: KKM Date: 04/18/16 Reviewer: LW Date: 04/18/16

Standards used: 1=S29654 2=S29058 3=S28620 4=S29427 5=S29559 6=S28142 7=S29448 8=S29207 9=S29290 10=S28625

Flags used: <<t=out of clock ?t=missing tune spk=5% spike rule

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 486100040

Instrument : MSVOA09 Begun : 03/09/16 11:20
Method : EPA 8260B SOP Version : TVH_8260B_rv1

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	ic901	IB	IB			03/09/16 11:20	1.0	1	?t
002	ic902	TUN	BFB			03/09/16 11:56	1.0	2	
003	ic903	CCV				03/09/16 12:22	1.0	3 4 5 6 1	cc+ , 3:TBA=760
004	ic904	TUN	BFB			03/09/16 13:52	1.0	2	
005	ic905	TUN	BFB			03/09/16 14:05	1.0	2	
006	ic906	TUN	BFB			03/09/16 14:17	1.0	2	
007	ic907	IB	IB			03/09/16 14:44	1.0	1	
008	ic908	X	IB			03/09/16 15:43	1.0	1	
009	ic909	X	IB			03/09/16 16:17	1.0	1	
010	ic910	IB	CALIB			03/09/16 17:13	1.0	1	
011	ic911	ICAL	0.25/.5PPB			03/09/16 17:47	1.0	3 4 5 6 1	
012	ic912	ICAL	0.5/1.0PPB			03/09/16 18:21	1.0	3 4 5 6 1	
013	ic913	ICAL	2PPB			03/09/16 18:56	1.0	3 4 5 6 1	
014	ic914	ICAL	5PPB			03/09/16 19:30	1.0	3 4 5 6 1	
015	ic915	ICAL	10PPB			03/09/16 20:04	1.0	3 4 5 6 1	
016	ic916	ICAL	20PPB			03/09/16 20:39	1.0	3 4 5 6 1	
017	ic917	ICAL	50PPB			03/09/16 21:13	1.0	3 4 5 6 1	
018	ic918	ICAL	75PPB			03/09/16 21:47	1.0	3 4 5 6 1	
019	ic919	ICAL	100PPB			03/09/16 22:21	1.0	3 4 5 6 1	
020	ic920	ICV	GAS			03/09/16 22:56	1.0	7 1	
021	ic921	ICV	MIX			03/09/16 23:30	1.0	8 9 10 1	
022	ic922	X	IB			03/10/16 00:04	1.0	1	

NJT 03/10/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 22.

Analyst: NJT Date: 03/10/16 Reviewer: LW Date: 03/16/16

Standards used: 1=S29226 2=S29058 3=S28620 4=S29042 5=S29228 6=S27830 7=S29123 8=S29230 9=S29207 10=S29290

Flags used: +=high bias ?t=missing tune cc=CCV CCC failure

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 486101497

Instrument : MSVOA09 Begun : 03/10/16 11:37
Method : EPA 8260B SOP Version : TVH_8260B_rv1

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	ica01	X	IB			03/10/16 11:37	1.0	1	
002	ica02	TUN	BFB			03/10/16 14:39	1.0	2	
003	ica03	ICV				03/10/16 15:10	1.0	3 4 1	
004	ica04	ICV				03/10/16 16:26	1.0	5 1	
005	ica05	TUN	BFB			03/10/16 18:05	1.0	2	
006	ica06	CCV				03/10/16 19:01	1.0	6 7 8 9 1	
007	ica07	BS	QC826441	Water	232828	03/10/16 19:36	1.0	10 11 12 13 1	
008	ica08	BSD	QC826442	Water	232828	03/10/16 20:10	1.0	10 11 12 13 1	
009	ica09	X	IB			03/10/16 20:44	1.0	1	
010	ica10	BLANK	QC826443	Water	232828	03/10/16 21:18	1.0	1	

NJT 03/10/16 : Used third source for ICV at file 4.

NJT 03/10/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 4.

Analyst: NJT Date: 03/10/16 Reviewer: LW Date: 03/16/16

Standards used: 1=S29226 2=S29058 3=S26946 4=S27395 5=S28619 6=S28620 7=S29042 8=S29228 9=S27830 10=S29230 11=S29207 12=S29290 13=S29123

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 486149016

Instrument : MSVOA09 Begun : 04/12/16 11:36
Method : EPA 8260B SOP Version : TVH_8260B_rv1

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	idc01	X	IB			04/12/16 11:36	1.0	1	
002	idc02	TUN	BFB			04/12/16 12:56	1.0	2	
003	idc03	CCV				04/12/16 13:22	1.0	3 4 5 6 1	cc+
004	idc04	BS	QC831192	Water	234003	04/12/16 13:56	1.0	7 8 9 10 1	spk cc+
005	idc05	BSD	QC831193	Water	234003	04/12/16 14:31	1.0	7 8 9 10 1	spk cc+
006	idc06	TUN	BFB			04/12/16 15:19	1.0	2	
007	idc07	CCV				04/12/16 15:45	1.0	3 4 5 6 1	
008	idc08	BS	QC831192	Water	234003	04/12/16 16:31	1.0	7 8 9 10 1	spk
009	idc09	BSD	QC831193	Water	234003	04/12/16 17:06	1.0	7 8 9 10 1	
010	idc10	IB	A/A			04/12/16 17:51	1.0	1	
011	idc11	BLANK	QC831194	Water	234003	04/12/16 18:25	1.0	1	
012	idc12	SAMPLE	275804-004	Water	234003	04/12/16 19:00	1.0	1	headspace <= 1 mL
013	idc13	SAMPLE	275892-001	Water	234003	04/12/16 19:34	10.0	1	spk , pH > 2
014	idc14	SAMPLE	275801-007	Water	234003	04/12/16 20:08	1.0	1	spk , 1:DCA12=120
015	idc15	SAMPLE	275569-005	Water	234003	04/12/16 20:43	10.0	1	spk , headspace <= 1 mL
016	idc16	SAMPLE	275719-001	Water	234003	04/12/16 21:17	1.0	1	spk , headspace <= 1 mL
017	idc17	SAMPLE	275719-003	Water	234003	04/12/16 21:51	2.0	1	spk
018	idc18	SAMPLE	275719-004	Water	234003	04/12/16 22:26	2.0	1	spk
019	idc19	SAMPLE	275719-005	Water	234003	04/12/16 23:00	2.0	1	spk
020	idc20	SAMPLE	275719-006	Water	234003	04/12/16 23:34	2.0	1	spk
021	idc21	SAMPLE	275804-010	Water	234003	04/13/16 00:09	2.500	1	foamer
022	idc22	SAMPLE	275804-006	Water	234003	04/13/16 00:43	1.0	1	
023	idc23	SAMPLE	275804-007	Water	234003	04/13/16 01:18	1.0	1	
024	idc24	SAMPLE	275804-011	Water	234003	04/13/16 01:52	1.0	1	
025	idc25	SAMPLE	275804-008	Water	234003	04/13/16 02:26	3.333	1	
026	idc26	SAMPLE	275804-009	Water	234003	04/13/16 03:01	12.50	1	
027	idc27	X	IB			04/13/16 03:35	1.0	1	

NJT 04/13/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 27.

NJT 04/13/16 : Matrix spikes were not performed for this analysis in batch 234003 due to insufficient sample amount.

NJT 04/13/16 : Adjusted tune after file 5.

Analyst: NJT Date: 04/13/16 Reviewer: LW Date: 04/13/16

Standards used: 1=S29549 2=S29058 3=S29048 4=S29427 5=S29559 6=S28142 7=S29448 8=S29207 9=S29290 10=S29123

Flags used: +=high bias cc=CCV CCC failure spk=5% spike rule

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 836098562

Instrument : MSVOA11 Begun : 03/08/16 10:42
Method : EPA 8260B SOP Version : TVH_8260B_rv1

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	kc801	IB				03/08/16 10:42	1.0	1	?t
002	kc802	IB				03/08/16 11:10	1.0	1	?t
003	kc803	IB				03/08/16 11:38	1.0	1	?t
004	kc804	IB				03/08/16 16:04	1.0	1	?t
005	kc805	IB				03/08/16 16:33	1.0	1	?t
006	kc806	IB				03/08/16 17:01	1.0	1	?t
007	kc807	TUN	BFB			03/08/16 18:13	1.0	2	
008	kc808	IB				03/08/16 18:39	1.0	1	
009	kc809	IB				03/08/16 19:07	1.0	1	
010	kc810	IB				03/08/16 19:36	1.0	1	
011	kc811	IB				03/08/16 20:04	1.0	1	
012	kc812	IB				03/08/16 20:32	1.0	1	
013	kc813	IB	CALIB			03/08/16 21:00	1.0	1	
014	kc814	ICAL	.25PPB			03/08/16 21:28	1.0	3 4 5 6 1	
015	kc815	ICAL	.5PPB			03/08/16 21:56	1.0	1 3 4 5 6	
016	kc816	ICAL	2PPB			03/08/16 22:25	1.0	3 4 5 6 1	
017	kc817	ICAL	5PPB			03/08/16 22:53	1.0	1 3 4 5 6	
018	kc818	ICAL	10PPB			03/08/16 23:21	1.0	1 3 4 5 6	
019	kc819	ICAL	20PPB			03/08/16 23:50	1.0	1 3 4 5 6	
020	kc820	ICAL	50PPB			03/09/16 00:18	1.0	1 3 4 5 6	
021	kc821	ICAL	75PPB			03/09/16 00:46	1.0	1 3 4 5 6	
022	kc822	ICAL	100PPB			03/09/16 01:14	1.0	1 3 4 5 6	
023	kc823	ICV	GAS			03/09/16 01:43	1.0	7 1	
024	kc824	ICV				03/09/16 02:11	1.0	8 9 10 1	
025	kc825	IB				03/09/16 02:39	1.0	1	

DAR 03/10/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 25.

Analyst: DAR Date: 03/10/16 Reviewer: LW Date: 03/14/16

Standards used: 1=S29284 2=S29058 3=S28620 4=S29042 5=S29228 6=S27830 7=S29123 8=S29207 9=S29290 10=S29230

Flags used: ?t=missing tune

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 836100345

Instrument : MSVOA11 Begun : 03/09/16 16:25
Method : EPA 8260B SOP Version : TVH_8260B_rv1

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	kc901	IB				03/09/16 16:25	1.0	1	?t
002	kc902	TUN	BFB			03/09/16 16:48	1.0	2	t
003	kc903	TUN	BFB			03/09/16 16:59	1.0	2	t
004	kc904	TUN	BFB			03/09/16 17:49	1.0	2	
005	kc905	ICV				03/09/16 18:14	1.0	3 1	

DAR 03/10/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 5.

DAR 03/10/16 : injector maintenance after file 3

Analyst: DAR Date: 03/10/16 Reviewer: LW Date: 03/14/16

Standards used: 1=S29284 2=S29058 3=S26946

Flags used: ?t=missing tune t=tune failure

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 836150370

Instrument : MSVOA11 Begun : 04/13/16 10:10
Method : EPA 8260B SOP Version : TVH_8260B_rv1

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	kdd01	X	HIGGHAS			04/13/16 10:10	1.0	1	
002	kdd02	IB				04/13/16 10:38	1.0	1	?t
003	kdd03	TUN	BFB			04/13/16 11:43	1.0	2	
004	kdd04	X	BFB			04/13/16 12:13	1.0	2	
005	kdd05	CCV/BS	QC831376	Water	234049	04/13/16 12:41	1.0	3 4 5 6 1	
006	kdd06	BSD	QC831377	Water	234049	04/13/16 13:10	1.0	3 4 5 6 1	
007	kdd07	IB				04/13/16 13:57	1.0	1	
008	kdd08	IB	A/A			04/13/16 14:25	1.0	1	
009	kdd09	BLANK	QC831378	Water	234049	04/13/16 14:54	1.0	1	
010	kdd10	SAMPLE	275969-001	Water	234049	04/13/16 15:28	1.0	1	
011	kdd11	SAMPLE	275969-002	Water	234049	04/13/16 15:57	1.0	1	
012	kdd12	SAMPLE	275969-003	Water	234049	04/13/16 16:25	1.0	1	
013	kdd13	SAMPLE	275856-001	Water	234049	04/13/16 17:11	1.0	1	
014	kdd14	SAMPLE	275856-002	Water	234049	04/13/16 17:40	1.0	1	
015	kdd15	SAMPLE	275719-001	Water	234049	04/13/16 18:08	1.0	1	
016	kdd16	SAMPLE	275804-008	Water	234049	04/13/16 18:36	1.0	1	
017	kdd17	SAMPLE	275921-002	Water	234049	04/13/16 19:05	1.0	1	
018	kdd18	SAMPLE	275921-007	Water	234049	04/13/16 19:33	1.0	1	
019	kdd19	SAMPLE	275921-008	Water	234049	04/13/16 20:02	1.0	1	
020	kdd20	SAMPLE	275921-009	Water	234049	04/13/16 20:30	1.0	1	1:VC=110
021	kdd21	SAMPLE	275921-010	Water	234049	04/13/16 20:58	1.0	1	
022	kdd22	SAMPLE	275976-002	Water	234049	04/13/16 21:26	1.0	1	
023	kdd23	SAMPLE	275921-005	Water	234049	04/13/16 21:55	6.25	1	
024	kdd24	SAMPLE	275921-001	Water	234049	04/13/16 22:23	33.33	1	
025	kdd25	SAMPLE	275804-009	Water	234049	04/13/16 22:51	3.333	1	high NT, 2:NAPH=110
026	kdd26	SAMPLE	275715-005	Water	234049	04/13/16 23:20	2.500	1	headspace <= 1 mL
027	kdd27	IB				04/13/16 23:48	1.0	1	<<t
028	kdd28	IB				04/14/16 00:16	1.0	1	<<t
029	kdd29	X	HIGHGAS			04/14/16 00:45	1.0	1	

DAR 04/13/16 : file 4 is a ccv ran with the BFB method

CAR 04/14/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 28.

CAR 04/14/16 : Matrix spikes were not performed for this analysis in batch 234049 due to insufficient sample amount.

Analyst: CAR Date: 04/14/16 Reviewer: LW Date: 04/14/16

Standards used: 1=S29550 2=S29058 3=S29448 4=S29207 5=S29290 6=S29123

Flags used: <<t=out of clock ?t=missing tune

MSVOA WATER Prepsheet

Dilutions prepared & pH of dilutions checked (initials/date): WM 4/10
For Undiluted samples, pH checked (initials/date): Zia 4/11/16

Batch #: 279929
Prep Date: 4/10
Instrument: 6

	Sample ID	Vial	pH <2	pH if >2	HS?	Dil'n flask ID	RR #	DF	Comments	20% ccv?	hold	due	$Rush
1	275710-1	B	✓			1		2x	Tic 9				
2	1		✓						101				
3	3		✓			4		2x					
4	4		✓			6		2x					
5	5		✓			13		2x					
6	6		✓			3		2x					
7	7		✓										
8	8		✓										
9	9		✓										
10	10		✓										
11	11		✓										
12	12		✓										
13	13		✓										
14	14		✓						TB				
15													
16													
17													
18													
19													
20													
21													
22													

WM 4/10

MSVOA WATER Prepsheet

Dilutions prepared & pH of dilutions checked (initials/date): NJT 4/12/16
For Undiluted samples, pH checked (initials/date): 4/13/16

Batch #: 234003
Prep Date: 4/12/16
Instrument: MS9

	Sample ID	Vial	pH <2	pH if >2	HS?	Dil'n flask ID	RR #	DF	Comments	20% ccv?	hold	due	$Rush
1	275369-5	B	✓		Bubble	5	2	10X	Napth CO ✓		4/14	4/7	
2	275892-1	B		7		1		10x	Diluted due to high sediment/sludge			4/18	$
3	275801-7	C	✓				1	~~1.25x~~ 1X	NJT 4/12/16 OD 1x w/ 120CA~90 ppb				
4	275719-1	A	✓		Bubble		1	1x	Swi ↑ w/ hits				
5	-3	C	✓			8	1	2x	↓				
6	-4	↓	✓			12	1	↓	↓				
7	-5	A	✓			11	1	↓	↓				
8	-6	↓	✓			7	1	↓	↓				
9	275804-4	A	✓		[illegible]			1x	TBGR				
10	-6	A	✓					↓					
11	-7	E	✓					↓					
12	-8	C	✓			4		3.3x					
13	-9	C	✓			2		12.5x					
14	-10	D	✓			3		2.5x	Foamer				
15	-11	C	✓					1x					
16													
17													
18													
19													
20													
21													
22													

MSVOA WATER Prepsheet

Dilutions prepared & pH of dilutions checked (initials/date): MU 4/15

For Undiluted samples, pH checked (initials/date): ~~Zia~~ 4/14/16

Batch #: 234049

Prep Date: _____

Instrument: 11

	Sample ID	Vial	pH <2	pH if >2	HS?	Dil'n flask ID	RR #	DF	Comments	20% ccv?	hold	due	$Rush
1	275969-1	A	✓										
2	2		✓										
3	3		✓										
4	275715-5	B	✓		11/14	5	2	2.5x	VC				
5	275719-1	C	✓				2	1x					
6	275845	E	✓					1x	OD HIGHT				
7	9	F	✓			6		3.3x	↓				
8	275921-1	A	✓			7		33x	33x				
9	2	B	✓					1x					
10	3		—					6.25x	Pulled off				
11	4		—						↓				
12	5		✓			12		✓					
13	7		✓					1x					
14	8		✓										
15	9		✓										
16	10	↓	✓					↓	↑13				
17	275956-1	B	✓										
18	2	↓	✓										
19	275976-2	B	✓						RUSH				
20													
21													
22													

MSVOA WATER Prepsheet

Dilutions prepared & pH of dilutions checked (initials/date): JS 4/16/16
For Undiluted samples, pH checked (initials/date): ZR 4/18/16

Batch #: 234168
Prep Date: 1
Instrument: 8

	Sample ID	Vial	pH <2	pH if >2	HS?	Dil'n flask ID	RR #	DF	Comments	20% ccv?	hold	due	$Rush
1	275711-5	C	✓				2	1×	12DCA contamination In vom fridge		4/19	4/11	
2	275719-3	A	✓			7	2	2×				4/15	
3	4	↓	✓		Tiny bubble	13	2	2×					
4	5	C	✓			16	2	2×					
5	6		✓		Tiny Bubble	8	2	2×					
6	8		✓				1	1					
7	9		✓				1	1					
8	12		✓				1	1					
9	275848-1	C	—				2	1	skipped Rick 4/18		4/21	4/20	
10	2	C	✓				2	1					
11	4	C	✓				2	1					
12	5	C	✓				2	1					
13	~~275750-13~~						1	1	Bad injection 82606		4/20	~~4/18~~	
14	275819-6	C	✓				2	1×	12DCA not w/ 5%. In vom fridge		4/21	4/13	
15	~~275906-1~~						1	4×	~~C12DCE > UR~~		~~4/25~~	4/15	
16													
17													
18													
19													
20													
21													
22													

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

Laboratory Job Number 275719
ANALYTICAL REPORT
Metals

Tetra Tech EMI	Project : 1035225323.06
1999 Harrison Street	Location : RFS 2016 Groundwater
Oakland, CA 94612	Level : IV

Sample ID	Lab ID
20160405B163	275719-002
20160405B197R	275719-003
20160405B197RD	275719-004
20160405WSM01	275719-007
20160405ETA	275719-008
20160405ETA01	275719-009
20160405ETA02	275719-010
20160405ETA03	275719-011
20160405ER	275719-012
20160405SWB	275719-013

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: 05/09/2016

Mike Dahlquist
Project Manager
mike.dahlquist@ctberk.com

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE
METALS (EPA 6010B AND EPA 7470A)

Laboratory number:	**275719**
Client:	**Tetra Tech EMI**
Project:	**1035225323.06**
Location:	**RFS 2016 Groundwater**
Request Date:	**04/05/16**
Samples Received:	**04/05/16**

This data package contains sample and QC results for ten water samples, requested for the above referenced project on 04/05/16. See attached cooler receipt form for any sample receipt problems or discrepancies.

Metals (EPA 6010B and EPA 7470A):

High response was observed for arsenic in the CCV analyzed 05/05/16 17:04; this analyte was not detected at or above the RL in the associated samples.

High response was observed for arsenic in the CCV analyzed 05/05/16 18:12; this analyte was not detected at or above the RL in the associated samples.

High response was observed for selenium in the CCV analyzed 05/05/16 18:12; this analyte was not detected at or above the RL in the associated sample.

Low recoveries were observed for thallium in the MS/MSD of 20160405B163 (lab # 275719-002); the BS/BSD were within limits, and the associated RPD was within limits.

Low recovery was observed for thallium in the post digest spike of 20160405B163 (lab # 275719-002); the BS/BSD were within limits.

Barium and lead were detected between the MDL and the RL in the method blank for batch 234045.

No other analytical problems were encountered.

Chain of Custody

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 # 276719

Project No: _____
Project Name: 519 Ellis St, San Francisco
Project P. O. No: _____
EDD Format: _____ Report Level ☐ II ☐ III ☐ IV
Turnaround Time: ☐ RUSH _____ ☒ Standard

Sampler: SEAN ESTIPONA
Report To: JAMES TOWER
Company: ENVIROCHECK, INC.
Telephone: 510-364-0607
Email: james@envirocheckinc.com

Lab No.	Sample ID.	SAMPLING		MATRIX				# of Containers	CHEMICAL PRESERVATIVE					ANALYTICAL REQUEST
		Date Collected	Time Collected	Water	Solid				HCl	H2SO4	HNO3	NaOH	None	103, 140 009 (LEAD)
1	#214 Bath Faucet (1st)	5.9.16	8:17A	X										X
2	#214 Bath Faucet (2nd)	↓	8:17A	↓										↓
3	#302 Bath Faucet (1st)		8:25A											
4	#302 Bath Faucet (2nd)		8:25A											
5	#308 Kitchen Faucet (1st)		8:31A											
6	#308 Kitchen Faucet (2nd)		8:31A											
7	#310 Kitchen Faucet (1st)		9:03A											
8	#310 Kitchen Faucet (2nd)		9:03A											
9	#401 Bath Faucet (1st)		8:42A											
10	#401 Bath Faucet (2nd)		8:42A											
11	#409 Kitchen Faucet (1st)		9:00A											
12	#409 Kitchen Faucet (2nd)		9:00A											
13	#405 Kitchen Faucet (1st)	↓	8:53A	↓										

Notes:

SAMPLE RECEIPT
☐ Intact
☐ Cold
☐ On Ice
☐ Ambient

RELINQUISHED BY:
DATE: 5.9.16 TIME: 12:45P
DATE: TIME:
DATE: TIME:

RECEIVED BY:
Pat Hanly 5/9/16
DATE: TIME: 12:45
DATE: TIME:
DATE: TIME:

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 # 226719

Project No:

Project Name: 519 Ellis St. San Francisco

Project P. O. No:

EDD Format: Report Level ☐ II ☐ III ☐ IV

Turnaround Time: ☐ RUSH _____ ☒ Standard

Sampler: SEAN ESTIPONA

Report To: JAMES TOWER

Company: ENVIROCHEM, INC.

Telephone: 510.364.0607

Email: james@envirochemkinc.com

Lab No.	Sample ID.	SAMPLING		MATRIX				# of Containers	CHEMICAL PRESERVATIVE					ANALYTICAL REQUEST
		Date Collected	Time Collected	Water	Solid				HCl	H2SO4	HNO3	NaOH	None	103. 146 009 (LEAD)
14	#405 Kitchen Faucet (2nd)	5.9.2016	8:53A	X										X
15	#411 Bath Faucet (1st)		8:47A											
16	#411 Bath Faucet (2nd)		8:47A											
17	#517 Bath Faucet (1st)		9:09A											
18	#517 Bath Faucet (2nd)		9:09A											
19	#612 Bath Faucet (1st)		9:15A											
20	#612 Bath Faucet (2nd)		9:15A											
21	5th Floor Community Kitchen (1st)		9:34A											
22	5th Floor Community Kitchen (2nd)		9:34A											
23	5th Floor Community Kitchen (3rd)		9:36A											
24	5th Floor Community Kitchen (4th)		9:42A											
25 SE	~~5th~~ 2nd Floor Community Kitchen (1st)		9:48A											
26	2nd Floor Community Kitchen (2nd)		9:48A											

Notes:

SAMPLE RECEIPT
☐ Intact
☐ Cold
☐ On Ice
☐ Ambient

RELINQUISHED BY:
DATE: 5.9.16 TIME: 12:45PM
DATE: TIME:
DATE: TIME:

RECEIVED BY:
DATE: 5/9/16 TIME: 12:45
DATE: TIME:
DATE: TIME:

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 # _____

Project No:

Project Name: 519 Ellis St, San Francisco

Project P. O. No:

EDD Format: Report Level ☐ II ☐ III ☐ IV

Turnaround Time: ☐ RUSH _____ ☒ Standard

Sampler: SEAN ESTIPONA

Report To: JAMES TOWER

Company: ENVIROCHECK, INC.

Telephone: 510.364.0607

Email:

Lab No.	Sample ID.	SAMPLING		MATRIX				# of Containers	CHEMICAL PRESERVATIVE					ANALYTICAL REQUEST
		Date Collected	Time Collected	Water	Solid				HCl	H2SO4	HNO3	NaOH	None	103.140 009 (LEAD)
27	6th Floor Community Kitchen (1st)	5.9.2016	9:20A	X										X
28	6th Floor Community Kitchen (2nd)	↓	9:20A	↓										↓
29	7th Floor Community Kitchen (1st)		9:37A											
30	7th Floor Community Kitchen (2nd)	↓	9:37A	↓										

Notes:

SAMPLE RECEIPT
☐ Intact
☐ Cold
☐ On Ice
☐ Ambient

RELINQUISHED BY:
DATE: 5.9.16 TIME: 12:48P
DATE: TIME:
DATE: TIME:

RECEIVED BY:
DATE: 5/9/16 TIME: 12:45
DATE: TIME:
DATE: TIME:

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 276719 Date Received 5/9/16 Number of coolers 1
Client EnviroCheck Inc. Project 519 Ellis St. San Francisco

Date Opened 5/9 By (print) CB (sign) [signature]
Date Logged in ↓ By (print) CJN (sign) [signature]

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) ____

☐ Temperature blank(s) included? ☐ Thermometer# ____ ☐ 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? (pH strip lot# HC957770) (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 Added HNO3 #113021 on 5/9/16 to 1602 to pH<2 for all samples

Curtis & Tompkins Sample Preservation for 276719

Sample	pH: <2	>9	>12	Other
-001a	[X]	[ ]	[ ]	_____
-002a	[X]	[ ]	[ ]	_____
-003a	[X]	[ ]	[ ]	_____
-004a	[X]	[ ]	[ ]	_____
-005a	[X]	[ ]	[ ]	_____
-006a	[X]	[ ]	[ ]	_____
-007a	[X]	[ ]	[ ]	_____
-008a	[X]	[ ]	[ ]	_____
-009a	[X]	[ ]	[ ]	_____
-010a	[X]	[ ]	[ ]	_____
-011a	[X]	[ ]	[ ]	_____
-012a	[X]	[ ]	[ ]	_____
-013a	[X]	[ ]	[ ]	_____
-014a	[X]	[ ]	[ ]	_____
-015a	[X]	[ ]	[ ]	_____
-016a	[X]	[ ]	[ ]	_____
-017a	[X]	[ ]	[ ]	_____
-018a	[X]	[ ]	[ ]	_____
-019a	[X]	[ ]	[ ]	_____
-020a	[X]	[ ]	[ ]	_____
-021a	[X]	[ ]	[ ]	_____
-022a	[X]	[ ]	[ ]	_____
-023a	[X]	[ ]	[ ]	_____
-024a	[X]	[ ]	[ ]	_____
-025a	[X]	[ ]	[ ]	_____
-026a	[X]	[ ]	[ ]	_____

Analyst: CJN
Date: 5/9/16

Sample	pH: <2	>9	>12	Other
-027a	[X]	[ ]	[ ]	_____
-028a	[X]	[ ]	[ ]	_____
-029a	[X]	[ ]	[ ]	_____
-030a	[X]	[ ]	[ ]	_____

Analyst: CN
Date: 5/9/16

Results & QC Summary

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	275719	Project#:	1035225323.06
Client:	Tetra Tech EMI	Location:	RFS 2016 Groundwater
Field ID:	20160405B163	Diln Fac:	1.000
Lab ID:	275719-002	Sampled:	04/05/16
Matrix:	Water	Received:	04/05/16
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	10	2.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Arsenic	ND	5.0	1.7	234045	04/13/16	05/05/16	EPA 3010A	EPA 6010B
Barium	12	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Beryllium	ND	2.0	0.40	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Cadmium	3.5 J	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Chromium	16	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Cobalt	4.9 J	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Copper	ND	5.0	1.5	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Lead	2.7 J	5.0	1.2	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Mercury	0.15 J	0.20	0.040	234141	04/15/16	04/15/16	METHOD	EPA 7470A
Molybdenum	1.8 J	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Nickel	170	5.0	0.67	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Selenium	12	10	2.0	234045	04/13/16	05/05/16	EPA 3010A	EPA 6010B
Silver	2.8 J	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Thallium	ND	10	2.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Vanadium	ND	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Zinc	6.4 J	20	4.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	275719	Project#:	1035225323.06
Client:	Tetra Tech EMI	Location:	RFS 2016 Groundwater
Field ID:	20160405B197R	Diln Fac:	1.000
Lab ID:	275719-003	Sampled:	04/05/16
Matrix:	Water	Received:	04/05/16
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	7.4 J	10	2.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Arsenic	ND	5.0	1.7	234045	04/13/16	05/05/16	EPA 3010A	EPA 6010B
Barium	28	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Beryllium	ND	2.0	0.40	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Cadmium	ND	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Chromium	3.3 J	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Cobalt	ND	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Copper	1.7 J	5.0	1.5	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Lead	ND	5.0	1.2	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Mercury	0.077 J	0.20	0.040	234141	04/15/16	04/15/16	METHOD	EPA 7470A
Molybdenum	3.0 J	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Nickel	1.7 J	5.0	0.67	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Selenium	ND	10	3.1	234045	04/13/16	05/06/16	EPA 3010A	EPA 6010B
Silver	5.4	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Thallium	ND	10	2.0	234045	04/13/16	05/06/16	EPA 3010A	EPA 6010B
Vanadium	ND	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Zinc	ND	20	4.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	275719	Project#:	1035225323.06
Client:	Tetra Tech EMI	Location:	RFS 2016 Groundwater
Field ID:	20160405B197RD	Diln Fac:	1.000
Lab ID:	275719-004	Sampled:	04/05/16
Matrix:	Water	Received:	04/05/16
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	9.5 J	10	2.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Arsenic	ND	5.0	1.7	234045	04/13/16	05/05/16	EPA 3010A	EPA 6010B
Barium	29	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Beryllium	ND	2.0	0.40	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Cadmium	ND	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Chromium	1.4 J	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Cobalt	ND	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Copper	1.6 J	5.0	1.5	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Lead	ND	5.0	1.2	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Mercury	ND	0.20	0.040	234141	04/15/16	04/15/16	METHOD	EPA 7470A
Molybdenum	2.0 J	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Nickel	0.89 J	5.0	0.67	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Selenium	ND	10	3.1	234045	04/13/16	05/06/16	EPA 3010A	EPA 6010B
Silver	3.2 J	5.0	1.0	234045	04/13/16	05/05/16	EPA 3010A	EPA 6010B
Thallium	ND	10	2.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Vanadium	ND	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Zinc	4.5 J	20	4.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	275719	Project#:	1035225323.06
Client:	Tetra Tech EMI	Location:	RFS 2016 Groundwater
Field ID:	20160405WSM01	Diln Fac:	1.000
Lab ID:	275719-007	Sampled:	04/05/16
Matrix:	Water	Received:	04/05/16
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	10	2.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Arsenic	ND	5.0	1.7	234045	04/13/16	05/05/16	EPA 3010A	EPA 6010B
Barium	19	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Beryllium	ND	2.0	0.40	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Cadmium	ND	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Chromium	1.7 J	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Cobalt	9.8	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Copper	2.2 J	5.0	1.5	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Lead	ND	5.0	1.2	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Mercury	ND	0.20	0.040	234141	04/15/16	04/15/16	METHOD	EPA 7470A
Molybdenum	2.9 J	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Nickel	9.8	5.0	0.67	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Selenium	ND	10	3.1	234045	04/13/16	05/06/16	EPA 3010A	EPA 6010B
Silver	5.6	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Thallium	ND	10	2.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Vanadium	3.1 J	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Zinc	260	20	4.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	275719	Project#:	1035225323.06
Client:	Tetra Tech EMI	Location:	RFS 2016 Groundwater
Field ID:	20160405ETA	Diln Fac:	1.000
Lab ID:	275719-008	Sampled:	04/05/16
Matrix:	Water	Received:	04/05/16
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	10	2.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Arsenic	ND	5.0	1.7	234045	04/13/16	05/05/16	EPA 3010A	EPA 6010B
Barium	22	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Beryllium	ND	2.0	0.40	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Cadmium	ND	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Chromium	4.8 J	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Cobalt	2.2 J	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Copper	3.1 J	5.0	1.5	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Lead	ND	5.0	1.2	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Mercury	0.071 J	0.20	0.040	234141	04/15/16	04/15/16	METHOD	EPA 7470A
Molybdenum	4.8 J	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Nickel	1.3 J	5.0	0.67	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Selenium	4.4 J	10	3.1	234045	04/13/16	05/06/16	EPA 3010A	EPA 6010B
Silver	5.3	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Thallium	ND	10	2.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Vanadium	ND	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Zinc	34	20	4.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	275719	Project#:	1035225323.06
Client:	Tetra Tech EMI	Location:	RFS 2016 Groundwater
Field ID:	20160405ETA01	Units:	ug/L
Lab ID:	275719-009	Sampled:	04/05/16
Matrix:	Water	Received:	04/05/16

Analyte	Result	RL	MDL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	10	2.0	1.000	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Arsenic	ND	5.0	1.7	1.000	234045	04/13/16	05/05/16	EPA 3010A	EPA 6010B
Barium	38	5.0	1.0	1.000	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Beryllium	ND	2.0	0.40	1.000	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Cadmium	ND	5.0	1.0	1.000	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Chromium	ND	5.0	1.0	1.000	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Cobalt	2.0 J	5.0	1.0	1.000	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Copper	3.2 J	5.0	1.5	1.000	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Lead	ND	5.0	1.2	1.000	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Mercury	15	1.0	0.20	5.000	234226	04/19/16	04/19/16	METHOD	EPA 7470A
Molybdenum	6.1	5.0	1.0	1.000	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Nickel	9.9	5.0	0.67	1.000	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Selenium	5.4 J	10	3.1	1.000	234045	04/13/16	05/06/16	EPA 3010A	EPA 6010B
Silver	2.9 J	5.0	1.0	1.000	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Thallium	3.4 J	10	2.0	1.000	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Vanadium	7.1	5.0	1.0	1.000	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Zinc	14 J	20	4.0	1.000	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B

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MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	275719	Project#:	1035225323.06
Client:	Tetra Tech EMI	Location:	RFS 2016 Groundwater
Field ID:	20160405ETA02	Diln Fac:	1.000
Lab ID:	275719-010	Sampled:	04/05/16
Matrix:	Water	Received:	04/05/16
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	2.6 J	10	2.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Arsenic	ND	5.0	1.7	234045	04/13/16	05/05/16	EPA 3010A	EPA 6010B
Barium	18	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Beryllium	ND	2.0	0.40	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Cadmium	ND	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Chromium	4.2 J	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Cobalt	3.1 J	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Copper	ND	5.0	1.5	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Lead	ND	5.0	1.2	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Mercury	ND	0.20	0.040	234141	04/15/16	04/15/16	METHOD	EPA 7470A
Molybdenum	1.2 J	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Nickel	13	5.0	0.67	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Selenium	8.7 J	10	2.0	234045	04/13/16	05/06/16	EPA 3010A	EPA 6010B
Silver	7.8	5.0	1.0	234045	04/13/16	05/05/16	EPA 3010A	EPA 6010B
Thallium	8.8 J	10	2.0	234045	04/13/16	05/06/16	EPA 3010A	EPA 6010B
Vanadium	ND	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Zinc	4.9 J	20	4.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	275719	Project#:	1035225323.06
Client:	Tetra Tech EMI	Location:	RFS 2016 Groundwater
Field ID:	20160405ETA03	Diln Fac:	1.000
Lab ID:	275719-011	Sampled:	04/05/16
Matrix:	Water	Received:	04/05/16
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	10	2.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Arsenic	ND	5.0	1.7	234045	04/13/16	05/05/16	EPA 3010A	EPA 6010B
Barium	11	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Beryllium	ND	2.0	0.40	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Cadmium	ND	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Chromium	14	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Cobalt	130	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Copper	ND	5.0	1.5	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Lead	ND	5.0	1.2	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Mercury	0.069 J	0.20	0.040	234141	04/15/16	04/15/16	METHOD	EPA 7470A
Molybdenum	ND	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Nickel	110	5.0	0.67	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Selenium	ND	10	3.1	234045	04/13/16	05/06/16	EPA 3010A	EPA 6010B
Silver	1.2 J	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Thallium	ND	10	2.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Vanadium	ND	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Zinc	3,300	20	4.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	275719	Project#:	1035225323.06
Client:	Tetra Tech EMI	Location:	RFS 2016 Groundwater
Field ID:	20160405ER	Diln Fac:	1.000
Lab ID:	275719-012	Sampled:	04/05/16
Matrix:	Water	Received:	04/05/16
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	10	2.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Arsenic	ND	5.0	1.7	234045	04/13/16	05/05/16	EPA 3010A	EPA 6010B
Barium	2.8 J	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Beryllium	ND	2.0	0.40	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Cadmium	ND	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Chromium	ND	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Cobalt	ND	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Copper	1.5 J	5.0	1.5	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Lead	ND	5.0	1.2	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Mercury	ND	0.20	0.040	234141	04/15/16	04/15/16	METHOD	EPA 7470A
Molybdenum	ND	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Nickel	ND	5.0	0.67	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Selenium	ND	10	2.0	234045	04/13/16	05/05/16	EPA 3010A	EPA 6010B
Silver	2.8 J	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Thallium	ND	10	2.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Vanadium	ND	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Zinc	ND	20	4.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	275719	Project#:	1035225323.06
Client:	Tetra Tech EMI	Location:	RFS 2016 Groundwater
Field ID:	20160405SWB	Diln Fac:	1.000
Lab ID:	275719-013	Sampled:	04/05/16
Matrix:	Water	Received:	04/05/16
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	10	2.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Arsenic	ND	5.0	1.7	234045	04/13/16	05/05/16	EPA 3010A	EPA 6010B
Barium	2.7 J	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Beryllium	ND	2.0	0.40	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Cadmium	ND	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Chromium	ND	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Cobalt	ND	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Copper	ND	5.0	1.5	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Lead	ND	5.0	1.2	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Mercury	ND	0.20	0.040	234141	04/15/16	04/15/16	METHOD	EPA 7470A
Molybdenum	ND	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Nickel	1.2 J	5.0	0.67	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Selenium	ND	10	3.1	234045	04/13/16	05/06/16	EPA 3010A	EPA 6010B
Silver	2.4 J	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Thallium	5.9 J	10	2.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Vanadium	ND	5.0	1.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B
Zinc	ND	20	4.0	234045	04/13/16	05/04/16	EPA 3010A	EPA 6010B

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 3010A
Project#:	1035225323.06	Analysis:	EPA 6010B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC831359	Batch#:	234045
Matrix:	Water	Prepared:	04/13/16
Units:	ug/L	Analyzed:	04/14/16

Analyte	Result	RL	MDL
Antimony	ND	10	2.0
Arsenic	ND	5.0	1.7
Barium	1.5 J	5.0	1.0
Beryllium	ND	2.0	0.40
Cadmium	ND	5.0	1.0
Chromium	ND	5.0	1.0
Cobalt	ND	5.0	1.0
Copper	ND	5.0	1.2
Lead	1.1 J	5.0	1.0
Molybdenum	ND	5.0	1.0
Nickel	ND	5.0	1.0
Selenium	ND	10	2.0
Silver	ND	5.0	1.0
Thallium	ND	10	2.0
Vanadium	ND	5.0	1.0
Zinc	ND	20	4.0

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 3010A
Project#:	1035225323.06	Analysis:	EPA 6010B
Matrix:	Water	Batch#:	234045
Units:	ug/L	Prepared:	04/13/16
Diln Fac:	1.000	Analyzed:	04/14/16

Type: BS Lab ID: QC831360

Analyte	Spiked	Result	%REC	Limits
Antimony	100.0	94.88	95	79-120
Arsenic	100.0	94.10	94	80-120
Barium	100.0	98.82	99	80-120
Beryllium	100.0	99.18	99	80-120
Cadmium	100.0	101.7	102	80-120
Chromium	100.0	100.9	101	80-120
Cobalt	100.0	97.00	97	80-120
Copper	100.0	96.52	97	80-120
Lead	100.0	95.55	96	80-120
Molybdenum	100.0	99.48	99	80-120
Nickel	100.0	93.62	94	80-120
Selenium	100.0	95.02	95	80-120
Silver	100.0	94.37	94	77-120
Thallium	50.00	50.00	100	80-121
Vanadium	100.0	101.0	101	80-120
Zinc	100.0	98.55	99	80-120

Type: BSD Lab ID: QC831361

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Antimony	100.0	100.2	100	79-120	5	20
Arsenic	100.0	98.45	98	80-120	5	20
Barium	100.0	104.2	104	80-120	5	20
Beryllium	100.0	104.5	105	80-120	5	20
Cadmium	100.0	106.7	107	80-120	5	20
Chromium	100.0	105.3	105	80-120	4	20
Cobalt	100.0	102.1	102	80-120	5	20
Copper	100.0	101.3	101	80-120	5	20
Lead	100.0	100.8	101	80-120	5	20
Molybdenum	100.0	105.0	105	80-120	5	20
Nickel	100.0	99.55	100	80-120	6	20
Selenium	100.0	101.9	102	80-120	7	20
Silver	100.0	98.58	99	77-120	4	20
Thallium	50.00	52.45	105	80-121	5	20
Vanadium	100.0	105.4	105	80-120	4	20
Zinc	100.0	103.5	104	80-120	5	20

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 3010A
Project#:	1035225323.06	Analysis:	EPA 6010B
Field ID:	20160405B163	Batch#:	234045
MSS Lab ID:	275719-002	Sampled:	04/05/16
Matrix:	Water	Received:	04/05/16
Units:	ug/L	Prepared:	04/13/16
Diln Fac:	1.000	Analyzed:	05/06/16

Type: MS Lab ID: QC831362

Analyte	MSS Result	Spiked	Result	%REC	Limits
Antimony	<2.000	100.0	107.3	107	74-120
Arsenic	<1.657	100.0	99.68	100	80-127
Barium	11.90	100.0	107.4	95	80-120
Beryllium	<0.4000	100.0	96.39	96	80-120
Cadmium	3.506	100.0	100.1	97	80-120
Chromium	16.26	100.0	97.35	81	80-120
Cobalt	4.914	100.0	99.23	94	80-120
Copper	<1.452	100.0	101.9	102	80-120
Lead	2.690	100.0	89.86	87	67-120
Molybdenum	1.848	100.0	102.3	100	80-120
Nickel	165.6	100.0	251.6	86	80-120
Selenium	12.27	100.0	117.3	105	73-132
Silver	2.830	100.0	101.6	99	67-120
Thallium	<2.000	50.00	19.06	38 *	76-121
Vanadium	<1.000	100.0	98.03	98	80-120
Zinc	6.402	100.0	96.68	90	80-122

Type: MSD Lab ID: QC831363

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Antimony	100.0	108.4	108	74-120	1	24
Arsenic	100.0	103.6	104	80-127	4	25
Barium	100.0	110.6	99	80-120	3	20
Beryllium	100.0	99.44	99	80-120	3	20
Cadmium	100.0	103.6	100	80-120	3	20
Chromium	100.0	100.3	84	80-120	3	20
Cobalt	100.0	103.1	98	80-120	4	20
Copper	100.0	104.1	104	80-120	2	20
Lead	100.0	94.37	92	67-120	5	23
Molybdenum	100.0	105.4	104	80-120	3	20
Nickel	100.0	255.1	89	80-120	1	20
Selenium	100.0	120.4	108	73-132	3	30
Silver	100.0	103.4	101	67-120	2	22
Thallium	50.00	18.43	37 *	76-121	3	20
Vanadium	100.0	101.1	101	80-120	3	20
Zinc	100.0	100.2	94	80-122	4	20

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

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 3010A
Project#:	1035225323.06	Analysis:	EPA 6010B
Field ID:	20160405B163	Diln Fac:	5.000
Type:	Serial Dilution	Batch#:	234045
MSS Lab ID:	275719-002	Sampled:	04/05/16
Lab ID:	QC831364	Received:	04/05/16
Matrix:	Water	Analyzed:	05/06/16
Units:	ug/L		

Analyte	MSS Result	MSS RL	Result	RL	% Diff	Lim
Antimony	ND	10.00	ND	50.00	NC	10
Arsenic	ND	5.000	ND	25.00	NC	10
Barium	11.90	5.000	13.47 J	25.00	NC	10
Beryllium	ND	2.000	ND	10.00	NC	10
Cadmium	3.506	5.000	ND	25.00	NC	10
Chromium	16.26	5.000	ND	25.00	NC	10
Cobalt	4.914	5.000	ND	25.00	NC	10
Copper	ND	5.000	ND	25.00	NC	10
Lead	2.690	5.000	ND	25.00	NC	10
Molybdenum	1.848	5.000	ND	25.00	NC	10
Nickel	165.6	5.000	175.4	25.00	6	10
Selenium	12.27	10.00	ND	50.00	NC	10
Silver	2.830	5.000	ND	25.00	NC	10
Thallium	ND	10.00	ND	50.00	NC	10
Vanadium	ND	5.000	ND	25.00	NC	10
Zinc	6.402	20.00	ND	100.0	NC	10

J= Estimated value
NC= Not Calculated
ND= Not Detected at or above MDL
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 3010A
Project#:	1035225323.06	Analysis:	EPA 6010B
Field ID:	20160405B163	Diln Fac:	1.000
Type:	Post Digest Spike	Batch#:	234045
MSS Lab ID:	275719-002	Sampled:	04/05/16
Lab ID:	QC831365	Received:	04/05/16
Matrix:	Water	Analyzed:	05/06/16
Units:	ug/L		

Analyte	MSS Result	Spiked	Result	%REC	Limits
Antimony	<2.000	100.0	112.1	112	75-125
Arsenic	<1.657	100.0	104.7	105	75-125
Barium	11.90	100.0	114.8	103	75-125
Beryllium	<0.4000	100.0	102.0	102	75-125
Cadmium	3.506	100.0	106.1	103	75-125
Chromium	16.26	100.0	102.7	86	75-125
Cobalt	4.914	100.0	105.3	100	75-125
Copper	<1.452	100.0	106.7	107	75-125
Lead	2.690	100.0	96.88	94	75-125
Molybdenum	1.848	100.0	105.9	104	75-125
Nickel	165.6	100.0	251.9	86	75-125
Selenium	12.27	100.0	121.4	109	75-125
Silver	2.830	100.0	106.7	104	75-125
Thallium	<2.000	50.00	22.95	46 *	75-125
Vanadium	<1.000	100.0	103.8	104	75-125
Zinc	6.402	100.0	104.2	98	75-125

*= Value outside of QC limits; see narrative

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225323.06	Analysis:	EPA 7470A
Analyte:	Mercury	Diln Fac:	1.000
Type:	BLANK	Batch#:	234141
Lab ID:	QC831752	Prepared:	04/15/16
Matrix:	Water	Analyzed:	04/15/16
Units:	ug/L		

Result	RL	MDL
ND	0.20	0.040

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225323.06	Analysis:	EPA 7470A
Analyte:	Mercury	Batch#:	234141
Matrix:	Water	Prepared:	04/15/16
Units:	ug/L	Analyzed:	04/15/16
Diln Fac:	1.000		

Type	Lab ID	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC831753	2.500	2.472	99	80-120		
BSD	QC831754	2.500	2.555	102	80-120	3	24

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225323.06	Analysis:	EPA 7470A
Analyte:	Mercury	Batch#:	234141
Field ID:	20160405B163	Sampled:	04/05/16
MSS Lab ID:	275719-002	Received:	04/05/16
Matrix:	Water	Prepared:	04/15/16
Units:	ug/L	Analyzed:	04/15/16
Diln Fac:	1.000		

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
MS	QC831755	0.1483	2.500	2.618	99	60-130		
MSD	QC831756		2.500	2.679	101	60-130	2	34

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225323.06	Analysis:	EPA 7470A
Analyte:	Mercury	Units:	ug/L
Field ID:	20160405B163	Diln Fac:	5.000
Type:	Serial Dilution	Batch#:	234141
MSS Lab ID:	275719-002	Sampled:	04/05/16
Lab ID:	QC831757	Received:	04/05/16
Matrix:	Water	Analyzed:	04/15/16

MSS Result	MSS RL	Result	RL	% Diff	Lim
0.1483	0.2000	0.2383 J	1.000	NC	10

J= Estimated value
NC= Not Calculated
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225323.06	Analysis:	EPA 7470A
Analyte:	Mercury	Diln Fac:	1.000
Type:	BLANK	Batch#:	234226
Lab ID:	QC832102	Prepared:	04/19/16
Matrix:	Water	Analyzed:	04/19/16
Units:	ug/L		

Result	RL	MDL
ND	0.20	0.040

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225323.06	Analysis:	EPA 7470A
Analyte:	Mercury	Batch#:	234226
Matrix:	Water	Prepared:	04/19/16
Units:	ug/L	Analyzed:	04/19/16
Diln Fac:	1.000		

Type	Lab ID	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC832103	2.500	2.462	98	80-120		
BSD	QC832104	2.500	2.619	105	80-120	6	24

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225323.06	Analysis:	EPA 7470A
Analyte:	Mercury	Batch#:	234226
Field ID:	ZZZZZZZZZZ	Sampled:	04/11/16
MSS Lab ID:	275878-001	Received:	04/11/16
Matrix:	Water	Prepared:	04/19/16
Units:	ug/L	Analyzed:	04/19/16
Diln Fac:	1.000		

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
MS	QC832105	<0.04000	2.500	2.696	108	60-130		
MSD	QC832106		2.500	2.665	107	60-130	1	34

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	275719	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225323.06	Analysis:	EPA 7470A
Analyte:	Mercury	Units:	ug/L
Field ID:	ZZZZZZZZZZ	Diln Fac:	5.000
Type:	Serial Dilution	Batch#:	234226
MSS Lab ID:	275878-001	Sampled:	04/11/16
Lab ID:	QC832113	Received:	04/11/16
Matrix:	Water	Analyzed:	04/19/16

MSS Result	MSS RL	Result	RL	% Diff	Lim
ND	0.2000	ND	1.000	NC	10

NC= Not Calculated
ND= Not Detected at or above MDL
RL= Reporting Limit

REPORTING SUMMARY FOR 275719 METALS Water
Curtis & Tompkins Laboratories

Lab ID	Inst ID	Analyzed	IDF	SB	AS	BA	BE	CD	CR	CO	CU	PB	HG	MO	NI	SE	AG	TL	V	ZN
275719-002	MET54	04/15/16 19:28	1.0										+							
275719-002	MET08	05/04/16 16:40	1.0	+		+	+	+	+	+	+	+		+	+		+	+	+	+
275719-002	MET09	05/05/16 16:47	1.0		+											+				
275719-002	MET08	05/06/16 11:55	1.0																	
275719-003	MET54	04/15/16 19:46	1.0										+							
275719-003	MET08	05/04/16 16:42	1.0	+		+	+	+	+	+	+	+		+	+		+		+	+
275719-003	MET09	05/05/16 16:51	1.0		+															
275719-003	MET08	05/06/16 11:56	1.0													+		+		
275719-004	MET54	04/15/16 19:47	1.0										+							
275719-004	MET08	05/04/16 16:44	1.0	+		+	+	+	+	+	+	+		+	+			+	+	+
275719-004	MET09	05/05/16 16:55	1.0		+												+			
275719-004	MET08	05/06/16 11:58	1.0													+				
275719-007	MET54	04/15/16 19:48	1.0										+							
275719-007	MET08	05/04/16 16:45	1.0	+		+	+	+	+	+	+	+		+	+		+	+	+	+
275719-007	MET09	05/05/16 17:00	1.0		+															
275719-007	MET08	05/06/16 11:59	1.0													+				
275719-008	MET54	04/15/16 19:49	1.0										+							
275719-008	MET08	05/04/16 16:46	1.0	+		+	+	+	+	+	+	+		+	+		+	+	+	+
275719-008	MET09	05/05/16 17:16	1.0		+															
275719-008	MET08	05/06/16 12:01	1.0													+				
275719-009	MET54	04/15/16 19:50	1.0																	
275719-009	MET54	04/19/16 15:52	5.0										+							
275719-009	MET08	05/04/16 16:48	1.0	+		+	+	+	+	+	+	+		+	+		+	+	+	+
275719-009	MET09	05/05/16 17:21	1.0		+															
275719-009	MET08	05/06/16 12:02	1.0													+				
275719-010	MET54	04/15/16 19:54	1.0										+							
275719-010	MET08	05/04/16 17:03	1.0	+		+	+	+	+	+	+	+		+	+				+	+
275719-010	MET09	05/05/16 17:25	1.0		+												+			
275719-010	MET08	05/06/16 12:05	1.0															+		
275719-010	MET09	05/06/16 16:30	1.0													+				
275719-011	MET54	04/15/16 19:56	1.0										+							
275719-011	MET08	05/04/16 17:04	1.0	+		+	+	+	+	+	+	+		+	+		+	+	+	+
275719-011	MET09	05/05/16 17:29	1.0		+															
275719-011	MET08	05/06/16 12:06	1.0													+				
275719-012	MET54	04/15/16 19:57	1.0										+							
275719-012	MET08	05/04/16 17:06	1.0	+		+	+	+	+	+	+	+		+	+		+	+	+	+
275719-012	MET09	05/05/16 17:37	1.0		+											+				
275719-013	MET54	04/15/16 19:58	1.0										+							
275719-013	MET08	05/04/16 17:15	1.0	+		+	+	+	+	+	+	+		+	+		+	+	+	+
275719-013	MET09	05/05/16 17:42	1.0		+															
275719-013	MET08	05/06/16 12:07	1.0													+				
QC831359	MET09	04/14/16 15:55	1.0	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+

REPORTING SUMMARY FOR 275719 METALS Water
Curtis & Tompkins Laboratories

Lab ID	Inst ID	Analyzed	IDF	SB	AS	BA	BE	CD	CR	CO	CU	PB	HG	MO	NI	SE	AG	TL	V	ZN
QC831360	MET09	04/14/16 16:01	1.0	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC831361	MET09	04/14/16 16:05	1.0	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC831362	MET08	05/04/16 17:24	1.0																	
QC831362	MET09	05/05/16 18:08	1.0																	
QC831362	MET09	05/06/16 16:34	1.0	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC831363	MET08	05/04/16 17:50	1.0																	
QC831363	MET09	05/05/16 18:24	1.0																	
QC831363	MET09	05/06/16 16:38	1.0	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC831364	MET08	05/04/16 17:51	5.0																	
QC831364	MET09	05/05/16 18:29	5.0																	
QC831364	MET09	05/06/16 16:43	5.0	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC831365	MET08	05/04/16 17:55	1.0																	
QC831365	MET09	05/05/16 18:34	1.0																	
QC831365	MET09	05/06/16 16:48	1.0	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC831752	MET54	04/15/16 19:25	1.0										+							
QC831753	MET54	04/15/16 19:26	1.0										+							
QC831754	MET54	04/15/16 19:27	1.0										+							
QC831755	MET54	04/15/16 19:29	1.0										+							
QC831756	MET54	04/15/16 19:31	1.0										+							
QC831757	MET54	04/15/16 19:32	5.0										+							
QC832102	MET54	04/19/16 15:37	1.0										+							
QC832103	MET54	04/19/16 15:39	1.0										+							
QC832104	MET54	04/19/16 15:40	1.0										+							
QC832105	MET54	04/19/16 15:42	1.0										+							
QC832106	MET54	04/19/16 15:44	1.0										+							
QC832111	MET54	04/19/16 15:46	1.0										+							
QC832112	MET54	04/19/16 16:13	1.0										+							
QC832113	MET54	04/19/16 15:45	5.0										+							

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 96151993

Instrument : MET09 Begun : 04/14/16 13:13
Method : EPA 6010B SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met09_sn_2016	ICALBLK				04/14/16 13:13	1.0		
002	met09_sn_2016	ICAL	L1			04/14/16 13:18	1.0	1	
003	met09_sn_2016	ICAL	L2			04/14/16 13:23	1.0	2	
004	met09_sn_2016	ICAL	L3			04/14/16 13:27	1.0	3	
005	met09_sn_2016	ICAL	L4			04/14/16 13:31	1.0	4	
006	met09_sn_2016	ICAL	L5			04/14/16 13:38	1.0	5	
007	met09_sn_2016	ICV				04/14/16 13:45	1.0	6	
008	met09_sn_2016	CRI				04/14/16 13:55	1.0	7	
009	met09_sn_2016	ICB				04/14/16 14:00	1.0		
010	met09_sn_2016	ICSA				04/14/16 14:05	1.0	8	10:AL=500000
011	met09_sn_2016	ICSAB				04/14/16 14:13	1.0	9	5:AL=490000
012	met09_sn_2016	BS	QC831219	Soil	234011	04/14/16 14:28	1.0		
013	met09_sn_2016	BSD	QC831220	Soil	234011	04/14/16 14:33	1.0		
014	met09_sn_2016	BS	QC831155	Water	233992	04/14/16 14:37	1.0		
015	met09_sn_2016	BSD	QC831156	Water	233992	04/14/16 14:41	1.0		
016	met09_sn_2016	SAMPLE	275816-002	Water	233992	04/14/16 14:45	1.0		2:CA=370000
017	met09_sn_2016	BLANK	QC831515	Soil	234080	04/14/16 14:53	1.0		
018	met09_sn_2016	BS	QC831516	Soil	234080	04/14/16 14:58	1.0		
019	met09_sn_2016	BSD	QC831517	Soil	234080	04/14/16 15:02	1.0		
020	met09_sn_2016	SAMPLE	276012-001	Miscell.	234080	04/14/16 15:06	1.0		5:CA=1200000
021	met09_sn_2016	SAMPLE	276012-002	Miscell.	234080	04/14/16 15:13	1.0		6:CA=1300000
022	met09_sn_2016	CCV				04/14/16 15:20	1.0	10	
023	met09_sn_2016	CCB				04/14/16 15:27	1.0		
024	met09_sn_2016	SAMPLE	276012-003	Miscell.	234080	04/14/16 15:32	1.0		3:CA=1400000
025	met09_sn_2016	SAMPLE	275983-001	Soil	234080	04/14/16 15:40	1.0		1:FE=180000
026	met09_sn_2016	SAMPLE	275983-002	Soil	234080	04/14/16 15:48	1.0		2:FE=230000
027	met09_sn_2016	BLANK	QC831359	Water	234045	04/14/16 15:55	1.0		
028	met09_sn_2016	BS	QC831360	Water	234045	04/14/16 16:01	1.0		
029	met09_sn_2016	BSD	QC831361	Water	234045	04/14/16 16:05	1.0		
030	met09_sn_2016	SAMPLE	276012-001	Miscell.	234080	04/14/16 16:09	1.0		5:CA=1300000
031	met09_sn_2016	SAMPLE	276012-002	Miscell.	234080	04/14/16 16:16	1.0		5:CA=1300000
032	met09_sn_2016	SAMPLE	276012-003	Miscell.	234080	04/14/16 16:23	1.0		3:CA=1400000
033	met09_sn_2016	SAMPLE	275974-001	Water	234045	04/14/16 16:30	1.0		
034	met09_sn_2016	CCV				04/14/16 16:36	1.0	10	
035	met09_sn_2016	CCB				04/14/16 16:42	1.0		
036	met09_sn_2016	BLANK	QC831311	TCLP Leachate	234032	04/14/16 16:50	10.0		1:NA=110000
037	met09_sn_2016	BS	QC831312	TCLP Leachate	234032	04/14/16 16:55	1.0		
038	met09_sn_2016	BSD	QC831313	TCLP Leachate	234032	04/14/16 16:59	1.0		
039	met09_sn_2016	BLANK	QC831304	Water	234031	04/14/16 17:03	1.0		
040	met09_sn_2016	BS	QC831305	Water	234031	04/14/16 17:08	1.0		
041	met09_sn_2016	BSD	QC831306	Water	234031	04/14/16 17:12	1.0		
042	met09_sn_2016	MSS	275523-007	Water	234031	04/14/16 17:17	1.0		3:MG=390000
043	met09_sn_2016	MS	QC831307	Water	234031	04/14/16 17:24	1.0		
044	met09_sn_2016	SAMPLE	275812-001	Soil	233910	04/14/16 17:32	1.0		4:FE=460000
045	met09_sn_2016	MSD	QC831308	Water	234031	04/14/16 17:40	1.0		
046	met09_sn_2016	CCV				04/14/16 17:48	1.0	10	
047	met09_sn_2016	CCB				04/14/16 17:55	1.0		
048	met09_sn_2016	SER	QC831309	Water	234031	04/14/16 18:00	5.0		
049	met09_sn_2016	PDS	QC831310	Water	234031	04/14/16 18:07	1.0	11 12 13	4:MG=380000
050	met09_sn_2016	SAMPLE	275864-001	Water	234031	04/14/16 18:15	1.0		
051	met09_sn_2016	SAMPLE	275864-003	Water	234031	04/14/16 18:19	1.0		
052	met09_sn_2016	SAMPLE	275930-001	Water	234031	04/14/16 18:24	1.0		2:CA=190000

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 96151993

Instrument : MET09 Begun : 04/14/16 13:13
Method : EPA 6010B SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met09_sn_2016	SAMPLE	275964-001	Water	234031	04/14/16 18:31	1.0		3:NA=310000
054	met09_sn_2016	BLANK	QC831510	WET Leachate	234079	04/14/16 18:36	10.0		1:NA=110000
055	met09_sn_2016	BS	QC831511	WET Leachate	234079	04/14/16 18:41	1.0		
056	met09_sn_2016	BSD	QC831512	WET Leachate	234079	04/14/16 18:45	1.0		
057	met09_sn_2016	MSS	275843-001	WET Leachate	234079	04/14/16 18:49	10.0		1:NA=110000
058	met09_sn_2016	CCV				04/14/16 18:53	1.0	10	
059	met09_sn_2016	CCB				04/14/16 19:00	1.0		
060	met09_sn_2016	SAMPLE	275843-004	WET Leachate	234079	04/14/16 19:05	10.0		1:NA=120000
061	met09_sn_2016	SAMPLE	275843-007	WET Leachate	234079	04/14/16 19:10	10.0		1:NA=120000
062	met09_sn_2016	SAMPLE	275790-009	WET Leachate	233934	04/14/16 19:14	10.0		1:NA=140000
063	met09_sn_2016	SAMPLE	275790-010	WET Leachate	233934	04/14/16 19:18	10.0		1:NA=130000
064	met09_sn_2016	SAMPLE	275816-001	WET Leachate	233934	04/14/16 19:22	10.0		1:NA=150000
065	met09_sn_2016	SAMPLE	275972-001	WET Leachate	233934	04/14/16 19:26	10.0		1:NA=140000
066	met09_sn_2016	SAMPLE	275973-001	WET Leachate	233934	04/14/16 19:31	10.0		1:NA=140000
067	met09_sn_2016	SAMPLE	275790-009	TCLP Leachate	233927	04/14/16 19:35	10.0		1:NA=130000
068	met09_sn_2016	SAMPLE	275790-010	TCLP Leachate	233927	04/14/16 19:40	10.0		1:NA=130000
069	met09_sn_2016	SAMPLE	274715-001	Miscell.	232808	04/14/16 19:45	1.0		
070	met09_sn_2016	CCV				04/14/16 19:54	1.0	10	
071	met09_sn_2016	CCB				04/14/16 20:01	1.0		
072	met09_sn_2016	BLANK	QC828015	Filtrate	233228	04/14/16 20:06	1.0		
073	met09_sn_2016	BS	QC828016	Filtrate	233228	04/14/16 20:11	1.0		
074	met09_sn_2016	BSD	QC828017	Filtrate	233228	04/14/16 20:15	1.0		
075	met09_sn_2016	MSS	275172-001	Filtrate	233228	04/14/16 20:19	1.0		1:MG=150000
076	met09_sn_2016	MS	QC828018	Filtrate	233228	04/14/16 20:28	1.0		
077	met09_sn_2016	MSD	QC828019	Filtrate	233228	04/14/16 20:36	1.0		
078	met09_sn_2016	SER	QC828020	Filtrate	233228	04/14/16 20:43	5.0		
079	met09_sn_2016	PDS	QC828021	Filtrate	233228	04/14/16 20:49	1.0	11 12 13	1:MG=150000
080	met09_sn_2016	SAMPLE	275074-001	Filtrate	233228	04/14/16 20:56	1.0		1:MG=170000
081	met09_sn_2016	SAMPLE	275074-002	Filtrate	233228	04/14/16 21:05	1.0		1:MG=150000
082	met09_sn_2016	CCV				04/14/16 21:14	1.0	10	
083	met09_sn_2016	CCB				04/14/16 21:20	1.0		
084	met09_sn_2016	BLANK	QC830406	Water	233807	04/14/16 21:26	1.0		
085	met09_sn_2016	BS	QC830407	Water	233807	04/14/16 21:31	1.0		
086	met09_sn_2016	BSD	QC830408	Water	233807	04/14/16 21:36	1.0		
087	met09_sn_2016	SAMPLE	275684-001	Water	233807	04/14/16 21:40	50.0		
088	met09_sn_2016	CCV				04/14/16 21:44	1.0	10	
089	met09_sn_2016	CCB				04/14/16 21:51	1.0		

KER 04/14/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 47.

Standards used: 1=S29300 2=S29393 3=S29394 4=S29395 5=S29125 6=S29396 7=S29301 8=S28694 9=S29006 10=S29397 11=S28385 12=S28386 13=S28732

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 96151993

Date : 04/14/16 Reference : met09_sn_2016
Sequence : MET09 04/14/16 Analyzed : 04/14/16 13:18

#	Type	Sample ID	Y A
		ICAL STD	4566361
		LOWER LIMIT	1369908
		UPPER LIMIT	9132721
009	ICB		4760925
010	ICSA		3916542
011	ICSAB		3945246
012	BS	QC831219	4591867
013	BSD	QC831220	4731299
014	BS	QC831155	4748508
015	BSD	QC831156	4780333
016	SAMPLE	275816-002	4313509
017	BLANK	QC831515	4833943
018	BS	QC831516	4640427
019	BSD	QC831517	4645406
020	SAMPLE	276012-001	4092743
021	SAMPLE	276012-002	3826349
022	CCV		4338992
023	CCB		4794043
024	SAMPLE	276012-003	3870028
025	SAMPLE	275983-001	4792964
026	SAMPLE	275983-002	4626571
027	BLANK	QC831359	4812940
028	BS	QC831360	4671624
029	BSD	QC831361	4478799
030	SAMPLE	276012-001	3893635
031	SAMPLE	276012-002	3729469
032	SAMPLE	276012-003	3787332
033	SAMPLE	275974-001	4786072
034	CCV		4489719
035	CCB		4765238
036	BLANK	QC831311	4577623
037	BS	QC831312	4588936
038	BSD	QC831313	4642567
039	BLANK	QC831304	4835956
040	BS	QC831305	4667236
041	BSD	QC831306	4735009
042	MSS	275523-007	3534262
043	MS	QC831307	3467402
044	SAMPLE	275812-001	4337744
045	MSD	QC831308	3418760
046	CCV		4322753
047	CCB		4730324
048	SER	QC831309	4018331
049	PDS	QC831310	3481050
050	SAMPLE	275864-001	4669284
051	SAMPLE	275864-003	4412855
052	SAMPLE	275930-001	3968751
053	SAMPLE	275964-001	4144928
054	BLANK	QC831510	4571230
055	BS	QC831511	4517303
056	BSD	QC831512	4736351

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 96151993

Date : 04/14/16 Reference : met09_sn_2016
Sequence : MET09 04/14/16 Analyzed : 04/14/16 13:18

#	Type	Sample ID	Y A
057	MSS	275843-001	4555264
058	CCV		4576909
059	CCB		4849551
060	SAMPLE	275843-004	4482901
061	SAMPLE	275843-007	4422818
062	SAMPLE	275790-009	4378354
063	SAMPLE	275790-010	4281489
064	SAMPLE	275816-001	4419071
065	SAMPLE	275972-001	4570551
066	SAMPLE	275973-001	4397132
067	SAMPLE	275790-009	4542583
068	SAMPLE	275790-010	4482597
069	SAMPLE	274715-001	4766611
070	CCV		4346469
071	CCB		4776831
072	BLANK	QC828015	4721824
073	BS	QC828016	4742755
074	BSD	QC828017	4579257
076	MS	QC828018	4080987
077	MSD	QC828019	3937827
078	SER	QC828020	4234520
079	PDS	QC828021	4044280
082	CCV		4529773
083	CCB		4767303
084	BLANK	QC830406	4767065
085	BS	QC830407	11842400 *
086	BSD	QC830408	4616479
087	SAMPLE	275684-001	4731579
088	CCV		4300982
089	CCB		4654058

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 275719 METALS Water: EPA 6010B

Inst : MET09
Calnum : 96151993001
Units : ug/L

Date : 14-APR-2016 13:13
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met09_sn_2016	96151993002	L1	14-APR-2016 13:18	S29300
L2	met09_sn_2016	96151993003	L2	14-APR-2016 13:23	S29393
L3	met09_sn_2016	96151993004	L3	14-APR-2016 13:27	S29394
L4	met09_sn_2016	96151993005	L4	14-APR-2016 13:31	S29395
L5	met09_sn_2016	96151993006	L5	14-APR-2016 13:38	S29125

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Antimony	A	3.3000	3.8510	3.9619	3.9503		LOR0	0.00000	0.25314		3.7658	1.000	0.995	
Arsenic	A	2.2400	2.3950	2.3630	2.3482		LOR0	0.00000	0.42583		2.3365	1.000	0.995	
Barium	A	85.320	87.258	85.398	82.187		LOR0	0.00000	0.01216		85.041	1.000	0.995	
Beryllium	A	7102.4	6889.4	6730.7			LOR0	0.00000	1.49E-4		6907.5	1.000	0.995	
Cadmium	A	122.52	124.16	121.84	116.03		LOR0	0.00000	0.00861		121.14	1.000	0.995	
Chromium	A	185.58	219.64	214.39	208.77		LOR0	0.00000	0.00479		207.09	1.000	0.995	
Cobalt	A	41.060	43.965	44.808	43.414		LOR0	0.00000	0.02303		43.312	1.000	0.995	
Copper	A	480.18	451.91	454.98	459.41		LOR0	0.00000	0.00218		461.62	1.000	0.995	
Lead	A	17.500	16.093	16.189	15.933		LOR0	0.00000	0.06275		16.429	1.000	0.995	
Molybdenum	A	31.540	32.403	32.055	31.620		LOR0	0.00000	0.03162		31.905	1.000	0.995	
Nickel	A	95.200	100.30	100.12	97.916		LOR0	0.00000	0.01021		98.382	1.000	0.995	
Selenium	A	3.6900	3.2080	3.1994	3.2044		LOR0	0.00000	0.31207		3.3255	1.000	0.995	
Silver	A	95.480	99.140	100.96	100.35		LOR0	0.00000	0.00996		98.984	1.000	0.995	
Thallium	A	3.0000	2.6910	2.7044	2.6711		LOR0	0.00000	0.37433		2.7666	1.000	0.995	
Vanadium	A	292.06	291.07	286.05	283.05		LOR0	0.00000	0.00353		288.06	1.000	0.995	
Zinc	A	59.055	52.025	51.352	49.704		LOR0	0.00000	0.02011		53.034	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Antimony	A	10.000	-16	100.00	-3	1000.0	0	10000	0		
Arsenic	A	5.0000	-5	100.00	2	1000.0	1	10000	0		
Barium	A	5.0000	4	100.00	6	1000.0	4	10000	0		
Beryllium	A	2.0000	5	100.00	2	1000.0	0				
Cadmium	A	5.0000	6	100.00	7	1000.0	5	10000	0		
Chromium	A	5.0000	-11	100.00	5	1000.0	3	10000	0		
Cobalt	A	5.0000	-5	100.00	1	1000.0	3	10000	0		
Copper	A	5.0000	5	100.00	-2	1000.0	-1	10000	0		
Lead	A	5.0000	10	100.00	1	1000.0	2	10000	0		
Molybdenum	A	5.0000	0	100.00	2	1000.0	1	10000	0		
Nickel	A	5.0000	-3	100.00	2	1000.0	2	10000	0		
Selenium	A	10.000	15	100.00	0	1000.0	0	10000	0		
Silver	A	5.0000	-5	20.000	-1	200.00	1	2000.0	0		
Thallium	A	10.000	12	100.00	1	1000.0	1	10000	0		
Vanadium	A	5.0000	3	100.00	3	1000.0	1	10000	0		
Zinc	A	20.000	19	100.00	5	1000.0	3	10000	0		

Instrument amount = a0 + response * a1 + response^2 * a2; LOR0=Linear regression forced thru origin, including 0,0 point

96151993001

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 275719 METALS Water
EPA 6010B

Inst : MET09
Calnum : 96151993001 Cal Date : 14-APR-2016

ICV 96151993007 (14-APR-2016) stds: S29396

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	5000	4818	ug/L	-4	10	
Arsenic	A	5000	5052	ug/L	1	10	
Barium	A	5000	5007	ug/L	0	10	
Beryllium	A	500.0	499.2	ug/L	0	10	
Cadmium	A	5000	5047	ug/L	1	10	
Chromium	A	5000	4984	ug/L	0	10	
Cobalt	A	5000	4904	ug/L	-2	10	
Copper	A	5000	4903	ug/L	-2	10	
Lead	A	5000	4891	ug/L	-2	10	
Molybdenum	A	5000	4777	ug/L	-4	10	
Nickel	A	5000	4944	ug/L	-1	10	
Selenium	A	5000	4965	ug/L	-1	10	
Silver	A	1000	977.4	ug/L	-2	10	
Thallium	A	5000	4921	ug/L	-2	10	
Vanadium	A	5000	4991	ug/L	0	10	
Zinc	A	5000	5016	ug/L	0	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275719 METALS Water
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96151993009.1 File : met09_sn_2016 Time : 14-APR-2016 14:00
Cal : 96151993001 Caldate : 14-APR-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	2.500	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4566361	4760925	4.26

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 275719 METALS Water
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96151993010.1 File : met09_sn_2016 Time : 14-APR-2016 14:05
Cal : 96151993001 Caldate : 14-APR-2016
Standards: S28694

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	[-5.775]	10.00	ug/L	
Arsenic	A	[-0.3589]	5.000	ug/L	
Barium	A	[-3.569]	5.000	ug/L	
Beryllium	A	[0.4946]	2.000	ug/L	
Cadmium	A	[3.488]	5.000	ug/L	
Cobalt	A	[4.332]	5.000	ug/L	
Lead	A	[0.4745]	5.000	ug/L	
Molybdenum	A	[0.7683]	5.000	ug/L	
Selenium	A	[-7.465]	10.00	ug/L	
Silver	A	[-3.620]	5.000	ug/L	
Thallium	A	[-9.564]	10.00	ug/L	
Zinc	A	[16.81]	20.00	ug/L	

Interferent	Ch	Spiked	Quant	Units	%Rec
Chromium	A	20000	19670	ug/L	98
Copper	A	20000	22230	ug/L	111
Manganese	A	20000	19230	ug/L	96
Nickel	A	20000	18210	ug/L	91
Vanadium	A	20000	20800	ug/L	104
Aluminum	R	500000	495400	ug/L	99
Calcium	R	500000	468900	ug/L	94
Iron	R	200000	176900	ug/L	88
Magnesium	R	500000	460700	ug/L	92
Titanium	R	20000	21880	ug/L	109

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4566361	3916542	-14.23

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 275719 METALS Water EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96151993011.1 File : met09_sn_2016 Time : 14-APR-2016 14:13
Cal : 96151993001 Caldate : 14-APR-2016
Standards: S29006

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	550.0	ug/L	10	20	
Arsenic	A	500.0	536.4	ug/L	7	20	
Barium	A	500.0	514.9	ug/L	3	20	
Beryllium	A	500.0	512.7	ug/L	3	20	
Cadmium	A	1000	997.9	ug/L	0	20	
Chromium	A	500.0	499.7	ug/L	0	20	
Cobalt	A	500.0	478.2	ug/L	-4	20	
Copper	A	500.0	556.6	ug/L	11	20	
Lead	A	1000	940.0	ug/L	-6	20	
Molybdenum	A	500.0	511.9	ug/L	2	20	
Nickel	A	1000	920.0	ug/L	-8	20	
Selenium	A	500.0	527.4	ug/L	5	20	
Silver	A	1000	1126	ug/L	13	20	
Thallium	A	500.0	511.5	ug/L	2	20	
Vanadium	A	500.0	530.2	ug/L	6	20	
Zinc	A	1000	980.0	ug/L	-2	20	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4566361	3945246	-13.60

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275719 METALS Water
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96151993022 File : met09_sn_2016 Time : 14-APR-2016 15:20
Cal : 96151993001 Caldate : 14-APR-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	3.7658	4.1432	5000	5244	ug/L	5	10	
Arsenic	A	2.3365	2.5899	5000	5514	ug/L	10	10	
Barium	A	85.041	87.961	5000	5349	ug/L	7	10	
Beryllium	A	6907.5	7199.3	500.0	534.7	ug/L	7	10	
Cadmium	A	121.14	125.01	5000	5384	ug/L	8	10	
Chromium	A	207.09	222.63	5000	5330	ug/L	7	10	
Cobalt	A	43.312	45.984	5000	5294	ug/L	6	10	
Copper	A	461.62	483.90	5000	5267	ug/L	5	10	
Lead	A	16.429	16.729	5000	5249	ug/L	5	10	
Molybdenum	A	31.905	32.167	5000	5086	ug/L	2	10	
Nickel	A	98.382	103.66	5000	5292	ug/L	6	10	
Selenium	A	3.3255	3.4913	5000	5448	ug/L	9	10	
Silver	A	98.984	105.51	1000	1051	ug/L	5	10	
Thallium	A	2.7666	2.8323	5000	5301	ug/L	6	10	
Vanadium	A	288.06	302.53	5000	5343	ug/L	7	10	
Zinc	A	53.034	53.130	5000	5343	ug/L	7	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4566361	4338992	-4.98

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275719 METALS Water
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96151993023 File : met09_sn_2016 Time : 14-APR-2016 15:27
Cal : 96151993001 Caldate : 14-APR-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	2.500	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4566361	4794043	4.99

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275719 METALS Water
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96151993034.1 File : met09_sn_2016 Time : 14-APR-2016 16:36
Cal : 96151993001 Caldate : 14-APR-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	3.7658	3.9496	5000	4999	ug/L	0	10	
Arsenic	A	2.3365	2.4828	5000	5286	ug/L	6	10	
Barium	A	85.041	85.110	5000	5176	ug/L	4	10	
Beryllium	A	6907.5	6959.0	500.0	516.8	ug/L	3	10	
Cadmium	A	121.14	120.58	5000	5193	ug/L	4	10	
Chromium	A	207.09	217.73	5000	5213	ug/L	4	10	
Cobalt	A	43.312	45.311	5000	5217	ug/L	4	10	
Copper	A	461.62	468.33	5000	5097	ug/L	2	10	
Lead	A	16.429	16.394	5000	5144	ug/L	3	10	
Molybdenum	A	31.905	31.109	5000	4918	ug/L	-2	10	
Nickel	A	98.382	100.51	5000	5131	ug/L	3	10	
Selenium	A	3.3255	3.3053	5000	5157	ug/L	3	10	
Silver	A	98.984	103.09	1000	1027	ug/L	3	10	
Thallium	A	2.7666	2.6659	5000	4990	ug/L	0	10	
Vanadium	A	288.06	294.59	5000	5203	ug/L	4	10	
Zinc	A	53.034	51.220	5000	5151	ug/L	3	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4566361	4489719	-1.68

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275719 METALS Water
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96151993035.1 File : met09_sn_2016 Time : 14-APR-2016 16:42
Cal : 96151993001 Caldate : 14-APR-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	2.500	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4566361	4765238	4.36

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 86180828

Instrument : MET08 Begun : 05/04/16 13:48
Method : EPA 6010B SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met08_sn_6010	ICALBLK				05/04/16 13:48	1.0		
002	met08_sn_6010	ICAL	L1			05/04/16 13:52	1.0	1	
003	met08_sn_6010	ICAL	L2			05/04/16 13:55	1.0	2	
004	met08_sn_6010	ICAL	L3			05/04/16 13:57	1.0	3	
005	met08_sn_6010	ICAL	L4			05/04/16 14:00	1.0	4	
006	met08_sn_6010	ICAL	L5			05/04/16 14:02	1.0	5	
007	met08_sn_6010	ICV				05/04/16 14:04	1.0	6	
008	met08_sn_6010	CRI				05/04/16 14:37	1.0	1	
009	met08_sn_6010	ICB				05/04/16 14:40	1.0		
010	met08_sn_6010	ICSA				05/04/16 14:43	1.0	7	10:AL=510000
011	met08_sn_6010	ICSAB				05/04/16 14:54	1.0	8	
012	met08_sn_6010	BLANK	QC833358	Wipe	234538	05/04/16 15:06	1.0		
013	met08_sn_6010	BS	QC833359	Wipe	234538	05/04/16 15:09	1.0		1:SR=11000
014	met08_sn_6010	BSD	QC833360	Wipe	234538	05/04/16 15:11	1.0		1:SR=11000
015	met08_sn_6010	SAMPLE	276280-001	Wipe	234538	05/04/16 15:12	1.0		
016	met08_sn_6010	SAMPLE	276280-002	Wipe	234538	05/04/16 15:14	1.0		
017	met08_sn_6010	SAMPLE	276280-003	Wipe	234538	05/04/16 15:18	1.0		
018	met08_sn_6010	SAMPLE	276280-004	Wipe	234538	05/04/16 15:21	1.0		
019	met08_sn_6010	SAMPLE	276280-005	Wipe	234538	05/04/16 15:24	1.0		
020	met08_sn_6010	SAMPLE	276280-006	Wipe	234538	05/04/16 15:26	1.0		2:CU=21000
021	met08_sn_6010	SAMPLE	276280-007	Wipe	234538	05/04/16 15:29	1.0		2:CU=94000
022	met08_sn_6010	CCV				05/04/16 15:32	1.0	9	
023	met08_sn_6010	CCB				05/04/16 15:34	1.0		
024	met08_sn_6010	SAMPLE	276280-008	Wipe	234538	05/04/16 15:37	1.0		2:CU=69000
025	met08_sn_6010	SAMPLE	276280-009	Wipe	234538	05/04/16 15:39	1.0		2:CU=33000
026	met08_sn_6010	SAMPLE	276294-029	Soil	234624	05/04/16 15:42	1.0		6:FE=760000
027	met08_sn_6010	SAMPLE	276549-001	WET Leachate	234632	05/04/16 15:44	10.0		1:NA=150000
028	met08_sn_6010	SAMPLE	276478-013	WET Leachate	234632	05/04/16 15:47	10.0		1:NA=170000
029	met08_sn_6010	SAMPLE	276478-014	WET Leachate	234632	05/04/16 15:49	10.0		1:NA=170000
030	met08_sn_6010	BS	QC833142	Water	234483	05/04/16 15:51	1.0		
031	met08_sn_6010	BSD	QC833143	Water	234483	05/04/16 15:54	1.0		
032	met08_sn_6010	CCV				05/04/16 16:24	1.0	9	
033	met08_sn_6010	CCB				05/04/16 16:26	1.0		
034	met08_sn_6010	BLANK	QC833141	Water	234483	05/04/16 16:34	1.0		
035	met08_sn_6010	MSS	275719-002	Water	234045	05/04/16 16:40	1.0		4:CA=300000
036	met08_sn_6010	SAMPLE	275719-003	Water	234045	05/04/16 16:42	1.0		3:CA=260000
037	met08_sn_6010	SAMPLE	275719-004	Water	234045	05/04/16 16:44	1.0		3:CA=260000
038	met08_sn_6010	SAMPLE	275719-007	Water	234045	05/04/16 16:45	1.0		2:NA=270000
039	met08_sn_6010	SAMPLE	275719-008	Water	234045	05/04/16 16:46	1.0		3:NA=250000
040	met08_sn_6010	SAMPLE	275719-009	Water	234045	05/04/16 16:48	1.0		1:NA=310000
041	met08_sn_6010	SAMPLE	276522-001	Soil	234704	05/04/16 16:51	1.0		5:CA=450000
042	met08_sn_6010	SAMPLE	276441-001	Soil	234704	05/04/16 16:53	1.0		5:CA=940000
043	met08_sn_6010	SAMPLE	276435-001	Soil	234704	05/04/16 16:55	1.0		3:FE=280000
044	met08_sn_6010	CCV				05/04/16 16:57	1.0	9	
045	met08_sn_6010	CCB				05/04/16 16:59	1.0		
046	met08_sn_6010	SAMPLE	275719-010	Water	234045	05/04/16 17:03	1.0		3:CA=550000
047	met08_sn_6010	SAMPLE	275719-011	Water	234045	05/04/16 17:04	1.0		4:CA=570000
048	met08_sn_6010	SAMPLE	275719-012	Water	234045	05/04/16 17:06	1.0		
049	met08_sn_6010	XBS	QC834001	Soil	234704	05/04/16 17:09	1.0		2:NA=330000000
050	met08_sn_6010	BSD	QC834002	Soil	234704	05/04/16 17:13	1.0		1:SR=11000
051	met08_sn_6010	SAMPLE	275719-013	Water	234045	05/04/16 17:15	1.0		
052	met08_sn_6010	SAMPLE	275878-001	Water	234045	05/04/16 17:18	1.0		5:CA=400000

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 86180828

Instrument : MET08 Begun : 05/04/16 13:48
Method : EPA 6010B SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met08_sn_6010	SAMPLE	275878-002	Water	234045	05/04/16 17:20	1.0		3:CA=1300000
054	met08_sn_6010	SAMPLE	275878-003	Water	234045	05/04/16 17:22	1.0		3:CA=360000
055	met08_sn_6010	MS	QC831362	Water	234045	05/04/16 17:24	1.0		
056	met08_sn_6010	CCV				05/04/16 17:26	1.0	9	
057	met08_sn_6010	CCB				05/04/16 17:28	1.0		
058	met08_sn_6010	BS	QC834001	Soil	234704	05/04/16 17:34	1.0		
059	met08_sn_6010	BLANK	QC833917	TCLP Leachate	234678	05/04/16 17:35	10.0		1:NA=140000
060	met08_sn_6010	BS	QC833918	TCLP Leachate	234678	05/04/16 17:39	1.0		
061	met08_sn_6010	BSD	QC833919	TCLP Leachate	234678	05/04/16 17:41	1.0		
062	met08_sn_6010	SAMPLE	276478-013	TCLP Leachate	234678	05/04/16 17:43	10.0		1:NA=140000
063	met08_sn_6010	SAMPLE	276478-014	TCLP Leachate	234678	05/04/16 17:47	10.0		1:NA=140000
064	met08_sn_6010	MSD	QC831363	Water	234045	05/04/16 17:50	1.0		
065	met08_sn_6010	SER	QC831364	Water	234045	05/04/16 17:51	5.0		
066	met08_sn_6010	PDS	QC831365	Water	234045	05/04/16 17:55	1.0	10 11 12	4:CA=300000
067	met08_sn_6010	MS	QC833008	Water	234452	05/04/16 17:56	1.0		
068	met08_sn_6010	CCV				05/04/16 17:58	1.0	9	
069	met08_sn_6010	CCB				05/04/16 18:00	1.0		
070	met08_sn_6010	CCB				05/04/16 18:03	1.0		
071	met08_sn_6010	MSD	QC833009	Water	234452	05/04/16 18:07	1.0		
072	met08_sn_6010	MSS	276116-001	Filtrate	234434	05/04/16 18:09	10.0		
073	met08_sn_6010	SAMPLE	276116-002	Filtrate	234434	05/04/16 18:11	10.0		
074	met08_sn_6010	SAMPLE	276116-003	Filtrate	234434	05/04/16 18:15	10.0		
075	met08_sn_6010	SAMPLE	276501-001	Soil	234704	05/04/16 18:18	1.0		5:FE=350000
076	met08_sn_6010	SAMPLE	276116-004	Filtrate	234434	05/04/16 18:20	10.0		
077	met08_sn_6010	SAMPLE	276116-009	Filtrate	234434	05/04/16 18:23	10.0		
078	met08_sn_6010	SAMPLE	276116-011	Filtrate	234434	05/04/16 18:26	10.0		
079	met08_sn_6010	MSS	276177-001	Water	234355	05/04/16 18:29	10.0		
080	met08_sn_6010	SAMPLE	276177-002	Water	234355	05/04/16 18:32	10.0		
081	met08_sn_6010	CCV				05/04/16 18:35	1.0	9	
082	met08_sn_6010	CCB				05/04/16 18:37	1.0		
083	met08_sn_6010	CCB				05/04/16 18:40	1.0		
084	met08_sn_6010	SAMPLE	276177-007	Water	234355	05/04/16 18:44	10.0		
085	met08_sn_6010	SAMPLE	276177-008	Water	234355	05/04/16 18:47	10.0		
086	met08_sn_6010	MS	QC832642	Water	234355	05/04/16 18:50	10.0		
087	met08_sn_6010	MSD	QC832643	Water	234355	05/04/16 18:53	10.0		
088	met08_sn_6010	MSS	275917-001	Water	234165	05/04/16 18:55	1.0		
089	met08_sn_6010	SAMPLE	275917-002	Water	234165	05/04/16 18:58	1.0		
090	met08_sn_6010	SAMPLE	275917-003	Water	234165	05/04/16 19:01	1.0		
091	met08_sn_6010	SAMPLE	275917-004	Water	234165	05/04/16 19:03	1.0		
092	met08_sn_6010	SAMPLE	275988-001	Water	234483	05/04/16 19:06	10.0		
093	met08_sn_6010	MSS	276469-001	TCLP Leachate	234678	05/04/16 19:09	10.0		1:NA=140000
094	met08_sn_6010	CCV				05/04/16 19:13	1.0	9	
095	met08_sn_6010	CCB				05/04/16 19:15	1.0		
096	met08_sn_6010	SAMPLE	276469-002	TCLP Leachate	234678	05/04/16 19:18	10.0		1:NA=140000
097	met08_sn_6010	SAMPLE	276469-003	TCLP Leachate	234678	05/04/16 19:21	10.0		1:NA=140000
098	met08_sn_6010	SAMPLE	276522-001	TCLP Leachate	234678	05/04/16 19:25	10.0		1:NA=160000
099	met08_sn_6010	BLANK	QC832315	Water	234276	05/04/16 19:28	1.0		
100	met08_sn_6010	BS	QC832316	Water	234276	05/04/16 19:31	1.0		
101	met08_sn_6010	BSD	QC832317	Water	234276	05/04/16 19:34	1.0		
102	met08_sn_6010	MSS	276116-001	Water	234276	05/04/16 19:36	1.0		1:NA=120000
103	met08_sn_6010	MS	QC832318	Water	234276	05/04/16 19:38	1.0		
104	met08_sn_6010	MSD	QC832319	Water	234276	05/04/16 19:41	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 86180828

Instrument : MET08 Begun : 05/04/16 13:48
Method : EPA 6010B SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
105	met08_sn_6010	SAMPLE	276095-001	Water	234276	05/04/16 19:43	1.0		
106	met08_sn_6010	CCV				05/04/16 19:46	1.0	9	
107	met08_sn_6010	CCB				05/04/16 19:48	1.0		
108	met08_sn_6010	SAMPLE	276095-002	Water	234276	05/04/16 19:52	1.0		
109	met08_sn_6010	SAMPLE	276114-003	Water	234276	05/04/16 19:54	1.0		
110	met08_sn_6010	SAMPLE	276114-004	Water	234276	05/04/16 19:56	1.0		
111	met08_sn_6010	SAMPLE	276116-002	Water	234276	05/04/16 19:59	1.0		1:NA=150000
112	met08_sn_6010	SAMPLE	276116-003	Water	234276	05/04/16 20:01	1.0		1:NA=120000
113	met08_sn_6010	SAMPLE	276116-004	Water	234276	05/04/16 20:03	1.0		1:NA=190000
114	met08_sn_6010	SAMPLE	276116-009	Water	234276	05/04/16 20:06	1.0		1:NA=130000
115	met08_sn_6010	SAMPLE	276116-011	Water	234276	05/04/16 20:08	1.0		
116	met08_sn_6010	SAMPLE	276119-005	Water	234276	05/04/16 20:11	1.0		
117	met08_sn_6010	SAMPLE	276119-006	Water	234276	05/04/16 20:15	1.0		
118	met08_sn_6010	CCV				05/04/16 20:18	1.0	9	
119	met08_sn_6010	CCB				05/04/16 20:20	1.0		
120	met08_sn_6010	SAMPLE	276119-007	Water	234276	05/04/16 20:23	1.0		
121	met08_sn_6010	SAMPLE	276119-008	Water	234276	05/04/16 20:27	1.0		
122	met08_sn_6010	SAMPLE	276119-009	Water	234276	05/04/16 20:30	1.0		
123	met08_sn_6010	SAMPLE	276119-010	Water	234276	05/04/16 20:33	1.0		
124	met08_sn_6010	BLANK	QC832998	Water	234451	05/04/16 20:36	1.0		
125	met08_sn_6010	BS	QC832999	Water	234451	05/04/16 20:40	1.0		
126	met08_sn_6010	BSD	QC833000	Water	234451	05/04/16 20:42	1.0		
127	met08_sn_6010	MSS	276189-029	Water	234451	05/04/16 20:44	1.0		
128	met08_sn_6010	MS	QC833001	Water	234451	05/04/16 20:48	1.0		
129	met08_sn_6010	MSD	QC833002	Water	234451	05/04/16 20:50	1.0		
130	met08_sn_6010	CCV				05/04/16 20:52	1.0	9	
131	met08_sn_6010	CCB				05/04/16 20:55	1.0		
132	met08_sn_6010	CCB				05/04/16 20:58	1.0		
133	met08_sn_6010	SAMPLE	276117-001	Water	234451	05/04/16 21:01	1.0		
134	met08_sn_6010	SAMPLE	276117-002	Water	234451	05/04/16 21:03	1.0		4:FE=520000
135	met08_sn_6010	SAMPLE	276117-003	Water	234451	05/04/16 21:05	1.0		
136	met08_sn_6010	SAMPLE	276117-004	Water	234451	05/04/16 21:09	1.0		
137	met08_sn_6010	SAMPLE	276117-005	Water	234451	05/04/16 21:11	1.0		
138	met08_sn_6010	SAMPLE	276117-006	Water	234451	05/04/16 21:13	1.0		
139	met08_sn_6010	SAMPLE	276232-001	Water	234451	05/04/16 21:16	1.0		1:NA=250000
140	met08_sn_6010	SAMPLE	276281-001	Water	234451	05/04/16 21:18	1.0		
141	met08_sn_6010	SAMPLE	276281-002	Water	234451	05/04/16 21:21	1.0		
142	met08_sn_6010	SAMPLE	276281-003	Water	234451	05/04/16 21:24	1.0		
143	met08_sn_6010	CCV				05/04/16 21:28	1.0	9	
144	met08_sn_6010	CCB				05/04/16 21:30	1.0		
145	met08_sn_6010	SAMPLE	276281-004	Water	234451	05/04/16 21:33	1.0		
146	met08_sn_6010	SAMPLE	276288-001	Water	234451	05/04/16 21:37	1.0		
147	met08_sn_6010	BLANK	QC833126	Filtrate	234479	05/04/16 21:40	1.0		
148	met08_sn_6010	BS	QC833127	Filtrate	234479	05/04/16 21:43	1.0		
149	met08_sn_6010	BSD	QC833128	Filtrate	234479	05/04/16 21:46	1.0		
150	met08_sn_6010	MSS	276177-001	Filtrate	234479	05/04/16 21:48	1.0		1:NA=600000
151	met08_sn_6010	MS	QC833129	Filtrate	234479	05/04/16 21:52	1.0		
152	met08_sn_6010	MSD	QC833130	Filtrate	234479	05/04/16 21:55	1.0		
153	met08_sn_6010	SAMPLE	276117-001	Filtrate	234479	05/04/16 21:58	1.0		
154	met08_sn_6010	SAMPLE	276117-002	Filtrate	234479	05/04/16 22:01	1.0		1:FE=110000
155	met08_sn_6010	CCV				05/04/16 22:04	1.0	9	
156	met08_sn_6010	CCB				05/04/16 22:06	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 86180828

Instrument : MET08 Begun : 05/04/16 13:48
Method : EPA 6010B SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
157	met08_sn_6010	CCB				05/04/16 22:09	1.0		
158	met08_sn_6010	SAMPLE	276117-003	Filtrate	234479	05/04/16 22:12	1.0		
159	met08_sn_6010	SAMPLE	276117-004	Filtrate	234479	05/04/16 22:16	1.0		
160	met08_sn_6010	SAMPLE	276117-005	Filtrate	234479	05/04/16 22:19	1.0		
161	met08_sn_6010	SAMPLE	276117-006	Filtrate	234479	05/04/16 22:22	1.0		
162	met08_sn_6010	SAMPLE	276177-002	Filtrate	234479	05/04/16 22:26	1.0		1:NA=550000
163	met08_sn_6010	SAMPLE	276177-003	Filtrate	234479	05/04/16 22:29	1.0		3:NA=960000
164	met08_sn_6010	SAMPLE	276177-004	Filtrate	234479	05/04/16 22:32	1.0		4:NA=500000
165	met08_sn_6010	SAMPLE	276177-005	Filtrate	234479	05/04/16 22:34	1.0		
166	met08_sn_6010	SAMPLE	276177-006	Filtrate	234479	05/04/16 22:37	1.0		3:NA=700000
167	met08_sn_6010	SAMPLE	276177-007	Filtrate	234479	05/04/16 22:40	1.0		1:NA=510000
168	met08_sn_6010	CCV				05/04/16 22:44	1.0	9	
169	met08_sn_6010	CCB				05/04/16 22:46	1.0		
170	met08_sn_6010	CCB				05/04/16 22:49	1.0		
171	met08_sn_6010	SAMPLE	276177-008	Filtrate	234479	05/04/16 22:52	1.0		
172	met08_sn_6010	SAMPLE	276177-009	Filtrate	234479	05/04/16 22:56	1.0		4:NA=480000
173	met08_sn_6010	SAMPLE	276177-010	Filtrate	234479	05/04/16 22:57	1.0		5:NA=690000
174	met08_sn_6010	SAMPLE	276177-011	Filtrate	234479	05/04/16 22:59	1.0		4:NA=750000
175	met08_sn_6010	CCV				05/04/16 23:03	1.0	9	
176	met08_sn_6010	CCB				05/04/16 23:05	1.0		

KER 05/04/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 42.

Standards used: 1=S29301 2=S29393 3=S29394 4=S29395 5=S29761 6=S29396 7=S29660 8=S29661 9=S29397 10=S28385 11=S28386 12=S29742

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 86180828

Date : 05/04/16 Reference : met08_sn_6010
Sequence : MET08 05/04/16 Analyzed : 05/04/16 13:52

#	Type	Sample ID	Y A
		ICAL STD	12362252
		LOWER LIMIT	3708676
		UPPER LIMIT	24724504
009	ICB		12412258
010	ICSA		11574945
011	ICSAB		11872251
012	BLANK	QC833358	13384663
013	BS	QC833359	12304330
014	BSD	QC833360	12913864
015	SAMPLE	276280-001	12627724
016	SAMPLE	276280-002	12878736
017	SAMPLE	276280-003	12807224
018	SAMPLE	276280-004	12897270
019	SAMPLE	276280-005	12958209
020	SAMPLE	276280-006	12459667
021	SAMPLE	276280-007	12961840
022	CCV		12838078
023	CCB		12863694
024	SAMPLE	276280-008	12635660
025	SAMPLE	276280-009	13060688
026	SAMPLE	276294-029	11997222
027	SAMPLE	276549-001	12582983
028	SAMPLE	276478-013	12456705
029	SAMPLE	276478-014	12494765
030	BS	QC833142	12494196
031	BSD	QC833143	12715207
032	CCV		12460610
033	CCB		13014695
034	BLANK	QC833141	13120163
035	MSS	275719-002	12662370
036	SAMPLE	275719-003	12074321
037	SAMPLE	275719-004	12225843
038	SAMPLE	275719-007	12208612
039	SAMPLE	275719-008	12238081
040	SAMPLE	275719-009	11924593
041	SAMPLE	276522-001	12527054
042	SAMPLE	276441-001	11642645
043	SAMPLE	276435-001	12732194
044	CCV		12639646
045	CCB		12922788
046	SAMPLE	275719-010	12245087
047	SAMPLE	275719-011	12384599
048	SAMPLE	275719-012	13131463
050	BSD	QC834002	12960788
051	SAMPLE	275719-013	13255337
052	SAMPLE	275878-001	12344642
053	SAMPLE	275878-002	11620728
054	SAMPLE	275878-003	12242004
055	MS	QC831362	12071487
056	CCV		12656400
057	CCB		12823041

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 86180828

Date : 05/04/16 Reference : met08_sn_6010
Sequence : MET08 05/04/16 Analyzed : 05/04/16 13:52

#	Type	Sample ID	Y A
058	BS	QC834001	13226366
059	BLANK	QC833917	13037852
060	BS	QC833918	12701327
061	BSD	QC833919	13378823
062	SAMPLE	276478-013	12828860
063	SAMPLE	276478-014	12900896
064	MSD	QC831363	12519893
065	SER	QC831364	13154633
066	PDS	QC831365	12811637
067	MS	QC833008	13597102
068	CCV		12887125
069	CCB		13137752
070	CCB		13064001
071	MSD	QC833009	13454538
075	SAMPLE	276501-001	12863935
079	MSS	276177-001	13031456
081	CCV		12484598
082	CCB		12994649
083	CCB		13180603
086	MS	QC832642	12850863
087	MSD	QC832643	12670659
088	MSS	275917-001	13120517
092	SAMPLE	275988-001	13752855
093	MSS	276469-001	12794656
094	CCV		12634387
095	CCB		12693619
096	SAMPLE	276469-002	12916607
097	SAMPLE	276469-003	12802081
098	SAMPLE	276522-001	12586835
099	BLANK	QC832315	13058914
100	BS	QC832316	13131452
101	BSD	QC832317	13006591
103	MS	QC832318	12399289
104	MSD	QC832319	12873594
105	SAMPLE	276095-001	13072610
106	CCV		13291432
107	CCB		13101122
108	SAMPLE	276095-002	13036317
109	SAMPLE	276114-003	13074325
110	SAMPLE	276114-004	12805898
116	SAMPLE	276119-005	13484427
117	SAMPLE	276119-006	13694814
118	CCV		12997694
119	CCB		13226984
120	SAMPLE	276119-007	13476244
121	SAMPLE	276119-008	12832135
122	SAMPLE	276119-009	13193826
123	SAMPLE	276119-010	13660610
124	BLANK	QC832998	13096138
125	BS	QC832999	13291018
126	BSD	QC833000	12816389
128	MS	QC833001	13129638

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 86180828

Date : 05/04/16 Reference : met08_sn_6010
Sequence : MET08 05/04/16 Analyzed : 05/04/16 13:52

#	Type	Sample ID	Y	A
129	MSD	QC833002	13143161	
130	CCV		13167815	
131	CCB		12943979	
132	CCB		13236531	
140	SAMPLE	276281-001	13135543	
141	SAMPLE	276281-002	13531675	
142	SAMPLE	276281-003	13433198	
143	CCV		13188700	
144	CCB		13051572	
145	SAMPLE	276281-004	13361892	
146	SAMPLE	276288-001	13582982	
147	BLANK	QC833126	13561477	
148	BS	QC833127	13421495	
149	BSD	QC833128	13256305	
150	MSS	276177-001	12377489	
151	MS	QC833129	12859644	
152	MSD	QC833130	12561313	
155	CCV		12656666	
156	CCB		12948021	
157	CCB		12922048	
162	SAMPLE	276177-002	12416514	
163	SAMPLE	276177-003	12512732	
164	SAMPLE	276177-004	12668957	
165	SAMPLE	276177-005	25802353	*
166	SAMPLE	276177-006	12869909	
167	SAMPLE	276177-007	12792281	
168	CCV		13068032	
169	CCB		13161252	
170	CCB		13335999	
171	SAMPLE	276177-008	23385615	
172	SAMPLE	276177-009	13156585	
173	SAMPLE	276177-010	12931307	
174	SAMPLE	276177-011	12720462	
175	CCV		12409083	
176	CCB		13193541	

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 275719 METALS Water: EPA 6010B

Inst : MET08
Calnum : 86180828001
Units : ug/L

Date : 04-MAY-2016 13:48
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met08_sn_6010	86180828002	L1	04-MAY-2016 13:52	S29301
L2	met08_sn_6010	86180828003	L2	04-MAY-2016 13:55	S29393
L3	met08_sn_6010	86180828004	L3	04-MAY-2016 13:57	S29394
L4	met08_sn_6010	86180828005	L4	04-MAY-2016 14:00	S29395
L5	met08_sn_6010	86180828006	L5	04-MAY-2016 14:02	S29761

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Antimony	A	5.5500	17.914	17.658	17.709		LOR0	0.00000	0.05647		14.708	1.000	0.995	
Barium	A	343.92	342.14	331.59	324.77		LOR0	0.00000	0.00308		335.61	1.000	0.995	
Beryllium	A	3660.7	3677.9	3594.7			LOR0	0.00000	2.78E-4		3644.4	1.000	0.995	
Cadmium	A	180.16	180.42	174.59	173.33		LOR0	0.00000	0.00577		177.13	1.000	0.995	
Chromium	A	116.30	106.54	105.62	106.79		LOR0	0.00000	0.00937		108.81	1.000	0.995	
Cobalt	A	125.48	120.58	117.39	118.50		LOR0	0.00000	0.00844		120.49	1.000	0.995	
Copper	A	553.46	339.98	316.48	314.21		LOR0	0.00000	0.00318		381.03	1.000	0.995	
Lead	A	41.700	29.594	28.694	30.656		LOR0	0.00000	0.03264		32.661	1.000	0.995	
Molybdenum	A	25.820	26.307	25.578	25.808		LOR0	0.00000	0.03875		25.878	1.000	0.995	
Nickel	A	46.760	39.313	38.897	39.607		LOR0	0.00000	0.02525		41.144	1.000	0.995	
Silver	A	2049.7	1760.7	1539.4	1565.0		LOR0	0.00000	6.39E-4		1728.7	1.000	0.995	
Thallium	A	21.160	14.210	12.813	12.943		LOR0	0.00000	0.07727		15.281	1.000	0.995	
Vanadium	A	119.06	101.22	99.372	101.38		LOR0	0.00000	0.00987		105.26	1.000	0.995	
Zinc	A	88.330	79.858	74.347	75.780		LOR0	0.00000	0.01320		79.579	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Antimony	A	10.000	**-69**	100.00	1	1000.0	0	10000	0		
Barium	A	5.0000	6	100.00	5	1000.0	2	10000	0		
Beryllium	A	2.0000	2	100.00	2	1000.0	0				
Cadmium	A	5.0000	4	100.00	4	1000.0	1	10000	0		
Chromium	A	5.0000	9	100.00	0	1000.0	-1	10000	0		
Cobalt	A	5.0000	6	100.00	2	1000.0	-1	10000	0		
Copper	A	5.0000	**76**	100.00	8	1000.0	1	10000	0		
Lead	A	5.0000	**36**	100.00	-3	1000.0	-6	10000	0		
Molybdenum	A	5.0000	0	100.00	2	1000.0	-1	10000	0		
Nickel	A	5.0000	18	100.00	-1	1000.0	-2	10000	0		
Silver	A	5.0000	**31**	20.000	13	200.00	-2	2000.0	0		
Thallium	A	10.000	**64**	100.00	10	1000.0	-1	10000	0		
Vanadium	A	5.0000	17	100.00	0	1000.0	-2	10000	0		
Zinc	A	20.000	17	100.00	5	1000.0	-2	10000	0		

KER 05/04/16 : As removed due to low bias in cal. Se removed due to high bias in cal.

Instrument amount = a0 + response * a1 + response^2 * a2; LOR0=Linear regression forced thru origin, including 0,0 point

86180828001

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 275719 METALS Water
EPA 6010B

Inst : MET08
Calnum : 86180828001 Cal Date : 04-MAY-2016

ICV 86180828007 (04-MAY-2016) stds: S29396

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	5000	5035	ug/L	1	10	
Barium	A	5000	5088	ug/L	2	10	
Beryllium	A	500.0	518.7	ug/L	4	10	
Cadmium	A	5000	5135	ug/L	3	10	
Chromium	A	5000	5061	ug/L	1	10	
Cobalt	A	5000	4934	ug/L	-1	10	
Copper	A	5000	4962	ug/L	-1	10	
Lead	A	5000	4964	ug/L	-1	10	
Molybdenum	A	5000	4933	ug/L	-1	10	
Nickel	A	5000	5033	ug/L	1	10	
Silver	A	1000	1007	ug/L	1	10	
Thallium	A	5000	5356	ug/L	7	10	
Vanadium	A	5000	5093	ug/L	2	10	
Zinc	A	5000	5077	ug/L	2	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275719 METALS Water
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86180828009 File : met08_sn_6010 Time : 04-MAY-2016 14:40
Cal : 86180828001 Caldate : 04-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	8.000	ug/L	
Barium	A	ND	5.000	4.000	ug/L	
Beryllium	A	ND	2.000	1.600	ug/L	
Cadmium	A	ND	5.000	4.000	ug/L	
Chromium	A	ND	5.000	4.000	ug/L	
Cobalt	A	ND	5.000	4.000	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	4.000	ug/L	
Molybdenum	A	ND	5.000	4.000	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	8.000	ug/L	
Vanadium	A	ND	5.000	4.000	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	12362252	12412258	0.40

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 275719 METALS Water
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86180828010 File : met08_sn_6010 Time : 04-MAY-2016 14:43
Cal : 86180828001 Caldate : 04-MAY-2016
Standards: S29660

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	[-1.303]	10.00	ug/L	
Barium	A	[-2.526]	5.000	ug/L	
Beryllium	A	[0.1871]	2.000	ug/L	
Cadmium	A	[-1.213]	5.000	ug/L	
Cobalt	A	[1.049]	5.000	ug/L	
Lead	A	[3.763]	5.000	ug/L	
Molybdenum	A	[-2.138]	5.000	ug/L	
Silver	A	[2.481]	5.000	ug/L	
Thallium	A	[3.219]	10.00	ug/L	
Zinc	A	[11.98]	20.00	ug/L	

Interferent	Ch	Spiked	Quant	Units	%Rec	Flags
Chromium	A	20000	18890	ug/L	94	
Copper	A	20000	19740	ug/L	99	
Manganese	A	20000	18570	ug/L	93	
Nickel	A	20000	17950	ug/L	90	
Vanadium	A	20000	19420	ug/L	97	
Aluminum	R	500000	507000	ug/L	101	
Calcium	R	500000	480900	ug/L	96	
Iron	R	200000	190600	ug/L	95	
Magnesium	R	500000	482700	ug/L	97	
Titanium	R	20000	21300	ug/L	106	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	12362252	11574945	-6.37

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 275719 METALS Water
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86180828011 File : met08_sn_6010 Time : 04-MAY-2016 14:54
Cal : 86180828001 Caldate : 04-MAY-2016
Standards: S29661

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	519.2	ug/L	4	20	
Barium	A	500.0	510.9	ug/L	2	20	
Beryllium	A	500.0	515.9	ug/L	3	20	
Cadmium	A	1000	964.4	ug/L	-4	20	
Chromium	A	500.0	489.4	ug/L	-2	20	
Cobalt	A	500.0	495.0	ug/L	-1	20	
Copper	A	500.0	496.3	ug/L	-1	20	
Lead	A	1000	901.3	ug/L	-10	20	
Molybdenum	A	500.0	478.2	ug/L	-4	20	
Nickel	A	1000	925.5	ug/L	-7	20	
Silver	A	1000	1014	ug/L	1	20	
Thallium	A	500.0	499.2	ug/L	0	20	
Vanadium	A	500.0	536.3	ug/L	7	20	
Zinc	A	1000	961.0	ug/L	-4	20	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	12362252	11872251	-3.96

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275719 METALS Water
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86180828032 File : met08_sn_6010 Time : 04-MAY-2016 16:24
Cal : 86180828001 Caldate : 04-MAY-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	14.708	17.323	5000	4891	ug/L	-2	10	
Barium	A	335.61	319.84	5000	4923	ug/L	-2	10	
Beryllium	A	3644.4	3575.2	500.0	497.2	ug/L	-1	10	
Cadmium	A	177.13	167.73	5000	4838	ug/L	-3	10	
Chromium	A	108.81	104.66	5000	4901	ug/L	-2	10	
Cobalt	A	120.49	111.91	5000	4713	ug/L	-6	10	
Copper	A	381.03	301.84	5000	4803	ug/L	-4	10	
Lead	A	32.661	29.136	5000	4755	ug/L	-5	10	
Molybdenum	A	25.878	24.403	5000	4728	ug/L	-5	10	
Nickel	A	41.144	37.967	5000	4794	ug/L	-4	10	
Silver	A	1728.7	1522.1	1000	972.7	ug/L	-3	10	
Thallium	A	15.281	13.043	5000	5039	ug/L	1	10	
Vanadium	A	105.26	100.51	5000	4958	ug/L	-1	10	
Zinc	A	79.579	72.466	5000	4782	ug/L	-4	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	12362252	12460610	0.80

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275719 METALS Water
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86180828033 File : met08_sn_6010 Time : 04-MAY-2016 16:26
Cal : 86180828001 Caldate : 04-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	8.000	ug/L	
Barium	A	ND	5.000	4.000	ug/L	
Beryllium	A	ND	2.000	1.600	ug/L	
Cadmium	A	ND	5.000	4.000	ug/L	
Chromium	A	ND	5.000	4.000	ug/L	
Cobalt	A	ND	5.000	4.000	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	4.000	ug/L	
Molybdenum	A	ND	5.000	4.000	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	8.000	ug/L	
Vanadium	A	ND	5.000	4.000	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	12362252	13014695	5.28

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275719 METALS Water
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86180828044 File : met08_sn_6010 Time : 04-MAY-2016 16:57
Cal : 86180828001 Caldate : 04-MAY-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	14.708	18.171	5000	5131	ug/L	3	10	
Barium	A	335.61	327.46	5000	5040	ug/L	1	10	
Beryllium	A	3644.4	3656.8	500.0	508.5	ug/L	2	10	
Cadmium	A	177.13	177.19	5000	5111	ug/L	2	10	
Chromium	A	108.81	106.77	5000	5000	ug/L	0	10	
Cobalt	A	120.49	115.67	5000	4872	ug/L	-3	10	
Copper	A	381.03	309.38	5000	4923	ug/L	-2	10	
Lead	A	32.661	31.290	5000	5107	ug/L	2	10	
Molybdenum	A	25.878	24.886	5000	4822	ug/L	-4	10	
Nickel	A	41.144	39.652	5000	5007	ug/L	0	10	
Silver	A	1728.7	1564.5	1000	999.8	ug/L	0	10	
Thallium	A	15.281	13.094	5000	5059	ug/L	1	10	
Vanadium	A	105.26	103.08	5000	5085	ug/L	2	10	
Zinc	A	79.579	76.305	5000	5036	ug/L	1	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	12362252	12639646	2.24

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275719 METALS Water
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86180828045 File : met08_sn_6010 Time : 04-MAY-2016 16:59
Cal : 86180828001 Caldate : 04-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	8.000	ug/L	
Barium	A	ND	5.000	4.000	ug/L	
Beryllium	A	ND	2.000	1.600	ug/L	
Cadmium	A	ND	5.000	4.000	ug/L	
Chromium	A	ND	5.000	4.000	ug/L	
Cobalt	A	ND	5.000	4.000	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	4.000	ug/L	
Molybdenum	A	ND	5.000	4.000	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	8.000	ug/L	
Vanadium	A	ND	5.000	4.000	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	12362252	12922788	4.53

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275719 METALS Water
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86180828056 File : met08_sn_6010 Time : 04-MAY-2016 17:26
Cal : 86180828001 Caldate : 04-MAY-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	14.708	17.744	5000	5010	ug/L	0	10	
Barium	A	335.61	320.58	5000	4934	ug/L	-1	10	
Beryllium	A	3644.4	3525.8	500.0	490.3	ug/L	-2	10	
Cadmium	A	177.13	171.04	5000	4934	ug/L	-1	10	
Chromium	A	108.81	102.92	5000	4820	ug/L	-4	10	
Cobalt	A	120.49	111.93	5000	4714	ug/L	-6	10	
Copper	A	381.03	302.39	5000	4812	ug/L	-4	10	
Lead	A	32.661	30.685	5000	5008	ug/L	0	10	
Molybdenum	A	25.878	24.377	5000	4723	ug/L	-6	10	
Nickel	A	41.144	38.370	5000	4845	ug/L	-3	10	
Silver	A	1728.7	1519.1	1000	970.8	ug/L	-3	10	
Thallium	A	15.281	13.383	5000	5171	ug/L	3	10	
Vanadium	A	105.26	99.750	5000	4921	ug/L	-2	10	
Zinc	A	79.579	72.910	5000	4812	ug/L	-4	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	12362252	12656400	2.38

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275719 METALS Water
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86180828057 File : met08_sn_6010 Time : 04-MAY-2016 17:28
Cal : 86180828001 Caldate : 04-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	8.000	ug/L	
Barium	A	ND	5.000	4.000	ug/L	
Beryllium	A	ND	2.000	1.600	ug/L	
Cadmium	A	ND	5.000	4.000	ug/L	
Chromium	A	ND	5.000	4.000	ug/L	
Cobalt	A	ND	5.000	4.000	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	4.000	ug/L	
Molybdenum	A	ND	5.000	4.000	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	8.000	ug/L	
Vanadium	A	ND	5.000	4.000	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	12362252	12823041	3.73

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 96181981

Instrument : MET09 Begun : 05/05/16 09:01
Method : EPA 6010B SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met09_sn_2016	ICALBLK				05/05/16 09:01	1.0		
002	met09_sn_2016	ICAL	L1			05/05/16 09:06	1.0	1	
003	met09_sn_2016	ICAL	L2			05/05/16 09:11	1.0	2	
004	met09_sn_2016	ICAL	L3			05/05/16 09:15	1.0	3	
005	met09_sn_2016	ICAL	L4			05/05/16 09:20	1.0	4	
006	met09_sn_2016	ICAL	L5			05/05/16 09:27	1.0	5	
007	met09_sn_2016	ICV				05/05/16 09:33	1.0	6	
008	met09_sn_2016	XCRI				05/05/16 09:40	1.0	7	
009	met09_sn_2016	CRI				05/05/16 09:50	1.0	7	
010	met09_sn_2016	ICB				05/05/16 09:57	1.0		
011	met09_sn_2016	ICSA				05/05/16 10:02	1.0	8	10:AL=520000
012	met09_sn_2016	ICSAB				05/05/16 10:29	1.0	9	5:AL=520000
013	met09_sn_2016	BLANK	QC834208	Soil	234765	05/05/16 11:18	1.0		
014	met09_sn_2016	BS	QC834209	Soil	234765	05/05/16 11:23	1.0		
015	met09_sn_2016	BSD	QC834210	Soil	234765	05/05/16 11:27	1.0		
016	met09_sn_2016	MSS	276301-008	Soil	234765	05/05/16 11:31	1.0		3:FE=380000
017	met09_sn_2016	MS	QC834211	Soil	234765	05/05/16 11:39	1.0		
018	met09_sn_2016	MSD	QC834212	Soil	234765	05/05/16 11:46	1.0		
019	met09_sn_2016	SAMPLE	276567-002	Soil	234765	05/05/16 11:52	1.0		1:FE=170000
020	met09_sn_2016	SAMPLE	276574-002	Soil	234765	05/05/16 12:00	1.0		4:FE=340000
021	met09_sn_2016	SAMPLE	276574-003	Soil	234765	05/05/16 12:08	1.0		2:FE=370000
022	met09_sn_2016	SAMPLE	276574-004	Soil	234765	05/05/16 12:16	1.0		4:FE=340000
023	met09_sn_2016	CCV				05/05/16 12:23	1.0	10	
024	met09_sn_2016	CCB				05/05/16 12:30	1.0		
025	met09_sn_2016	SAMPLE	276574-005	Soil	234765	05/05/16 12:35	1.0		4:FE=290000
026	met09_sn_2016	SAMPLE	276574-006	Soil	234765	05/05/16 12:43	1.0		2:FE=370000
027	met09_sn_2016	SAMPLE	276574-007	Soil	234765	05/05/16 12:51	1.0		4:FE=420000
028	met09_sn_2016	SAMPLE	276574-008	Soil	234765	05/05/16 12:59	1.0		4:FE=440000
029	met09_sn_2016	SAMPLE	276574-009	Soil	234765	05/05/16 13:06	1.0		4:FE=370000
030	met09_sn_2016	SAMPLE	276574-010	Soil	234765	05/05/16 13:14	1.0		3:FE=470000
031	met09_sn_2016	SAMPLE	276574-011	Soil	234765	05/05/16 13:22	1.0		3:FE=410000
032	met09_sn_2016	SAMPLE	276574-012	Soil	234765	05/05/16 13:29	1.0		2:FE=380000
033	met09_sn_2016	SAMPLE	276301-010	Soil	234765	05/05/16 13:37	1.0		2:FE=260000
034	met09_sn_2016	BLANK	QC834291	WET Leachate	234787	05/05/16 13:45	10.0		1:NA=120000
035	met09_sn_2016	CCV				05/05/16 13:50	1.0	10	
036	met09_sn_2016	CCB				05/05/16 13:57	1.0		
037	met09_sn_2016	BS	QC834292	WET Leachate	234787	05/05/16 14:02	1.0		
038	met09_sn_2016	BSD	QC834293	WET Leachate	234787	05/05/16 14:06	1.0		
039	met09_sn_2016	SAMPLE	276522-001	WET Leachate	234787	05/05/16 14:10	10.0		1:NA=130000
040	met09_sn_2016	SAMPLE	276301-011	Soil	234765	05/05/16 14:15	1.0		2:FE=190000
041	met09_sn_2016	SAMPLE	276301-012	Soil	234765	05/05/16 14:22	1.0		1:FE=130000
042	met09_sn_2016	SAMPLE	276301-014	Soil	234765	05/05/16 14:30	1.0		1:FE=140000
043	met09_sn_2016	SAMPLE	276301-024	Soil	234765	05/05/16 14:38	1.0		2:FE=270000
044	met09_sn_2016	SAMPLE	276301-026	Soil	234765	05/05/16 14:46	1.0		3:FE=330000
045	met09_sn_2016	SAMPLE	276301-027	Soil	234765	05/05/16 14:53	1.0		2:FE=190000
046	met09_sn_2016	MSS	276513-001	WET Leachate	234787	05/05/16 15:01	10.0		1:NA=130000
047	met09_sn_2016	CCV				05/05/16 15:05	1.0	10	
048	met09_sn_2016	CCB				05/05/16 15:12	1.0		
049	met09_sn_2016	SAMPLE	276513-002	WET Leachate	234787	05/05/16 15:18	10.0		1:NA=130000
050	met09_sn_2016	MS	QC834294	WET Leachate	234787	05/05/16 15:22	10.0		
051	met09_sn_2016	MSD	QC834295	WET Leachate	234787	05/05/16 15:26	10.0		
052	met09_sn_2016	SER	QC834296	WET Leachate	234787	05/05/16 15:30	50.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 96181981

Instrument : MET09 Begun : 05/05/16 09:01
Method : EPA 6010B SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met09_sn_2016	PDS	QC834297	WET Leachate	234787	05/05/16 15:35	10.0	11 12 13	1:NA=140000
054	met09_sn_2016	X	QC834298		234787	05/05/16 15:40	10.0		
055	met09_sn_2016	SAMPLE	275865-021	Filtrate	234207	05/05/16 15:45	1.0		4:MG=830000
056	met09_sn_2016	BLANK	QC833528	TCLP Leachate	234578	05/05/16 15:53	10.0		1:NA=150000
057	met09_sn_2016	BS	QC833529	TCLP Leachate	234578	05/05/16 15:58	1.0		
058	met09_sn_2016	BSD	QC833530	TCLP Leachate	234578	05/05/16 16:02	1.0		
059	met09_sn_2016	CCV				05/05/16 16:06	1.0	10	
060	met09_sn_2016	CCB				05/05/16 16:13	1.0		
061	met09_sn_2016	MSS	276192-001	TCLP Leachate	234578	05/05/16 16:18	10.0		1:NA=140000
062	met09_sn_2016	SAMPLE	276395-001	TCLP Leachate	234578	05/05/16 16:24	10.0		1:NA=140000
063	met09_sn_2016	MS	QC833531	TCLP Leachate	234578	05/05/16 16:29	10.0		
064	met09_sn_2016	MSD	QC833532	TCLP Leachate	234578	05/05/16 16:33	10.0		
065	met09_sn_2016	SER	QC833533	TCLP Leachate	234578	05/05/16 16:37	50.0		
066	met09_sn_2016	PDS	QC833534	TCLP Leachate	234578	05/05/16 16:42	10.0	11 12 13	1:NA=150000
067	met09_sn_2016	MSS	275719-002	Water	234045	05/05/16 16:47	1.0		4:CA=300000
068	met09_sn_2016	SAMPLE	275719-003	Water	234045	05/05/16 16:51	1.0		4:CA=270000
069	met09_sn_2016	SAMPLE	275719-004	Water	234045	05/05/16 16:55	1.0		4:CA=270000
070	met09_sn_2016	SAMPLE	275719-007	Water	234045	05/05/16 17:00	1.0		3:NA=250000
071	met09_sn_2016	CCV				05/05/16 17:04	1.0	10	
072	met09_sn_2016	CCB				05/05/16 17:11	1.0		
073	met09_sn_2016	SAMPLE	275719-008	Water	234045	05/05/16 17:16	1.0		3:NA=220000
074	met09_sn_2016	SAMPLE	275719-009	Water	234045	05/05/16 17:21	1.0		1:NA=300000
075	met09_sn_2016	SAMPLE	275719-010	Water	234045	05/05/16 17:25	1.0		4:CA=560000
076	met09_sn_2016	SAMPLE	275719-011	Water	234045	05/05/16 17:29	1.0		5:CA=620000
077	met09_sn_2016	SAMPLE	275719-012	Water	234045	05/05/16 17:37	1.0		
078	met09_sn_2016	SAMPLE	275719-013	Water	234045	05/05/16 17:42	1.0		
079	met09_sn_2016	SAMPLE	275878-001	Water	234045	05/05/16 17:47	1.0		5:CA=420000
080	met09_sn_2016	SAMPLE	275878-002	Water	234045	05/05/16 17:55	1.0		4:CA=1400000
081	met09_sn_2016	SAMPLE	275878-003	Water	234045	05/05/16 18:03	1.0		4:CA=420000
082	met09_sn_2016	MS	QC831362	Water	234045	05/05/16 18:08	1.0		
083	met09_sn_2016	CCV				05/05/16 18:12	1.0	10	
084	met09_sn_2016	CCB				05/05/16 18:19	1.0		
085	met09_sn_2016	MSD	QC831363	Water	234045	05/05/16 18:24	1.0		
086	met09_sn_2016	SER	QC831364	Water	234045	05/05/16 18:29	5.0		
087	met09_sn_2016	PDS	QC831365	Water	234045	05/05/16 18:34	1.0	12 11 13	4:CA=340000
088	met09_sn_2016	SAMPLE	275869-001	Soil	234061	05/05/16 18:38	1.0		1:FE=160000
089	met09_sn_2016	SAMPLE	275873-001	Soil	234061	05/05/16 18:46	1.0		2:CA=160000
090	met09_sn_2016	SAMPLE	275870-001	Soil	234061	05/05/16 18:54	1.0		2:FE=190000
091	met09_sn_2016	BLANK	QC832425	WET Leachate	234301	05/05/16 19:01	10.0		1:NA=160000
092	met09_sn_2016	BLANK	QC832426	WET Leachate	234301	05/05/16 19:06	10.0		1:NA=150000
093	met09_sn_2016	BS	QC832427	WET Leachate	234301	05/05/16 19:12	1.0		
094	met09_sn_2016	BSD	QC832428	WET Leachate	234301	05/05/16 19:16	1.0		
095	met09_sn_2016	CCV				05/05/16 19:20	1.0	10	
096	met09_sn_2016	CCB				05/05/16 19:27	1.0		
097	met09_sn_2016	SAMPLE	276114-001	WET Leachate	234301	05/05/16 19:32	10.0		1:NA=140000
098	met09_sn_2016	MSS	276114-002	WET Leachate	234301	05/05/16 19:36	10.0		1:NA=140000
099	met09_sn_2016	MS	QC833008	Water	234452	05/05/16 19:40	1.0		
100	met09_sn_2016	MSD	QC833009	Water	234452	05/05/16 19:45	1.0		
101	met09_sn_2016	CCV				05/05/16 19:49	1.0	10	
102	met09_sn_2016	CCB				05/05/16 19:56	1.0		

KER 05/05/16 : I verified that the vials loaded on the instrument matched the

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 96181981

Instrument : MET09 Begun : 05/05/16 09:01
Method : EPA 6010B SOP Version : icp metals_rv17

sequence data entry, for runs 1 through 26.

Standards used: 1=S29300 2=S29393 3=S29394 4=S29395 5=S29761 6=S29396 7=S29301 8=S29660 9=S29661 10=S29397 11=S28385 12=S28386 13=S29742

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 96181981

Date : 05/05/16 Reference : met09_sn_2016
Sequence : MET09 05/05/16 Analyzed : 05/05/16 09:06

#	Type	Sample ID	Y A
		ICAL STD	4481751
		LOWER LIMIT	1344525
		UPPER LIMIT	5378101
010	ICB		4463817
011	ICSA		3832081
012	ICSAB		3847109
047	CCV		4285015
048	CCB		4471355
059	CCV		4128481
060	CCB		4336146
061	MSS	276192-001	3974698
071	CCV		4326357
072	CCB		4409967
088	SAMPLE	275869-001	4322711
089	SAMPLE	275873-001	4253362
090	SAMPLE	275870-001	4438236

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 96181981

Date : 05/05/16 Reference : met09_sn_2016
Sequence : MET09 05/05/16 Analyzed : 05/05/16 09:06

#	Type	Sample ID	Y A
		ICAL STD	4481751
		LOWER LIMIT	1344525
		UPPER LIMIT	8963501
013	BLANK	QC834208	4498406
014	BS	QC834209	4466888
015	BSD	QC834210	4431600
016	MSS	276301-008	4336993
017	MS	QC834211	4289984
018	MSD	QC834212	4314932
019	SAMPLE	276567-002	5128284
020	SAMPLE	276574-002	4613901
021	SAMPLE	276574-003	4798388
022	SAMPLE	276574-004	4721842
023	CCV		4372749
024	CCB		4427067
025	SAMPLE	276574-005	4646771
026	SAMPLE	276574-006	4812422
027	SAMPLE	276574-007	4706574
028	SAMPLE	276574-008	4712033
029	SAMPLE	276574-009	4796546
030	SAMPLE	276574-010	4863375
031	SAMPLE	276574-011	4657940
032	SAMPLE	276574-012	4823681
033	SAMPLE	276301-010	4361281
034	BLANK	QC834291	4311573
035	CCV		4358790
036	CCB		4499124
037	BS	QC834292	4411305
038	BSD	QC834293	4482628
039	SAMPLE	276522-001	4258419
040	SAMPLE	276301-011	4336538
041	SAMPLE	276301-012	4411086
042	SAMPLE	276301-014	4398434
043	SAMPLE	276301-024	4353854
044	SAMPLE	276301-026	4232685
045	SAMPLE	276301-027	4299819
046	MSS	276513-001	4140504
049	SAMPLE	276513-002	4121556
050	MS	QC834294	4184156
051	MSD	QC834295	4162047
052	SER	QC834296	4219723
053	PDS	QC834297	4296304
055	SAMPLE	275865-021	2970494
056	BLANK	QC833528	4129997
057	BS	QC833529	4145612
058	BSD	QC833530	4111444
062	SAMPLE	276395-001	4131880
063	MS	QC833531	4016875
064	MSD	QC833532	4099695
065	SER	QC833533	4267077
066	PDS	QC833534	4148562

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 96181981

Date : 05/05/16 Reference : met09_sn_2016
Sequence : MET09 05/05/16 Analyzed : 05/05/16 09:06

#	Type	Sample ID	Y A
067	MSS	275719-002	3887282
068	SAMPLE	275719-003	4039871
069	SAMPLE	275719-004	3963242
070	SAMPLE	275719-007	4032847
073	SAMPLE	275719-008	4085925
074	SAMPLE	275719-009	4143012
075	SAMPLE	275719-010	3686446
076	SAMPLE	275719-011	3791845
077	SAMPLE	275719-012	4290473
078	SAMPLE	275719-013	4300049
079	SAMPLE	275878-001	3896392
080	SAMPLE	275878-002	3472673
081	SAMPLE	275878-003	3807728
082	MS	QC831362	3828583
083	CCV		4141361
084	CCB		4273267
085	MSD	QC831363	3739890
086	SER	QC831364	4173799
087	PDS	QC831365	3877277
091	BLANK	QC832425	4157606
092	BLANK	QC832426	4235997
093	BS	QC832427	4500182
094	BSD	QC832428	4643497
095	CCV		4119496
096	CCB		4361904
097	SAMPLE	276114-001	4136231
098	MSS	276114-002	4210184
099	MS	QC833008	4523358
100	MSD	QC833009	4553676
101	CCV		4122196
102	CCB		4204227

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 275719 METALS Water: EPA 6010B

Inst : MET09
Calnum : 96181981001
Units : ug/L

Date : 05-MAY-2016 09:01
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met09_sn_2016	96181981002	L1	05-MAY-2016 09:06	S29300
L2	met09_sn_2016	96181981003	L2	05-MAY-2016 09:11	S29393
L3	met09_sn_2016	96181981004	L3	05-MAY-2016 09:15	S29394
L4	met09_sn_2016	96181981005	L4	05-MAY-2016 09:20	S29395
L5	met09_sn_2016	96181981006	L5	05-MAY-2016 09:27	S29761

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Antimony	A	4.9100	3.5460	3.5729	3.5355		LOR0	0.00000	0.28282		3.8911	1.000	0.995	
Arsenic	A	1.9800	1.8050	1.8116	1.7866		LOR0	0.00000	0.55966		1.8458	1.000	0.995	
Barium	A	77.480	79.651	78.102	75.778		LOR0	0.00000	0.01319		77.753	1.000	0.995	
Beryllium	A	5962.8	5959.0	5859.2			LOR0	0.00000	1.71E-4		5927.0	1.000	0.995	
Cadmium	A	112.24	112.60	111.64	105.68		LOR0	0.00000	0.00946		110.54	1.000	0.995	
Chromium	A	214.50	199.02	195.34	190.86		LOR0	0.00000	0.00524		199.93	1.000	0.995	
Cobalt	A	27.620	25.797	26.279	26.528		LOR0	0.00000	0.03770		26.556	1.000	0.995	
Copper	A	746.52	450.99	439.49	446.40		LOR0	0.00000	0.00224		520.85	1.000	0.995	
Lead	A	15.300	14.645	14.761	14.700		LOR0	0.00000	0.06802		14.852	1.000	0.995	
Molybdenum	A	28.780	28.617	28.156	27.689		LOR0	0.00000	0.03611		28.310	1.000	0.995	
Nickel	A	96.540	92.869	92.848	90.990		LOR0	0.00000	0.01099		93.312	1.000	0.995	
Selenium	A	3.3900	2.9430	2.9387	2.9238		LOR0	0.00000	0.34201		3.0489	1.000	0.995	
Silver	A	83.120	90.415	88.502	89.016		LOR0	0.00000	0.01123		87.763	1.000	0.995	
Thallium	A	2.2800	2.3110	2.3377	2.3326		LOR0	0.00000	0.42871		2.3153	1.000	0.995	
Vanadium	A	271.36	255.33	252.28	249.27		LOR0	0.00000	0.00401		257.06	1.000	0.995	
Zinc	A	44.895	43.080	44.085	43.522		LOR0	0.00000	0.02297		43.895	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Antimony	A	10.000	**39**	100.00	0	1000.0	1	10000	0		
Arsenic	A	5.0000	11	100.00	1	1000.0	1	10000	0		
Barium	A	5.0000	2	100.00	5	1000.0	3	10000	0		
Beryllium	A	2.0000	2	100.00	2	1000.0	0				
Cadmium	A	5.0000	6	100.00	6	1000.0	6	10000	0		
Chromium	A	5.0000	12	100.00	4	1000.0	2	10000	0		
Cobalt	A	5.0000	4	100.00	-3	1000.0	-1	10000	0		
Copper	A	5.0000	**67**	100.00	1	1000.0	-2	10000	0		
Lead	A	5.0000	4	100.00	0	1000.0	0	10000	0		
Molybdenum	A	5.0000	4	100.00	3	1000.0	2	10000	0		
Nickel	A	5.0000	6	100.00	2	1000.0	2	10000	0		
Selenium	A	10.000	16	100.00	1	1000.0	1	10000	0		
Silver	A	5.0000	-7	20.000	2	200.00	-1	2000.0	0		
Thallium	A	10.000	-2	100.00	-1	1000.0	0	10000	0		
Vanadium	A	5.0000	9	100.00	2	1000.0	1	10000	0		
Zinc	A	20.000	3	100.00	-1	1000.0	1	10000	0		

Instrument amount = a0 + response * a1 + response^2 * a2; LOR0=Linear regression forced thru origin, including 0,0 point

96181981001

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 275719 METALS Water
EPA 6010B

Inst : MET09
Calnum : 96181981001 Cal Date : 05-MAY-2016

ICV 96181981007 (05-MAY-2016) stds: S29396

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	5000	4907	ug/L	-2	10	
Arsenic	A	5000	5179	ug/L	4	10	
Barium	A	5000	5147	ug/L	3	10	
Beryllium	A	500.0	513.0	ug/L	3	10	
Cadmium	A	5000	5187	ug/L	4	10	
Chromium	A	5000	5112	ug/L	2	10	
Cobalt	A	5000	5099	ug/L	2	10	
Copper	A	5000	5065	ug/L	1	10	
Lead	A	5000	5029	ug/L	1	10	
Molybdenum	A	5000	4952	ug/L	-1	10	
Nickel	A	5000	5068	ug/L	1	10	
Selenium	A	5000	5028	ug/L	1	10	
Silver	A	1000	1002	ug/L	0	10	
Thallium	A	5000	5050	ug/L	1	10	
Vanadium	A	5000	5122	ug/L	2	10	
Zinc	A	5000	5136	ug/L	3	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275719 METALS Water
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96181981010.1 File : met09_sn_2016 Time : 05-MAY-2016 09:57
Cal : 96181981001 Caldate : 05-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	2.500	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4481751	4463817	-0.40

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 275719 METALS Water
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96181981011.1 File : met09_sn_2016 Time : 05-MAY-2016 10:02
Cal : 96181981001 Caldate : 05-MAY-2016
Standards: S29660

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	[0.6029]	10.00	ug/L	
Arsenic	A	[-4.258]	5.000	ug/L	
Barium	A	[2.441]	5.000	ug/L	
Beryllium	A	[1.890]	2.000	ug/L	
Cadmium	A	[1.021]	5.000	ug/L	
Cobalt	A	[-1.804]	5.000	ug/L	
Lead	A	[-0.3306]	5.000	ug/L	
Molybdenum	A	[-0.6811]	5.000	ug/L	
Selenium	A	[-0.5568]	10.00	ug/L	
Silver	A	[4.675]	5.000	ug/L	
Thallium	A	[5.534]	10.00	ug/L	
Zinc	A	[8.581]	20.00	ug/L	

Interferent	Ch	Spiked	Quant	Units	%Rec	Flags
Chromium	A	20000	18620	ug/L	93	
Copper	A	20000	21400	ug/L	107	
Manganese	A	20000	18180	ug/L	91	
Nickel	A	20000	17100	ug/L	86	
Vanadium	A	20000	19500	ug/L	98	
Aluminum	R	500000	517100	ug/L	103	
Calcium	R	500000	479400	ug/L	96	
Iron	R	200000	184100	ug/L	92	
Magnesium	R	500000	476900	ug/L	95	
Titanium	R	20000	21340	ug/L	107	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4481751	3832081	-14.50

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 275719 METALS Water EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96181981012.1 File : met09_sn_2016 Time : 05-MAY-2016 10:29
Cal : 96181981001 Caldate : 05-MAY-2016
Standards: S29661

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	600.6	ug/L	20	20	
Arsenic	A	500.0	523.3	ug/L	5	20	
Barium	A	500.0	506.7	ug/L	1	20	
Beryllium	A	500.0	500.1	ug/L	0	20	
Cadmium	A	1000	965.5	ug/L	-3	20	
Chromium	A	500.0	488.2	ug/L	-2	20	
Cobalt	A	500.0	494.3	ug/L	-1	20	
Copper	A	500.0	536.2	ug/L	7	20	
Lead	A	1000	927.3	ug/L	-7	20	
Molybdenum	A	500.0	491.4	ug/L	-2	20	
Nickel	A	1000	893.0	ug/L	-11	20	
Selenium	A	500.0	536.7	ug/L	7	20	
Silver	A	1000	1111	ug/L	11	20	
Thallium	A	500.0	530.5	ug/L	6	20	
Vanadium	A	500.0	520.6	ug/L	4	20	
Zinc	A	1000	921.2	ug/L	-8	20	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4481751	3847109	-14.16

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275719 METALS Water
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96181981059.1 File : met09_sn_2016 Time : 05-MAY-2016 16:06
Cal : 96181981001 Caldate : 05-MAY-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	3.8911	3.5200	5000	4978	ug/L	0	10	
Arsenic	A	1.8458	1.9726	5000	5520	ug/L	10	10	
Barium	A	77.753	76.303	5000	5033	ug/L	1	10	
Beryllium	A	5927.0	5823.8	500.0	496.9	ug/L	-1	10	
Cadmium	A	110.54	107.03	5000	5061	ug/L	1	10	
Chromium	A	199.93	192.91	5000	5053	ug/L	1	10	
Cobalt	A	26.556	31.188	5000	5879	ug/L	**18**	10	c+ ***
Copper	A	520.85	443.21	5000	4965	ug/L	-1	10	
Lead	A	14.852	14.122	5000	4803	ug/L	-4	10	
Molybdenum	A	28.310	26.608	5000	4804	ug/L	-4	10	
Nickel	A	93.312	90.356	5000	4964	ug/L	-1	10	
Selenium	A	3.0489	3.0310	5000	5183	ug/L	4	10	
Silver	A	87.763	88.694	1000	996.4	ug/L	0	10	
Thallium	A	2.3153	2.3770	5000	5095	ug/L	2	10	
Vanadium	A	257.06	250.99	5000	5034	ug/L	1	10	
Zinc	A	43.895	43.488	5000	4995	ug/L	0	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4481751	4128481	-7.88

+=high bias c=CCV

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275719 METALS Water
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96181981060.1 File : met09_sn_2016 Time : 05-MAY-2016 16:13
Cal : 96181981001 Caldate : 05-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	2.500	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4481751	4336146	-3.25

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275719 METALS Water
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96181981071.1 File : met09_sn_2016 Time : 05-MAY-2016 17:04
Cal : 96181981001 Caldate : 05-MAY-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	3.8911	3.5788	5000	5061	ug/L	1	10	
Arsenic	A	1.8458	2.0297	5000	5680	ug/L	**14**	10	c+ ***
Barium	A	77.753	79.484	5000	5243	ug/L	5	10	
Beryllium	A	5927.0	6032.7	500.0	514.7	ug/L	3	10	
Cadmium	A	110.54	113.95	5000	5388	ug/L	8	10	
Chromium	A	199.93	200.51	5000	5251	ug/L	5	10	
Cobalt	A	26.556	31.640	5000	5964	ug/L	**19**	10	c+ ***
Copper	A	520.85	447.42	5000	5012	ug/L	0	10	
Lead	A	14.852	14.865	5000	5056	ug/L	1	10	
Molybdenum	A	28.310	27.728	5000	5006	ug/L	0	10	
Nickel	A	93.312	94.560	5000	5195	ug/L	4	10	
Selenium	A	3.0489	3.1593	5000	5403	ug/L	8	10	
Silver	A	87.763	90.005	1000	1011	ug/L	1	10	
Thallium	A	2.3153	2.4688	5000	5292	ug/L	6	10	
Vanadium	A	257.06	259.06	5000	5196	ug/L	4	10	
Zinc	A	43.895	46.632	5000	5357	ug/L	7	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4481751	4326357	-3.47

+=high bias c=CCV

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275719 METALS Water
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96181981072.1 File : met09_sn_2016 Time : 05-MAY-2016 17:11
Cal : 96181981001 Caldate : 05-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	2.500	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4481751	4409967	-1.60

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275719 METALS Water
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96181981083 File : met09_sn_2016 Time : 05-MAY-2016 18:12
Cal : 96181981001 Caldate : 05-MAY-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	3.8911	3.7211	5000	5262	ug/L	5	10	
Arsenic	A	1.8458	2.2654	5000	6339	ug/L	**27**	10	c+ ***
Barium	A	77.753	85.425	5000	5635	ug/L	**13**	10	c+ ***
Beryllium	A	5927.0	6527.7	500.0	557.0	ug/L	**11**	10	c+ ***
Cadmium	A	110.54	135.70	5000	6416	ug/L	**28**	10	c+ ***
Chromium	A	199.93	218.40	5000	5720	ug/L	**14**	10	c+ ***
Cobalt	A	26.556	33.420	5000	6300	ug/L	**26**	10	c+ ***
Copper	A	520.85	425.01	5000	4761	ug/L	-5	10	
Lead	A	14.852	16.911	5000	5752	ug/L	**15**	10	c+ ***
Molybdenum	A	28.310	29.757	5000	5372	ug/L	7	10	
Nickel	A	93.312	105.55	5000	5799	ug/L	**16**	10	c+ ***
Selenium	A	3.0489	3.4594	5000	5916	ug/L	**18**	10	c+ ***
Silver	A	87.763	90.810	1000	1020	ug/L	2	10	
Thallium	A	2.3153	2.6774	5000	5739	ug/L	**15**	10	c+ ***
Vanadium	A	257.06	271.60	5000	5447	ug/L	9	10	
Zinc	A	43.895	57.374	5000	6591	ug/L	**32**	10	c+ ***

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4481751	4141361	-7.60

+=high bias c=CCV

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275719 METALS Water
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96181981084 File : met09_sn_2016 Time : 05-MAY-2016 18:19
Cal : 96181981001 Caldate : 05-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	2.500	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4481751	4273267	-4.65

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 96183462

Instrument : MET09 Begun : 05/06/16 09:42
Method : EPA 6010B SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met09_sn_2016	ICALBLK				05/06/16 09:42	1.0		
002	met09_sn_2016	ICAL	L1			05/06/16 09:47	1.0	1	
003	met09_sn_2016	ICAL	L2			05/06/16 09:52	1.0	2	
004	met09_sn_2016	ICAL	L3			05/06/16 09:57	1.0	3	
005	met09_sn_2016	ICAL	L4			05/06/16 10:01	1.0	4	
006	met09_sn_2016	ICAL	L5			05/06/16 10:08	1.0	5	
007	met09_sn_2016	ICV				05/06/16 10:14	1.0	6	
008	met09_sn_2016	XCRI				05/06/16 10:21	1.0	7	
009	met09_sn_2016	CRI				05/06/16 10:28	1.0	7	
010	met09_sn_2016	ICB				05/06/16 10:34	1.0		
011	met09_sn_2016	ICSA				05/06/16 10:39	1.0	8	10:AL=500000
012	met09_sn_2016	ICSAB				05/06/16 11:06	1.0	9	5:AL=520000
013	met09_sn_2016	BLANK	QC834448	Soil	234829	05/06/16 11:42	1.0		
014	met09_sn_2016	BS	QC834449	Soil	234829	05/06/16 11:47	1.0		
015	met09_sn_2016	BSD	QC834450	Soil	234829	05/06/16 11:51	1.0		
016	met09_sn_2016	MSS	276080-005	Soil	234829	05/06/16 11:55	1.0		5:FE=450000
017	met09_sn_2016	MS	QC834451	Soil	234829	05/06/16 12:03	1.0		
018	met09_sn_2016	MSD	QC834452	Soil	234829	05/06/16 12:11	1.0		
019	met09_sn_2016	SAMPLE	276080-010	Soil	234829	05/06/16 12:17	1.0		4:FE=410000
020	met09_sn_2016	SAMPLE	276565-018	Soil	234829	05/06/16 12:25	10.0		
021	met09_sn_2016	SAMPLE	276565-018	Soil	234829	05/06/16 12:33	1.0		5:MG=550000
022	met09_sn_2016	X	RINSE			05/06/16 12:41	1.0		
023	met09_sn_2016	CCV				05/06/16 12:46	1.0	10	
024	met09_sn_2016	CCB				05/06/16 12:51	1.0		
025	met09_sn_2016	SAMPLE	276565-019	Soil	234829	05/06/16 12:56	10.0		1:MG=160000
026	met09_sn_2016	SAMPLE	276565-019	Soil	234829	05/06/16 13:04	1.0		5:MG=1300000
027	met09_sn_2016	CCV				05/06/16 13:14	1.0	10	
028	met09_sn_2016	CCB				05/06/16 13:21	1.0		
029	met09_sn_2016	XBLANK	QC834448	Soil	234829	05/06/16 13:26	1.0		
030	met09_sn_2016	XBS	QC834449	Soil	234829	05/06/16 13:32	1.0		
031	met09_sn_2016	BLANK	QC834448	Soil	234829	05/06/16 13:47	1.0		
032	met09_sn_2016	BS	QC834449	Soil	234829	05/06/16 13:52	1.0		
033	met09_sn_2016	BSD	QC834450	Soil	234829	05/06/16 13:56	1.0		
034	met09_sn_2016	MSS	276080-005	Soil	234829	05/06/16 14:00	1.0		5:FE=440000
035	met09_sn_2016	MS	QC834451	Soil	234829	05/06/16 14:08	1.0		
036	met09_sn_2016	MSD	QC834452	Soil	234829	05/06/16 14:15	1.0		
037	met09_sn_2016	SAMPLE	276080-010	Soil	234829	05/06/16 14:22	1.0		4:FE=420000
038	met09_sn_2016	SAMPLE	276565-018	Soil	234829	05/06/16 14:30	10.0		
039	met09_sn_2016	SAMPLE	276565-018	Soil	234829	05/06/16 14:38	1.0		5:MG=570000
040	met09_sn_2016	X	RINSE			05/06/16 14:45	1.0		
041	met09_sn_2016	CCV				05/06/16 14:51	1.0	10	
042	met09_sn_2016	CCB				05/06/16 14:57	1.0		
043	met09_sn_2016	SAMPLE	276565-019	Soil	234829	05/06/16 15:03	10.0		1:MG=120000
044	met09_sn_2016	SAMPLE	276565-019	Soil	234829	05/06/16 15:10	1.0		5:MG=1300000
045	met09_sn_2016	X	RINSE			05/06/16 15:18	1.0		
046	met09_sn_2016	SAMPLE	276565-020	Soil	234829	05/06/16 15:23	10.0		1:MG=150000
047	met09_sn_2016	SAMPLE	276565-020	Soil	234829	05/06/16 15:31	1.0		7:MG=1300000
048	met09_sn_2016	X	RINSE			05/06/16 15:39	1.0		
049	met09_sn_2016	SAMPLE	276378-014	Soil	234829	05/06/16 15:44	1.0		5:FE=390000
050	met09_sn_2016	SAMPLE	276378-015	Soil	234829	05/06/16 15:51	1.0		1:FE=180000
051	met09_sn_2016	SAMPLE	276378-016	Soil	234829	05/06/16 15:59	5.0		8:FE=790000
052	met09_sn_2016	SAMPLE	276378-017	Soil	234829	05/06/16 16:06	1.0		6:FE=580000

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 96183462

Instrument : MET09 Begun : 05/06/16 09:42
Method : EPA 6010B SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met09_sn_2016	CCV				05/06/16 16:14	1.0	10	
054	met09_sn_2016	CCB				05/06/16 16:21	1.0		
055	met09_sn_2016	CCB				05/06/16 16:25	1.0		
056	met09_sn_2016	SAMPLE	275719-010	Water	234045	05/06/16 16:30	1.0		4:CA=480000
057	met09_sn_2016	MS	QC831362	Water	234045	05/06/16 16:34	1.0		1:CA=300000
058	met09_sn_2016	MSD	QC831363	Water	234045	05/06/16 16:38	1.0		1:CA=300000
059	met09_sn_2016	SER	QC831364	Water	234045	05/06/16 16:43	5.0		
060	met09_sn_2016	PDS	QC831365	Water	234045	05/06/16 16:48	1.0	11 12 13	5:CA=290000
061	met09_sn_2016	BLANK	QC834499	TCLP Leachate	234840	05/06/16 16:52	10.0		1:NA=150000
062	met09_sn_2016	BS	QC834500	TCLP Leachate	234840	05/06/16 16:57	1.0		
063	met09_sn_2016	BSD	QC834501	TCLP Leachate	234840	05/06/16 17:02	1.0		
064	met09_sn_2016	SAMPLE	276590-001	TCLP Leachate	234840	05/06/16 17:06	10.0		1:NA=120000
065	met09_sn_2016	MSS	276571-001	TCLP Leachate	234840	05/06/16 17:10	10.0		1:NA=160000
066	met09_sn_2016	CCV				05/06/16 17:14	1.0	10	
067	met09_sn_2016	CCB				05/06/16 17:21	1.0		
068	met09_sn_2016	MS	QC834502	TCLP Leachate	234840	05/06/16 17:26	10.0		
069	met09_sn_2016	MSD	QC834503	TCLP Leachate	234840	05/06/16 17:30	10.0		
070	met09_sn_2016	SER	QC834504	TCLP Leachate	234840	05/06/16 17:35	50.0		
071	met09_sn_2016	PDS	QC834505	TCLP Leachate	234840	05/06/16 17:40	10.0	11 12 13	1:NA=160000
072	met09_sn_2016	SAMPLE	276521-001	TCLP Leachate	234840	05/06/16 17:44	10.0		1:NA=130000
073	met09_sn_2016	SAMPLE	276585-001	TCLP Leachate	234840	05/06/16 17:49	10.0		1:NA=130000
074	met09_sn_2016	SAMPLE	276586-001	TCLP Leachate	234840	05/06/16 17:54	10.0		1:NA=120000
075	met09_sn_2016	SAMPLE	276588-001	TCLP Leachate	234840	05/06/16 18:00	10.0		1:NA=130000
076	met09_sn_2016	SAMPLE	276610-001	TCLP Leachate	234840	05/06/16 18:06	10.0		1:NA=120000
077	met09_sn_2016	BLANK	QC834583	Soil	234864	05/06/16 18:10	1.0		
078	met09_sn_2016	CCV				05/06/16 18:15	1.0	10	
079	met09_sn_2016	CCB				05/06/16 18:22	1.0		

KER 05/06/16 : files 29 and 30 were crossed out bc the vials were empty.

KER 05/06/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 58.

Standards used: 1=S29300 2=S29393 3=S29394 4=S29395 5=S29761 6=S29396 7=S29301 8=S29660 9=S29661 10=S29397 11=S28385 12=S28386 13=S29742

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 96183462

Date : 05/06/16 Reference : met09_sn_2016
Sequence : MET09 05/06/16 Analyzed : 05/06/16 09:47

#	Type	Sample ID	Y	A
		ICAL STD	4392367	
		LOWER LIMIT	1317710	
		UPPER LIMIT	8784733	
010	ICB		4510236	
011	ICSA		3846952	
012	ICSAB		3814803	
013	BLANK	QC834448	4623434	
014	BS	QC834449	4511475	
015	BSD	QC834450	4459699	
016	MSS	276080-005	4341915	
017	MS	QC834451	4262923	
018	MSD	QC834452	4265208	
019	SAMPLE	276080-010	4424174	
020	SAMPLE	276565-018	4408772	
021	SAMPLE	276565-018	4282695	
023	CCV		17218842	*
024	CCB		4430423	
025	SAMPLE	276565-019	4238209	
026	SAMPLE	276565-019	3936672	
027	CCV		4327681	
028	CCB		4526196	
031	BLANK	QC834448	4539577	
032	BS	QC834449	4432419	
033	BSD	QC834450	4427934	
034	MSS	276080-005	4281894	
035	MS	QC834451	4189871	
036	MSD	QC834452	4248610	
037	SAMPLE	276080-010	4346308	
038	SAMPLE	276565-018	4389454	
039	SAMPLE	276565-018	4133117	
041	CCV		4340048	
042	CCB		4443306	
043	SAMPLE	276565-019	4342775	
044	SAMPLE	276565-019	3870939	
046	SAMPLE	276565-020	4188206	
047	SAMPLE	276565-020	3817466	
049	SAMPLE	276378-014	4190339	
050	SAMPLE	276378-015	4317599	
051	SAMPLE	276378-016	4035527	
052	SAMPLE	276378-017	4341550	
053	CCV		4421029	
054	CCB		4534863	
055	CCB		4538897	
056	SAMPLE	275719-010	3907624	
057	MS	QC831362	4123806	
058	MSD	QC831363	4132158	
059	SER	QC831364	4485854	
060	PDS	QC831365	4156839	
061	BLANK	QC834499	4530763	
062	BS	QC834500	4553086	
063	BSD	QC834501	4615016	

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 96183462

Date : 05/06/16 Reference : met09_sn_2016
Sequence : MET09 05/06/16 Analyzed : 05/06/16 09:47

#	Type	Sample ID	Y A
064	SAMPLE	276590-001	4388589
066	CCV		4428486
067	CCB		4615784
068	MS	QC834502	4402443
069	MSD	QC834503	4352169
070	SER	QC834504	4486988
071	PDS	QC834505	4397536
072	SAMPLE	276521-001	4498212
073	SAMPLE	276585-001	4431341
074	SAMPLE	276586-001	4421697
075	SAMPLE	276588-001	4302755
076	SAMPLE	276610-001	4469750
077	BLANK	QC834583	4586890
078	CCV		4332267
079	CCB		4500679

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 275719 METALS Water: EPA 6010B

Inst : MET09
Calnum : 96183462001
Units : ug/L

Date : 06-MAY-2016 09:42
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met09_sn_2016	96183462002	L1	06-MAY-2016 09:47	S29300
L2	met09_sn_2016	96183462003	L2	06-MAY-2016 09:52	S29393
L3	met09_sn_2016	96183462004	L3	06-MAY-2016 09:57	S29394
L4	met09_sn_2016	96183462005	L4	06-MAY-2016 10:01	S29395
L5	met09_sn_2016	96183462006	L5	06-MAY-2016 10:08	S29761

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Antimony	A	4.8700	3.4280	3.4447	3.4121		LOR0	0.00000	0.29304		3.7887	1.000	0.995	
Arsenic	A	2.1400	1.7040	1.7300	1.7257		LOR0	0.00000	0.57945		1.8249	1.000	0.995	
Barium	A	79.400	79.305	78.910	76.633		LOR0	0.00000	0.01305		78.562	1.000	0.995	
Beryllium	A	5822.9	5609.7	5566.4			LOR0	0.00000	1.80E-4		5666.3	1.000	0.995	
Cadmium	A	110.54	108.87	109.94	104.81		LOR0	0.00000	0.00954		108.54	1.000	0.995	
Chromium	A	211.64	192.35	191.83	188.29		LOR0	0.00000	0.00531		196.03	1.000	0.995	
Cobalt	A	27.540	26.239	27.570	27.867		LOR0	0.00000	0.03589		27.304	1.000	0.995	
Copper	A	781.48	437.84	434.57	433.46		LOR0	0.00000	0.00231		521.84	1.000	0.995	
Lead	A	13.700	14.267	14.479	14.403		LOR0	0.00000	0.06943		14.212	1.000	0.995	
Molybdenum	A	27.700	27.196	27.376	26.704		LOR0	0.00000	0.03744		27.244	1.000	0.995	
Nickel	A	97.640	87.933	90.601	88.954		LOR0	0.00000	0.01124		91.282	1.000	0.995	
Selenium	A	2.9200	2.7300	2.7225	2.7074		LOR0	0.00000	0.36934		2.7700	1.000	0.995	
Silver	A	85.520	83.735	86.516	86.532		LOR0	0.00000	0.01156		85.576	1.000	0.995	
Thallium	A	2.3400	2.3050	2.3254	2.2708		LOR0	0.00000	0.44026		2.3103	1.000	0.995	
Vanadium	A	240.60	245.96	245.71	244.62		LOR0	0.00000	0.00409		244.22	1.000	0.995	
Zinc	A	47.855	42.357	43.170	42.617		LOR0	0.00000	0.02346		44.000	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Antimony	A	10.000	**43**	100.00	0	1000.0	1	10000	0		
Arsenic	A	5.0000	**24**	100.00	-1	1000.0	0	10000	0		
Barium	A	5.0000	4	100.00	3	1000.0	3	10000	0		
Beryllium	A	2.0000	5	100.00	1	1000.0	0				
Cadmium	A	5.0000	5	100.00	4	1000.0	5	10000	0		
Chromium	A	5.0000	12	100.00	2	1000.0	2	10000	0		
Cobalt	A	5.0000	-1	100.00	-6	1000.0	-1	10000	0		
Copper	A	5.0000	**80**	100.00	1	1000.0	0	10000	0		
Lead	A	5.0000	-5	100.00	-1	1000.0	1	10000	0		
Molybdenum	A	5.0000	4	100.00	2	1000.0	2	10000	0		
Nickel	A	5.0000	10	100.00	-1	1000.0	2	10000	0		
Selenium	A	10.000	8	100.00	1	1000.0	1	10000	0		
Silver	A	5.0000	-1	20.000	-3	200.00	0	2000.0	0		
Thallium	A	10.000	3	100.00	1	1000.0	2	10000	0		
Vanadium	A	5.0000	-2	100.00	1	1000.0	0	10000	0		
Zinc	A	20.000	12	100.00	-1	1000.0	1	10000	0		

Instrument amount = a0 + response * a1 + response^2 * a2; LOR0=Linear regression forced thru origin, including 0,0 point

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 275719 METALS Water
EPA 6010B

Inst : MET09
Calnum : 96183462001 Cal Date : 06-MAY-2016

ICV 96183462007 (06-MAY-2016) stds: S29396

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	5000	5012	ug/L	0	10	
Arsenic	A	5000	5194	ug/L	4	10	
Barium	A	5000	5072	ug/L	1	10	
Beryllium	A	500.0	513.9	ug/L	3	10	
Cadmium	A	5000	5090	ug/L	2	10	
Chromium	A	5000	5013	ug/L	0	10	
Cobalt	A	5000	4984	ug/L	0	10	
Copper	A	5000	5001	ug/L	0	10	
Lead	A	5000	4950	ug/L	-1	10	
Molybdenum	A	5000	4926	ug/L	-1	10	
Nickel	A	5000	4980	ug/L	0	10	
Selenium	A	5000	5127	ug/L	3	10	
Silver	A	1000	988.9	ug/L	-1	10	
Thallium	A	5000	5166	ug/L	3	10	
Vanadium	A	5000	5013	ug/L	0	10	
Zinc	A	5000	5074	ug/L	1	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275719 METALS Water
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96183462010 File : met09_sn_2016 Time : 06-MAY-2016 10:34
Cal : 96183462001 Caldate : 06-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	2.500	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4392367	4510236	2.68

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 275719 METALS Water
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96183462011 File : met09_sn_2016 Time : 06-MAY-2016 10:39
Cal : 96183462001 Caldate : 06-MAY-2016
Standards: S29660

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	[8.245]	10.00	ug/L	
Arsenic	A	[-2.251]	5.000	ug/L	
Barium	A	[1.987]	5.000	ug/L	
Beryllium	A	[1.868]	2.000	ug/L	
Cadmium	A	[0.9196]	5.000	ug/L	
Cobalt	A	[-4.056]	5.000	ug/L	
Lead	A	[-1.142]	5.000	ug/L	
Molybdenum	A	[-0.8264]	5.000	ug/L	
Selenium	A	[-6.969]	10.00	ug/L	
Silver	A	[-2.652]	5.000	ug/L	
Thallium	A	[3.529]	10.00	ug/L	
Zinc	A	[14.49]	20.00	ug/L	

Interferent	Ch	Spiked	Quant	Units	%Rec	Flags
Chromium	A	20000	18460	ug/L	92	
Copper	A	20000	20880	ug/L	104	
Manganese	A	20000	18080	ug/L	90	
Nickel	A	20000	16910	ug/L	85	
Vanadium	A	20000	19260	ug/L	96	
Aluminum	R	500000	504100	ug/L	101	
Calcium	R	500000	470600	ug/L	94	
Iron	R	200000	181400	ug/L	91	
Magnesium	R	500000	470800	ug/L	94	
Titanium	R	20000	20740	ug/L	104	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4392367	3846952	-12.42

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 275719 METALS Water
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96183462012 File : met09_sn_2016 Time : 06-MAY-2016 11:06
Cal : 96183462001 Caldate : 06-MAY-2016
Standards: S29661

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	571.3	ug/L	14	20	
Arsenic	A	500.0	526.2	ug/L	5	20	
Barium	A	500.0	502.7	ug/L	1	20	
Beryllium	A	500.0	510.2	ug/L	2	20	
Cadmium	A	1000	977.0	ug/L	-2	20	
Chromium	A	500.0	489.6	ug/L	-2	20	
Cobalt	A	500.0	472.9	ug/L	-5	20	
Copper	A	500.0	536.1	ug/L	7	20	
Lead	A	1000	921.3	ug/L	-8	20	
Molybdenum	A	500.0	495.2	ug/L	-1	20	
Nickel	A	1000	879.2	ug/L	-12	20	
Selenium	A	500.0	549.9	ug/L	10	20	
Silver	A	1000	1121	ug/L	12	20	
Thallium	A	500.0	531.3	ug/L	6	20	
Vanadium	A	500.0	521.7	ug/L	4	20	
Zinc	A	1000	931.5	ug/L	-7	20	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4392367	3814803	-13.15

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275719 METALS Water
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96183462053 File : met09_sn_2016 Time : 06-MAY-2016 16:14
Cal : 96183462001 Caldate : 06-MAY-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	3.7887	3.3986	5000	4980	ug/L	0	10	
Arsenic	A	1.8249	1.8872	5000	5468	ug/L	9	10	
Barium	A	78.562	78.990	5000	5152	ug/L	3	10	
Beryllium	A	5666.3	5866.7	500.0	526.9	ug/L	5	10	
Cadmium	A	108.54	112.15	5000	5347	ug/L	7	10	
Chromium	A	196.03	194.67	5000	5168	ug/L	3	10	
Cobalt	A	27.304	30.447	5000	5463	ug/L	9	10	
Copper	A	521.84	430.28	5000	4963	ug/L	-1	10	
Lead	A	14.212	14.658	5000	5088	ug/L	2	10	
Molybdenum	A	27.244	27.027	5000	5059	ug/L	1	10	
Nickel	A	91.282	91.902	5000	5165	ug/L	3	10	
Selenium	A	2.7700	2.9003	5000	5356	ug/L	7	10	
Silver	A	85.576	86.472	1000	999.3	ug/L	0	10	
Thallium	A	2.3103	2.3932	5000	5268	ug/L	5	10	
Vanadium	A	244.22	250.23	5000	5115	ug/L	2	10	
Zinc	A	44.000	45.861	5000	5380	ug/L	8	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4392367	4421029	0.65

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275719 METALS Water
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96183462055 File : met09_sn_2016 Time : 06-MAY-2016 16:25
Cal : 96183462001 Caldate : 06-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	2.500	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4392367	4538897	3.34

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275719 METALS Water
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96183462066 File : met09_sn_2016 Time : 06-MAY-2016 17:14
Cal : 96183462001 Caldate : 06-MAY-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	3.7887	3.4490	5000	5054	ug/L	1	10	
Arsenic	A	1.8249	1.8987	5000	5501	ug/L	10	10	
Barium	A	78.562	78.341	5000	5110	ug/L	2	10	
Beryllium	A	5666.3	5787.9	500.0	519.9	ug/L	4	10	
Cadmium	A	108.54	110.93	5000	5289	ug/L	6	10	
Chromium	A	196.03	192.95	5000	5123	ug/L	2	10	
Cobalt	A	27.304	30.677	5000	5505	ug/L	10	10	
Copper	A	521.84	428.28	5000	4940	ug/L	-1	10	
Lead	A	14.212	14.503	5000	5034	ug/L	1	10	
Molybdenum	A	27.244	26.817	5000	5020	ug/L	0	10	
Nickel	A	91.282	91.038	5000	5116	ug/L	2	10	
Selenium	A	2.7700	2.9116	5000	5377	ug/L	8	10	
Silver	A	85.576	85.756	1000	991.0	ug/L	-1	10	
Thallium	A	2.3103	2.4056	5000	5296	ug/L	6	10	
Vanadium	A	244.22	248.18	5000	5073	ug/L	1	10	
Zinc	A	44.000	45.253	5000	5309	ug/L	6	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4392367	4428486	0.82

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275719 METALS Water
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96183462067 File : met09_sn_2016 Time : 06-MAY-2016 17:21
Cal : 96183462001 Caldate : 06-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	2.500	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4392367	4615784	5.09

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 86183522

Instrument : MET08
Method : EPA 6010B
Begun : 05/06/16 10:42
SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met08_sn_6010	ICALBLK				05/06/16 10:42	1.0		
002	met08_sn_6010	ICAL	L1			05/06/16 10:45	1.0	1	
003	met08_sn_6010	ICAL	L2			05/06/16 10:49	1.0	2	
004	met08_sn_6010	ICAL	L3			05/06/16 10:51	1.0	3	
005	met08_sn_6010	ICAL	L4			05/06/16 10:52	1.0	4	
006	met08_sn_6010	ICAL	L5			05/06/16 10:54	1.0	5	
007	met08_sn_6010	ICV				05/06/16 10:56	1.0	6	
008	met08_sn_6010	XCRI				05/06/16 11:08	1.0	1	
009	met08_sn_6010	CRI				05/06/16 11:12	1.0	1	
010	met08_sn_6010	ICB				05/06/16 11:16	1.0		
011	met08_sn_6010	ICSA				05/06/16 11:19	1.0	7	10:AL=510000
012	met08_sn_6010	ICSAB				05/06/16 11:29	1.0	8	5:AL=510000
013	met08_sn_6010	MSS	275719-002	Water	234045	05/06/16 11:55	1.0		4:CA=300000
014	met08_sn_6010	SAMPLE	275719-003	Water	234045	05/06/16 11:56	1.0		3:NA=290000
015	met08_sn_6010	SAMPLE	275719-004	Water	234045	05/06/16 11:58	1.0		3:NA=290000
016	met08_sn_6010	SAMPLE	275719-007	Water	234045	05/06/16 11:59	1.0		2:NA=280000
017	met08_sn_6010	SAMPLE	275719-008	Water	234045	05/06/16 12:01	1.0		3:NA=250000
018	met08_sn_6010	SAMPLE	275719-009	Water	234045	05/06/16 12:02	1.0		1:NA=330000
019	met08_sn_6010	SAMPLE	275719-010	Water	234045	05/06/16 12:05	1.0		3:CA=500000
020	met08_sn_6010	SAMPLE	275719-011	Water	234045	05/06/16 12:06	1.0		4:CA=560000
021	met08_sn_6010	SAMPLE	275719-013	Water	234045	05/06/16 12:07	1.0		
022	met08_sn_6010	SAMPLE	275878-002	Water	234045	05/06/16 12:11	1.0		3:CA=1300000
023	met08_sn_6010	CCV				05/06/16 12:13	1.0	9	
024	met08_sn_6010	CCB				05/06/16 12:15	1.0		
025	met08_sn_6010	SAMPLE	275878-003	Water	234045	05/06/16 12:18	1.0		3:CA=360000
026	met08_sn_6010	BLANK	QC832888	Soil	234420	05/06/16 12:21	1.0		
027	met08_sn_6010	SAMPLE	276221-002	Soil	234420	05/06/16 12:24	1.0		4:FE=490000
028	met08_sn_6010	SAMPLE	276250-001	Soil	234420	05/06/16 12:26	1.0		1:FE=130000
029	met08_sn_6010	SAMPLE	276250-002	Soil	234420	05/06/16 12:28	1.0		1:FE=150000
030	met08_sn_6010	SAMPLE	276250-004	Soil	234420	05/06/16 12:30	1.0		3:FE=350000
031	met08_sn_6010	SAMPLE	276250-005	Soil	234420	05/06/16 12:32	1.0		4:FE=590000
032	met08_sn_6010	SAMPLE	276250-006	Soil	234420	05/06/16 12:34	1.0		6:FE=580000
033	met08_sn_6010	SAMPLE	276250-007	Soil	234420	05/06/16 12:36	1.0		2:FE=340000
034	met08_sn_6010	BLANK	QC832325	Soil	234278	05/06/16 12:38	1.0		
035	met08_sn_6010	CCV				05/06/16 12:42	1.0	9	
036	met08_sn_6010	XCCB				05/06/16 12:44	1.0		
037	met08_sn_6010	CCB				05/06/16 12:47	1.0		
038	met08_sn_6010	SAMPLE	276114-001	Miscell.	234278	05/06/16 12:50	1.0		4:FE=680000
039	met08_sn_6010	SAMPLE	276114-002	Miscell.	234278	05/06/16 12:52	1.0		3:AL=460000
040	met08_sn_6010	SAMPLE	276086-001	Water	234318	05/06/16 12:54	1.0		2:SR=66000
041	met08_sn_6010	SAMPLE	276149-004	Water	234318	05/06/16 12:57	1.0		1:NA=110000
042	met08_sn_6010	SAMPLE	276264-013	Soil	234466	05/06/16 12:59	1.0		1:FE=190000
043	met08_sn_6010	SAMPLE	276130-001	Filtrate	234434	05/06/16 13:01	1.0		
044	met08_sn_6010	SAMPLE	276130-003	Filtrate	234434	05/06/16 13:04	1.0		
045	met08_sn_6010	SAMPLE	276130-004	Filtrate	234434	05/06/16 13:07	1.0		
046	met08_sn_6010	SAMPLE	276130-005	Filtrate	234434	05/06/16 13:11	1.0		
047	met08_sn_6010	SAMPLE	276130-006	Filtrate	234434	05/06/16 13:12	1.0		
048	met08_sn_6010	CCV				05/06/16 13:14	1.0	9	
049	met08_sn_6010	CCB				05/06/16 13:16	1.0		
050	met08_sn_6010	SAMPLE	276130-007	Filtrate	234434	05/06/16 13:19	1.0		1:MN=11000
051	met08_sn_6010	SAMPLE	276130-008	Filtrate	234434	05/06/16 13:20	1.0		1:MN=13000
052	met08_sn_6010	SAMPLE	276130-009	Filtrate	234434	05/06/16 13:22	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 86183522

Instrument : MET08
Method : EPA 6010B
Begun : 05/06/16 10:42
SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met08_sn_6010	SAMPLE	276131-001	Filtrate	234434	05/06/16 13:24	1.0		
054	met08_sn_6010	SAMPLE	276131-002	Filtrate	234434	05/06/16 13:26	1.0		
055	met08_sn_6010	SAMPLE	275842-001	Water	233992	05/06/16 13:27	1.0		4:FE=1700000
056	met08_sn_6010	SAMPLE	275842-002	Water	233992	05/06/16 13:29	1.0		3:CA=420000
057	met08_sn_6010	SAMPLE	275841-001	Water	233992	05/06/16 13:32	1.0		4:CA=670000
058	met08_sn_6010	SAMPLE	275841-002	Water	233992	05/06/16 13:35	1.0		3:NA=870000
059	met08_sn_6010	SAMPLE	275841-003	Water	233992	05/06/16 13:37	1.0		3:NA=890000
060	met08_sn_6010	CCV				05/06/16 13:39	1.0	9	
061	met08_sn_6010	CCB				05/06/16 13:41	1.0		
062	met08_sn_6010	CCB				05/06/16 13:44	1.0		
063	met08_sn_6010	SAMPLE	275841-004	Water	233992	05/06/16 13:47	1.0		3:CA=620000
064	met08_sn_6010	SAMPLE	275841-006	Water	233992	05/06/16 13:51	1.0		3:NA=680000
065	met08_sn_6010	SAMPLE	276013-003	Water	234217	05/06/16 13:53	1.0		2:CA=1200000
066	met08_sn_6010	SAMPLE	276013-005	Water	234217	05/06/16 13:55	1.0		3:CA=630000
067	met08_sn_6010	SAMPLE	276013-006	Water	234217	05/06/16 13:58	1.0		2:CA=510000
068	met08_sn_6010	SAMPLE	276013-007	Water	234217	05/06/16 14:00	1.0		3:NA=1100000
069	met08_sn_6010	SAMPLE	276013-008	Water	234217	05/06/16 14:02	1.0		3:NA=1500000
070	met08_sn_6010	SAMPLE	276013-009	Water	234217	05/06/16 14:04	1.0		4:CA=540000
071	met08_sn_6010	SAMPLE	276013-010	Water	234217	05/06/16 14:06	1.0		2:NA=1200000
072	met08_sn_6010	MS	QC832139	Water	234233	05/06/16 14:08	5.0		
073	met08_sn_6010	CCV				05/06/16 14:09	1.0	9	
074	met08_sn_6010	XCCB				05/06/16 14:11	1.0		
075	met08_sn_6010	CCB				05/06/16 14:14	1.0		
076	met08_sn_6010	MSD	QC832140	Water	234233	05/06/16 14:18	5.0		
077	met08_sn_6010	SER	QC832141	Water	234233	05/06/16 14:19	25.0		
078	met08_sn_6010	PDS	QC832142	Water	234233	05/06/16 14:22	5.0	10 11 12	
079	met08_sn_6010	SAMPLE	276066-001	Water	234233	05/06/16 14:24	1.0		2:NA=670000
080	met08_sn_6010	SAMPLE	276066-002	Water	234233	05/06/16 14:26	1.0		2:CA=350000
081	met08_sn_6010	SAMPLE	276066-003	Water	234233	05/06/16 14:28	1.0		3:NA=1700000
082	met08_sn_6010	SAMPLE	276066-004	Water	234233	05/06/16 14:30	1.0		3:NA=1600000
083	met08_sn_6010	SAMPLE	276066-005	Water	234233	05/06/16 14:33	1.0		4:NA=1000000
084	met08_sn_6010	SAMPLE	276066-007	Water	234233	05/06/16 14:35	1.0		
085	met08_sn_6010	SAMPLE	276066-008	Water	234233	05/06/16 14:37	1.0		
086	met08_sn_6010	CCV				05/06/16 14:39	1.0	9	
087	met08_sn_6010	XCCB				05/06/16 14:41	1.0		
088	met08_sn_6010	CCB				05/06/16 14:44	1.0		
089	met08_sn_6010	SAMPLE	276073-001	Water	234233	05/06/16 14:48	1.0		1:NA=110000
090	met08_sn_6010	SAMPLE	276073-002	Water	234233	05/06/16 14:49	1.0		
091	met08_sn_6010	SAMPLE	276073-003	Water	234233	05/06/16 14:50	1.0		
092	met08_sn_6010	SAMPLE	276073-004	Water	234233	05/06/16 14:52	1.0		
093	met08_sn_6010	SAMPLE	276073-005	Water	234233	05/06/16 14:53	1.0		
094	met08_sn_6010	SAMPLE	276073-007	Water	234233	05/06/16 14:55	1.0		
095	met08_sn_6010	SER	QC832320	Water	234276	05/06/16 14:57	5.0		
096	met08_sn_6010	PDS	QC832321	Water	234276	05/06/16 14:59	1.0	10 11 12	1:NA=120000
097	met08_sn_6010	SAMPLE	276095-001	Water	234276	05/06/16 15:00	1.0		
098	met08_sn_6010	SAMPLE	276095-002	Water	234276	05/06/16 15:02	1.0		
099	met08_sn_6010	CCV				05/06/16 15:05	1.0	9	
100	met08_sn_6010	XCCB				05/06/16 15:07	1.0		
101	met08_sn_6010	CCB				05/06/16 15:09	1.0		
102	met08_sn_6010	SAMPLE	276114-003	Water	234276	05/06/16 15:11	1.0		
103	met08_sn_6010	SAMPLE	276114-004	Water	234276	05/06/16 15:12	1.0		
104	met08_sn_6010	SAMPLE	276119-005	Water	234276	05/06/16 15:14	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 86183522

Instrument : MET08 Begun : 05/06/16 10:42
Method : EPA 6010B SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
105	met08_sn_6010	SAMPLE	276119-006	Water	234276	05/06/16 15:16	1.0		
106	met08_sn_6010	SAMPLE	276119-007	Water	234276	05/06/16 15:19	1.0		
107	met08_sn_6010	SAMPLE	276119-008	Water	234276	05/06/16 15:21	1.0		
108	met08_sn_6010	SAMPLE	276119-009	Water	234276	05/06/16 15:23	1.0		
109	met08_sn_6010	SAMPLE	276119-010	Water	234276	05/06/16 15:26	1.0		
110	met08_sn_6010	BS	QC832427	WET Leachate	234301	05/06/16 15:28	1.0		
111	met08_sn_6010	BSD	QC832428	WET Leachate	234301	05/06/16 15:29	1.0		
112	met08_sn_6010	CCV				05/06/16 15:31	1.0	9	
113	met08_sn_6010	XCCB				05/06/16 15:33	1.0		
114	met08_sn_6010	CCB				05/06/16 15:36	1.0		
115	met08_sn_6010	SAMPLE	276114-001	WET Leachate	234301	05/06/16 15:38	10.0		1:NA=140000
116	met08_sn_6010	MSS	276114-002	WET Leachate	234301	05/06/16 15:39	10.0		1:NA=160000
117	met08_sn_6010	BLANK	QC832998	Water	234451	05/06/16 15:41	1.0		
118	met08_sn_6010	BS	QC832999	Water	234451	05/06/16 15:43	1.0		
119	met08_sn_6010	BSD	QC833000	Water	234451	05/06/16 15:44	1.0		
120	met08_sn_6010	MSS	276189-029	Water	234451	05/06/16 15:46	1.0		
121	met08_sn_6010	MS	QC833001	Water	234451	05/06/16 15:48	1.0		
122	met08_sn_6010	MSD	QC833002	Water	234451	05/06/16 15:49	1.0		
123	met08_sn_6010	SAMPLE	276281-002	Water	234451	05/06/16 15:51	1.0		
124	met08_sn_6010	X	RINSE			05/06/16 15:53	1.0		
125	met08_sn_6010	CCV				05/06/16 15:56	1.0	9	
126	met08_sn_6010	XCCB				05/06/16 15:58	1.0		
127	met08_sn_6010	CCB				05/06/16 16:01	1.0		
128	met08_sn_6010	SAMPLE	276281-004	Water	234451	05/06/16 16:04	1.0		
129	met08_sn_6010	SER	QC833267	Soil	234516	05/06/16 16:07	5.0		
130	met08_sn_6010	SAMPLE	276264-021	Soil	234518	05/06/16 16:09	1.0		3:FE=460000
131	met08_sn_6010	SAMPLE	276278-001	Soil	234518	05/06/16 16:11	1.0		11:CA=2100000
132	met08_sn_6010	SAMPLE	276278-002	Soil	234518	05/06/16 16:13	1.0		6:CA=450000
133	met08_sn_6010	SAMPLE	276284-001	Soil	234518	05/06/16 16:15	1.0		5:FE=400000
134	met08_sn_6010	SAMPLE	276284-002	Soil	234518	05/06/16 16:17	1.0		5:FE=470000
135	met08_sn_6010	SAMPLE	276284-003	Soil	234518	05/06/16 16:19	1.0		5:FE=370000
136	met08_sn_6010	MSS	276284-004	Soil	234518	05/06/16 16:21	1.0		3:FE=280000
137	met08_sn_6010	SAMPLE	276284-005	Soil	234518	05/06/16 16:23	1.0		5:FE=470000
138	met08_sn_6010	CCV				05/06/16 16:25	1.0	9	
139	met08_sn_6010	XCCB				05/06/16 16:27	1.0		
140	met08_sn_6010	CCB				05/06/16 16:30	1.0		
141	met08_sn_6010	SAMPLE	276284-006	Soil	234518	05/06/16 16:33	1.0		3:FE=260000
142	met08_sn_6010	SAMPLE	276284-007	Soil	234518	05/06/16 16:35	1.0		4:FE=460000
143	met08_sn_6010	MSS	276284-008	Soil	234518	05/06/16 16:37	1.0		3:FE=310000
144	met08_sn_6010	SAMPLE	276284-009	Soil	234518	05/06/16 16:39	1.0		4:FE=350000
145	met08_sn_6010	SAMPLE	276253-001	Filtrate	234555	05/06/16 16:41	1.0		
146	met08_sn_6010	SAMPLE	276253-002	Filtrate	234555	05/06/16 16:42	1.0		1:CA=130000
147	met08_sn_6010	SAMPLE	276294-032	Soil	234679	05/06/16 16:44	1.0		3:FE=420000
148	met08_sn_6010	BLANK	QC834111	Air	234738	05/06/16 16:46	1.0		
149	met08_sn_6010	BS	QC834112	Air	234738	05/06/16 16:49	1.0		
150	met08_sn_6010	BSD	QC834113	Air	234738	05/06/16 16:50	1.0		
151	met08_sn_6010	CCV				05/06/16 16:52	1.0	9	
152	met08_sn_6010	XCCB				05/06/16 16:54	1.0		
153	met08_sn_6010	CCB				05/06/16 16:56	1.0		
154	met08_sn_6010	MSS	276063-001	Air	234738	05/06/16 16:58	1.0		
155	met08_sn_6010	MS	QC834114	Air	234738	05/06/16 16:59	1.0		
156	met08_sn_6010	MSD	QC834115	Air	234738	05/06/16 17:01	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 86183522

Instrument : MET08 Begun : 05/06/16 10:42
Method : EPA 6010B SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
157	met08_sn_6010	SER	QC834116	Air	234738	05/06/16 17:02	5.0		
158	met08_sn_6010	PDS	QC834117	Air	234738	05/06/16 17:04	1.0	10 11 12	
159	met08_sn_6010	SAMPLE	276063-002	Air	234738	05/06/16 17:06	1.0		
160	met08_sn_6010	SAMPLE	276063-003	Air	234738	05/06/16 17:07	1.0		
161	met08_sn_6010	SAMPLE	276063-004	Air	234738	05/06/16 17:09	1.0		
162	met08_sn_6010	SAMPLE	276063-005	Air	234738	05/06/16 17:10	1.0		
163	met08_sn_6010	SAMPLE	276063-006	Air	234738	05/06/16 17:11	1.0		
164	met08_sn_6010	CCV				05/06/16 17:13	1.0	9	
165	met08_sn_6010	XCCB				05/06/16 17:15	1.0		
166	met08_sn_6010	CCB				05/06/16 17:17	1.0		
167	met08_sn_6010	SAMPLE	276063-007	Air	234738	05/06/16 17:20	1.0		
168	met08_sn_6010	SAMPLE	276063-008	Air	234738	05/06/16 17:22	1.0		
169	met08_sn_6010	SAMPLE	276063-009	Air	234738	05/06/16 17:23	1.0		
170	met08_sn_6010	SAMPLE	276063-010	Air	234738	05/06/16 17:24	1.0		
171	met08_sn_6010	SAMPLE	276063-012	Air	234738	05/06/16 17:27	1.0		
172	met08_sn_6010	SAMPLE	276063-014	Air	234738	05/06/16 17:29	1.0		
173	met08_sn_6010	SAMPLE	276063-018	Air	234738	05/06/16 17:31	1.0		
174	met08_sn_6010	BS	QC832326	Soil	234278	05/06/16 17:34	1.0		1:SR=10000
175	met08_sn_6010	BSD	QC832327	Soil	234278	05/06/16 17:35	1.0		1:SR=10000
176	met08_sn_6010	SAMPLE	276013-007	Water	234217	05/06/16 17:36	1.0		3:NA=1200000
177	met08_sn_6010	CCV				05/06/16 17:38	1.0	9	
178	met08_sn_6010	XCCB				05/06/16 17:41	1.0		
179	met08_sn_6010	CCB				05/06/16 17:43	1.0		
180	met08_sn_6010	BLANK	QC834593	Soil	234867	05/06/16 17:45	1.0		
181	met08_sn_6010	BS	QC834594	Soil	234867	05/06/16 17:48	1.0		
182	met08_sn_6010	BSD	QC834595	Soil	234867	05/06/16 17:50	1.0		1:SR=10000
183	met08_sn_6010	MSS	276404-006	Soil	234867	05/06/16 17:51	1.0		5:FE=310000
184	met08_sn_6010	MS	QC834596	Soil	234867	05/06/16 17:53	1.0		1:FE=290000
185	met08_sn_6010	MSD	QC834597	Soil	234867	05/06/16 17:55	1.0		1:FE=350000
186	met08_sn_6010	SER	QC834598	Soil	234867	05/06/16 17:57	5.0		
187	met08_sn_6010	PDS	QC834599	Soil	234867	05/06/16 17:59	1.0	11 10 12	5:FE=290000
188	met08_sn_6010	SAMPLE	276404-001	Soil	234867	05/06/16 18:01	1.0		3:FE=280000
189	met08_sn_6010	SAMPLE	276404-002	Soil	234867	05/06/16 18:03	1.0		4:FE=320000
190	met08_sn_6010	CCV				05/06/16 18:05	1.0	9	
191	met08_sn_6010	XCCB				05/06/16 18:08	1.0		
192	met08_sn_6010	CCB				05/06/16 18:10	1.0		
193	met08_sn_6010	SAMPLE	276404-003	Soil	234867	05/06/16 18:12	1.0		5:FE=290000
194	met08_sn_6010	SAMPLE	276404-004	Soil	234867	05/06/16 18:14	1.0		5:FE=290000
195	met08_sn_6010	SAMPLE	276404-005	Soil	234867	05/06/16 18:16	1.0		5:FE=300000
196	met08_sn_6010	SAMPLE	276422-025	Soil	234867	05/06/16 18:18	1.0		2:FE=460000
197	met08_sn_6010	SAMPLE	276422-026	Soil	234867	05/06/16 18:20	1.0		4:FE=510000
198	met08_sn_6010	SAMPLE	276422-027	Soil	234867	05/06/16 18:22	1.0		3:FE=480000
199	met08_sn_6010	SAMPLE	276422-028	Soil	234867	05/06/16 18:24	1.0		3:FE=460000
200	met08_sn_6010	SAMPLE	276422-029	Soil	234867	05/06/16 18:26	1.0		3:FE=590000
201	met08_sn_6010	SAMPLE	276422-030	Soil	234867	05/06/16 18:29	1.0		4:FE=490000
202	met08_sn_6010	SAMPLE	276442-001	Soil	234867	05/06/16 18:31	1.0		2:FE=290000
203	met08_sn_6010	CCV				05/06/16 18:33	1.0	9	
204	met08_sn_6010	XCCB				05/06/16 18:35	1.0		
205	met08_sn_6010	CCB				05/06/16 18:37	1.0		
206	met08_sn_6010	SAMPLE	276444-001	Soil	234867	05/06/16 18:39	1.0		5:FE=480000
207	met08_sn_6010	SAMPLE	276468-024	Miscell.	234867	05/06/16 18:41	1.0		1:CA=670000
208	met08_sn_6010	SAMPLE	276620-001	Soil	234867	05/06/16 18:43	1.0		2:FE=300000

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 86183522

Instrument : MET08 Begun : 05/06/16 10:42
Method : EPA 6010B SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
209	met08_sn_6010	SAMPLE	276620-002	Soil	234867	05/06/16 18:45	1.0		4:FE=270000
210	met08_sn_6010	SAMPLE	276620-003	Soil	234867	05/06/16 18:47	1.0		5:CA=470000
211	met08_sn_6010	SAMPLE	276620-004	Soil	234867	05/06/16 18:49	1.0		3:FE=270000
212	met08_sn_6010	BLANK	QC832119	Water	234229	05/06/16 18:51	1.0		
213	met08_sn_6010	BS	QC832120	Water	234229	05/06/16 18:53	1.0		
214	met08_sn_6010	BSD	QC832121	Water	234229	05/06/16 18:55	1.0		
215	met08_sn_6010	MSS	275899-005	Water	234229	05/06/16 18:56	1.0		3:NA=470000
216	met08_sn_6010	CCV				05/06/16 18:59	1.0	9	
217	met08_sn_6010	XCCB				05/06/16 19:01	1.0		
218	met08_sn_6010	CCB				05/06/16 19:03	1.0		
219	met08_sn_6010	MS	QC832122	Water	234229	05/06/16 19:05	1.0		
220	met08_sn_6010	MSD	QC832123	Water	234229	05/06/16 19:06	1.0		
221	met08_sn_6010	SER	QC832124	Water	234229	05/06/16 19:08	5.0		
222	met08_sn_6010	PDS	QC832125	Water	234229	05/06/16 19:10	1.0	11 10 12	3:NA=440000
223	met08_sn_6010	SAMPLE	275899-006	Water	234229	05/06/16 19:11	1.0		
224	met08_sn_6010	SAMPLE	276031-002	Water	234229	05/06/16 19:14	1.0		
225	met08_sn_6010	SAMPLE	276035-001	Water	234229	05/06/16 19:16	1.0		3:CA=470000
226	met08_sn_6010	SAMPLE	276035-002	Water	234229	05/06/16 19:18	1.0		1:NA=380000
227	met08_sn_6010	SAMPLE	276035-003	Water	234229	05/06/16 19:20	1.0		3:NA=1300000
228	met08_sn_6010	SAMPLE	276035-004	Water	234229	05/06/16 19:22	1.0		3:NA=1500000
229	met08_sn_6010	CCV				05/06/16 19:24	1.0	9	
230	met08_sn_6010	XCCB				05/06/16 19:27	1.0		
231	met08_sn_6010	CCB				05/06/16 19:29	1.0		
232	met08_sn_6010	SAMPLE	276035-005	Water	234229	05/06/16 19:31	1.0		3:NA=1400000
233	met08_sn_6010	SAMPLE	276035-006	Water	234229	05/06/16 19:33	1.0		4:NA=1200000
234	met08_sn_6010	SAMPLE	276035-007	Water	234229	05/06/16 19:35	1.0		3:NA=1400000
235	met08_sn_6010	SAMPLE	276035-008	Water	234229	05/06/16 19:37	1.0		3:CA=450000
236	met08_sn_6010	SAMPLE	276035-009	Water	234229	05/06/16 19:40	1.0		2:NA=520000
237	met08_sn_6010	SAMPLE	276046-001	Water	234229	05/06/16 19:42	1.0		3:CA=860000

KER 05/06/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 71.

Standards used: 1=S29301 2=S29393 3=S29394 4=S29395 5=S29761 6=S29396 7=S29660 8=S29661 9=S29397 10=S28385 11=S28386 12=S29742

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 86183522

Date : 05/06/16 Reference : met08_sn_6010
Sequence : MET08 05/06/16 Analyzed : 05/06/16 10:45

#	Type	Sample ID	Y A
		ICAL STD	11400596
		LOWER LIMIT	3420179
		UPPER LIMIT	22801193
010	ICB		11802651
011	ICSA		11192216
012	ICSAB		10974063
013	MSS	275719-002	11358815
014	SAMPLE	275719-003	11515997
015	SAMPLE	275719-004	11371351
016	SAMPLE	275719-007	11366140
017	SAMPLE	275719-008	11475196
018	SAMPLE	275719-009	11552234
019	SAMPLE	275719-010	11313696
020	SAMPLE	275719-011	11103994
021	SAMPLE	275719-013	11877393
022	SAMPLE	275878-002	10929979
023	CCV		11590222
024	CCB		11569445
025	SAMPLE	275878-003	11351753
026	BLANK	QC832888	11930671
027	SAMPLE	276221-002	11592339
028	SAMPLE	276250-001	11844985
029	SAMPLE	276250-002	11822917
030	SAMPLE	276250-004	11449568
031	SAMPLE	276250-005	11765502
032	SAMPLE	276250-006	11215910
033	SAMPLE	276250-007	11691645
034	BLANK	QC832325	11780510
035	CCV		11614756
037	CCB		11281001
038	SAMPLE	276114-001	11597329
039	SAMPLE	276114-002	11431274
040	SAMPLE	276086-001	11621351
041	SAMPLE	276149-004	12131549
042	SAMPLE	276264-013	11730884
043	SAMPLE	276130-001	11591980
044	SAMPLE	276130-003	11960926
045	SAMPLE	276130-004	11603621
046	SAMPLE	276130-005	11845085
047	SAMPLE	276130-006	11654626
048	CCV		11437207
049	CCB		11515783
050	SAMPLE	276130-007	12244517
051	SAMPLE	276130-008	11785307
052	SAMPLE	276130-009	11394055
053	SAMPLE	276131-001	11805071
054	SAMPLE	276131-002	11895288
055	SAMPLE	275842-001	11201348
056	SAMPLE	275842-002	11372921
057	SAMPLE	275841-001	10927133
058	SAMPLE	275841-002	11294294

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 86183522

Date : 05/06/16 Reference : met08_sn_6010
Sequence : MET08 05/06/16 Analyzed : 05/06/16 10:45

#	Type	Sample ID	Y A
059	SAMPLE	275841-003	11365058
060	CCV		11553900
061	CCB		11476820
062	CCB		11461078
063	SAMPLE	275841-004	11258326
064	SAMPLE	275841-006	11462512
065	SAMPLE	276013-003	10699788
066	SAMPLE	276013-005	10477165
067	SAMPLE	276013-006	11018942
068	SAMPLE	276013-007	11115947
069	SAMPLE	276013-008	10810327
070	SAMPLE	276013-009	10944043
071	SAMPLE	276013-010	11043386
072	MS	QC832139	11821997
073	CCV		11546615
075	CCB		11389828
076	MSD	QC832140	11673999
077	SER	QC832141	11958332
078	PDS	QC832142	11757265
079	SAMPLE	276066-001	11347677
080	SAMPLE	276066-002	11111425
081	SAMPLE	276066-003	10698225
082	SAMPLE	276066-004	10803200
083	SAMPLE	276066-005	10627633
084	SAMPLE	276066-007	11394836
085	SAMPLE	276066-008	11089399
086	CCV		11225696
088	CCB		11650340
089	SAMPLE	276073-001	11232597
090	SAMPLE	276073-002	11481112
091	SAMPLE	276073-003	11478619
092	SAMPLE	276073-004	11454543
093	SAMPLE	276073-005	11062458
094	SAMPLE	276073-007	11682765
095	SER	QC832320	11708714
096	PDS	QC832321	11127363
097	SAMPLE	276095-001	11764027
098	SAMPLE	276095-002	11177138
099	CCV		11417567
101	CCB		11300381
102	SAMPLE	276114-003	11379271
103	SAMPLE	276114-004	11211852
104	SAMPLE	276119-005	11477535
105	SAMPLE	276119-006	11531387
106	SAMPLE	276119-007	11376798
107	SAMPLE	276119-008	11423432
108	SAMPLE	276119-009	11272000
109	SAMPLE	276119-010	11414654
110	BS	QC832427	11305119
111	BSD	QC832428	11551353
112	CCV		11160227
114	CCB		11469114

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 86183522

Date : 05/06/16 Reference : met08_sn_6010
Sequence : MET08 05/06/16 Analyzed : 05/06/16 10:45

#	Type	Sample ID	Y A
115	SAMPLE	276114-001	11280153
116	MSS	276114-002	11568137
117	BLANK	QC832998	11385478
118	BS	QC832999	11518473
119	BSD	QC833000	11766264
121	MS	QC833001	11461528
122	MSD	QC833002	11655767
123	SAMPLE	276281-002	11498031
125	CCV		11283565
127	CCB		11275217
128	SAMPLE	276281-004	11615022
129	SER	QC833267	11364140
130	SAMPLE	276264-021	11629724
131	SAMPLE	276278-001	10760877
132	SAMPLE	276278-002	11317565
133	SAMPLE	276284-001	11415055
134	SAMPLE	276284-002	11058286
135	SAMPLE	276284-003	11102208
136	MSS	276284-004	11158737
137	SAMPLE	276284-005	11239611
138	CCV		11387445
140	CCB		11456494
141	SAMPLE	276284-006	11203915
142	SAMPLE	276284-007	11094264
143	MSS	276284-008	11166850
144	SAMPLE	276284-009	11338522
145	SAMPLE	276253-001	11713462
146	SAMPLE	276253-002	11445275
147	SAMPLE	276294-032	11361531
148	BLANK	QC834111	11296088
149	BS	QC834112	11333699
150	BSD	QC834113	11233205
151	CCV		11317448
153	CCB		11252465
154	MSS	276063-001	11651197
155	MS	QC834114	11551403
156	MSD	QC834115	11604276
157	SER	QC834116	11246733
158	PDS	QC834117	11693697
159	SAMPLE	276063-002	11769111
160	SAMPLE	276063-003	11616124
161	SAMPLE	276063-004	11514867
162	SAMPLE	276063-005	12042114
163	SAMPLE	276063-006	11896657
164	CCV		11183510
166	CCB		11408090
167	SAMPLE	276063-007	12029386
168	SAMPLE	276063-008	11752919
169	SAMPLE	276063-009	11553784
170	SAMPLE	276063-010	11571114
171	SAMPLE	276063-012	11374772
172	SAMPLE	276063-014	11208862

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 86183522

Date : 05/06/16 Reference : met08_sn_6010
Sequence : MET08 05/06/16 Analyzed : 05/06/16 10:45

#	Type	Sample ID	Y A
173	SAMPLE	276063-018	11233759
174	BS	QC832326	11082214
175	BSD	QC832327	11229047
176	SAMPLE	276013-007	11006488
177	CCV		11195076
179	CCB		11095525
180	BLANK	QC834593	11527860
181	BS	QC834594	11397897
182	BSD	QC834595	11735211
183	MSS	276404-006	11607821
184	MS	QC834596	11352679
185	MSD	QC834597	11296022
186	SER	QC834598	11654465
187	PDS	QC834599	11577464
188	SAMPLE	276404-001	11158582
189	SAMPLE	276404-002	11439952
190	CCV		10996214
192	CCB		11087381
193	SAMPLE	276404-003	11314072
194	SAMPLE	276404-004	11078470
195	SAMPLE	276404-005	11442366
196	SAMPLE	276422-025	11579719
197	SAMPLE	276422-026	11640489
198	SAMPLE	276422-027	11166318
199	SAMPLE	276422-028	11330411
200	SAMPLE	276422-029	11193045
201	SAMPLE	276422-030	11488093
202	SAMPLE	276442-001	11278427
203	CCV		11195964
205	CCB		11513991
206	SAMPLE	276444-001	11389284
207	SAMPLE	276468-024	11103931
208	SAMPLE	276620-001	11152164
209	SAMPLE	276620-002	11292401
210	SAMPLE	276620-003	11224929
211	SAMPLE	276620-004	11277456
212	BLANK	QC832119	11081496
213	BS	QC832120	10993626
214	BSD	QC832121	11230590
215	MSS	275899-005	10241918
216	CCV		10915320
218	CCB		11084931
219	MS	QC832122	10850624
220	MSD	QC832123	10854803
221	SER	QC832124	10950765
222	PDS	QC832125	10414634
223	SAMPLE	275899-006	11154375
225	SAMPLE	276035-001	10454831
226	SAMPLE	276035-002	10858669
227	SAMPLE	276035-003	10700574
228	SAMPLE	276035-004	10445109
229	CCV		11006312

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 86183522

Date : 05/06/16 Reference : met08_sn_6010
Sequence : MET08 05/06/16 Analyzed : 05/06/16 10:45

#	Type	Sample ID	Y A
231	CCB		10707418
232	SAMPLE	276035-005	10657877
233	SAMPLE	276035-006	10646349
234	SAMPLE	276035-007	10300126
235	SAMPLE	276035-008	10595910
236	SAMPLE	276035-009	11069753
237	SAMPLE	276046-001	10477722

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 275719 METALS Water: EPA 6010B

Inst : MET08
Calnum : 86183522001
Units : ug/L

Date : 06-MAY-2016 10:42
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met08_sn_6010	86183522002	L1	06-MAY-2016 10:45	S29301
L2	met08_sn_6010	86183522003	L2	06-MAY-2016 10:49	S29393
L3	met08_sn_6010	86183522004	L3	06-MAY-2016 10:51	S29394
L4	met08_sn_6010	86183522005	L4	06-MAY-2016 10:52	S29395
L5	met08_sn_6010	86183522006	L5	06-MAY-2016 10:54	S29761

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Antimony	A	29.410	18.278	18.898	18.835		LOR0	0.00000	0.05309		21.355	1.000	0.995	
Arsenic	A	26.160	17.349	17.560	17.400		LOR0	0.00000	0.05747		19.617	1.000	0.995	
Barium	A	339.02	331.14	317.73	317.79		LOR0	0.00000	0.00315		326.42	1.000	0.995	
Beryllium	A	3615.8	3618.8	3521.9			LOR0	0.00000	2.84E-4		3585.5	1.000	0.995	
Cadmium	A	193.96	194.45	186.83	185.75		LOR0	0.00000	0.00538		190.25	1.000	0.995	
Chromium	A	159.80	109.70	104.80	105.61		LOR0	0.00000	0.00947		119.98	1.000	0.995	
Cobalt	A	128.70	122.08	116.95	118.80		LOR0	0.00000	0.00842		121.63	1.000	0.995	
Copper	A	563.28	332.49	307.73	311.06		LOR0	0.00000	0.00322		378.64	1.000	0.995	
Lead	A	39.500	39.758	40.051	39.637		LOR0	0.00000	0.02523		39.736	1.000	0.995	
Molybdenum	A	24.780	26.690	26.850	26.177		LOR0	0.00000	0.03819		26.124	1.000	0.995	
Nickel	A	49.180	39.898	39.235	39.839		LOR0	0.00000	0.02510		42.038	1.000	0.995	
Selenium	A	38.380	31.263	33.000	32.743		LOR0	0.00000	0.03054		33.846	1.000	0.995	
Silver	A	1819.7	1750.2	1535.6	1536.3		LOR0	0.00000	6.51E-4		1660.5	1.000	0.995	
Thallium	A	14.720	15.699	15.964	15.703		LOR0	0.00000	0.06367		15.521	1.000	0.995	
Vanadium	A	99.540	98.877	97.502	98.407		LOR0	0.00000	0.01016		98.581	1.000	0.995	
Zinc	A	103.95	87.601	81.474	83.169		LOR0	0.00000	0.01203		89.048	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Antimony	A	10.000	**56**	100.00	-3	1000.0	0	10000	0		
Arsenic	A	5.0000	**50**	100.00	0	1000.0	1	10000	0		
Barium	A	5.0000	7	100.00	4	1000.0	0	10000	0		
Beryllium	A	2.0000	3	100.00	3	1000.0	0				
Cadmium	A	5.0000	4	100.00	5	1000.0	1	10000	0		
Chromium	A	5.0000	**51**	100.00	4	1000.0	-1	10000	0		
Cobalt	A	5.0000	8	100.00	3	1000.0	-2	10000	0		
Copper	A	5.0000	**81**	100.00	7	1000.0	-1	10000	0		
Lead	A	5.0000	0	100.00	0	1000.0	1	10000	0		
Molybdenum	A	5.0000	-5	100.00	2	1000.0	3	10000	0		
Nickel	A	5.0000	**23**	100.00	0	1000.0	-2	10000	0		
Selenium	A	10.000	17	100.00	-5	1000.0	1	10000	0		
Silver	A	5.0000	18	20.000	14	200.00	0	2000.0	0		
Thallium	A	10.000	-6	100.00	0	1000.0	2	10000	0		
Vanadium	A	5.0000	1	100.00	0	1000.0	-1	10000	0		
Zinc	A	20.000	**25**	100.00	5	1000.0	-2	10000	0		

Instrument amount = a0 + response * a1 + response^2 * a2; LOR0=Linear regression forced thru origin, including 0,0 point

86183522001

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 275719 METALS Water
EPA 6010B

Inst : MET08
Calnum : 86183522001 Cal Date : 06-MAY-2016

ICV 86183522007 (06-MAY-2016) stds: S29396

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	5000	5070	ug/L	1	10	
Arsenic	A	5000	5195	ug/L	4	10	
Barium	A	5000	5061	ug/L	1	10	
Beryllium	A	500.0	518.6	ug/L	4	10	
Cadmium	A	5000	5140	ug/L	3	10	
Chromium	A	5000	5133	ug/L	3	10	
Cobalt	A	5000	4957	ug/L	-1	10	
Copper	A	5000	4908	ug/L	-2	10	
Lead	A	5000	5111	ug/L	2	10	
Molybdenum	A	5000	4987	ug/L	0	10	
Nickel	A	5000	5088	ug/L	2	10	
Selenium	A	5000	5119	ug/L	2	10	
Silver	A	1000	1020	ug/L	2	10	
Thallium	A	5000	5011	ug/L	0	10	
Vanadium	A	5000	5130	ug/L	3	10	
Zinc	A	5000	5076	ug/L	2	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275719 METALS Water
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86183522010 File : met08_sn_6010 Time : 06-MAY-2016 11:16
Cal : 86183522001 Caldate : 06-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	8.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	4.000	ug/L	
Beryllium	A	ND	2.000	1.600	ug/L	
Cadmium	A	ND	5.000	4.000	ug/L	
Chromium	A	ND	5.000	4.000	ug/L	
Cobalt	A	ND	5.000	4.000	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	4.000	ug/L	
Molybdenum	A	ND	5.000	4.000	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	8.000	ug/L	
Vanadium	A	ND	5.000	4.000	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	11400596	11802651	3.53

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 275719 METALS Water
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86183522011 File : met08_sn_6010 Time : 06-MAY-2016 11:19
Cal : 86183522001 Caldate : 06-MAY-2016
Standards: S29660

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	[4.948]	10.00	ug/L	
Arsenic	A	[-1.618]	5.000	ug/L	
Barium	A	[-2.521]	5.000	ug/L	
Beryllium	A	[0.2101]	2.000	ug/L	
Cadmium	A	[-0.7584]	5.000	ug/L	
Cobalt	A	[3.432]	5.000	ug/L	
Lead	A	[-4.997]	5.000	ug/L	
Molybdenum	A	[-1.158]	5.000	ug/L	
Selenium	A	[-3.236]	10.00	ug/L	
Silver	A	[2.123]	5.000	ug/L	
Thallium	A	[-3.326]	10.00	ug/L	
Zinc	A	[15.97]	20.00	ug/L	

Interferent	Ch	Spiked	Quant	Units	%Rec	Flags
Chromium	A	20000	19690	ug/L	98	
Copper	A	20000	20040	ug/L	100	
Manganese	A	20000	19200	ug/L	96	
Nickel	A	20000	19320	ug/L	97	
Vanadium	A	20000	19920	ug/L	100	
Aluminum	R	500000	514600	ug/L	103	
Calcium	R	500000	513900	ug/L	103	
Iron	R	200000	203300	ug/L	102	
Magnesium	R	500000	496900	ug/L	99	
Titanium	R	20000	20870	ug/L	104	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	11400596	11192216	-1.83

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 275719 METALS Water
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86183522012 File : met08_sn_6010 Time : 06-MAY-2016 11:29
Cal : 86183522001 Caldate : 06-MAY-2016
Standards: S29661

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	580.7	ug/L	16	20	
Arsenic	A	500.0	568.9	ug/L	14	20	
Barium	A	500.0	526.3	ug/L	5	20	
Beryllium	A	500.0	541.6	ug/L	8	20	
Cadmium	A	1000	1051	ug/L	5	20	
Chromium	A	500.0	511.6	ug/L	2	20	
Cobalt	A	500.0	503.0	ug/L	1	20	
Copper	A	500.0	516.6	ug/L	3	20	
Lead	A	1000	1060	ug/L	6	20	
Molybdenum	A	500.0	507.7	ug/L	2	20	
Nickel	A	1000	1042	ug/L	4	20	
Selenium	A	500.0	515.4	ug/L	3	20	
Silver	A	1000	1075	ug/L	8	20	
Thallium	A	500.0	525.4	ug/L	5	20	
Vanadium	A	500.0	566.6	ug/L	13	20	
Zinc	A	1000	1035	ug/L	3	20	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	11400596	10974063	-3.74

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275719 METALS Water
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86183522023 File : met08_sn_6010 Time : 06-MAY-2016 12:13
Cal : 86183522001 Caldate : 06-MAY-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	21.355	19.113	5000	5074	ug/L	1	10	
Arsenic	A	19.617	18.089	5000	5197	ug/L	4	10	
Barium	A	326.42	320.28	5000	5039	ug/L	1	10	
Beryllium	A	3585.5	3629.7	500.0	515.2	ug/L	3	10	
Cadmium	A	190.25	192.61	5000	5184	ug/L	4	10	
Chromium	A	119.98	106.77	5000	5055	ug/L	1	10	
Cobalt	A	121.63	117.39	5000	4933	ug/L	-1	10	
Copper	A	378.64	305.93	5000	4918	ug/L	-2	10	
Lead	A	39.736	41.149	5000	5190	ug/L	4	10	
Molybdenum	A	26.124	25.506	5000	4871	ug/L	-3	10	
Nickel	A	42.038	40.639	5000	5101	ug/L	2	10	
Selenium	A	33.846	33.348	5000	5092	ug/L	2	10	
Silver	A	1660.5	1561.0	1000	1016	ug/L	2	10	
Thallium	A	15.521	15.429	5000	4912	ug/L	-2	10	
Vanadium	A	98.581	101.28	5000	5146	ug/L	3	10	
Zinc	A	89.048	84.632	5000	5089	ug/L	2	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	11400596	11590222	1.66

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275719 METALS Water
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86183522024 File : met08_sn_6010 Time : 06-MAY-2016 12:15
Cal : 86183522001 Caldate : 06-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	8.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	4.000	ug/L	
Beryllium	A	ND	2.000	1.600	ug/L	
Cadmium	A	ND	5.000	4.000	ug/L	
Chromium	A	ND	5.000	4.000	ug/L	
Cobalt	A	ND	5.000	4.000	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	4.000	ug/L	
Molybdenum	A	ND	5.000	4.000	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	8.000	ug/L	
Vanadium	A	ND	5.000	4.000	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	11400596	11569445	1.48

SAMPLE PREPARATION SUMMARY

Batch # : 234045
Started By : RLG
Method : 3010A
Spike #1 ID : S29076
Prep Date : 13-APR-2016 11:10
Spike #2 ID : S29077
Analysis : ICP
Finished By : RLG
Units : mL
Spike #3 ID : S28732

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
275719-002		Water	50	50	1	1.0						6010	
275719-003		Water	50	50	1	1.0						6010	
275719-004		Water	50	50	1	1.0						6010	
275719-007		Water	50	50	1	1.0						6010	
275719-008		Water	50	50	1	1.0						6010	
275719-009		Water	50	50	1	1.0						6010	
275719-010		Water	50	50	1	1.0						6010	
275719-011		Water	50	50	1	1.0						6010	
275719-012		Water	50	50	1	1.0						6010	
275719-013		Water	50	50	1	1.0						6010	
275871-001		Water	50	50	1	1.0						6010	
275871-002		Water	50	50	1	1.0						6010	
275878-001		Water	50	50	1	1.0						6010	
275878-002		Water	50	50	1	1.0						6010	
275878-003		Water	50	50	1	1.0						6010	
275893-006		Water	50	50	1	1.0						HARDNESS	
275910-003		Water	50	50	1	1.0						6010	
275974-001		Water	50	50	1	1.0						6010	
276010-001		Water	50	50	1	1.0						6010	Prepped 13-APR-2016 19:45
QC831359	BLANK	Water	50	50	1	1.0							
QC831360	BS	Water	50	50	1	1.0		.5	.5	.5			
QC831361	BSD	Water	50	50	1	1.0		.5	.5	.5			
QC831362	MS	Water	50	50	1	1.0		.5	.5	.5			
QC831363	MSD	Water	50	50	1	1.0		.5	.5	.5			
QC831364	SER	Water	50	50	1	1.0							
QC831365	PDS	Water	50	50	1	1.0							

Analyst: KER Date: 04/14/16 Reviewer: PRW Date: 04/14/16

Water Digestion for ICP

Curtis & Tompkins, Ltd.

LIMS Batch #: 234045
Digested by: ~~4/13/16~~ 4/13/16 RLG
Date Digested: 4/13/16

Digestion Method
☑ EPA 3010a for ICP
☐ EPA 200.7
☐ _____

BK 3879
Page 90

Lvl.	Sample #	Container ID	Volume Sample(mL)	Final Volume (mL)	Filtered? (y/n)	ID ✓	Comments
	BLANK		☑ 50 ☐	☑ 50 ☐	Y	✓	QC 831359
	BS		☑ 50 ☐	☑ 50 ☐	Y	✓	60
	BSD		☑ 50 ☐	☑ 50 ☐	Y	✓	61
	MS		☑ 50 ☐	☑ 50 ☐	N	✓	62
5	MSD		☑ 50 ☐	☑ 50 ☐		✓	63
IV	275719-002	D	☑ 50 ☐	☑ 50 ☐		✓	MSS
	-003		☑ 50 ☐	☑ 50 ☐		✓	
	-004		☑ 50 ☐	☑ 50 ☐		✓	
	-007		☑ 50 ☐	☑ 50 ☐		✓	
10	-008		☑ 50 ☐	☑ 50 ☐		✓	
	-009		☑ 50 ☐	☑ 50 ☐		✓	
	-010		☑ 50 ☐	☑ 50 ☐		✓	
	-011		☑ 50 ☐	☑ 50 ☐		✓	
	-012		☑ 50 ☐	☑ 50 ☐		✓	
15	-013		☑ 50 ☐	☑ 50 ☐		✓	
II	275871-001	A	☑ 50 ☐	☑ 50 ☐		✓	
	-002		☑ 50 ☐	☑ 50 ☐	Y	✓	
II	275878-001	D	☑ 50 ☐	☑ 50 ☐	N	✓	
	-002		☑ 50 ☐	☑ 50 ☐		✓	
20	-003	E	☑ 50 ☐	☑ 50 ☐		✓	
II	275893-006	B	☑ 50 ☐	☑ 50 ☐		✓	
II	275910-003	A	☑ 50 ☐	☑ 50 ☐		✓	verified PH<2
II	275974-001	A	☑ 50 ☐	☑ 50 ☐		✓	Verified PH<2
	276010-001	D	☑ 50 ☐	☑ 50 ☐	NO	✓	Added on 4/13/16 @ 19:45
			☐ 50 ☐	☐ 50 ☐			

	Reagent ID or LIMS #		Initials / Date
Digestion tubes/ Watch glasses, lot #	SP23384-1560	150 4103-533-04	RLG 4/13/16
.5 mL of spike solution (Std1) was added to all spikes	529076		
.5 mL of spike solution (Std2) was added to all spikes	529077		
.5 mL of spike solution (Std3) was added to all spikes	528732		
Digestion Block ID/ Probe Location	Yosemite	22	
Thermometer ID, Temperature (°C)	SNC91279	95°	
Digestion begun at (time)	11:10		
☑ Conc. HNO3 lot#, or ☐ 1:1 HNO3 reagent ID	JTB 127622		
☐ Conc. HCl lot#, or ☑ 1:1 HCl reagent ID	FS 4115100		
digestion ended at (time)	18:55		
☐ filtered thru' Whatman # 541, lot#	DIGIFilter 150515021-080		
Relinquished to ICP group	ICP		

Pipettes

Vol.(mL)	ID
.5	N271500
5	201 6708

4/13/16
Prep Chemist / Date

Continued from page 88.
Continued on page _____.

Reviewed Online / See LIMS
Version 12, Dec.2015

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 1076153795

Instrument : MET54 Begun : 04/15/16 19:15
Method : EPA 7470A SOP Version : hg_water_rv16

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met54nostop	ICALBLK				04/15/16 19:15	1.0		
002	met54nostop	ICAL	ICAL1			04/15/16 19:16	1.0	1	
003	met54nostop	ICAL	ICAL2			04/15/16 19:17	1.0	1	
004	met54nostop	ICAL	ICAL3			04/15/16 19:18	1.0	1	
005	met54nostop	ICAL	ICAL4			04/15/16 19:20	1.0	1	
006	met54nostop	ICAL	ICAL5			04/15/16 19:21	1.0	1	
007	met54nostop	ICV				04/15/16 19:22	1.0	2	
008	met54nostop	ICB				04/15/16 19:23	1.0		
009	met54nostop	BLANK	QC831752	Water	234141	04/15/16 19:25	1.0		
010	met54nostop	BS	QC831753	Water	234141	04/15/16 19:26	1.0		
011	met54nostop	BSD	QC831754	Water	234141	04/15/16 19:27	1.0		
012	met54nostop	MSS	275719-002	Water	234141	04/15/16 19:28	1.0		
013	met54nostop	MS	QC831755	Water	234141	04/15/16 19:29	1.0		
014	met54nostop	MSD	QC831756	Water	234141	04/15/16 19:31	1.0		
015	met54nostop	SER	QC831757	Water	234141	04/15/16 19:32	5.0		
016	met54nostop	SAMPLE	275889-001	Water	234141	04/15/16 19:33	1.0		
017	met54nostop	SAMPLE	275889-002	Water	234141	04/15/16 19:34	1.0		
018	met54nostop	SAMPLE	276010-001	Water	234141	04/15/16 19:36	1.0		
019	met54nostop	CCV				04/15/16 19:37	1.0	3	
020	met54nostop	CCB				04/15/16 19:38	1.0		
021	met54nostop	SAMPLE	276041-001	Water	234141	04/15/16 19:39	1.0		
022	met54nostop	SAMPLE	275842-001	Water	234141	04/15/16 19:41	1.0		
023	met54nostop	SAMPLE	275842-002	Water	234141	04/15/16 19:42	1.0		
024	met54nostop	SAMPLE	275842-004	Water	234141	04/15/16 19:43	1.0		
025	met54nostop	SAMPLE	275842-007	Water	234141	04/15/16 19:44	1.0		
026	met54nostop	SAMPLE	275719-003	Water	234141	04/15/16 19:46	1.0		
027	met54nostop	SAMPLE	275719-004	Water	234141	04/15/16 19:47	1.0		
028	met54nostop	SAMPLE	275719-007	Water	234141	04/15/16 19:48	1.0		
029	met54nostop	SAMPLE	275719-008	Water	234141	04/15/16 19:49	1.0		
030	met54nostop	SAMPLE	275719-009	Water	234141	04/15/16 19:50	1.0		1:HG=15
031	met54nostop	CCV				04/15/16 19:52	1.0	3	
032	met54nostop	CCB				04/15/16 19:53	1.0		
033	met54nostop	SAMPLE	275719-010	Water	234141	04/15/16 19:54	1.0		
034	met54nostop	SAMPLE	275719-011	Water	234141	04/15/16 19:56	1.0		
035	met54nostop	SAMPLE	275719-012	Water	234141	04/15/16 19:57	1.0		
036	met54nostop	SAMPLE	275719-013	Water	234141	04/15/16 19:58	1.0		
037	met54nostop	SAMPLE	275849-012	Water	234141	04/15/16 19:59	1.0		
038	met54nostop	SAMPLE	275849-013	Water	234141	04/15/16 20:01	1.0		
039	met54nostop	CCV				04/15/16 20:07	1.0	3	
040	met54nostop	CCB				04/15/16 20:08	1.0		

LCS 04/18/16 : runs 39-42 did not acquire in WinLab

LCS 04/18/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 40.

Standards used: 1=S29645 2=S29647 3=S29648

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 275719 METALS Water: EPA 7470A

Inst : MET54
Calnum : 1076153795001
Units : ug/L

Date : 15-APR-2016 19:15
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met54nostop	1076153795002	ICAL1	15-APR-2016 19:16	S29645 (500X)
L2	met54nostop	1076153795003	ICAL2	15-APR-2016 19:17	S29645 (200X)
L3	met54nostop	1076153795004	ICAL3	15-APR-2016 19:18	S29645 (50X)
L4	met54nostop	1076153795005	ICAL4	15-APR-2016 19:20	S29645 (20X)
L5	met54nostop	1076153795006	ICAL5	15-APR-2016 19:21	S29645 (10X)

Analyte	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Mercury	0.0365	0.0476	0.0492	0.0499	0.0506	LIN0	0.03975	19.7416		0.0467	1.000	.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Mercury	0.2000	-8	0.5000	2	2.0000	-1	5.0000	-1	10.000	0

Instrument amount = a0 + response * a1 + response^2 * a2; LIN0=Linear regression including 0,0 point

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 275719 METALS Water EPA 7470A

Inst : MET54
Calnum : 1076153795001 Cal Date : 15-APR-2016

ICV 1076153795007 (15-APR-2016) stds: S29647

Analyte	Spiked	Quant	Units	%D	Max	Flags
Mercury	5.000	4.951	ug/L	-1	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275719 METALS Water
EPA 7470A

Inst : MET54 IDF : 1.0
Seqnum : 1076153795008 File : met54nostop Time : 15-APR-2016 19:23
Cal : 1076153795001 Caldate : 15-APR-2016

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275719 METALS Water
EPA 7470A

Inst : MET54 IDF : 1.0
Seqnum : 1076153795019 File : met54nostop Time : 15-APR-2016 19:37
Cal : 1076153795001 Caldate : 15-APR-2016
Standards: S29648

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0467	0.0522	5.000	5.196	ug/L	4	20	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275719 METALS Water
EPA 7470A

Inst : MET54 IDF : 1.0
Seqnum : 1076153795020 File : met54nostop Time : 15-APR-2016 19:38
Cal : 1076153795001 Caldate : 15-APR-2016

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275719 METALS Water
EPA 7470A

Inst : MET54 IDF : 1.0
Seqnum : 1076153795031 File : met54nostop Time : 15-APR-2016 19:52
Cal : 1076153795001 Caldate : 15-APR-2016
Standards: S29648

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0467	0.0533	5.000	5.305	ug/L	6	20	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275719 METALS Water
EPA 7470A

Inst : MET54 IDF : 1.0
Seqnum : 1076153795032 File : met54nostop Time : 15-APR-2016 19:53
Cal : 1076153795001 Caldate : 15-APR-2016

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275719 METALS Water
EPA 7470A

Inst : MET54 IDF : 1.0
Seqnum : 1076153795039 File : met54nostop Time : 15-APR-2016 20:07
Cal : 1076153795001 Caldate : 15-APR-2016
Standards: S29648

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0467	0.0532	5.000	5.295	ug/L	6	20	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275719 METALS Water
EPA 7470A

Inst : MET54 IDF : 1.0
Seqnum : 1076153795040 File : met54nostop Time : 15-APR-2016 20:08
Cal : 1076153795001 Caldate : 15-APR-2016

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 1076159328

Instrument : MET54
Method : EPA 7470A

Begun : 04/19/16 15:28
SOP Version : hg_water_rv16

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met54	ICALBLK				04/19/16 15:28	1.0		
002	met54	ICAL	ICAL1			04/19/16 15:29	1.0	1	
003	met54	ICAL	ICAL2			04/19/16 15:30	1.0	1	
004	met54	ICAL	ICAL3			04/19/16 15:31	1.0	1	
005	met54	ICAL	ICAL4			04/19/16 15:33	1.0	1	
006	met54	ICAL	ICAL5			04/19/16 15:34	1.0	1	
007	met54	ICV				04/19/16 15:35	1.0	2	
008	met54	ICB				04/19/16 15:36	1.0		
009	met54	BLANK	QC832102	Water	234226	04/19/16 15:37	1.0		
010	met54	BS	QC832103	Water	234226	04/19/16 15:39	1.0		
011	met54	BSD	QC832104	Water	234226	04/19/16 15:40	1.0		
012	met54	MSS	275878-001	Water	234226	04/19/16 15:41	1.0		
013	met54	MS	QC832105	Water	234226	04/19/16 15:42	1.0		
014	met54	MSD	QC832106	Water	234226	04/19/16 15:44	1.0		
015	met54	SER	QC832113	Water	234226	04/19/16 15:45	5.0		
016	met54	BLANK	QC832111	Filtrate	234226	04/19/16 15:46	1.0		
017	met54	SAMPLE	276042-001	Water	234226	04/19/16 15:47	1.0		
018	met54	SAMPLE	276067-001	Filtrate	234226	04/19/16 15:49	1.0		
019	met54	CCV				04/19/16 15:50	1.0	3	
020	met54	CCB				04/19/16 15:51	1.0		
021	met54	SAMPLE	275719-009	Water	234226	04/19/16 15:52	5.0		
022	met54	SAMPLE	275851-001	Water	234226	04/19/16 15:54	1.0		
023	met54	SAMPLE	275852-001	Water	234226	04/19/16 15:55	1.0		
024	met54	SAMPLE	275866-002	Water	234226	04/19/16 15:56	1.0		
025	met54	SAMPLE	275878-002	Water	234226	04/19/16 15:57	1.0		
026	met54	SAMPLE	275878-003	Water	234226	04/19/16 15:58	1.0		
027	met54	SAMPLE	275906-001	Water	234226	04/19/16 16:00	1.0		
028	met54	SAMPLE	275906-003	Water	234226	04/19/16 16:01	1.0		
029	met54	SAMPLE	275906-004	Water	234226	04/19/16 16:02	1.0		
030	met54	SAMPLE	275906-005	Water	234226	04/19/16 16:03	1.0		
031	met54	CCV				04/19/16 16:05	1.0	3	
032	met54	CCB				04/19/16 16:06	1.0		
033	met54	SAMPLE	275917-002	Water	234226	04/19/16 16:07	1.0		
034	met54	SAMPLE	275917-003	Water	234226	04/19/16 16:08	1.0		
035	met54	SAMPLE	275917-004	Water	234226	04/19/16 16:10	1.0		
036	met54	SAMPLE	275934-004	Water	234226	04/19/16 16:11	1.0		
037	met54	SAMPLE	275934-005	Water	234226	04/19/16 16:12	1.0		
038	met54	BLANK	QC832112	SPLP Leachate	234226	04/19/16 16:13	1.0		
039	met54	SAMPLE	275925-001	SPLP Leachate	234226	04/19/16 16:15	1.0		
040	met54	CCV				04/19/16 16:16	1.0	3	
041	met54	CCB				04/19/16 16:17	1.0		

LCS 04/19/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 41.

Standards used: 1=S29665 2=S29667 3=S29668

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 275719 METALS Water: EPA 7470A

Inst : MET54
Calnum : 1076159328001
Units : ug/L

Date : 19-APR-2016 15:28
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met54	1076159328002	ICAL1	19-APR-2016 15:29	S29665 (500X)
L2	met54	1076159328003	ICAL2	19-APR-2016 15:30	S29665 (200X)
L3	met54	1076159328004	ICAL3	19-APR-2016 15:31	S29665 (50X)
L4	met54	1076159328005	ICAL4	19-APR-2016 15:33	S29665 (20X)
L5	met54	1076159328006	ICAL5	19-APR-2016 15:34	S29665 (10X)

Analyte	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Mercury	0.0445	0.0494	0.0542	0.0525	0.0479	LIN0	-0.0952	20.6734		0.0497	0.997	.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Mercury	0.2000	**-56**	0.5000	-17	2.0000	7	5.0000	7	10.000	-2

Instrument amount = a0 + response * a1 + response^2 * a2; LIN0=Linear regression including 0,0 point

1076159328001

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 275719 METALS Water EPA 7470A

Inst : MET54
Calnum : 1076159328001 Cal Date : 19-APR-2016

ICV 1076159328007 (19-APR-2016) stds: S29667

Analyte	Spiked	Quant	Units	%D	Max	Flags
Mercury	5.000	5.158	ug/L	3	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275719 METALS Water
EPA 7470A

Inst : MET54 IDF : 1.0
Seqnum : 1076159328008.1 File : met54 Time : 19-APR-2016 15:36
Cal : 1076159328001 Caldate : 19-APR-2016

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275719 METALS Water
EPA 7470A

Inst : MET54 IDF : 1.0
Seqnum : 1076159328019.1 File : met54 Time : 19-APR-2016 15:50
Cal : 1076159328001 Caldate : 19-APR-2016
Standards: S29668

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0497	0.0495	5.000	5.017	ug/L	0	20	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275719 METALS Water
EPA 7470A

Inst : MET54 IDF : 1.0
Seqnum : 1076159328020.1 File : met54 Time : 19-APR-2016 15:51
Cal : 1076159328001 Caldate : 19-APR-2016

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275719 METALS Water
EPA 7470A

Inst : MET54 IDF : 1.0
Seqnum : 1076159328031 File : met54 Time : 19-APR-2016 16:05
Cal : 1076159328001 Caldate : 19-APR-2016
Standards: S29668

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0497	0.0495	5.000	5.019	ug/L	0	20	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275719 METALS Water
EPA 7470A

Inst : MET54 IDF : 1.0
Seqnum : 1076159328032 File : met54 Time : 19-APR-2016 16:06
Cal : 1076159328001 Caldate : 19-APR-2016

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

SAMPLE PREPARATION SUMMARY

Batch # : 234141
Started By : LCS
Prep Date : 15-APR-2016 10:45
Method : METHOD
Spike #1 ID : S29645

Analysis : HG-200
Finished By : LCS
Units : mL

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
275719-002		Water	50	50	1	1.0						T22/HG	
275719-003		Water	50	50	1	1.0						T22/HG	
275719-004		Water	50	50	1	1.0						T22/HG	
275719-007		Water	50	50	1	1.0						T22/HG	
275719-008		Water	50	50	1	1.0						T22/HG	
275719-009		Water	50	50	1	1.0						(rebatched)	
275719-010		Water	50	50	1	1.0						T22/HG	
275719-011		Water	50	50	1	1.0						T22/HG	
275719-012		Water	50	50	1	1.0						T22/HG	
275719-013		Water	50	50	1	1.0						T22/HG	
275842-001		Water	50	50	1	1.0						T22/HG	
275842-002		Water	50	50	1	1.0						T22/HG	
275842-004		Water	50	50	1	1.0						T22/HG	
275842-007		Water	50	50	1	1.0						T22/HG	
275849-012		Water	50	50	1	1.0						T22/HG	
275849-013		Water	50	50	1	1.0						T22/HG	
275889-001		Water	50	50	1	1.0						245.1-HG	
275889-002		Water	50	50	1	1.0						245.1-HG	
276010-001		Water	50	50	1	1.0						T22/HG	
276041-001		Water	50	50	1	1.0						(rebatched)	
QC831752	BLANK	Water	50	50	1	1.0							
QC831753	BS	Water	50	50	1	1.0		1.25					
QC831754	BSD	Water	50	50	1	1.0		1.25					
QC831755	MS	Water	50	50	1	1.0		1.25					
QC831756	MSD	Water	50	50	1	1.0		1.25					
QC831757	SER	Water	50	50	1	1.0							

Analyst: LCS Date: 04/18/16 Reviewer: PRW Date: 04/18/16

Water Digestion for Mercury

Curtis & Tompkins, Ltd.

LIMS Batch #: 234141

Digestion Method: ☒ EPA 7470A/ EPA 245.1 ☐ _____

BK3846

Date Digested: 04/15/16

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	Sample #	container ID	Volume Sample (mL)	Final Volume (mL)	Filtered? (y/n)	Comments
	MB		☒ 50 ☐ ___	☒ 50 ☐ ___	N	
	BS		☒ 50 ☐ ___	☒ 50 ☐ ___		
	BSD		☒ 50 ☐ ___	☒ 50 ☐ ___		
	MS		☒ 50 ☐ ___	☒ 50 ☐ ___		
5	MSD		☒ 50 ☐ ___	☒ 50 ☐ ___		
	275719-002	A	☒ 50 ☐ ___	☒ 50 ☐ ___		MSS
	003		☒ 50 ☐ ___	☒ 50 ☐ ___		
	004		☒ 50 ☐ ___	☒ 50 ☐ ___		
	007		☒ 50 ☐ ___	☒ 50 ☐ ___		
10	008		☒ 50 ☐ ___	☒ 50 ☐ ___		
	009		☒ 50 ☐ ___	☒ 50 ☐ ___		
	010		☒ 50 ☐ ___	☒ 50 ☐ ___		
	011		☒ 50 ☐ ___	☒ 50 ☐ ___		
	012		☒ 50 ☐ ___	☒ 50 ☐ ___		
15	013		☒ 50 ☐ ___	☒ 50 ☐ ___		
	275842-001		☒ 50 ☐ ___	☒ 50 ☐ ___		
	002		☒ 50 ☐ ___	☒ 50 ☐ ___		
	004		☒ 50 ☐ ___	☒ 50 ☐ ___		
	007		☒ 50 ☐ ___	☒ 50 ☐ ___		
20	275849-012		☒ 50 ☐ ___	☒ 50 ☐ ___		
	013		☒ 50 ☐ ___	☒ 50 ☐ ___		
	275889-001		☒ 50 ☐ ___	☒ 50 ☐ ___		
	002		☒ 50 ☐ ___	☒ 50 ☐ ___		
	276010-001		☒ 50 ☐ ___	☒ 50 ☐ ___		
	276041-001		☒ 50 ☐ ___	☒ 50 ☐ ___		

	Reagent ID/ LIMS# / Time	Initials / Date
Digestion Tube Lot #	EK160039	YS 4/15
1.25 mL of spike solution was added to all spikes	S29645	
Using pipette #	L5040750	
☒ CAL digested with this batch? ICAL Std S#	S29648 6 YS/4/15	
ICV / CCV LIMS S#	S29647/S29648 YS/4/15	
Digestion Temperature (°C), Block and Probe Location	91 45	
Digestion Block ID: Denali Thermometer #	L91303	
Digestion Started at (time)	10:45	
concentrated H_2SO_4	FS. 158702	
concentrated HNO_3	JTB 133393	
5% $KMnO_4$ Reagent ID	4·13·16	
5% $K_2S_2O_8$ Reagent ID	4·13·16	
NaCl.hydroxylamine hydrochloride Reagent ID	04·08·16	
Stannous Chloride Reagent ID	04·13·16	
Digestion Completed at (time)	13:25	
☐ filtered thru' 0.45 um syringe filter (lot #)		

Pipettes

Vol.(mL)	ID
0.1	J26153D
0.25-1	G156935
1.25-4	L36780
5-10	R2910

LLS 4/15/16

Prep Chemist / Date

Continued from page _____

Continued on page _____

Reviewed Online / See LIMS

Version 5, Dec.2015

SAMPLE PREPARATION SUMMARY

Batch # : 234226
Started By : LCS
Method : METHOD
Spike #1 ID : S29665

Prep Date : 19-APR-2016 10:50

Analysis : HG
Finished By : LCS
Units : mL

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
275719-009		Water	50	50	1	1.0						T22/HG	
275851-001		Water	50	50	1	1.0						7470-HG	
275852-001		Water	50	50	1	1.0						7470-HG	
275866-002		Water	50	50	1	1.0						245.1-HG	
275878-001		Water	50	50	1	1.0						T22/HG	
275878-002		Water	50	50	1	1.0						T22/HG	
275878-003		Water	50	50	1	1.0						T22/HG	
275906-001		Water	50	50	1	1.0						T22/HG	
275906-003		Water	50	50	1	1.0						T22/HG	
275906-004		Water	50	50	1	1.0						T22/HG	
275906-005		Water	50	50	1	1.0						T22/HG	
275917-002		Water	50	50	1	1.0						T22/HG	
275917-003		Water	50	50	1	1.0						T22/HG	
275917-004		Water	50	50	1	1.0						T22/HG	
275925-001		SPLP Leachate	10	50	1	5.0						T22/HG	
275934-004		Water	50	50	1	1.0						T22/HG	
275934-005		Water	50	50	1	1.0						T22/HG	
276042-001		Water	50	50	1	1.0						T22/HG-200	
276067-001		Filtrate	50	50	1	1.0						T22/HG	
QC832102	BLANK	Water	50	50	1	1.0							
QC832103	BS	Water	50	50	1	1.0		1.25					
QC832104	BSD	Water	50	50	1	1.0		1.25					
QC832105	MS	Water	50	50	1	1.0		1.25					
QC832106	MSD	Water	50	50	1	1.0		1.25					
QC832111	BLANK	Filtrate	50	50	1	1.0							
QC832112	BLANK	SPLP Leachate	10	50	1	5.0							
QC832113	SER	Water	50	50	1	1.0							

Analyst: LCS Date: 04/19/16 Reviewer: PRW Date: 04/19/16

Water Digestion for Mercury — Curtis & Tompkins, Ltd.

LIMS Batch #: 234226 — Digestion Method: ☒ EPA 7470A/ EPA 245.1 — BK3846

Date Digested: 04/19/16 — ☐ _____ — Page 30

Sample #	container ID	Volume Sample (mL)	Final Volume (mL)	Filtered? (y/n)	Comments
MB		☒ 50 ☐ ___	☒ 50 ☐ ___	N	
BS		☒ 50 ☐ ___	☒ 50 ☐ ___		
BSD		☒ 50 ☐ ___	☒ 50 ☐ ___		
MS		☒ 50 ☐ ___	☒ 50 ☐ ___		
MSD		☒ 50 ☐ ___	☒ 50 ☐ ___		
275719-009	D	☒ 50 ☐ ___	☒ 50 ☐ ___		
275851-001	A	☒ 50 ☐ ___	☒ 50 ☐ ___		
275852-001	A	☒ 50 ☐ ___	☒ 50 ☐ ___		
275866-002	A	☒ 50 ☐ ___	☒ 50 ☐ ___		
275878-001	D	☒ 50 ☐ ___	☒ 50 ☐ ___		MSS
-002	D	☒ 50 ☐ ___	☒ 50 ☐ ___		
-003	E	☒ 50 ☐ ___	☒ 50 ☐ ___		
~~275878-002~~		☒ 50 ☐ ___	☒ 50 ☐ ___		
~~-003~~		☒ 50 ☐ ___	☒ 50 ☐ ___		
275906-001	D	☒ 50 ☐ ___	☒ 50 ☐ ___		
-003	G	☒ 50 ☐ ___	☒ 50 ☐ ___		
-004	G	☒ 50 ☐ ___	☒ 50 ☐ ___		
-005	G	☒ 50 ☐ ___	☒ 50 ☐ ___		
275917-002	F	☒ 50 ☐ ___	☒ 50 ☐ ___		
-003	B	☒ 50 ☐ ___	☒ 50 ☐ ___		
-004	G	☒ 50 ☐ ___	☒ 50 ☐ ___		
275925-001		☐ 50 ☒ 10	☒ 50 ☐ ___		SPLP leachate
275934-004	I	☒ 50 ☐ ___	☒ 50 ☐ ___		
-005	I	☒ 50 ☐ ___	☒ 50 ☐ ___		
276042-001	H	☒ 50 ☐ ___	☒ 50 ☐ ___		

LS 4/19

	Reagent ID/ LIMS# / Time	Initials / Date
Digestion Tube Lot #	EK160139	LS 4/19
1.25 mL of spike solution was added to all spikes	S29665	
Using pipette #	L30407 8D	
☒ ICAL digested with this batch? ICAL Std S#	S29666	
ICV / CCV LIMS S#	S29667/S29668	
Digestion Temperature (°C), Block and Probe Location	94 / 47	
Digestion Block ID: Denali — Thermometer #	L91303	
Digestion Started at (time)	10:50	
concentrated H_2SO_4	FS 157449	
concentrated HNO_3	JTB133393	
5% $KMnO_4$ Reagent ID	04·18·16	
5% $K_2S_2O_8$ Reagent ID	04·18·16	
NaCl.hydroxylamine hydrochloride Reagent ID	04·18·16	
Stannous Chloride Reagent ID	04·18·16	
Digestion Completed at (time)	12:50	
☐ filtered thru' 0.45 um syringe filter (lot #)		

Pipettes

Vol.(mL)	ID
.1	J28153D
25-1	G15693E
1.25-4	L36758D
5-10	R29101

LS 4/19/16

Prep Chemist / Date

Continued from page ___

Continued on page 31

Reviewed Online / See LIMS

Version 5, Dec.2015

Water Digestion for Mercury

Curtis & Tompkins, Ltd.

LIMS Batch #: 234226 Digestion Method: ☒ EPA 7470A/ EPA 245.1 ☐ ______

Date Digested: 4/19/16

BK3846

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Sample #	container ID	Volume Sample (mL)	Final Volume (mL)	Filtered? (y/n)	Comments
276067-001		☑ 50 ☐ ___	☑ 50 ☐ ___	n	
QC832111		☑ 50 ☐ ___	☑ 50 ☐ ___	↓	Filtrate Blank
QC832112		☐ 50 ☑ 10	☑ 50 ☐ ___	↓	SPLP Leachate Blk
		☐ 50 ☐ ___	☐ 50 ☐ ___		
		☐ 50 ☐ ___	☐ 50 ☐ ___		
		☐ 50 ☐ ___	☐ 50 ☐ ___		
		☐ 50 ☐ ___	☐ 50 ☐ ___		
		☐ 50 ☐ ___	☐ 50 ☐ ___		
		☐ 50 ☐ ___	☐ 50 ☐ ___		
		☐ 50 ☐ ___	☐ 50 ☐ ___		
		☐ 50 ☐ ___	☐ 50 ☐ ___		
		☐ 50 ☐ ___	☐ 50 ☐ ___		
		☐ 50 ☐ ___	☐ 50 ☐ ___		
		☐ 50 ☐ ___	☐ 50 ☐ ___		
		☐ 50 ☐ ___	☐ 50 ☐ ___		
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		☐ 50 ☐ ___	☐ 50 ☐ ___		
		☐ 50 ☐ ___	☐ 50 ☐ ___		
		☐ 50 ☐ ___	☐ 50 ☐ ___		
		☐ 50 ☐ ___	☐ 50 ☐ ___		
		☐ 50 ☐ ___	☐ 50 ☐ ___		
		☐ 50 ☐ ___	☐ 50 ☐ ___		
		☐ 50 ☐ ___	☐ 50 ☐ ___		
		☐ 50 ☐ ___	☐ 50 ☐ ___		
		☐ 50 ☐ ___	☐ 50 ☐ ___		

	Reagent ID/ LIMS# / Time	Initials / Date
Digestion Tube Lot #		
______ mL of spike solution was added to all spikes		
Using pipette #		
☐ **CAL digested with this batch? ICAL Std S#**		
ICV / CCV LIMS S#		
Digestion Temperature (°C), Block and Probe Location		
Digestion Block ID: ______________ Thermometer #		
Digestion Started at (time)		
concentrated H_2SO_4		
concentrated HNO_3		
5% $KMnO_4$ Reagent ID		
5% $K_2S_2O_8$ Reagent ID		
NaCl.hydroxylamine hydrochloride Reagent ID		
Stannous Chloride Reagent ID		
Digestion Completed at (time)		
☐ filtered thru' 0.45 um syringe filter (lot #)		

ID

[signature] 4/19/16

p Chemist / Date

Continued from page 30
Continued on page ______

Reviewed Online / See LIMS

Version 5, Dec.2015


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 275865
ANALYTICAL REPORT
Volatile Organics by GC/MS

Tetra Tech EMI
1999 Harrison Street
Oakland, CA 94612

Project : 1035225323.06
Location : RFS 2016 Groundwater
Level : IV

Sample ID	Lab ID
20160407CCCT	275865-001
20160407B175S	275865-002
20160407B175W	275865-003
20160407CCC2	275865-005
20160407PZ9	275865-007
20160407TP1	275865-008
20160407B480	275865-009
20160407B480D	275865-010
20160407B450	275865-011
20160407ER	275865-013
20160407TB	275865-014
20160408PZ11	275865-015
20160408B473	275865-016
20160408B473D	275865-017
20160408TP2	275865-019
20160408RWF	275865-020
20160408BULB2	275865-022
20160408MFA	275865-023
20160408MFADUP	275865-025
20160408B278	275865-026
20160408ER	275865-027

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: 05/06/2016

Mike Dahlquist
Project Manager
mike.dahlquist@ctberk.com

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE
VOLATILE ORGANICS BY GC/MS (EPA 8260B)

Laboratory number:	**275865**
Client:	**Tetra Tech EMI**
Project:	**1035225323.06**
Location:	**RFS 2016 Groundwater**
Request Date:	**04/08/16**
Samples Received:	**04/08/16**

This data package contains sample and QC results for twenty one water samples, requested for the above referenced project on 04/08/16. See attached cooler receipt form for any sample receipt problems or discrepancies.

Volatile Organics by GC/MS (EPA 8260B):

Low response was observed for chloromethane in the CCV analyzed 04/18/16 14:55; this analyte met minimum response criteria, and affected data was qualified with "b". High response was observed for bromomethane; this analyte was not detected at or above the RL in the associated samples, and affected data was qualified with "b".

High response was observed for 2,2-dichloropropane in the CCV analyzed 04/18/16 13:38; this analyte was not detected at or above the RL in the associated samples, and affected data was qualified with "b".

High response was observed for 2,2-dichloropropane in the CCV analyzed 04/16/16 16:39; this analyte was not detected at or above the RL in the associated samples, and affected data was qualified with "b".

High response was observed for 2,2-dichloropropane in the CCV analyzed 04/13/16 12:14; this analyte was not detected at or above the RL in the associated samples, and affected data was qualified with "b".

High recoveries were observed for a number of analytes in the BS/BSD for batch 234050; these analytes were not detected at or above the RL in the associated sample. High RPD was also observed for a number of analytes; these analytes were not detected at or above the RL in the associated sample.

High recoveries were observed for acetone and 2-hexanone in the BSD for batch 234163; the associated RPDs were within limits, and these analytes were not detected at or above the RL in the associated samples. High RPD was observed for 4-chlorotoluene in the BS/BSD for batch 234163; this analyte was not detected at or above the RL in the associated samples.

High recoveries were observed for acetone and bromomethane in the BS/BSD for batch 234188; the associated RPDs were within limits, and these analytes were not detected at or above the RL in the associated samples.

High recoveries were observed for n-butylbenzene, para-isopropyl toluene, and 1,3,5-trimethylbenzene in the MS of 20160407B450 (lab # 275865-011); the

Curtis & Tompkins, Ltd.

CASE NARRATIVE
VOLATILE ORGANICS BY GC/MS (EPA 8260B)

Laboratory number:	**275865**
Client:	**Tetra Tech EMI**
Project:	**1035225323.06**
Location:	**RFS 2016 Groundwater**
Request Date:	**04/08/16**
Samples Received:	**04/08/16**

Volatile Organics by GC/MS (EPA 8260B):

BS/BSD were within limits, the associated RPDs were within limits, and these analytes were not detected at or above the RL in the associated samples.

1,2-dichloroethane was detected between the MDL and the RL in the method blank for batch 234050; this analyte was not detected in the sample at or above the RL.

No other analytical problems were encountered.

Chain of Custody

Tetra Tech EM Inc.
San Francisco Office

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

275865

Chain of Custody Record No. 7112

Lab PO#: 160AK35	**Lab:** Curtis + Tompkins	
Project name: 2016 RFS GW	**TtEMI technical contact:** Sara Woolley	**Field samplers:** Dayna Aragon / Quinn Johnson
Project (CTO) number: 103522532 3.06	**TtEMI project manager:** Jason Brodersen	**Field samplers' signatures:**

Preservative Added: HCl; HNO3

No./Container Types and **Analysis Required**

	Sample ID	Sample Location (Pt. ID)	Date	Time	Matrix	MS / MSD	40 ml VOA	1 liter Amber	500 ml Poly	Sleeve	Glass Jar	VOA	SVOA	Pest/PCBs	Metals *	TPH Purgeables	TPH Extractables
1	20160407CCCT		4/7/16	1028	water		3					X					
2	B175S			1148			3					X					
3	B175W			1256			3					X					
4	B150			1418					1						X		
5	CCC2			1543			3		1			X			X		
6	FG			1020					1						X		
7	P29			1115			3					X					
8	TP1			1205			3		1			X			X		
9	B480			1246			3					X					
10	B480D			1250			3					X					
11	B450			1438		X	6		3			X			X		
12	B150DUP			1412					1						X		

	Name (print)	Company Name	Date	Time
Relinquished by:	QUINN JOHNSON	TETRA TECH	04.08.16	1548
Received by:	MIKE PARLQUIST	CT	4/8/16	1548
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				

Turnaround time/remarks:

* metals are field-filtered; standard TAT

Fed Ex #: Hand Delivered

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WHITE-Laboratory Copy YELLOW-Sample Tracker PINK-File Copy

Tetra Tech EM Inc.
San Francisco Office

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San Francisco. CA 94105
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275865

Chain of Custody Record No. 7110

Page 2 of 3

Lab PO#: 16OAK35	**Lab:** Curtis + Tompkins
Project name: 2016 RFS GW	**TtEMI technical contact:** Sara Woolley
Project (CTO) number: 103522532 3.06	**TtEMI project manager:** E. Jason Brodersen
	Field samplers: Dayna Aragon, Quinn Johnson
	Field samplers' signatures:

Preservative Added: HCl; HNO3

No./Container Types: 40 ml VOA; 1 liter Amber; 500 ml Poly; Sleeve; Glass Jar

Analysis Required: VOA; SVOA; Pest/PCBs; Metals*; TPH Purgeables; TPH Extractables

	Sample ID	Sample Location (Pt. ID)	Date	Time	Matrix	MS / MSD	40 ml VOA	1 liter Amber	500 ml Poly	Sleeve	Glass Jar	VOA	SVOA	Pest/PCBs	Metals*	TPH Purgeables	TPH Extractables
13	20160407ER		4/7/16	1535	water		3		1			X			X		
14	20160407TB		4/7/16	0807			3					X					
15	20160408?211		4/8/16	0925		X	6		3			X			X		
16	B473			1050			3					X					
17	B473D			1055			3					X					
18	NRLF			1210					1						X		
19	TP2			1250			3					X					
20	RWF			1335			3					X					
21	BULB1			1047					1						X		
22	BULB2			0946			3		1			X			X		
23	MFA			1154			3					X					
24	DHR			1336					1						X		

	Name (print)	Company Name	Date	Time
Relinquished by:	QUINN JOHNSON	TETRA TECH	04.08.16	1548
Received by:	MIKE DAHLQUIST	C+T	4/8/16	1549
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				

Turnaround time/remarks:

*metals are field filtered; standard TAT

Fed Ex #: Hand Delivered

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Tetra Tech EM Inc.
San Francisco Office

135 Main St. Suite 1800
San Francisco. CA 94105
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Chain of Custody Record No. 7111

Project name: 2016 RFS GW	**Lab PO#:** 16 OAK 35	**Lab:** Curtis + Tompkins
Project (CTO) number: 103S225323.06	**TtEMI technical contact:** Sara Woolley	**Field samplers:** Dayna Arazan, Quinn Johnson
	TtEMI project manager: Jason Brodersen	**Field samplers' signatures:**

	Sample ID	Sample Location (Pt. ID)	Date	Time	Matrix	MS / MSD	No./Container Types: 40 ml VOA	1 liter Amber	500 ml Poly	Sleeve	Glass Jar	Preservative Added: HCl	HNO3	Analysis Required: VOA	SVOA	Pest/PCBs	Metals *	TPH Purgeables	TPH Extractables
25	20160408 MFA DUP		4/8/16	1158	WATER		3							X					
26	B27B		↓	1443			3							X					
27	ER		↓	1434			3		1					X			X		

	Name (print)	Company Name	Date	Time
Relinquished by:	QUINN JOHNSON	TETRA TECH	04.08.16	1548
Received by:	MIKE DAHLQUIST	C+T	4/8/16	1549
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				

Turnaround time/remarks:
*metals are field filtered; standard TAT

Fed Ex #: Hand Delivered

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WHITE-Laboratory Copy YELLOW-Sample Tracker PINK-File Copy

COOLER RECEIPT CHECKLIST Curtis & Tompkins, Ltd.

Login # 275865 Date Received 4/8/16 Number of coolers 2
Client _____ Project _____

Date Opened 4/8 By (print) CJN (sign) [signature]
Date Logged in 4/11 By (print) J (sign) J

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) 2.5, 3.2

☒ Temperature blank(s) included? ☒ Thermometer# 4 ☐ 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? (pH strip lot# HC758444) (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
20. 1/10 VOAs received w/ bubble > 6 mm for sample 11

Rev 12, 12/01/15

Curtis & Tompkins Sample Preservation for 275865

Sample	pH: <2	>9	>12	Other
-004a	[X]	[ ]	[ ]	_____
-005a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[X]	[ ]	[ ]	_____
-006a	[X]	[ ]	[ ]	_____
-008a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[X]	[ ]	[ ]	_____
-011a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[ ]	[ ]	[ ]	_____
e	[ ]	[ ]	[ ]	_____
f	[ ]	[ ]	[ ]	_____
g	[X]	[ ]	[ ]	_____
h	[X]	[ ]	[ ]	_____
i	[X]	[ ]	[ ]	_____
-012a	[X]	[ ]	[ ]	_____
-013a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[X]	[ ]	[ ]	_____
-015a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[ ]	[ ]	[ ]	_____
e	[ ]	[ ]	[ ]	_____
f	[ ]	[ ]	[ ]	_____
g	[X]	[ ]	[ ]	_____
h	[X]	[ ]	[ ]	_____
i	[X]	[ ]	[ ]	_____
-018a	[X]	[ ]	[ ]	_____
-021a	[X]	[ ]	[ ]	_____
-022a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[X]	[ ]	[ ]	_____
-024a	[X]	[ ]	[ ]	_____
-027a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[X]	[ ]	[ ]	_____

Analyst: CJN
Date: 4/11/16

Results & QC Summary

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160407CCCT	Batch#:	234188
Lab ID:	275865-001	Sampled:	04/07/16
Matrix:	Water	Received:	04/08/16
Units:	ug/L	Analyzed:	04/18/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
Freon 12	ND	1.0	0.1
Chloromethane	ND	1.0	0.1
Vinyl Chloride	ND	1.0	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.1
Trichlorofluoromethane	ND	1.0	0.1
Acetone	ND	10	3.3
Freon 113	ND	5.0	0.1
1,1-Dichloroethene	0.4 J	1.0	0.1
Methylene Chloride	ND	10	0.1
Carbon Disulfide	ND	1.0	0.1
MTBE	ND	1.0	0.1
trans-1,2-Dichloroethene	ND	1.0	0.1
Vinyl Acetate	ND	10	0.3
1,1-Dichloroethane	ND	1.0	0.1
2-Butanone	ND	10	0.3
cis-1,2-Dichloroethene	2.7	1.0	0.1
2,2-Dichloropropane	ND	1.0	0.1
Chloroform	ND	1.0	0.1
Bromochloromethane	ND	1.0	0.2
1,1,1-Trichloroethane	ND	1.0	0.1
1,1-Dichloropropene	ND	1.0	0.1
Carbon Tetrachloride	ND	1.0	0.1
1,2-Dichloroethane	0.2 J	1.0	0.1
Benzene	ND	1.0	0.1
Trichloroethene	74	1.0	0.1
1,2-Dichloropropane	ND	1.0	0.1
Bromodichloromethane	ND	1.0	0.1
Dibromomethane	ND	1.0	0.1
4-Methyl-2-Pentanone	ND	10	0.2
cis-1,3-Dichloropropene	ND	1.0	0.1
Toluene	ND	1.0	0.1
trans-1,3-Dichloropropene	ND	1.0	0.1
1,1,2-Trichloroethane	ND	1.0	0.1
2-Hexanone	ND	10	0.2
1,3-Dichloropropane	ND	1.0	0.1
Tetrachloroethene	ND	1.0	0.1
Dibromochloromethane	ND	1.0	0.1
1,2-Dibromoethane	ND	1.0	0.1
Chlorobenzene	ND	1.0	0.1
1,1,1,2-Tetrachloroethane	ND	1.0	0.1
Ethylbenzene	ND	1.0	0.1
m,p-Xylenes	ND	1.0	0.1
o-Xylene	ND	1.0	0.1
Styrene	ND	1.0	0.2
Bromoform	ND	1.0	0.1
Isopropylbenzene	ND	1.0	0.1
1,1,2,2-Tetrachloroethane	ND	1.0	0.1
1,2,3-Trichloropropane	ND	1.0	0.1
Propylbenzene	ND	1.0	0.1
Bromobenzene	ND	1.0	0.1
1,3,5-Trimethylbenzene	ND	1.0	0.1

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160407CCCT	Batch#:	234188
Lab ID:	275865-001	Sampled:	04/07/16
Matrix:	Water	Received:	04/08/16
Units:	ug/L	Analyzed:	04/18/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
2-Chlorotoluene	ND	1.0	0.1
4-Chlorotoluene	ND	1.0	0.1
tert-Butylbenzene	ND	1.0	0.1
1,2,4-Trimethylbenzene	ND	1.0	0.1
sec-Butylbenzene	ND	1.0	0.1
para-Isopropyl Toluene	ND	1.0	0.1
1,3-Dichlorobenzene	ND	1.0	0.1
1,4-Dichlorobenzene	ND	1.0	0.1
n-Butylbenzene	ND	1.0	0.1
1,2-Dichlorobenzene	ND	1.0	0.1
1,2-Dibromo-3-Chloropropane	ND	1.0	0.3
1,2,4-Trichlorobenzene	ND	1.0	0.1
Hexachlorobutadiene	ND	1.0	0.2
Naphthalene	ND	1.0	0.3
1,2,3-Trichlorobenzene	ND	1.0	0.1

Tentatively Identified Compounds

No TICs found.

Surrogate	%REC	Limits
Dibromofluoromethane	113	80-128
1,2-Dichloroethane-d4	103	75-139
Toluene-d8	103	80-120
Bromofluorobenzene	106	80-120

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160407B175S	Diln Fac:	1.000
Lab ID:	275865-002	Sampled:	04/07/16
Matrix:	Water	Received:	04/08/16
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Analyzed
Freon 12	ND	1.0	0.1	234188	04/18/16
Chloromethane	ND	1.0	0.3	234050	04/13/16
Vinyl Chloride	ND	1.0	0.1	234188	04/18/16
Bromomethane	ND	1.0	0.2	234188	04/18/16
Chloroethane	ND	1.0	0.1	234188	04/18/16
Trichlorofluoromethane	ND	1.0	0.1	234188	04/18/16
Acetone	ND	10	3.3	234188	04/18/16
Freon 113	ND	5.0	0.1	234188	04/18/16
1,1-Dichloroethene	ND	1.0	0.1	234188	04/18/16
Methylene Chloride	ND	10	0.1	234188	04/18/16
Carbon Disulfide	ND	1.0	0.1	234188	04/18/16
MTBE	ND	1.0	0.1	234188	04/18/16
trans-1,2-Dichloroethene	ND	1.0	0.1	234188	04/18/16
Vinyl Acetate	ND	10	0.3	234188	04/18/16
1,1-Dichloroethane	ND	1.0	0.1	234188	04/18/16
2-Butanone	ND	10	0.3	234188	04/18/16
cis-1,2-Dichloroethene	ND	1.0	0.1	234188	04/18/16
2,2-Dichloropropane	ND	1.0	0.1	234188	04/18/16
Chloroform	0.2 J	1.0	0.1	234188	04/18/16
Bromochloromethane	ND	1.0	0.2	234188	04/18/16
1,1,1-Trichloroethane	ND	1.0	0.1	234188	04/18/16
1,1-Dichloropropene	ND	1.0	0.1	234188	04/18/16
Carbon Tetrachloride	ND	1.0	0.1	234188	04/18/16
1,2-Dichloroethane	ND	1.0	0.1	234188	04/18/16
Benzene	ND	1.0	0.1	234188	04/18/16
Trichloroethene	2.9	1.0	0.1	234188	04/18/16
1,2-Dichloropropane	ND	1.0	0.1	234188	04/18/16
Bromodichloromethane	ND	1.0	0.1	234188	04/18/16
Dibromomethane	ND	1.0	0.1	234188	04/18/16
4-Methyl-2-Pentanone	ND	10	0.2	234188	04/18/16
cis-1,3-Dichloropropene	ND	1.0	0.1	234188	04/18/16
Toluene	ND	1.0	0.1	234188	04/18/16
trans-1,3-Dichloropropene	ND	1.0	0.1	234188	04/18/16
1,1,2-Trichloroethane	ND	1.0	0.1	234188	04/18/16
2-Hexanone	ND	10	0.2	234188	04/18/16
1,3-Dichloropropane	ND	1.0	0.1	234188	04/18/16
Tetrachloroethene	ND	1.0	0.1	234188	04/18/16
Dibromochloromethane	ND	1.0	0.1	234188	04/18/16
1,2-Dibromoethane	ND	1.0	0.1	234188	04/18/16
Chlorobenzene	ND	1.0	0.1	234188	04/18/16
1,1,1,2-Tetrachloroethane	ND	1.0	0.1	234188	04/18/16
Ethylbenzene	ND	1.0	0.1	234188	04/18/16
m,p-Xylenes	ND	1.0	0.1	234188	04/18/16
o-Xylene	ND	1.0	0.1	234188	04/18/16
Styrene	ND	1.0	0.2	234188	04/18/16
Bromoform	ND	1.0	0.1	234188	04/18/16
Isopropylbenzene	ND	1.0	0.1	234188	04/18/16
1,1,2,2-Tetrachloroethane	ND	1.0	0.1	234188	04/18/16
1,2,3-Trichloropropane	ND	1.0	0.1	234188	04/18/16
Propylbenzene	ND	1.0	0.1	234188	04/18/16
Bromobenzene	ND	1.0	0.1	234188	04/18/16
1,3,5-Trimethylbenzene	ND	1.0	0.1	234188	04/18/16
2-Chlorotoluene	ND	1.0	0.1	234188	04/18/16

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160407B175S	Dil'n Fac:	1.000
Lab ID:	275865-002	Sampled:	04/07/16
Matrix:	Water	Received:	04/08/16
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Analyzed
4-Chlorotoluene	ND	1.0	0.1	234188	04/18/16
tert-Butylbenzene	ND	1.0	0.1	234188	04/18/16
1,2,4-Trimethylbenzene	ND	1.0	0.1	234188	04/18/16
sec-Butylbenzene	ND	1.0	0.1	234188	04/18/16
para-Isopropyl Toluene	ND	1.0	0.1	234188	04/18/16
1,3-Dichlorobenzene	ND	1.0	0.1	234188	04/18/16
1,4-Dichlorobenzene	ND	1.0	0.1	234188	04/18/16
n-Butylbenzene	ND	1.0	0.1	234188	04/18/16
1,2-Dichlorobenzene	ND	1.0	0.1	234188	04/18/16
1,2-Dibromo-3-Chloropropane	ND	1.0	0.3	234188	04/18/16
1,2,4-Trichlorobenzene	ND	1.0	0.1	234188	04/18/16
Hexachlorobutadiene	ND	1.0	0.2	234188	04/18/16
Naphthalene	ND	1.0	0.3	234188	04/18/16
1,2,3-Trichlorobenzene	ND	1.0	0.1	234188	04/18/16

Tentatively Identified Compounds	Batch#	Analyzed
No TICs found.	234188	04/18/16

Surrogate	%REC	Limits	Batch#	Analyzed
Dibromofluoromethane	116	80-128	234188	04/18/16
1,2-Dichloroethane-d4	102	75-139	234188	04/18/16
Toluene-d8	101	80-120	234188	04/18/16
Bromofluorobenzene	109	80-120	234188	04/18/16

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160407B175W	Diln Fac:	1.000
Lab ID:	275865-003	Sampled:	04/07/16
Matrix:	Water	Received:	04/08/16
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Analyzed
Freon 12	ND	1.0	0.1	234188	04/18/16
Chloromethane	ND	1.0	0.3	234050	04/13/16
Vinyl Chloride	ND	1.0	0.1	234188	04/18/16
Bromomethane	ND	1.0	0.2	234188	04/18/16
Chloroethane	ND	1.0	0.1	234188	04/18/16
Trichlorofluoromethane	ND	1.0	0.1	234188	04/18/16
Acetone	ND	10	3.3	234188	04/18/16
Freon 113	ND	5.0	0.1	234188	04/18/16
1,1-Dichloroethene	ND	1.0	0.1	234188	04/18/16
Methylene Chloride	ND	10	0.1	234188	04/18/16
Carbon Disulfide	ND	1.0	0.1	234188	04/18/16
MTBE	ND	1.0	0.1	234188	04/18/16
trans-1,2-Dichloroethene	ND	1.0	0.1	234188	04/18/16
Vinyl Acetate	ND	10	0.3	234188	04/18/16
1,1-Dichloroethane	ND	1.0	0.1	234188	04/18/16
2-Butanone	ND	10	0.3	234188	04/18/16
cis-1,2-Dichloroethene	ND	1.0	0.1	234188	04/18/16
2,2-Dichloropropane	ND	1.0	0.1	234188	04/18/16
Chloroform	ND	1.0	0.1	234188	04/18/16
Bromochloromethane	ND	1.0	0.2	234188	04/18/16
1,1,1-Trichloroethane	ND	1.0	0.1	234188	04/18/16
1,1-Dichloropropene	ND	1.0	0.1	234188	04/18/16
Carbon Tetrachloride	ND	1.0	0.1	234188	04/18/16
1,2-Dichloroethane	ND	1.0	0.1	234188	04/18/16
Benzene	ND	1.0	0.1	234188	04/18/16
Trichloroethene	ND	1.0	0.1	234188	04/18/16
1,2-Dichloropropane	ND	1.0	0.1	234188	04/18/16
Bromodichloromethane	ND	1.0	0.1	234188	04/18/16
Dibromomethane	ND	1.0	0.1	234188	04/18/16
4-Methyl-2-Pentanone	ND	10	0.2	234188	04/18/16
cis-1,3-Dichloropropene	ND	1.0	0.1	234188	04/18/16
Toluene	ND	1.0	0.1	234188	04/18/16
trans-1,3-Dichloropropene	ND	1.0	0.1	234188	04/18/16
1,1,2-Trichloroethane	ND	1.0	0.1	234188	04/18/16
2-Hexanone	ND	10	0.2	234188	04/18/16
1,3-Dichloropropane	ND	1.0	0.1	234188	04/18/16
Tetrachloroethene	1.4	1.0	0.1	234188	04/18/16
Dibromochloromethane	ND	1.0	0.1	234188	04/18/16
1,2-Dibromoethane	ND	1.0	0.1	234188	04/18/16
Chlorobenzene	ND	1.0	0.1	234188	04/18/16
1,1,1,2-Tetrachloroethane	ND	1.0	0.1	234188	04/18/16
Ethylbenzene	ND	1.0	0.1	234188	04/18/16
m,p-Xylenes	ND	1.0	0.1	234188	04/18/16
o-Xylene	ND	1.0	0.1	234188	04/18/16
Styrene	ND	1.0	0.2	234188	04/18/16
Bromoform	ND	1.0	0.1	234188	04/18/16
Isopropylbenzene	ND	1.0	0.1	234188	04/18/16
1,1,2,2-Tetrachloroethane	ND	1.0	0.1	234188	04/18/16
1,2,3-Trichloropropane	ND	1.0	0.1	234188	04/18/16
Propylbenzene	ND	1.0	0.1	234188	04/18/16
Bromobenzene	ND	1.0	0.1	234188	04/18/16
1,3,5-Trimethylbenzene	ND	1.0	0.1	234188	04/18/16
2-Chlorotoluene	ND	1.0	0.1	234188	04/18/16
4-Chlorotoluene	ND	1.0	0.1	234188	04/18/16

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160407B175W	Dil'n Fac:	1.000
Lab ID:	275865-003	Sampled:	04/07/16
Matrix:	Water	Received:	04/08/16
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Analyzed
tert-Butylbenzene	ND	1.0	0.1	234188	04/18/16
1,2,4-Trimethylbenzene	ND	1.0	0.1	234188	04/18/16
sec-Butylbenzene	ND	1.0	0.1	234188	04/18/16
para-Isopropyl Toluene	ND	1.0	0.1	234188	04/18/16
1,3-Dichlorobenzene	ND	1.0	0.1	234188	04/18/16
1,4-Dichlorobenzene	ND	1.0	0.1	234188	04/18/16
n-Butylbenzene	ND	1.0	0.1	234188	04/18/16
1,2-Dichlorobenzene	ND	1.0	0.1	234188	04/18/16
1,2-Dibromo-3-Chloropropane	ND	1.0	0.3	234188	04/18/16
1,2,4-Trichlorobenzene	ND	1.0	0.1	234188	04/18/16
Hexachlorobutadiene	ND	1.0	0.2	234188	04/18/16
Naphthalene	ND	1.0	0.3	234188	04/18/16
1,2,3-Trichlorobenzene	ND	1.0	0.1	234188	04/18/16

Tentatively Identified Compounds	Batch#	Analyzed
No TICs found.	234188	04/18/16

Surrogate	%REC	Limits	Batch#	Analyzed
Dibromofluoromethane	112	80-128	234188	04/18/16
1,2-Dichloroethane-d4	102	75-139	234188	04/18/16
Toluene-d8	101	80-120	234188	04/18/16
Bromofluorobenzene	108	80-120	234188	04/18/16

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160407CCC2	Batch#:	234050
Lab ID:	275865-005	Sampled:	04/07/16
Matrix:	Water	Received:	04/08/16
Units:	ug/L	Analyzed:	04/13/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
Freon 12	ND	1.0	0.1
Chloromethane	ND	1.0	0.3
Vinyl Chloride	ND	1.0	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.3
Trichlorofluoromethane	ND	1.0	0.2
Acetone	ND	10	3.3
Freon 113	ND	5.0	0.1
1,1-Dichloroethene	ND	1.0	0.2
Methylene Chloride	ND	10	0.2
Carbon Disulfide	ND	1.0	0.1
MTBE	ND	1.0	0.1
trans-1,2-Dichloroethene	ND	1.0	0.2
Vinyl Acetate	ND	10	1.1
1,1-Dichloroethane	ND	1.0	0.2
2-Butanone	ND	10	0.5
cis-1,2-Dichloroethene	ND	1.0	0.1
2,2-Dichloropropane	ND	1.0	0.1
Chloroform	ND	1.0	0.1
Bromochloromethane	ND	1.0	0.1
1,1,1-Trichloroethane	ND	1.0	0.1
1,1-Dichloropropene	ND	1.0	0.1
Carbon Tetrachloride	ND	1.0	0.1
1,2-Dichloroethane	ND	1.0	0.1
Benzene	ND	1.0	0.1
Trichloroethene	ND	1.0	0.1
1,2-Dichloropropane	ND	1.0	0.1
Bromodichloromethane	ND	1.0	0.1
Dibromomethane	ND	1.0	0.1
4-Methyl-2-Pentanone	ND	10	0.7
cis-1,3-Dichloropropene	ND	1.0	0.1
Toluene	ND	1.0	0.1
trans-1,3-Dichloropropene	ND	1.0	0.1
1,1,2-Trichloroethane	ND	1.0	0.2
2-Hexanone	ND	10	0.5
1,3-Dichloropropane	ND	1.0	0.1
Tetrachloroethene	ND	1.0	0.1
Dibromochloromethane	ND	1.0	0.1
1,2-Dibromoethane	ND	1.0	0.1
Chlorobenzene	ND	1.0	0.1
1,1,1,2-Tetrachloroethane	ND	1.0	0.1
Ethylbenzene	ND	1.0	0.1
m,p-Xylenes	ND	1.0	0.1
o-Xylene	ND	1.0	0.1
Styrene	ND	1.0	0.1
Bromoform	ND	1.0	0.1
Isopropylbenzene	ND	1.0	0.1
1,1,2,2-Tetrachloroethane	ND	1.0	0.1
1,2,3-Trichloropropane	ND	1.0	0.2
Propylbenzene	ND	1.0	0.1
Bromobenzene	ND	1.0	0.1
1,3,5-Trimethylbenzene	ND	1.0	0.1
2-Chlorotoluene	ND	1.0	0.1

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160407CCC2	Batch#:	234050
Lab ID:	275865-005	Sampled:	04/07/16
Matrix:	Water	Received:	04/08/16
Units:	ug/L	Analyzed:	04/13/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
4-Chlorotoluene	ND	1.0	0.1
tert-Butylbenzene	ND	1.0	0.1
1,2,4-Trimethylbenzene	ND	1.0	0.1
sec-Butylbenzene	ND	1.0	0.1
para-Isopropyl Toluene	ND	1.0	0.1
1,3-Dichlorobenzene	ND	1.0	0.1
1,4-Dichlorobenzene	ND	1.0	0.1
n-Butylbenzene	ND	1.0	0.1
1,2-Dichlorobenzene	ND	1.0	0.1
1,2-Dibromo-3-Chloropropane	ND	1.0	0.3
1,2,4-Trichlorobenzene	ND	1.0	0.1
Hexachlorobutadiene	ND	1.0	0.1
Naphthalene	ND	1.0	0.1
1,2,3-Trichlorobenzene	ND	1.0	0.1

Tentatively Identified Compounds

No TICs found.

Surrogate	%REC	Limits
Dibromofluoromethane	104	80-128
1,2-Dichloroethane-d4	111	75-139
Toluene-d8	106	80-120
Bromofluorobenzene	110	80-120

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160407PZ9	Dil'n Fac:	1.000
Lab ID:	275865-007	Sampled:	04/07/16
Matrix:	Water	Received:	04/08/16
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Analyzed
Freon 12	ND	1.0	0.1	234188	04/18/16
Chloromethane	ND	1.0	0.3	234050	04/13/16
Vinyl Chloride	ND	1.0	0.1	234188	04/18/16
Bromomethane	ND	1.0	0.2	234188	04/18/16
Chloroethane	ND	1.0	0.1	234188	04/18/16
Trichlorofluoromethane	ND	1.0	0.1	234188	04/18/16
Acetone	ND	10	3.3	234188	04/18/16
Freon 113	ND	5.0	0.1	234188	04/18/16
1,1-Dichloroethene	0.2 J	1.0	0.1	234188	04/18/16
Methylene Chloride	ND	10	0.1	234188	04/18/16
Carbon Disulfide	ND	1.0	0.1	234188	04/18/16
MTBE	ND	1.0	0.1	234188	04/18/16
trans-1,2-Dichloroethene	ND	1.0	0.1	234188	04/18/16
Vinyl Acetate	ND	10	0.3	234188	04/18/16
1,1-Dichloroethane	ND	1.0	0.1	234188	04/18/16
2-Butanone	ND	10	0.3	234188	04/18/16
cis-1,2-Dichloroethene	1.5	1.0	0.1	234188	04/18/16
2,2-Dichloropropane	ND	1.0	0.1	234188	04/18/16
Chloroform	ND	1.0	0.1	234188	04/18/16
Bromochloromethane	ND	1.0	0.2	234188	04/18/16
1,1,1-Trichloroethane	ND	1.0	0.1	234188	04/18/16
1,1-Dichloropropene	ND	1.0	0.1	234188	04/18/16
Carbon Tetrachloride	ND	1.0	0.1	234188	04/18/16
1,2-Dichloroethane	ND	1.0	0.1	234188	04/18/16
Benzene	ND	1.0	0.1	234188	04/18/16
Trichloroethene	60	1.0	0.1	234188	04/18/16
1,2-Dichloropropane	ND	1.0	0.1	234188	04/18/16
Bromodichloromethane	ND	1.0	0.1	234188	04/18/16
Dibromomethane	ND	1.0	0.1	234188	04/18/16
4-Methyl-2-Pentanone	ND	10	0.2	234188	04/18/16
cis-1,3-Dichloropropene	ND	1.0	0.1	234188	04/18/16
Toluene	ND	1.0	0.1	234188	04/18/16
trans-1,3-Dichloropropene	ND	1.0	0.1	234188	04/18/16
1,1,2-Trichloroethane	ND	1.0	0.1	234188	04/18/16
2-Hexanone	ND	10	0.2	234188	04/18/16
1,3-Dichloropropane	ND	1.0	0.1	234188	04/18/16
Tetrachloroethene	0.8 J	1.0	0.1	234188	04/18/16
Dibromochloromethane	ND	1.0	0.1	234188	04/18/16
1,2-Dibromoethane	ND	1.0	0.1	234188	04/18/16
Chlorobenzene	ND	1.0	0.1	234188	04/18/16
1,1,1,2-Tetrachloroethane	ND	1.0	0.1	234188	04/18/16
Ethylbenzene	ND	1.0	0.1	234188	04/18/16
m,p-Xylenes	ND	1.0	0.1	234188	04/18/16
o-Xylene	ND	1.0	0.1	234188	04/18/16
Styrene	ND	1.0	0.2	234188	04/18/16
Bromoform	ND	1.0	0.1	234188	04/18/16
Isopropylbenzene	ND	1.0	0.1	234188	04/18/16
1,1,2,2-Tetrachloroethane	ND	1.0	0.1	234188	04/18/16
1,2,3-Trichloropropane	ND	1.0	0.1	234188	04/18/16
Propylbenzene	ND	1.0	0.1	234188	04/18/16
Bromobenzene	ND	1.0	0.1	234188	04/18/16
1,3,5-Trimethylbenzene	ND	1.0	0.1	234188	04/18/16
2-Chlorotoluene	ND	1.0	0.1	234188	04/18/16

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160407PZ9	Dil'n Fac:	1.000
Lab ID:	275865-007	Sampled:	04/07/16
Matrix:	Water	Received:	04/08/16
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Analyzed
4-Chlorotoluene	ND	1.0	0.1	234188	04/18/16
tert-Butylbenzene	ND	1.0	0.1	234188	04/18/16
1,2,4-Trimethylbenzene	ND	1.0	0.1	234188	04/18/16
sec-Butylbenzene	ND	1.0	0.1	234188	04/18/16
para-Isopropyl Toluene	ND	1.0	0.1	234188	04/18/16
1,3-Dichlorobenzene	ND	1.0	0.1	234188	04/18/16
1,4-Dichlorobenzene	ND	1.0	0.1	234188	04/18/16
n-Butylbenzene	ND	1.0	0.1	234188	04/18/16
1,2-Dichlorobenzene	ND	1.0	0.1	234188	04/18/16
1,2-Dibromo-3-Chloropropane	ND	1.0	0.3	234188	04/18/16
1,2,4-Trichlorobenzene	ND	1.0	0.1	234188	04/18/16
Hexachlorobutadiene	ND	1.0	0.2	234188	04/18/16
Naphthalene	ND	1.0	0.3	234188	04/18/16
1,2,3-Trichlorobenzene	ND	1.0	0.1	234188	04/18/16

Tentatively Identified Compounds	Batch#	Analyzed
No TICs found.	234188	04/18/16

Surrogate	%REC	Limits	Batch#	Analyzed
Dibromofluoromethane	113	80-128	234188	04/18/16
1,2-Dichloroethane-d4	103	75-139	234188	04/18/16
Toluene-d8	101	80-120	234188	04/18/16
Bromofluorobenzene	112	80-120	234188	04/18/16

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160407TP1	Diln Fac:	1.000
Lab ID:	275865-008	Sampled:	04/07/16
Matrix:	Water	Received:	04/08/16
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Analyzed
Freon 12	ND	1.0	0.1	234188	04/18/16
Chloromethane	ND	1.0	0.3	234050	04/13/16
Vinyl Chloride	ND	1.0	0.1	234188	04/18/16
Bromomethane	ND	1.0	0.2	234188	04/18/16
Chloroethane	ND	1.0	0.1	234188	04/18/16
Trichlorofluoromethane	ND	1.0	0.1	234188	04/18/16
Acetone	ND	10	3.3	234188	04/18/16
Freon 113	ND	5.0	0.1	234188	04/18/16
1,1-Dichloroethene	ND	1.0	0.1	234188	04/18/16
Methylene Chloride	ND	10	0.1	234188	04/18/16
Carbon Disulfide	ND	1.0	0.1	234188	04/18/16
MTBE	ND	1.0	0.1	234188	04/18/16
trans-1,2-Dichloroethene	ND	1.0	0.1	234188	04/18/16
Vinyl Acetate	ND	10	0.3	234188	04/18/16
1,1-Dichloroethane	ND	1.0	0.1	234188	04/18/16
2-Butanone	ND	10	0.3	234188	04/18/16
cis-1,2-Dichloroethene	ND	1.0	0.1	234188	04/18/16
2,2-Dichloropropane	ND	1.0	0.1	234188	04/18/16
Chloroform	ND	1.0	0.1	234188	04/18/16
Bromochloromethane	ND	1.0	0.2	234188	04/18/16
1,1,1-Trichloroethane	ND	1.0	0.1	234188	04/18/16
1,1-Dichloropropene	ND	1.0	0.1	234188	04/18/16
Carbon Tetrachloride	ND	1.0	0.1	234188	04/18/16
1,2-Dichloroethane	ND	1.0	0.1	234188	04/18/16
Benzene	ND	1.0	0.1	234188	04/18/16
Trichloroethene	1.2	1.0	0.1	234188	04/18/16
1,2-Dichloropropane	ND	1.0	0.1	234188	04/18/16
Bromodichloromethane	ND	1.0	0.1	234188	04/18/16
Dibromomethane	ND	1.0	0.1	234188	04/18/16
4-Methyl-2-Pentanone	ND	10	0.2	234188	04/18/16
cis-1,3-Dichloropropene	ND	1.0	0.1	234188	04/18/16
Toluene	ND	1.0	0.1	234188	04/18/16
trans-1,3-Dichloropropene	ND	1.0	0.1	234188	04/18/16
1,1,2-Trichloroethane	ND	1.0	0.1	234188	04/18/16
2-Hexanone	ND	10	0.2	234188	04/18/16
1,3-Dichloropropane	ND	1.0	0.1	234188	04/18/16
Tetrachloroethene	ND	1.0	0.1	234188	04/18/16
Dibromochloromethane	ND	1.0	0.1	234188	04/18/16
1,2-Dibromoethane	ND	1.0	0.1	234188	04/18/16
Chlorobenzene	ND	1.0	0.1	234188	04/18/16
1,1,1,2-Tetrachloroethane	ND	1.0	0.1	234188	04/18/16
Ethylbenzene	ND	1.0	0.1	234188	04/18/16
m,p-Xylenes	ND	1.0	0.1	234188	04/18/16
o-Xylene	ND	1.0	0.1	234188	04/18/16
Styrene	ND	1.0	0.2	234188	04/18/16
Bromoform	ND	1.0	0.1	234188	04/18/16
Isopropylbenzene	ND	1.0	0.1	234188	04/18/16
1,1,2,2-Tetrachloroethane	ND	1.0	0.1	234188	04/18/16
1,2,3-Trichloropropane	ND	1.0	0.1	234188	04/18/16
Propylbenzene	ND	1.0	0.1	234188	04/18/16
Bromobenzene	ND	1.0	0.1	234188	04/18/16
1,3,5-Trimethylbenzene	ND	1.0	0.1	234188	04/18/16
2-Chlorotoluene	ND	1.0	0.1	234188	04/18/16
4-Chlorotoluene	ND	1.0	0.1	234188	04/18/16

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160407TP1	Dil'n Fac:	1.000
Lab ID:	275865-008	Sampled:	04/07/16
Matrix:	Water	Received:	04/08/16
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Analyzed
tert-Butylbenzene	ND	1.0	0.1	234188	04/18/16
1,2,4-Trimethylbenzene	ND	1.0	0.1	234188	04/18/16
sec-Butylbenzene	ND	1.0	0.1	234188	04/18/16
para-Isopropyl Toluene	ND	1.0	0.1	234188	04/18/16
1,3-Dichlorobenzene	ND	1.0	0.1	234188	04/18/16
1,4-Dichlorobenzene	ND	1.0	0.1	234188	04/18/16
n-Butylbenzene	ND	1.0	0.1	234188	04/18/16
1,2-Dichlorobenzene	ND	1.0	0.1	234188	04/18/16
1,2-Dibromo-3-Chloropropane	ND	1.0	0.3	234188	04/18/16
1,2,4-Trichlorobenzene	ND	1.0	0.1	234188	04/18/16
Hexachlorobutadiene	ND	1.0	0.2	234188	04/18/16
Naphthalene	ND	1.0	0.3	234188	04/18/16
1,2,3-Trichlorobenzene	ND	1.0	0.1	234188	04/18/16

Tentatively Identified Compounds	Batch#	Analyzed
No TICs found.	234188	04/18/16

Surrogate	%REC	Limits	Batch#	Analyzed
Dibromofluoromethane	118	80-128	234188	04/18/16
1,2-Dichloroethane-d4	111	75-139	234188	04/18/16
Toluene-d8	102	80-120	234188	04/18/16
Bromofluorobenzene	111	80-120	234188	04/18/16

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160407B480	Dil'n Fac:	1.000
Lab ID:	275865-009	Sampled:	04/07/16
Matrix:	Water	Received:	04/08/16
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Analyzed
Freon 12	ND	1.0	0.1	234188	04/18/16
Chloromethane	ND	1.0	0.3	234050	04/13/16
Vinyl Chloride	ND	1.0	0.1	234188	04/18/16
Bromomethane	ND	1.0	0.2	234188	04/18/16
Chloroethane	ND	1.0	0.1	234188	04/18/16
Trichlorofluoromethane	ND	1.0	0.1	234188	04/18/16
Acetone	ND	10	3.3	234188	04/18/16
Freon 113	ND	5.0	0.1	234188	04/18/16
1,1-Dichloroethene	ND	1.0	0.1	234188	04/18/16
Methylene Chloride	ND	10	0.1	234188	04/18/16
Carbon Disulfide	ND	1.0	0.1	234188	04/18/16
MTBE	ND	1.0	0.1	234188	04/18/16
trans-1,2-Dichloroethene	ND	1.0	0.1	234188	04/18/16
Vinyl Acetate	ND	10	0.3	234188	04/18/16
1,1-Dichloroethane	ND	1.0	0.1	234188	04/18/16
2-Butanone	ND	10	0.3	234188	04/18/16
cis-1,2-Dichloroethene	0.1 J	1.0	0.1	234188	04/18/16
2,2-Dichloropropane	ND	1.0	0.1	234188	04/18/16
Chloroform	ND	1.0	0.1	234188	04/18/16
Bromochloromethane	ND	1.0	0.2	234188	04/18/16
1,1,1-Trichloroethane	ND	1.0	0.1	234188	04/18/16
1,1-Dichloropropene	ND	1.0	0.1	234188	04/18/16
Carbon Tetrachloride	ND	1.0	0.1	234188	04/18/16
1,2-Dichloroethane	ND	1.0	0.1	234188	04/18/16
Benzene	ND	1.0	0.1	234188	04/18/16
Trichloroethene	15	1.0	0.1	234188	04/18/16
1,2-Dichloropropane	ND	1.0	0.1	234188	04/18/16
Bromodichloromethane	ND	1.0	0.1	234188	04/18/16
Dibromomethane	ND	1.0	0.1	234188	04/18/16
4-Methyl-2-Pentanone	ND	10	0.2	234188	04/18/16
cis-1,3-Dichloropropene	ND	1.0	0.1	234188	04/18/16
Toluene	ND	1.0	0.1	234188	04/18/16
trans-1,3-Dichloropropene	ND	1.0	0.1	234188	04/18/16
1,1,2-Trichloroethane	ND	1.0	0.1	234188	04/18/16
2-Hexanone	ND	10	0.2	234188	04/18/16
1,3-Dichloropropane	ND	1.0	0.1	234188	04/18/16
Tetrachloroethene	0.3 J	1.0	0.1	234188	04/18/16
Dibromochloromethane	ND	1.0	0.1	234188	04/18/16
1,2-Dibromoethane	ND	1.0	0.1	234188	04/18/16
Chlorobenzene	ND	1.0	0.1	234188	04/18/16
1,1,1,2-Tetrachloroethane	ND	1.0	0.1	234188	04/18/16
Ethylbenzene	ND	1.0	0.1	234188	04/18/16
m,p-Xylenes	ND	1.0	0.1	234188	04/18/16
o-Xylene	ND	1.0	0.1	234188	04/18/16
Styrene	ND	1.0	0.2	234188	04/18/16
Bromoform	ND	1.0	0.1	234188	04/18/16
Isopropylbenzene	ND	1.0	0.1	234188	04/18/16
1,1,2,2-Tetrachloroethane	ND	1.0	0.1	234188	04/18/16
1,2,3-Trichloropropane	ND	1.0	0.1	234188	04/18/16
Propylbenzene	ND	1.0	0.1	234188	04/18/16
Bromobenzene	ND	1.0	0.1	234188	04/18/16
1,3,5-Trimethylbenzene	ND	1.0	0.1	234188	04/18/16
2-Chlorotoluene	ND	1.0	0.1	234188	04/18/16

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160407B480	Dil'n Fac:	1.000
Lab ID:	275865-009	Sampled:	04/07/16
Matrix:	Water	Received:	04/08/16
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Analyzed
4-Chlorotoluene	ND	1.0	0.1	234188	04/18/16
tert-Butylbenzene	ND	1.0	0.1	234188	04/18/16
1,2,4-Trimethylbenzene	ND	1.0	0.1	234188	04/18/16
sec-Butylbenzene	ND	1.0	0.1	234188	04/18/16
para-Isopropyl Toluene	ND	1.0	0.1	234188	04/18/16
1,3-Dichlorobenzene	ND	1.0	0.1	234188	04/18/16
1,4-Dichlorobenzene	ND	1.0	0.1	234188	04/18/16
n-Butylbenzene	ND	1.0	0.1	234188	04/18/16
1,2-Dichlorobenzene	ND	1.0	0.1	234188	04/18/16
1,2-Dibromo-3-Chloropropane	ND	1.0	0.3	234188	04/18/16
1,2,4-Trichlorobenzene	ND	1.0	0.1	234188	04/18/16
Hexachlorobutadiene	ND	1.0	0.2	234188	04/18/16
Naphthalene	ND	1.0	0.3	234188	04/18/16
1,2,3-Trichlorobenzene	ND	1.0	0.1	234188	04/18/16

Tentatively Identified Compounds	Batch#	Analyzed
No TICs found.	234188	04/18/16

Surrogate	%REC	Limits	Batch#	Analyzed
Dibromofluoromethane	115	80-128	234188	04/18/16
1,2-Dichloroethane-d4	103	75-139	234188	04/18/16
Toluene-d8	100	80-120	234188	04/18/16
Bromofluorobenzene	107	80-120	234188	04/18/16

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160407B480D	Dil'n Fac:	1.000
Lab ID:	275865-010	Sampled:	04/07/16
Matrix:	Water	Received:	04/08/16
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Analyzed
Freon 12	ND	1.0	0.1	234188	04/18/16
Chloromethane	ND	1.0	0.3	234050	04/13/16
Vinyl Chloride	ND	1.0	0.1	234188	04/18/16
Bromomethane	ND	1.0	0.2	234188	04/18/16
Chloroethane	ND	1.0	0.1	234188	04/18/16
Trichlorofluoromethane	ND	1.0	0.1	234188	04/18/16
Acetone	ND	10	3.3	234188	04/18/16
Freon 113	ND	5.0	0.1	234188	04/18/16
1,1-Dichloroethene	ND	1.0	0.1	234188	04/18/16
Methylene Chloride	ND	10	0.1	234188	04/18/16
Carbon Disulfide	ND	1.0	0.1	234188	04/18/16
MTBE	ND	1.0	0.1	234188	04/18/16
trans-1,2-Dichloroethene	ND	1.0	0.1	234188	04/18/16
Vinyl Acetate	ND	10	0.3	234188	04/18/16
1,1-Dichloroethane	ND	1.0	0.1	234188	04/18/16
2-Butanone	ND	10	0.3	234188	04/18/16
cis-1,2-Dichloroethene	0.2 J	1.0	0.1	234188	04/18/16
2,2-Dichloropropane	ND	1.0	0.1	234188	04/18/16
Chloroform	ND	1.0	0.1	234188	04/18/16
Bromochloromethane	ND	1.0	0.2	234188	04/18/16
1,1,1-Trichloroethane	ND	1.0	0.1	234188	04/18/16
1,1-Dichloropropene	ND	1.0	0.1	234188	04/18/16
Carbon Tetrachloride	ND	1.0	0.1	234188	04/18/16
1,2-Dichloroethane	ND	1.0	0.1	234188	04/18/16
Benzene	ND	1.0	0.1	234188	04/18/16
Trichloroethene	15	1.0	0.1	234188	04/18/16
1,2-Dichloropropane	ND	1.0	0.1	234188	04/18/16
Bromodichloromethane	ND	1.0	0.1	234188	04/18/16
Dibromomethane	ND	1.0	0.1	234188	04/18/16
4-Methyl-2-Pentanone	ND	10	0.2	234188	04/18/16
cis-1,3-Dichloropropene	ND	1.0	0.1	234188	04/18/16
Toluene	ND	1.0	0.1	234188	04/18/16
trans-1,3-Dichloropropene	ND	1.0	0.1	234188	04/18/16
1,1,2-Trichloroethane	ND	1.0	0.1	234188	04/18/16
2-Hexanone	ND	10	0.2	234188	04/18/16
1,3-Dichloropropane	ND	1.0	0.1	234188	04/18/16
Tetrachloroethene	0.2 J	1.0	0.1	234188	04/18/16
Dibromochloromethane	ND	1.0	0.1	234188	04/18/16
1,2-Dibromoethane	ND	1.0	0.1	234188	04/18/16
Chlorobenzene	ND	1.0	0.1	234188	04/18/16
1,1,1,2-Tetrachloroethane	ND	1.0	0.1	234188	04/18/16
Ethylbenzene	ND	1.0	0.1	234188	04/18/16
m,p-Xylenes	ND	1.0	0.1	234188	04/18/16
o-Xylene	ND	1.0	0.1	234188	04/18/16
Styrene	ND	1.0	0.2	234188	04/18/16
Bromoform	ND	1.0	0.1	234188	04/18/16
Isopropylbenzene	ND	1.0	0.1	234188	04/18/16
1,1,2,2-Tetrachloroethane	ND	1.0	0.1	234188	04/18/16
1,2,3-Trichloropropane	ND	1.0	0.1	234188	04/18/16
Propylbenzene	ND	1.0	0.1	234188	04/18/16
Bromobenzene	ND	1.0	0.1	234188	04/18/16
1,3,5-Trimethylbenzene	ND	1.0	0.1	234188	04/18/16
2-Chlorotoluene	ND	1.0	0.1	234188	04/18/16

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160407B480D	Dil'n Fac:	1.000
Lab ID:	275865-010	Sampled:	04/07/16
Matrix:	Water	Received:	04/08/16
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Analyzed
4-Chlorotoluene	ND	1.0	0.1	234188	04/18/16
tert-Butylbenzene	ND	1.0	0.1	234188	04/18/16
1,2,4-Trimethylbenzene	ND	1.0	0.1	234188	04/18/16
sec-Butylbenzene	ND	1.0	0.1	234188	04/18/16
para-Isopropyl Toluene	ND	1.0	0.1	234188	04/18/16
1,3-Dichlorobenzene	ND	1.0	0.1	234188	04/18/16
1,4-Dichlorobenzene	ND	1.0	0.1	234188	04/18/16
n-Butylbenzene	ND	1.0	0.1	234188	04/18/16
1,2-Dichlorobenzene	ND	1.0	0.1	234188	04/18/16
1,2-Dibromo-3-Chloropropane	ND	1.0	0.3	234188	04/18/16
1,2,4-Trichlorobenzene	ND	1.0	0.1	234188	04/18/16
Hexachlorobutadiene	ND	1.0	0.2	234188	04/18/16
Naphthalene	ND	1.0	0.3	234188	04/18/16
1,2,3-Trichlorobenzene	ND	1.0	0.1	234188	04/18/16

Tentatively Identified Compounds	Batch#	Analyzed
No TICs found.	234188	04/18/16

Surrogate	%REC	Limits	Batch#	Analyzed
Dibromofluoromethane	114	80-128	234188	04/18/16
1,2-Dichloroethane-d4	105	75-139	234188	04/18/16
Toluene-d8	101	80-120	234188	04/18/16
Bromofluorobenzene	108	80-120	234188	04/18/16

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160407B450	Batch#:	234187
Lab ID:	275865-011	Sampled:	04/07/16
Matrix:	Water	Received:	04/08/16
Units:	ug/L	Analyzed:	04/18/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
Freon 12	ND	1.0	0.1
Chloromethane	ND	1.0	0.3
Vinyl Chloride	ND	1.0	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.3
Trichlorofluoromethane	ND	1.0	0.2
Acetone	ND	10	3.3
Freon 113	ND	5.0	0.1
1,1-Dichloroethene	ND	1.0	0.2
Methylene Chloride	ND	10	0.2
Carbon Disulfide	ND	1.0	0.1
MTBE	ND	1.0	0.1
trans-1,2-Dichloroethene	ND	1.0	0.2
Vinyl Acetate	ND	10	1.1
1,1-Dichloroethane	ND	1.0	0.2
2-Butanone	ND	10	0.5
cis-1,2-Dichloroethene	0.1 J	1.0	0.1
2,2-Dichloropropane	ND	1.0	0.1
Chloroform	ND	1.0	0.1
Bromochloromethane	ND	1.0	0.1
1,1,1-Trichloroethane	ND	1.0	0.1
1,1-Dichloropropene	ND	1.0	0.1
Carbon Tetrachloride	ND	1.0	0.1
1,2-Dichloroethane	ND	1.0	0.1
Benzene	ND	1.0	0.1
Trichloroethene	14	1.0	0.1
1,2-Dichloropropane	ND	1.0	0.1
Bromodichloromethane	ND	1.0	0.1
Dibromomethane	ND	1.0	0.1
4-Methyl-2-Pentanone	ND	10	0.7
cis-1,3-Dichloropropene	ND	1.0	0.1
Toluene	ND	1.0	0.1
trans-1,3-Dichloropropene	ND	1.0	0.1
1,1,2-Trichloroethane	ND	1.0	0.2
2-Hexanone	ND	10	0.5
1,3-Dichloropropane	ND	1.0	0.1
Tetrachloroethene	0.4 J	1.0	0.1
Dibromochloromethane	ND	1.0	0.1
1,2-Dibromoethane	ND	1.0	0.1
Chlorobenzene	ND	1.0	0.1
1,1,1,2-Tetrachloroethane	ND	1.0	0.1
Ethylbenzene	ND	1.0	0.1
m,p-Xylenes	ND	1.0	0.1
o-Xylene	ND	1.0	0.1
Styrene	ND	1.0	0.1
Bromoform	ND	1.0	0.1
Isopropylbenzene	ND	1.0	0.1
1,1,2,2-Tetrachloroethane	ND	1.0	0.1
1,2,3-Trichloropropane	ND	1.0	0.2
Propylbenzene	ND	1.0	0.1
Bromobenzene	ND	1.0	0.1
1,3,5-Trimethylbenzene	ND	1.0	0.1

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

11.0

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160407B450	Batch#:	234187
Lab ID:	275865-011	Sampled:	04/07/16
Matrix:	Water	Received:	04/08/16
Units:	ug/L	Analyzed:	04/18/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
2-Chlorotoluene	ND	1.0	0.1
4-Chlorotoluene	ND	1.0	0.1
tert-Butylbenzene	ND	1.0	0.1
1,2,4-Trimethylbenzene	ND	1.0	0.1
sec-Butylbenzene	ND	1.0	0.1
para-Isopropyl Toluene	ND	1.0	0.1
1,3-Dichlorobenzene	ND	1.0	0.1
1,4-Dichlorobenzene	ND	1.0	0.1
n-Butylbenzene	ND	1.0	0.1
1,2-Dichlorobenzene	ND	1.0	0.1
1,2-Dibromo-3-Chloropropane	ND	1.0	0.3
1,2,4-Trichlorobenzene	ND	1.0	0.1
Hexachlorobutadiene	ND	1.0	0.1
Naphthalene	ND	1.0	0.1
1,2,3-Trichlorobenzene	ND	1.0	0.1

Tentatively Identified Compounds

No TICs found.

Surrogate	%REC	Limits
Dibromofluoromethane	91	80-128
1,2-Dichloroethane-d4	96	75-139
Toluene-d8	102	80-120
Bromofluorobenzene	107	80-120

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160407ER	Dil'n Fac:	1.000
Lab ID:	275865-013	Sampled:	04/07/16
Matrix:	Water	Received:	04/08/16
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Analyzed
Freon 12	ND	1.0	0.1	234188	04/19/16
Chloromethane	ND	1.0	0.3	234050	04/13/16
Vinyl Chloride	ND	1.0	0.1	234188	04/19/16
Bromomethane	ND	1.0	0.2	234188	04/19/16
Chloroethane	ND	1.0	0.1	234188	04/19/16
Trichlorofluoromethane	ND	1.0	0.1	234188	04/19/16
Acetone	4.4 J	10	3.3	234188	04/19/16
Freon 113	ND	5.0	0.1	234188	04/19/16
1,1-Dichloroethene	ND	1.0	0.1	234188	04/19/16
Methylene Chloride	ND	10	0.1	234188	04/19/16
Carbon Disulfide	ND	1.0	0.1	234188	04/19/16
MTBE	ND	1.0	0.1	234188	04/19/16
trans-1,2-Dichloroethene	ND	1.0	0.1	234188	04/19/16
Vinyl Acetate	ND	10	0.3	234188	04/19/16
1,1-Dichloroethane	ND	1.0	0.1	234188	04/19/16
2-Butanone	0.8 J	10	0.3	234188	04/19/16
cis-1,2-Dichloroethene	ND	1.0	0.1	234188	04/19/16
2,2-Dichloropropane	ND	1.0	0.1	234188	04/19/16
Chloroform	ND	1.0	0.1	234188	04/19/16
Bromochloromethane	ND	1.0	0.2	234188	04/19/16
1,1,1-Trichloroethane	ND	1.0	0.1	234188	04/19/16
1,1-Dichloropropene	ND	1.0	0.1	234188	04/19/16
Carbon Tetrachloride	ND	1.0	0.1	234188	04/19/16
1,2-Dichloroethane	ND	1.0	0.1	234188	04/19/16
Benzene	ND	1.0	0.1	234188	04/19/16
Trichloroethene	ND	1.0	0.1	234188	04/19/16
1,2-Dichloropropane	ND	1.0	0.1	234188	04/19/16
Bromodichloromethane	ND	1.0	0.1	234188	04/19/16
Dibromomethane	ND	1.0	0.1	234188	04/19/16
4-Methyl-2-Pentanone	ND	10	0.2	234188	04/19/16
cis-1,3-Dichloropropene	ND	1.0	0.1	234188	04/19/16
Toluene	ND	1.0	0.1	234188	04/19/16
trans-1,3-Dichloropropene	ND	1.0	0.1	234188	04/19/16
1,1,2-Trichloroethane	ND	1.0	0.1	234188	04/19/16
2-Hexanone	ND	10	0.2	234188	04/19/16
1,3-Dichloropropane	ND	1.0	0.1	234188	04/19/16
Tetrachloroethene	ND	1.0	0.1	234188	04/19/16
Dibromochloromethane	ND	1.0	0.1	234188	04/19/16
1,2-Dibromoethane	ND	1.0	0.1	234188	04/19/16
Chlorobenzene	ND	1.0	0.1	234188	04/19/16
1,1,1,2-Tetrachloroethane	ND	1.0	0.1	234188	04/19/16
Ethylbenzene	ND	1.0	0.1	234188	04/19/16
m,p-Xylenes	ND	1.0	0.1	234188	04/19/16
o-Xylene	ND	1.0	0.1	234188	04/19/16
Styrene	ND	1.0	0.2	234188	04/19/16
Bromoform	ND	1.0	0.1	234188	04/19/16
Isopropylbenzene	ND	1.0	0.1	234188	04/19/16
1,1,2,2-Tetrachloroethane	ND	1.0	0.1	234188	04/19/16
1,2,3-Trichloropropane	ND	1.0	0.1	234188	04/19/16
Propylbenzene	ND	1.0	0.1	234188	04/19/16
Bromobenzene	ND	1.0	0.1	234188	04/19/16
1,3,5-Trimethylbenzene	ND	1.0	0.1	234188	04/19/16
2-Chlorotoluene	ND	1.0	0.1	234188	04/19/16

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160407ER	Dil'n Fac:	1.000
Lab ID:	275865-013	Sampled:	04/07/16
Matrix:	Water	Received:	04/08/16
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Analyzed
4-Chlorotoluene	ND	1.0	0.1	234188	04/19/16
tert-Butylbenzene	ND	1.0	0.1	234188	04/19/16
1,2,4-Trimethylbenzene	ND	1.0	0.1	234188	04/19/16
sec-Butylbenzene	ND	1.0	0.1	234188	04/19/16
para-Isopropyl Toluene	ND	1.0	0.1	234188	04/19/16
1,3-Dichlorobenzene	ND	1.0	0.1	234188	04/19/16
1,4-Dichlorobenzene	ND	1.0	0.1	234188	04/19/16
n-Butylbenzene	ND	1.0	0.1	234188	04/19/16
1,2-Dichlorobenzene	ND	1.0	0.1	234188	04/19/16
1,2-Dibromo-3-Chloropropane	ND	1.0	0.3	234188	04/19/16
1,2,4-Trichlorobenzene	ND	1.0	0.1	234188	04/19/16
Hexachlorobutadiene	ND	1.0	0.2	234188	04/19/16
Naphthalene	ND	1.0	0.3	234188	04/19/16
1,2,3-Trichlorobenzene	ND	1.0	0.1	234188	04/19/16

Tentatively Identified Compounds	Batch#	Analyzed
No TICs found.	234188	04/19/16

Surrogate	%REC	Limits	Batch#	Analyzed
Dibromofluoromethane	117	80-128	234188	04/19/16
1,2-Dichloroethane-d4	108	75-139	234188	04/19/16
Toluene-d8	113	80-120	234188	04/19/16
Bromofluorobenzene	99	80-120	234188	04/19/16

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160407TB	Batch#:	234163
Lab ID:	275865-014	Sampled:	04/07/16
Matrix:	Water	Received:	04/08/16
Units:	ug/L	Analyzed:	04/16/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
Freon 12	ND	1.0	0.1
Chloromethane	ND	1.0	0.3
Vinyl Chloride	ND	1.0	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.3
Trichlorofluoromethane	ND	1.0	0.2
Acetone	ND	10	3.3
Freon 113	ND	5.0	0.1
1,1-Dichloroethene	ND	1.0	0.2
Methylene Chloride	ND	10	0.2
Carbon Disulfide	ND	1.0	0.1
MTBE	ND	1.0	0.1
trans-1,2-Dichloroethene	ND	1.0	0.2
Vinyl Acetate	ND	10	1.1
1,1-Dichloroethane	ND	1.0	0.2
2-Butanone	ND	10	0.5
cis-1,2-Dichloroethene	ND	1.0	0.1
2,2-Dichloropropane	ND	1.0	0.1
Chloroform	ND	1.0	0.1
Bromochloromethane	ND	1.0	0.1
1,1,1-Trichloroethane	ND	1.0	0.1
1,1-Dichloropropene	ND	1.0	0.1
Carbon Tetrachloride	ND	1.0	0.1
1,2-Dichloroethane	ND	1.0	0.1
Benzene	ND	1.0	0.1
Trichloroethene	ND	1.0	0.1
1,2-Dichloropropane	ND	1.0	0.1
Bromodichloromethane	ND	1.0	0.1
Dibromomethane	ND	1.0	0.1
4-Methyl-2-Pentanone	ND	10	0.7
cis-1,3-Dichloropropene	ND	1.0	0.1
Toluene	ND	1.0	0.1
trans-1,3-Dichloropropene	ND	1.0	0.1
1,1,2-Trichloroethane	ND	1.0	0.2
2-Hexanone	ND	10	0.5
1,3-Dichloropropane	ND	1.0	0.1
Tetrachloroethene	ND	1.0	0.1
Dibromochloromethane	ND	1.0	0.1
1,2-Dibromoethane	ND	1.0	0.1
Chlorobenzene	ND	1.0	0.1
1,1,1,2-Tetrachloroethane	ND	1.0	0.1
Ethylbenzene	ND	1.0	0.1
m,p-Xylenes	ND	1.0	0.1
o-Xylene	ND	1.0	0.1
Styrene	ND	1.0	0.1
Bromoform	ND	1.0	0.1
Isopropylbenzene	ND	1.0	0.1
1,1,2,2-Tetrachloroethane	ND	1.0	0.1
1,2,3-Trichloropropane	ND	1.0	0.2
Propylbenzene	ND	1.0	0.1
Bromobenzene	ND	1.0	0.1
1,3,5-Trimethylbenzene	ND	1.0	0.1
2-Chlorotoluene	ND	1.0	0.1

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160407TB	Batch#:	234163
Lab ID:	275865-014	Sampled:	04/07/16
Matrix:	Water	Received:	04/08/16
Units:	ug/L	Analyzed:	04/16/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
4-Chlorotoluene	ND	1.0	0.1
tert-Butylbenzene	ND	1.0	0.1
1,2,4-Trimethylbenzene	ND	1.0	0.1
sec-Butylbenzene	ND	1.0	0.1
para-Isopropyl Toluene	ND	1.0	0.1
1,3-Dichlorobenzene	ND	1.0	0.1
1,4-Dichlorobenzene	ND	1.0	0.1
n-Butylbenzene	ND	1.0	0.1
1,2-Dichlorobenzene	ND	1.0	0.1
1,2-Dibromo-3-Chloropropane	ND	1.0	0.3
1,2,4-Trichlorobenzene	ND	1.0	0.1
Hexachlorobutadiene	ND	1.0	0.1
Naphthalene	ND	1.0	0.1
1,2,3-Trichlorobenzene	ND	1.0	0.1

Tentatively Identified Compounds

No TICs found.

Surrogate	%REC	Limits
Dibromofluoromethane	94	80-128
1,2-Dichloroethane-d4	95	75-139
Toluene-d8	107	80-120
Bromofluorobenzene	104	80-120

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160408PZ11	Batch#:	234187
Lab ID:	275865-015	Sampled:	04/08/16
Matrix:	Water	Received:	04/08/16
Units:	ug/L	Analyzed:	04/18/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
Freon 12	ND	1.0	0.1
Chloromethane	ND	1.0	0.3
Vinyl Chloride	0.2 J	1.0	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.3
Trichlorofluoromethane	ND	1.0	0.2
Acetone	ND	10	3.3
Freon 113	ND	5.0	0.1
1,1-Dichloroethene	ND	1.0	0.2
Methylene Chloride	ND	10	0.2
Carbon Disulfide	ND	1.0	0.1
MTBE	ND	1.0	0.1
trans-1,2-Dichloroethene	0.3 J	1.0	0.2
Vinyl Acetate	ND	10	1.1
1,1-Dichloroethane	ND	1.0	0.2
2-Butanone	ND	10	0.5
cis-1,2-Dichloroethene	2.8	1.0	0.1
2,2-Dichloropropane	ND	1.0	0.1
Chloroform	ND	1.0	0.1
Bromochloromethane	ND	1.0	0.1
1,1,1-Trichloroethane	ND	1.0	0.1
1,1-Dichloropropene	ND	1.0	0.1
Carbon Tetrachloride	ND	1.0	0.1
1,2-Dichloroethane	ND	1.0	0.1
Benzene	ND	1.0	0.1
Trichloroethene	8.3	1.0	0.1
1,2-Dichloropropane	ND	1.0	0.1
Bromodichloromethane	ND	1.0	0.1
Dibromomethane	ND	1.0	0.1
4-Methyl-2-Pentanone	ND	10	0.7
cis-1,3-Dichloropropene	ND	1.0	0.1
Toluene	ND	1.0	0.1
trans-1,3-Dichloropropene	ND	1.0	0.1
1,1,2-Trichloroethane	ND	1.0	0.2
2-Hexanone	ND	10	0.5
1,3-Dichloropropane	ND	1.0	0.1
Tetrachloroethene	0.6 J	1.0	0.1
Dibromochloromethane	ND	1.0	0.1
1,2-Dibromoethane	ND	1.0	0.1
Chlorobenzene	ND	1.0	0.1
1,1,1,2-Tetrachloroethane	ND	1.0	0.1
Ethylbenzene	ND	1.0	0.1
m,p-Xylenes	ND	1.0	0.1
o-Xylene	ND	1.0	0.1
Styrene	ND	1.0	0.1
Bromoform	ND	1.0	0.1
Isopropylbenzene	ND	1.0	0.1
1,1,2,2-Tetrachloroethane	ND	1.0	0.1
1,2,3-Trichloropropane	ND	1.0	0.2
Propylbenzene	ND	1.0	0.1
Bromobenzene	ND	1.0	0.1
1,3,5-Trimethylbenzene	ND	1.0	0.1

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160408PZ11	Batch#:	234187
Lab ID:	275865-015	Sampled:	04/08/16
Matrix:	Water	Received:	04/08/16
Units:	ug/L	Analyzed:	04/18/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
2-Chlorotoluene	ND	1.0	0.1
4-Chlorotoluene	ND	1.0	0.1
tert-Butylbenzene	ND	1.0	0.1
1,2,4-Trimethylbenzene	ND	1.0	0.1
sec-Butylbenzene	ND	1.0	0.1
para-Isopropyl Toluene	ND	1.0	0.1
1,3-Dichlorobenzene	ND	1.0	0.1
1,4-Dichlorobenzene	ND	1.0	0.1
n-Butylbenzene	ND	1.0	0.1
1,2-Dichlorobenzene	ND	1.0	0.1
1,2-Dibromo-3-Chloropropane	ND	1.0	0.3
1,2,4-Trichlorobenzene	ND	1.0	0.1
Hexachlorobutadiene	ND	1.0	0.1
Naphthalene	ND	1.0	0.1
1,2,3-Trichlorobenzene	ND	1.0	0.1

Tentatively Identified Compounds

No TICs found.

Surrogate	%REC	Limits
Dibromofluoromethane	96	80-128
1,2-Dichloroethane-d4	99	75-139
Toluene-d8	101	80-120
Bromofluorobenzene	99	80-120

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160408B473	Batch#:	234163
Lab ID:	275865-016	Sampled:	04/08/16
Matrix:	Water	Received:	04/08/16
Units:	ug/L	Analyzed:	04/16/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
Freon 12	ND	1.0	0.1
Chloromethane	ND	1.0	0.3
Vinyl Chloride	ND	1.0	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.3
Trichlorofluoromethane	ND	1.0	0.2
Acetone	ND	10	3.3
Freon 113	ND	5.0	0.1
1,1-Dichloroethene	ND	1.0	0.2
Methylene Chloride	ND	10	0.2
Carbon Disulfide	ND	1.0	0.1
MTBE	ND	1.0	0.1
trans-1,2-Dichloroethene	ND	1.0	0.2
Vinyl Acetate	ND	10	1.1
1,1-Dichloroethane	ND	1.0	0.2
2-Butanone	ND	10	0.5
cis-1,2-Dichloroethene	0.4 J	1.0	0.1
2,2-Dichloropropane	ND	1.0	0.1
Chloroform	ND	1.0	0.1
Bromochloromethane	ND	1.0	0.1
1,1,1-Trichloroethane	ND	1.0	0.1
1,1-Dichloropropene	ND	1.0	0.1
Carbon Tetrachloride	ND	1.0	0.1
1,2-Dichloroethane	ND	1.0	0.1
Benzene	ND	1.0	0.1
Trichloroethene	8.0	1.0	0.1
1,2-Dichloropropane	ND	1.0	0.1
Bromodichloromethane	ND	1.0	0.1
Dibromomethane	ND	1.0	0.1
4-Methyl-2-Pentanone	ND	10	0.7
cis-1,3-Dichloropropene	ND	1.0	0.1
Toluene	ND	1.0	0.1
trans-1,3-Dichloropropene	ND	1.0	0.1
1,1,2-Trichloroethane	ND	1.0	0.2
2-Hexanone	ND	10	0.5
1,3-Dichloropropane	ND	1.0	0.1
Tetrachloroethene	0.3 J	1.0	0.1
Dibromochloromethane	ND	1.0	0.1
1,2-Dibromoethane	ND	1.0	0.1
Chlorobenzene	ND	1.0	0.1
1,1,1,2-Tetrachloroethane	ND	1.0	0.1
Ethylbenzene	ND	1.0	0.1
m,p-Xylenes	ND	1.0	0.1
o-Xylene	ND	1.0	0.1
Styrene	ND	1.0	0.1
Bromoform	ND	1.0	0.1
Isopropylbenzene	ND	1.0	0.1
1,1,2,2-Tetrachloroethane	ND	1.0	0.1
1,2,3-Trichloropropane	ND	1.0	0.2
Propylbenzene	ND	1.0	0.1
Bromobenzene	ND	1.0	0.1
1,3,5-Trimethylbenzene	ND	1.0	0.1

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160408B473	Batch#:	234163
Lab ID:	275865-016	Sampled:	04/08/16
Matrix:	Water	Received:	04/08/16
Units:	ug/L	Analyzed:	04/16/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
2-Chlorotoluene	ND	1.0	0.1
4-Chlorotoluene	ND	1.0	0.1
tert-Butylbenzene	ND	1.0	0.1
1,2,4-Trimethylbenzene	ND	1.0	0.1
sec-Butylbenzene	ND	1.0	0.1
para-Isopropyl Toluene	ND	1.0	0.1
1,3-Dichlorobenzene	ND	1.0	0.1
1,4-Dichlorobenzene	ND	1.0	0.1
n-Butylbenzene	ND	1.0	0.1
1,2-Dichlorobenzene	ND	1.0	0.1
1,2-Dibromo-3-Chloropropane	ND	1.0	0.3
1,2,4-Trichlorobenzene	ND	1.0	0.1
Hexachlorobutadiene	ND	1.0	0.1
Naphthalene	ND	1.0	0.1
1,2,3-Trichlorobenzene	ND	1.0	0.1

Tentatively Identified Compounds

No TICs found.

Surrogate	%REC	Limits
Dibromofluoromethane	89	80-128
1,2-Dichloroethane-d4	102	75-139
Toluene-d8	105	80-120
Bromofluorobenzene	100	80-120

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160408B473D	Batch#:	234163
Lab ID:	275865-017	Sampled:	04/08/16
Matrix:	Water	Received:	04/08/16
Units:	ug/L	Analyzed:	04/16/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
Freon 12	ND	1.0	0.1
Chloromethane	ND	1.0	0.3
Vinyl Chloride	ND	1.0	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.3
Trichlorofluoromethane	ND	1.0	0.2
Acetone	ND	10	3.3
Freon 113	ND	5.0	0.1
1,1-Dichloroethene	ND	1.0	0.2
Methylene Chloride	ND	10	0.2
Carbon Disulfide	ND	1.0	0.1
MTBE	ND	1.0	0.1
trans-1,2-Dichloroethene	ND	1.0	0.2
Vinyl Acetate	ND	10	1.1
1,1-Dichloroethane	ND	1.0	0.2
2-Butanone	ND	10	0.5
cis-1,2-Dichloroethene	0.4 J	1.0	0.1
2,2-Dichloropropane	ND	1.0	0.1
Chloroform	ND	1.0	0.1
Bromochloromethane	ND	1.0	0.1
1,1,1-Trichloroethane	ND	1.0	0.1
1,1-Dichloropropene	ND	1.0	0.1
Carbon Tetrachloride	ND	1.0	0.1
1,2-Dichloroethane	ND	1.0	0.1
Benzene	ND	1.0	0.1
Trichloroethene	9.3	1.0	0.1
1,2-Dichloropropane	ND	1.0	0.1
Bromodichloromethane	ND	1.0	0.1
Dibromomethane	ND	1.0	0.1
4-Methyl-2-Pentanone	ND	10	0.7
cis-1,3-Dichloropropene	ND	1.0	0.1
Toluene	ND	1.0	0.1
trans-1,3-Dichloropropene	ND	1.0	0.1
1,1,2-Trichloroethane	ND	1.0	0.2
2-Hexanone	ND	10	0.5
1,3-Dichloropropane	ND	1.0	0.1
Tetrachloroethene	0.1 J	1.0	0.1
Dibromochloromethane	ND	1.0	0.1
1,2-Dibromoethane	ND	1.0	0.1
Chlorobenzene	ND	1.0	0.1
1,1,1,2-Tetrachloroethane	ND	1.0	0.1
Ethylbenzene	ND	1.0	0.1
m,p-Xylenes	ND	1.0	0.1
o-Xylene	ND	1.0	0.1
Styrene	ND	1.0	0.1
Bromoform	ND	1.0	0.1
Isopropylbenzene	ND	1.0	0.1
1,1,2,2-Tetrachloroethane	ND	1.0	0.1
1,2,3-Trichloropropane	ND	1.0	0.2
Propylbenzene	ND	1.0	0.1
Bromobenzene	ND	1.0	0.1
1,3,5-Trimethylbenzene	ND	1.0	0.1

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160408B473D	Batch#:	234163
Lab ID:	275865-017	Sampled:	04/08/16
Matrix:	Water	Received:	04/08/16
Units:	ug/L	Analyzed:	04/16/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
2-Chlorotoluene	ND	1.0	0.1
4-Chlorotoluene	ND	1.0	0.1
tert-Butylbenzene	ND	1.0	0.1
1,2,4-Trimethylbenzene	ND	1.0	0.1
sec-Butylbenzene	ND	1.0	0.1
para-Isopropyl Toluene	ND	1.0	0.1
1,3-Dichlorobenzene	ND	1.0	0.1
1,4-Dichlorobenzene	ND	1.0	0.1
n-Butylbenzene	ND	1.0	0.1
1,2-Dichlorobenzene	ND	1.0	0.1
1,2-Dibromo-3-Chloropropane	ND	1.0	0.3
1,2,4-Trichlorobenzene	ND	1.0	0.1
Hexachlorobutadiene	ND	1.0	0.1
Naphthalene	ND	1.0	0.1
1,2,3-Trichlorobenzene	ND	1.0	0.1

Tentatively Identified Compounds

No TICs found.

Surrogate	%REC	Limits
Dibromofluoromethane	93	80-128
1,2-Dichloroethane-d4	100	75-139
Toluene-d8	95	80-120
Bromofluorobenzene	104	80-120

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160408TP2	Batch#:	234163
Lab ID:	275865-019	Sampled:	04/08/16
Matrix:	Water	Received:	04/08/16
Units:	ug/L	Analyzed:	04/16/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
Freon 12	ND	1.0	0.1
Chloromethane	ND	1.0	0.3
Vinyl Chloride	ND	1.0	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.3
Trichlorofluoromethane	ND	1.0	0.2
Acetone	ND	10	3.3
Freon 113	ND	5.0	0.1
1,1-Dichloroethene	ND	1.0	0.2
Methylene Chloride	ND	10	0.2
Carbon Disulfide	ND	1.0	0.1
MTBE	ND	1.0	0.1
trans-1,2-Dichloroethene	ND	1.0	0.2
Vinyl Acetate	ND	10	1.1
1,1-Dichloroethane	ND	1.0	0.2
2-Butanone	ND	10	0.5
cis-1,2-Dichloroethene	0.6 J	1.0	0.1
2,2-Dichloropropane	ND	1.0	0.1
Chloroform	ND	1.0	0.1
Bromochloromethane	ND	1.0	0.1
1,1,1-Trichloroethane	ND	1.0	0.1
1,1-Dichloropropene	ND	1.0	0.1
Carbon Tetrachloride	ND	1.0	0.1
1,2-Dichloroethane	ND	1.0	0.1
Benzene	ND	1.0	0.1
Trichloroethene	23	1.0	0.1
1,2-Dichloropropane	ND	1.0	0.1
Bromodichloromethane	ND	1.0	0.1
Dibromomethane	ND	1.0	0.1
4-Methyl-2-Pentanone	ND	10	0.7
cis-1,3-Dichloropropene	ND	1.0	0.1
Toluene	ND	1.0	0.1
trans-1,3-Dichloropropene	ND	1.0	0.1
1,1,2-Trichloroethane	ND	1.0	0.2
2-Hexanone	ND	10	0.5
1,3-Dichloropropane	ND	1.0	0.1
Tetrachloroethene	0.4 J	1.0	0.1
Dibromochloromethane	ND	1.0	0.1
1,2-Dibromoethane	ND	1.0	0.1
Chlorobenzene	ND	1.0	0.1
1,1,1,2-Tetrachloroethane	ND	1.0	0.1
Ethylbenzene	ND	1.0	0.1
m,p-Xylenes	ND	1.0	0.1
o-Xylene	ND	1.0	0.1
Styrene	ND	1.0	0.1
Bromoform	ND	1.0	0.1
Isopropylbenzene	ND	1.0	0.1
1,1,2,2-Tetrachloroethane	ND	1.0	0.1
1,2,3-Trichloropropane	ND	1.0	0.2
Propylbenzene	ND	1.0	0.1
Bromobenzene	ND	1.0	0.1
1,3,5-Trimethylbenzene	ND	1.0	0.1

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160408TP2	Batch#:	234163
Lab ID:	275865-019	Sampled:	04/08/16
Matrix:	Water	Received:	04/08/16
Units:	ug/L	Analyzed:	04/16/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
2-Chlorotoluene	ND	1.0	0.1
4-Chlorotoluene	ND	1.0	0.1
tert-Butylbenzene	ND	1.0	0.1
1,2,4-Trimethylbenzene	ND	1.0	0.1
sec-Butylbenzene	ND	1.0	0.1
para-Isopropyl Toluene	ND	1.0	0.1
1,3-Dichlorobenzene	ND	1.0	0.1
1,4-Dichlorobenzene	ND	1.0	0.1
n-Butylbenzene	ND	1.0	0.1
1,2-Dichlorobenzene	ND	1.0	0.1
1,2-Dibromo-3-Chloropropane	ND	1.0	0.3
1,2,4-Trichlorobenzene	ND	1.0	0.1
Hexachlorobutadiene	ND	1.0	0.1
Naphthalene	ND	1.0	0.1
1,2,3-Trichlorobenzene	ND	1.0	0.1

Tentatively Identified Compounds

No TICs found.

Surrogate	%REC	Limits
Dibromofluoromethane	97	80-128
1,2-Dichloroethane-d4	107	75-139
Toluene-d8	101	80-120
Bromofluorobenzene	106	80-120

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160408RWF	Batch#:	234163
Lab ID:	275865-020	Sampled:	04/08/16
Matrix:	Water	Received:	04/08/16
Units:	ug/L	Analyzed:	04/16/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
Freon 12	ND	1.0	0.1
Chloromethane	ND	1.0	0.3
Vinyl Chloride	ND	1.0	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.3
Trichlorofluoromethane	ND	1.0	0.2
Acetone	ND	10	3.3
Freon 113	ND	5.0	0.1
1,1-Dichloroethene	ND	1.0	0.2
Methylene Chloride	ND	10	0.2
Carbon Disulfide	ND	1.0	0.1
MTBE	ND	1.0	0.1
trans-1,2-Dichloroethene	ND	1.0	0.2
Vinyl Acetate	ND	10	1.1
1,1-Dichloroethane	ND	1.0	0.2
2-Butanone	ND	10	0.5
cis-1,2-Dichloroethene	ND	1.0	0.1
2,2-Dichloropropane	ND	1.0	0.1
Chloroform	ND	1.0	0.1
Bromochloromethane	ND	1.0	0.1
1,1,1-Trichloroethane	ND	1.0	0.1
1,1-Dichloropropene	ND	1.0	0.1
Carbon Tetrachloride	ND	1.0	0.1
1,2-Dichloroethane	ND	1.0	0.1
Benzene	ND	1.0	0.1
Trichloroethene	2.8	1.0	0.1
1,2-Dichloropropane	ND	1.0	0.1
Bromodichloromethane	ND	1.0	0.1
Dibromomethane	ND	1.0	0.1
4-Methyl-2-Pentanone	ND	10	0.7
cis-1,3-Dichloropropene	ND	1.0	0.1
Toluene	ND	1.0	0.1
trans-1,3-Dichloropropene	ND	1.0	0.1
1,1,2-Trichloroethane	ND	1.0	0.2
2-Hexanone	ND	10	0.5
1,3-Dichloropropane	ND	1.0	0.1
Tetrachloroethene	ND	1.0	0.1
Dibromochloromethane	ND	1.0	0.1
1,2-Dibromoethane	ND	1.0	0.1
Chlorobenzene	ND	1.0	0.1
1,1,1,2-Tetrachloroethane	ND	1.0	0.1
Ethylbenzene	ND	1.0	0.1
m,p-Xylenes	ND	1.0	0.1
o-Xylene	ND	1.0	0.1
Styrene	ND	1.0	0.1
Bromoform	ND	1.0	0.1
Isopropylbenzene	ND	1.0	0.1
1,1,2,2-Tetrachloroethane	ND	1.0	0.1
1,2,3-Trichloropropane	ND	1.0	0.2
Propylbenzene	ND	1.0	0.1
Bromobenzene	ND	1.0	0.1
1,3,5-Trimethylbenzene	ND	1.0	0.1
2-Chlorotoluene	ND	1.0	0.1

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160408RWF	Batch#:	234163
Lab ID:	275865-020	Sampled:	04/08/16
Matrix:	Water	Received:	04/08/16
Units:	ug/L	Analyzed:	04/16/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
4-Chlorotoluene	ND	1.0	0.1
tert-Butylbenzene	ND	1.0	0.1
1,2,4-Trimethylbenzene	ND	1.0	0.1
sec-Butylbenzene	ND	1.0	0.1
para-Isopropyl Toluene	ND	1.0	0.1
1,3-Dichlorobenzene	ND	1.0	0.1
1,4-Dichlorobenzene	ND	1.0	0.1
n-Butylbenzene	ND	1.0	0.1
1,2-Dichlorobenzene	ND	1.0	0.1
1,2-Dibromo-3-Chloropropane	ND	1.0	0.3
1,2,4-Trichlorobenzene	ND	1.0	0.1
Hexachlorobutadiene	ND	1.0	0.1
Naphthalene	ND	1.0	0.1
1,2,3-Trichlorobenzene	ND	1.0	0.1

Tentatively Identified Compounds

No TICs found.

Surrogate	%REC	Limits
Dibromofluoromethane	97	80-128
1,2-Dichloroethane-d4	100	75-139
Toluene-d8	102	80-120
Bromofluorobenzene	107	80-120

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160408BULB2	Batch#:	234163
Lab ID:	275865-022	Sampled:	04/08/16
Matrix:	Water	Received:	04/08/16
Units:	ug/L	Analyzed:	04/17/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
Freon 12	ND	1.0	0.1
Chloromethane	ND	1.0	0.3
Vinyl Chloride	ND	1.0	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.3
Trichlorofluoromethane	ND	1.0	0.2
Acetone	ND	10	3.3
Freon 113	ND	5.0	0.1
1,1-Dichloroethene	ND	1.0	0.2
Methylene Chloride	ND	10	0.2
Carbon Disulfide	ND	1.0	0.1
MTBE	0.2 J	1.0	0.1
trans-1,2-Dichloroethene	ND	1.0	0.2
Vinyl Acetate	ND	10	1.1
1,1-Dichloroethane	ND	1.0	0.2
2-Butanone	ND	10	0.5
cis-1,2-Dichloroethene	0.3 J	1.0	0.1
2,2-Dichloropropane	ND	1.0	0.1
Chloroform	ND	1.0	0.1
Bromochloromethane	ND	1.0	0.1
1,1,1-Trichloroethane	ND	1.0	0.1
1,1-Dichloropropene	ND	1.0	0.1
Carbon Tetrachloride	ND	1.0	0.1
1,2-Dichloroethane	ND	1.0	0.1
Benzene	ND	1.0	0.1
Trichloroethene	1.1	1.0	0.1
1,2-Dichloropropane	ND	1.0	0.1
Bromodichloromethane	ND	1.0	0.1
Dibromomethane	ND	1.0	0.1
4-Methyl-2-Pentanone	ND	10	0.7
cis-1,3-Dichloropropene	ND	1.0	0.1
Toluene	ND	1.0	0.1
trans-1,3-Dichloropropene	ND	1.0	0.1
1,1,2-Trichloroethane	ND	1.0	0.2
2-Hexanone	ND	10	0.5
1,3-Dichloropropane	ND	1.0	0.1
Tetrachloroethene	ND	1.0	0.1
Dibromochloromethane	ND	1.0	0.1
1,2-Dibromoethane	ND	1.0	0.1
Chlorobenzene	0.1 J	1.0	0.1
1,1,1,2-Tetrachloroethane	ND	1.0	0.1
Ethylbenzene	ND	1.0	0.1
m,p-Xylenes	ND	1.0	0.1
o-Xylene	ND	1.0	0.1
Styrene	ND	1.0	0.1
Bromoform	ND	1.0	0.1
Isopropylbenzene	ND	1.0	0.1
1,1,2,2-Tetrachloroethane	ND	1.0	0.1
1,2,3-Trichloropropane	ND	1.0	0.2
Propylbenzene	ND	1.0	0.1
Bromobenzene	ND	1.0	0.1
1,3,5-Trimethylbenzene	ND	1.0	0.1

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160408BULB2	Batch#:	234163
Lab ID:	275865-022	Sampled:	04/08/16
Matrix:	Water	Received:	04/08/16
Units:	ug/L	Analyzed:	04/17/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
2-Chlorotoluene	ND	1.0	0.1
4-Chlorotoluene	ND	1.0	0.1
tert-Butylbenzene	ND	1.0	0.1
1,2,4-Trimethylbenzene	ND	1.0	0.1
sec-Butylbenzene	ND	1.0	0.1
para-Isopropyl Toluene	ND	1.0	0.1
1,3-Dichlorobenzene	ND	1.0	0.1
1,4-Dichlorobenzene	ND	1.0	0.1
n-Butylbenzene	ND	1.0	0.1
1,2-Dichlorobenzene	ND	1.0	0.1
1,2-Dibromo-3-Chloropropane	ND	1.0	0.3
1,2,4-Trichlorobenzene	ND	1.0	0.1
Hexachlorobutadiene	ND	1.0	0.1
Naphthalene	ND	1.0	0.1
1,2,3-Trichlorobenzene	ND	1.0	0.1

Tentatively Identified Compounds

No TICs found.

Surrogate	%REC	Limits
Dibromofluoromethane	86	80-128
1,2-Dichloroethane-d4	96	75-139
Toluene-d8	102	80-120
Bromofluorobenzene	105	80-120

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160408MFA	Batch#:	234163
Lab ID:	275865-023	Sampled:	04/08/16
Matrix:	Water	Received:	04/08/16
Units:	ug/L	Analyzed:	04/17/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
Freon 12	ND	1.0	0.1
Chloromethane	ND	1.0	0.3
Vinyl Chloride	0.2 J	1.0	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.3
Trichlorofluoromethane	ND	1.0	0.2
Acetone	ND	10	3.3
Freon 113	ND	5.0	0.1
1,1-Dichloroethene	ND	1.0	0.2
Methylene Chloride	ND	10	0.2
Carbon Disulfide	ND	1.0	0.1
MTBE	ND	1.0	0.1
trans-1,2-Dichloroethene	ND	1.0	0.2
Vinyl Acetate	ND	10	1.1
1,1-Dichloroethane	ND	1.0	0.2
2-Butanone	ND	10	0.5
cis-1,2-Dichloroethene	1.3	1.0	0.1
2,2-Dichloropropane	ND	1.0	0.1
Chloroform	ND	1.0	0.1
Bromochloromethane	ND	1.0	0.1
1,1,1-Trichloroethane	ND	1.0	0.1
1,1-Dichloropropene	ND	1.0	0.1
Carbon Tetrachloride	ND	1.0	0.1
1,2-Dichloroethane	ND	1.0	0.1
Benzene	ND	1.0	0.1
Trichloroethene	12	1.0	0.1
1,2-Dichloropropane	ND	1.0	0.1
Bromodichloromethane	ND	1.0	0.1
Dibromomethane	ND	1.0	0.1
4-Methyl-2-Pentanone	ND	10	0.7
cis-1,3-Dichloropropene	ND	1.0	0.1
Toluene	ND	1.0	0.1
trans-1,3-Dichloropropene	ND	1.0	0.1
1,1,2-Trichloroethane	ND	1.0	0.2
2-Hexanone	ND	10	0.5
1,3-Dichloropropane	ND	1.0	0.1
Tetrachloroethene	ND	1.0	0.1
Dibromochloromethane	ND	1.0	0.1
1,2-Dibromoethane	ND	1.0	0.1
Chlorobenzene	ND	1.0	0.1
1,1,1,2-Tetrachloroethane	ND	1.0	0.1
Ethylbenzene	ND	1.0	0.1
m,p-Xylenes	ND	1.0	0.1
o-Xylene	ND	1.0	0.1
Styrene	ND	1.0	0.1
Bromoform	ND	1.0	0.1
Isopropylbenzene	ND	1.0	0.1
1,1,2,2-Tetrachloroethane	ND	1.0	0.1
1,2,3-Trichloropropane	ND	1.0	0.2
Propylbenzene	ND	1.0	0.1
Bromobenzene	ND	1.0	0.1
1,3,5-Trimethylbenzene	ND	1.0	0.1

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160408MFA	Batch#:	234163
Lab ID:	275865-023	Sampled:	04/08/16
Matrix:	Water	Received:	04/08/16
Units:	ug/L	Analyzed:	04/17/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
2-Chlorotoluene	ND	1.0	0.1
4-Chlorotoluene	ND	1.0	0.1
tert-Butylbenzene	ND	1.0	0.1
1,2,4-Trimethylbenzene	ND	1.0	0.1
sec-Butylbenzene	ND	1.0	0.1
para-Isopropyl Toluene	ND	1.0	0.1
1,3-Dichlorobenzene	ND	1.0	0.1
1,4-Dichlorobenzene	ND	1.0	0.1
n-Butylbenzene	ND	1.0	0.1
1,2-Dichlorobenzene	ND	1.0	0.1
1,2-Dibromo-3-Chloropropane	ND	1.0	0.3
1,2,4-Trichlorobenzene	ND	1.0	0.1
Hexachlorobutadiene	ND	1.0	0.1
Naphthalene	ND	1.0	0.1
1,2,3-Trichlorobenzene	ND	1.0	0.1

Tentatively Identified Compounds

No TICs found.

Surrogate	%REC	Limits
Dibromofluoromethane	89	80-128
1,2-Dichloroethane-d4	102	75-139
Toluene-d8	106	80-120
Bromofluorobenzene	104	80-120

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160408MFADUP	Batch#:	234163
Lab ID:	275865-025	Sampled:	04/08/16
Matrix:	Water	Received:	04/08/16
Units:	ug/L	Analyzed:	04/17/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
Freon 12	ND	1.0	0.1
Chloromethane	ND	1.0	0.3
Vinyl Chloride	0.1 J	1.0	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.3
Trichlorofluoromethane	ND	1.0	0.2
Acetone	ND	10	3.3
Freon 113	ND	5.0	0.1
1,1-Dichloroethene	ND	1.0	0.2
Methylene Chloride	ND	10	0.2
Carbon Disulfide	ND	1.0	0.1
MTBE	ND	1.0	0.1
trans-1,2-Dichloroethene	ND	1.0	0.2
Vinyl Acetate	ND	10	1.1
1,1-Dichloroethane	ND	1.0	0.2
2-Butanone	ND	10	0.5
cis-1,2-Dichloroethene	1.1	1.0	0.1
2,2-Dichloropropane	ND	1.0	0.1
Chloroform	ND	1.0	0.1
Bromochloromethane	ND	1.0	0.1
1,1,1-Trichloroethane	ND	1.0	0.1
1,1-Dichloropropene	ND	1.0	0.1
Carbon Tetrachloride	ND	1.0	0.1
1,2-Dichloroethane	ND	1.0	0.1
Benzene	ND	1.0	0.1
Trichloroethene	9.7	1.0	0.1
1,2-Dichloropropane	ND	1.0	0.1
Bromodichloromethane	ND	1.0	0.1
Dibromomethane	ND	1.0	0.1
4-Methyl-2-Pentanone	ND	10	0.7
cis-1,3-Dichloropropene	ND	1.0	0.1
Toluene	ND	1.0	0.1
trans-1,3-Dichloropropene	ND	1.0	0.1
1,1,2-Trichloroethane	ND	1.0	0.2
2-Hexanone	ND	10	0.5
1,3-Dichloropropane	ND	1.0	0.1
Tetrachloroethene	ND	1.0	0.1
Dibromochloromethane	ND	1.0	0.1
1,2-Dibromoethane	ND	1.0	0.1
Chlorobenzene	ND	1.0	0.1
1,1,1,2-Tetrachloroethane	ND	1.0	0.1
Ethylbenzene	ND	1.0	0.1
m,p-Xylenes	ND	1.0	0.1
o-Xylene	ND	1.0	0.1
Styrene	ND	1.0	0.1
Bromoform	ND	1.0	0.1
Isopropylbenzene	ND	1.0	0.1
1,1,2,2-Tetrachloroethane	ND	1.0	0.1
1,2,3-Trichloropropane	ND	1.0	0.2
Propylbenzene	ND	1.0	0.1
Bromobenzene	ND	1.0	0.1
1,3,5-Trimethylbenzene	ND	1.0	0.1

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160408MFADUP	Batch#:	234163
Lab ID:	275865-025	Sampled:	04/08/16
Matrix:	Water	Received:	04/08/16
Units:	ug/L	Analyzed:	04/17/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
2-Chlorotoluene	ND	1.0	0.1
4-Chlorotoluene	ND	1.0	0.1
tert-Butylbenzene	ND	1.0	0.1
1,2,4-Trimethylbenzene	ND	1.0	0.1
sec-Butylbenzene	ND	1.0	0.1
para-Isopropyl Toluene	ND	1.0	0.1
1,3-Dichlorobenzene	ND	1.0	0.1
1,4-Dichlorobenzene	ND	1.0	0.1
n-Butylbenzene	ND	1.0	0.1
1,2-Dichlorobenzene	ND	1.0	0.1
1,2-Dibromo-3-Chloropropane	ND	1.0	0.3
1,2,4-Trichlorobenzene	ND	1.0	0.1
Hexachlorobutadiene	ND	1.0	0.1
Naphthalene	ND	1.0	0.1
1,2,3-Trichlorobenzene	ND	1.0	0.1

Tentatively Identified Compounds

No TICs found.

Surrogate	%REC	Limits
Dibromofluoromethane	91	80-128
1,2-Dichloroethane-d4	97	75-139
Toluene-d8	100	80-120
Bromofluorobenzene	110	80-120

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160408B278	Batch#:	234163
Lab ID:	275865-026	Sampled:	04/08/16
Matrix:	Water	Received:	04/08/16
Units:	ug/L	Analyzed:	04/17/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
Freon 12	ND	1.0	0.1
Chloromethane	ND	1.0	0.3
Vinyl Chloride	ND	1.0	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.3
Trichlorofluoromethane	ND	1.0	0.2
Acetone	ND	10	3.3
Freon 113	ND	5.0	0.1
1,1-Dichloroethene	ND	1.0	0.2
Methylene Chloride	ND	10	0.2
Carbon Disulfide	ND	1.0	0.1
MTBE	ND	1.0	0.1
trans-1,2-Dichloroethene	ND	1.0	0.2
Vinyl Acetate	ND	10	1.1
1,1-Dichloroethane	ND	1.0	0.2
2-Butanone	ND	10	0.5
cis-1,2-Dichloroethene	ND	1.0	0.1
2,2-Dichloropropane	ND	1.0	0.1
Chloroform	0.2 J	1.0	0.1
Bromochloromethane	ND	1.0	0.1
1,1,1-Trichloroethane	ND	1.0	0.1
1,1-Dichloropropene	ND	1.0	0.1
Carbon Tetrachloride	ND	1.0	0.1
1,2-Dichloroethane	ND	1.0	0.1
Benzene	ND	1.0	0.1
Trichloroethene	8.8	1.0	0.1
1,2-Dichloropropane	ND	1.0	0.1
Bromodichloromethane	ND	1.0	0.1
Dibromomethane	ND	1.0	0.1
4-Methyl-2-Pentanone	ND	10	0.7
cis-1,3-Dichloropropene	ND	1.0	0.1
Toluene	ND	1.0	0.1
trans-1,3-Dichloropropene	ND	1.0	0.1
1,1,2-Trichloroethane	ND	1.0	0.2
2-Hexanone	ND	10	0.5
1,3-Dichloropropane	ND	1.0	0.1
Tetrachloroethene	ND	1.0	0.1
Dibromochloromethane	ND	1.0	0.1
1,2-Dibromoethane	ND	1.0	0.1
Chlorobenzene	ND	1.0	0.1
1,1,1,2-Tetrachloroethane	ND	1.0	0.1
Ethylbenzene	ND	1.0	0.1
m,p-Xylenes	ND	1.0	0.1
o-Xylene	ND	1.0	0.1
Styrene	ND	1.0	0.1
Bromoform	ND	1.0	0.1
Isopropylbenzene	ND	1.0	0.1
1,1,2,2-Tetrachloroethane	ND	1.0	0.1
1,2,3-Trichloropropane	ND	1.0	0.2
Propylbenzene	ND	1.0	0.1
Bromobenzene	ND	1.0	0.1
1,3,5-Trimethylbenzene	ND	1.0	0.1

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160408B278	Batch#:	234163
Lab ID:	275865-026	Sampled:	04/08/16
Matrix:	Water	Received:	04/08/16
Units:	ug/L	Analyzed:	04/17/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
2-Chlorotoluene	ND	1.0	0.1
4-Chlorotoluene	ND	1.0	0.1
tert-Butylbenzene	ND	1.0	0.1
1,2,4-Trimethylbenzene	ND	1.0	0.1
sec-Butylbenzene	ND	1.0	0.1
para-Isopropyl Toluene	ND	1.0	0.1
1,3-Dichlorobenzene	ND	1.0	0.1
1,4-Dichlorobenzene	ND	1.0	0.1
n-Butylbenzene	ND	1.0	0.1
1,2-Dichlorobenzene	ND	1.0	0.1
1,2-Dibromo-3-Chloropropane	ND	1.0	0.3
1,2,4-Trichlorobenzene	ND	1.0	0.1
Hexachlorobutadiene	ND	1.0	0.1
Naphthalene	ND	1.0	0.1
1,2,3-Trichlorobenzene	ND	1.0	0.1

Tentatively Identified Compounds

No TICs found.

Surrogate	%REC	Limits
Dibromofluoromethane	89	80-128
1,2-Dichloroethane-d4	97	75-139
Toluene-d8	101	80-120
Bromofluorobenzene	113	80-120

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160408ER	Batch#:	234163
Lab ID:	275865-027	Sampled:	04/08/16
Matrix:	Water	Received:	04/08/16
Units:	ug/L	Analyzed:	04/16/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
Freon 12	ND	1.0	0.1
Chloromethane	ND	1.0	0.3
Vinyl Chloride	ND	1.0	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.3
Trichlorofluoromethane	ND	1.0	0.2
Acetone	ND	10	3.3
Freon 113	ND	5.0	0.1
1,1-Dichloroethene	ND	1.0	0.2
Methylene Chloride	ND	10	0.2
Carbon Disulfide	ND	1.0	0.1
MTBE	ND	1.0	0.1
trans-1,2-Dichloroethene	ND	1.0	0.2
Vinyl Acetate	ND	10	1.1
1,1-Dichloroethane	ND	1.0	0.2
2-Butanone	0.5 J	10	0.5
cis-1,2-Dichloroethene	ND	1.0	0.1
2,2-Dichloropropane	ND	1.0	0.1
Chloroform	ND	1.0	0.1
Bromochloromethane	ND	1.0	0.1
1,1,1-Trichloroethane	ND	1.0	0.1
1,1-Dichloropropene	ND	1.0	0.1
Carbon Tetrachloride	ND	1.0	0.1
1,2-Dichloroethane	ND	1.0	0.1
Benzene	ND	1.0	0.1
Trichloroethene	ND	1.0	0.1
1,2-Dichloropropane	ND	1.0	0.1
Bromodichloromethane	ND	1.0	0.1
Dibromomethane	ND	1.0	0.1
4-Methyl-2-Pentanone	ND	10	0.7
cis-1,3-Dichloropropene	ND	1.0	0.1
Toluene	ND	1.0	0.1
trans-1,3-Dichloropropene	ND	1.0	0.1
1,1,2-Trichloroethane	ND	1.0	0.2
2-Hexanone	ND	10	0.5
1,3-Dichloropropane	ND	1.0	0.1
Tetrachloroethene	ND	1.0	0.1
Dibromochloromethane	ND	1.0	0.1
1,2-Dibromoethane	ND	1.0	0.1
Chlorobenzene	ND	1.0	0.1
1,1,1,2-Tetrachloroethane	ND	1.0	0.1
Ethylbenzene	ND	1.0	0.1
m,p-Xylenes	ND	1.0	0.1
o-Xylene	ND	1.0	0.1
Styrene	ND	1.0	0.1
Bromoform	ND	1.0	0.1
Isopropylbenzene	ND	1.0	0.1
1,1,2,2-Tetrachloroethane	ND	1.0	0.1
1,2,3-Trichloropropane	ND	1.0	0.2
Propylbenzene	ND	1.0	0.1
Bromobenzene	ND	1.0	0.1
1,3,5-Trimethylbenzene	ND	1.0	0.1

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160408ER	Batch#:	234163
Lab ID:	275865-027	Sampled:	04/08/16
Matrix:	Water	Received:	04/08/16
Units:	ug/L	Analyzed:	04/16/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
2-Chlorotoluene	ND	1.0	0.1
4-Chlorotoluene	ND	1.0	0.1
tert-Butylbenzene	ND	1.0	0.1
1,2,4-Trimethylbenzene	ND	1.0	0.1
sec-Butylbenzene	ND	1.0	0.1
para-Isopropyl Toluene	ND	1.0	0.1
1,3-Dichlorobenzene	ND	1.0	0.1
1,4-Dichlorobenzene	ND	1.0	0.1
n-Butylbenzene	ND	1.0	0.1
1,2-Dichlorobenzene	ND	1.0	0.1
1,2-Dibromo-3-Chloropropane	ND	1.0	0.3
1,2,4-Trichlorobenzene	ND	1.0	0.1
Hexachlorobutadiene	ND	1.0	0.1
Naphthalene	ND	1.0	0.1
1,2,3-Trichlorobenzene	ND	1.0	0.1

Tentatively Identified Compounds

No TICs found.

Surrogate	%REC	Limits
Dibromofluoromethane	95	80-128
1,2-Dichloroethane-d4	100	75-139
Toluene-d8	106	80-120
Bromofluorobenzene	106	80-120

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	234050
Units:	ug/L	Analyzed:	04/13/16
Diln Fac:	1.000		

Type: BS Lab ID: QC831379

Analyte	Spiked	Result	%REC	Limits
Freon 12	10.00	10.89	109	45-131
Chloromethane	10.00	11.40	114	48-133
Vinyl Chloride	10.00	11.15	111	63-132
Bromomethane	10.00	12.18	122	38-161
Chloroethane	10.00	11.48	115	62-131
Trichlorofluoromethane	10.00	11.43	114	64-137
Acetone	12.50	21.04	168 *	46-151
Freon 113	12.50	12.59	101	61-138
1,1-Dichloroethene	12.50	13.52	108	66-135
Methylene Chloride	12.50	13.79	110	74-131
Carbon Disulfide	12.50	14.29	114	63-150
MTBE	12.50	13.51	108	65-120
trans-1,2-Dichloroethene	12.50	13.06	105	72-134
Vinyl Acetate	12.50	16.39	131	60-194
1,1-Dichloroethane	12.50	14.08	113	68-127
2-Butanone	12.50	16.92	135	50-141
cis-1,2-Dichloroethene	12.50	14.31	114	73-129
2,2-Dichloropropane	12.50	18.61 b	149 *	72-146
Chloroform	12.50	14.20	114	73-126
Bromochloromethane	12.50	13.79	110	78-127
1,1,1-Trichloroethane	12.50	14.62	117	72-134
1,1-Dichloropropene	12.50	12.61	101	79-135
Carbon Tetrachloride	12.50	13.70	110	72-142
1,2-Dichloroethane	12.50	14.03	112	74-133
Benzene	12.50	13.29	106	80-123
Trichloroethene	12.50	12.90	103	80-123
1,2-Dichloropropane	12.50	12.60	101	74-120
Bromodichloromethane	12.50	13.51	108	79-121
Dibromomethane	12.50	12.93	103	80-120
4-Methyl-2-Pentanone	12.50	13.03	104	57-129
cis-1,3-Dichloropropene	12.50	14.08	113	80-130
Toluene	12.50	11.70	94	80-121
trans-1,3-Dichloropropene	12.50	12.41	99	76-122
1,1,2-Trichloroethane	12.50	11.89	95	80-120
2-Hexanone	12.50	14.05	112	49-136
1,3-Dichloropropane	12.50	12.53	100	80-120
Tetrachloroethene	12.50	11.63	93	78-130
Dibromochloromethane	12.50	11.05	88	80-123
1,2-Dibromoethane	12.50	11.18	89	80-120
Chlorobenzene	12.50	12.15	97	80-123
1,1,1,2-Tetrachloroethane	12.50	12.06	96	80-124
Ethylbenzene	12.50	12.26	98	80-123
m,p-Xylenes	25.00	23.42	94	80-126
o-Xylene	12.50	11.27	90	80-126
Styrene	12.50	12.22	98	80-122
Bromoform	12.50	10.44	84	72-132
Isopropylbenzene	12.50	12.29	98	79-130
1,1,2,2-Tetrachloroethane	12.50	12.30	98	72-129
1,2,3-Trichloropropane	12.50	11.99	96	72-124
Propylbenzene	12.50	12.71	102	79-128

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

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	234050
Units:	ug/L	Analyzed:	04/13/16
Diln Fac:	1.000		

Analyte	Spiked	Result	%REC	Limits
Bromobenzene	12.50	12.20	98	80-122
1,3,5-Trimethylbenzene	12.50	14.24	114	80-129
2-Chlorotoluene	12.50	13.42	107	80-130
4-Chlorotoluene	12.50	12.70	102	79-125
tert-Butylbenzene	12.50	12.22	98	79-130
1,2,4-Trimethylbenzene	12.50	12.48	100	78-124
sec-Butylbenzene	12.50	12.56	101	79-134
para-Isopropyl Toluene	12.50	12.76	102	74-125
1,3-Dichlorobenzene	12.50	12.40	99	80-124
1,4-Dichlorobenzene	12.50	12.47	100	80-121
n-Butylbenzene	12.50	13.73	110	69-135
1,2-Dichlorobenzene	12.50	12.46	100	80-123
1,2-Dibromo-3-Chloropropane	12.50	11.60	93	59-125
1,2,4-Trichlorobenzene	12.50	11.70	94	66-133
Hexachlorobutadiene	12.50	14.00	112	70-152
Naphthalene	12.50	10.75	86	53-139
1,2,3-Trichlorobenzene	12.50	11.89	95	64-134

Surrogate	%REC	Limits
Dibromofluoromethane	116	80-128
1,2-Dichloroethane-d4	120	75-139
Toluene-d8	94	80-120
Bromofluorobenzene	106	80-120

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

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	234050
Units:	ug/L	Analyzed:	04/13/16
Diln Fac:	1.000		

Type: BSD Lab ID: QC831380

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Freon 12	10.00	10.39	104	45-131	5	29
Chloromethane	10.00	10.89	109	48-133	5	25
Vinyl Chloride	10.00	11.67	117	63-132	5	23
Bromomethane	10.00	11.13	111	38-161	9	32
Chloroethane	10.00	11.01	110	62-131	4	24
Trichlorofluoromethane	10.00	11.17	112	64-137	2	23
Acetone	12.50	21.76	174 *	46-151	3	29
Freon 113	12.50	12.56	100	61-138	0	25
1,1-Dichloroethene	12.50	13.29	106	66-135	2	24
Methylene Chloride	12.50	13.94	112	74-131	1	21
Carbon Disulfide	12.50	14.44	116	63-150	1	25
MTBE	12.50	14.39	115	65-120	6	22
trans-1,2-Dichloroethene	12.50	13.28	106	72-134	2	22
Vinyl Acetate	12.50	17.35	139	60-194	6	25
1,1-Dichloroethane	12.50	14.32	115	68-127	2	21
2-Butanone	12.50	18.35	147 *	50-141	8	24
cis-1,2-Dichloroethene	12.50	14.20	114	73-129	1	20
2,2-Dichloropropane	12.50	18.53 b	148 *	72-146	0	24
Chloroform	12.50	14.38	115	73-126	1	20
Bromochloromethane	12.50	13.35	107	78-127	3	20
1,1,1-Trichloroethane	12.50	14.57	117	72-134	0	22
1,1-Dichloropropene	12.50	12.40	99	79-135	2	23
Carbon Tetrachloride	12.50	13.50	108	72-142	1	22
1,2-Dichloroethane	12.50	14.23	114	74-133	1	20
Benzene	12.50	13.40	107	80-123	1	20
Trichloroethene	12.50	12.26	98	80-123	5	20
1,2-Dichloropropane	12.50	12.61	101	74-120	0	20
Bromodichloromethane	12.50	13.96	112	79-121	3	20
Dibromomethane	12.50	13.47	108	80-120	4	20
4-Methyl-2-Pentanone	12.50	13.33	107	57-129	2	23
cis-1,3-Dichloropropene	12.50	14.97	120	80-130	6	20
Toluene	12.50	13.19	106	80-121	12	20
trans-1,3-Dichloropropene	12.50	15.43	123 *	76-122	22 *	20
1,1,2-Trichloroethane	12.50	14.76	118	80-120	22 *	20
2-Hexanone	12.50	17.18	137 *	49-136	20	24
1,3-Dichloropropane	12.50	14.93	119	80-120	17	20
Tetrachloroethene	12.50	13.67	109	78-130	16	21
Dibromochloromethane	12.50	13.69	110	80-123	21 *	20
1,2-Dibromoethane	12.50	13.64	109	80-120	20	20
Chlorobenzene	12.50	14.64	117	80-123	19	20
1,1,1,2-Tetrachloroethane	12.50	14.18	113	80-124	16	20
Ethylbenzene	12.50	14.14	113	80-123	14	21
m,p-Xylenes	25.00	25.16	101	80-126	7	21
o-Xylene	12.50	13.30	106	80-126	17	20
Styrene	12.50	13.87	111	80-122	13	20
Bromoform	12.50	13.05	104	72-132	22 *	20
Isopropylbenzene	12.50	12.76	102	79-130	4	21
1,1,2,2-Tetrachloroethane	12.50	13.21	106	72-129	7	20
1,2,3-Trichloropropane	12.50	12.78	102	72-124	6	22
Propylbenzene	12.50	12.68	101	79-128	0	21

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

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	234050
Units:	ug/L	Analyzed:	04/13/16
Diln Fac:	1.000		

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Bromobenzene	12.50	12.59	101	80-122	3	20
1,3,5-Trimethylbenzene	12.50	13.48	108	80-129	5	20
2-Chlorotoluene	12.50	13.01	104	80-130	3	20
4-Chlorotoluene	12.50	13.51	108	79-125	6	20
tert-Butylbenzene	12.50	12.60	101	79-130	3	23
1,2,4-Trimethylbenzene	12.50	13.20	106	78-124	6	22
sec-Butylbenzene	12.50	13.05	104	79-134	4	23
para-Isopropyl Toluene	12.50	12.88	103	74-125	1	24
1,3-Dichlorobenzene	12.50	12.99	104	80-124	5	20
1,4-Dichlorobenzene	12.50	13.08	105	80-121	5	20
n-Butylbenzene	12.50	13.18	105	69-135	4	28
1,2-Dichlorobenzene	12.50	12.85	103	80-123	3	20
1,2-Dibromo-3-Chloropropane	12.50	11.73	94	59-125	1	23
1,2,4-Trichlorobenzene	12.50	11.67	93	66-133	0	24
Hexachlorobutadiene	12.50	13.46	108	70-152	4	26
Naphthalene	12.50	11.71	94	53-139	9	25
1,2,3-Trichlorobenzene	12.50	12.40	99	64-134	4	25

Surrogate	%REC	Limits
Dibromofluoromethane	112	80-128
1,2-Dichloroethane-d4	113	75-139
Toluene-d8	104	80-120
Bromofluorobenzene	99	80-120

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

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Type:	BLANK	Dil'n Fac:	1.000
Lab ID:	QC831381	Batch#:	234050
Matrix:	Water	Analyzed:	04/13/16
Units:	ug/L		

Analyte	Result	RL	MDL
Freon 12	ND	1.0	0.1
Chloromethane	ND	1.0	0.3
Vinyl Chloride	ND	1.0	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.3
Trichlorofluoromethane	ND	1.0	0.2
Acetone	ND	10	3.3
Freon 113	ND	5.0	0.1
1,1-Dichloroethene	ND	1.0	0.2
Methylene Chloride	ND	10	0.2
Carbon Disulfide	ND	1.0	0.1
MTBE	ND	1.0	0.1
trans-1,2-Dichloroethene	ND	1.0	0.2
Vinyl Acetate	ND	10	1.1
1,1-Dichloroethane	ND	1.0	0.2
2-Butanone	ND	10	0.5
cis-1,2-Dichloroethene	ND	1.0	0.1
2,2-Dichloropropane	ND	1.0	0.1
Chloroform	ND	1.0	0.1
Bromochloromethane	ND	1.0	0.1
1,1,1-Trichloroethane	ND	1.0	0.1
1,1-Dichloropropene	ND	1.0	0.1
Carbon Tetrachloride	ND	1.0	0.1
1,2-Dichloroethane	0.1 J	1.0	0.1
Benzene	ND	1.0	0.1
Trichloroethene	ND	1.0	0.1
1,2-Dichloropropane	ND	1.0	0.1
Bromodichloromethane	ND	1.0	0.1
Dibromomethane	ND	1.0	0.1
4-Methyl-2-Pentanone	ND	10	0.7
cis-1,3-Dichloropropene	ND	1.0	0.1
Toluene	ND	1.0	0.1
trans-1,3-Dichloropropene	ND	1.0	0.1
1,1,2-Trichloroethane	ND	1.0	0.2
2-Hexanone	ND	10	0.5
1,3-Dichloropropane	ND	1.0	0.1
Tetrachloroethene	ND	1.0	0.1
Dibromochloromethane	ND	1.0	0.1
1,2-Dibromoethane	ND	1.0	0.1
Chlorobenzene	ND	1.0	0.1
1,1,1,2-Tetrachloroethane	ND	1.0	0.1
Ethylbenzene	ND	1.0	0.1
m,p-Xylenes	ND	1.0	0.1
o-Xylene	ND	1.0	0.1
Styrene	ND	1.0	0.1
Bromoform	ND	1.0	0.1
Isopropylbenzene	ND	1.0	0.1
1,1,2,2-Tetrachloroethane	ND	1.0	0.1
1,2,3-Trichloropropane	ND	1.0	0.2
Propylbenzene	ND	1.0	0.1
Bromobenzene	ND	1.0	0.1
1,3,5-Trimethylbenzene	ND	1.0	0.1

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC831381	Batch#:	234050
Matrix:	Water	Analyzed:	04/13/16
Units:	ug/L		

Analyte	Result	RL	MDL
2-Chlorotoluene	ND	1.0	0.1
4-Chlorotoluene	ND	1.0	0.1
tert-Butylbenzene	ND	1.0	0.1
1,2,4-Trimethylbenzene	ND	1.0	0.1
sec-Butylbenzene	ND	1.0	0.1
para-Isopropyl Toluene	ND	1.0	0.1
1,3-Dichlorobenzene	ND	1.0	0.1
1,4-Dichlorobenzene	ND	1.0	0.1
n-Butylbenzene	ND	1.0	0.1
1,2-Dichlorobenzene	ND	1.0	0.1
1,2-Dibromo-3-Chloropropane	ND	1.0	0.3
1,2,4-Trichlorobenzene	ND	1.0	0.1
Hexachlorobutadiene	ND	1.0	0.1
Naphthalene	ND	1.0	0.1
1,2,3-Trichlorobenzene	ND	1.0	0.1

Tentatively Identified Compounds

No TICs found.

Surrogate	%REC	Limits
Dibromofluoromethane	105	80-128
1,2-Dichloroethane-d4	111	75-139
Toluene-d8	106	80-120
Bromofluorobenzene	104	80-120

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	234163
Units:	ug/L	Analyzed:	04/16/16
Diln Fac:	1.000		

Type: BS Lab ID: QC831836

Analyte	Spiked	Result	%REC	Limits
Freon 12	10.00	10.79	108	45-131
Chloromethane	10.00	9.775	98	48-133
Vinyl Chloride	10.00	10.62	106	63-132
Bromomethane	10.00	10.91	109	38-161
Chloroethane	10.00	9.045	90	62-131
Trichlorofluoromethane	10.00	11.89	119	64-137
Acetone	12.50	17.31	138	46-151
Freon 113	12.50	11.17	89	61-138
1,1-Dichloroethene	12.50	12.07	97	66-135
Methylene Chloride	12.50	11.28	90	74-131
Carbon Disulfide	12.50	12.52	100	63-150
MTBE	12.50	12.40	99	65-120
trans-1,2-Dichloroethene	12.50	11.49	92	72-134
Vinyl Acetate	12.50	14.29	114	60-194
1,1-Dichloroethane	12.50	12.16	97	68-127
2-Butanone	12.50	15.36	123	50-141
cis-1,2-Dichloroethene	12.50	12.17	97	73-129
2,2-Dichloropropane	12.50	16.40 b	131	72-146
Chloroform	12.50	12.23	98	73-126
Bromochloromethane	12.50	11.20	90	78-127
1,1,1-Trichloroethane	12.50	13.51	108	72-134
1,1-Dichloropropene	12.50	12.19	98	79-135
Carbon Tetrachloride	12.50	13.41	107	72-142
1,2-Dichloroethane	12.50	12.34	99	74-133
Benzene	12.50	12.42	99	80-123
Trichloroethene	12.50	12.60	101	80-123
1,2-Dichloropropane	12.50	12.01	96	74-120
Bromodichloromethane	12.50	12.21	98	79-121
Dibromomethane	12.50	12.24	98	80-120
4-Methyl-2-Pentanone	12.50	12.98	104	57-129
cis-1,3-Dichloropropene	12.50	13.07	105	80-130
Toluene	12.50	12.52	100	80-121
trans-1,3-Dichloropropene	12.50	12.40	99	76-122
1,1,2-Trichloroethane	12.50	12.94	104	80-120
2-Hexanone	12.50	14.78	118	49-136
1,3-Dichloropropane	12.50	12.69	101	80-120
Tetrachloroethene	12.50	12.71	102	78-130
Dibromochloromethane	12.50	11.47	92	80-123
1,2-Dibromoethane	12.50	12.03	96	80-120
Chlorobenzene	12.50	12.47	100	80-123
1,1,1,2-Tetrachloroethane	12.50	12.36	99	80-124
Ethylbenzene	12.50	12.67	101	80-123
m,p-Xylenes	25.00	23.64	95	80-126
o-Xylene	12.50	11.84	95	80-126
Styrene	12.50	11.94	96	80-122
Bromoform	12.50	11.86	95	72-132
Isopropylbenzene	12.50	13.95	112	79-130
1,1,2,2-Tetrachloroethane	12.50	14.22	114	72-129
1,2,3-Trichloropropane	12.50	13.38	107	72-124
Propylbenzene	12.50	13.89	111	79-128

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

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	234163
Units:	ug/L	Analyzed:	04/16/16
Diln Fac:	1.000		

Analyte	Spiked	Result	%REC	Limits
Bromobenzene	12.50	13.46	108	80-122
1,3,5-Trimethylbenzene	12.50	14.31	115	80-129
2-Chlorotoluene	12.50	13.70	110	80-130
4-Chlorotoluene	12.50	11.05	88	79-125
tert-Butylbenzene	12.50	13.22	106	79-130
1,2,4-Trimethylbenzene	12.50	13.02	104	78-124
sec-Butylbenzene	12.50	13.61	109	79-134
para-Isopropyl Toluene	12.50	13.61	109	74-125
1,3-Dichlorobenzene	12.50	12.99	104	80-124
1,4-Dichlorobenzene	12.50	12.80	102	80-121
n-Butylbenzene	12.50	14.37	115	69-135
1,2-Dichlorobenzene	12.50	12.70	102	80-123
1,2-Dibromo-3-Chloropropane	12.50	12.86	103	59-125
1,2,4-Trichlorobenzene	12.50	12.86	103	66-133
Hexachlorobutadiene	12.50	15.24	122	70-152
Naphthalene	12.50	12.58	101	53-139
1,2,3-Trichlorobenzene	12.50	12.25	98	64-134

Surrogate	%REC	Limits
Dibromofluoromethane	99	80-128
1,2-Dichloroethane-d4	99	75-139
Toluene-d8	99	80-120
Bromofluorobenzene	107	80-120

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

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	234163
Units:	ug/L	Analyzed:	04/16/16
Diln Fac:	1.000		

Type: BSD Lab ID: QC831837

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Freon 12	10.00	10.93	109	45-131	1	29
Chloromethane	10.00	10.42	104	48-133	6	25
Vinyl Chloride	10.00	11.12	111	63-132	5	23
Bromomethane	10.00	9.711	97	38-161	12	32
Chloroethane	10.00	10.68	107	62-131	17	24
Trichlorofluoromethane	10.00	11.43	114	64-137	4	23
Acetone	12.50	20.64	165 *	46-151	18	29
Freon 113	12.50	11.45	92	61-138	2	25
1,1-Dichloroethene	12.50	13.09	105	66-135	8	24
Methylene Chloride	12.50	12.29	98	74-131	9	21
Carbon Disulfide	12.50	13.32	107	63-150	6	25
MTBE	12.50	13.06	104	65-120	5	22
trans-1,2-Dichloroethene	12.50	12.01	96	72-134	4	22
Vinyl Acetate	12.50	15.90	127	60-194	11	25
1,1-Dichloroethane	12.50	12.85	103	68-127	6	21
2-Butanone	12.50	16.98	136	50-141	10	24
cis-1,2-Dichloroethene	12.50	12.61	101	73-129	4	20
2,2-Dichloropropane	12.50	16.66 b	133	72-146	2	24
Chloroform	12.50	12.42	99	73-126	1	20
Bromochloromethane	12.50	11.72	94	78-127	5	20
1,1,1-Trichloroethane	12.50	13.06	104	72-134	3	22
1,1-Dichloropropene	12.50	11.77	94	79-135	4	23
Carbon Tetrachloride	12.50	12.99	104	72-142	3	22
1,2-Dichloroethane	12.50	12.92	103	74-133	5	20
Benzene	12.50	12.92	103	80-123	4	20
Trichloroethene	12.50	12.28	98	80-123	3	20
1,2-Dichloropropane	12.50	11.67	93	74-120	3	20
Bromodichloromethane	12.50	12.79	102	79-121	5	20
Dibromomethane	12.50	12.47	100	80-120	2	20
4-Methyl-2-Pentanone	12.50	13.62	109	57-129	5	23
cis-1,3-Dichloropropene	12.50	13.06	104	80-130	0	20
Toluene	12.50	13.78	110	80-121	10	20
trans-1,3-Dichloropropene	12.50	13.12	105	76-122	6	20
1,1,2-Trichloroethane	12.50	14.18	113	80-120	9	20
2-Hexanone	12.50	17.31	138 *	49-136	16	24
1,3-Dichloropropane	12.50	13.76	110	80-120	8	20
Tetrachloroethene	12.50	13.50	108	78-130	6	21
Dibromochloromethane	12.50	12.74	102	80-123	10	20
1,2-Dibromoethane	12.50	14.04	112	80-120	15	20
Chlorobenzene	12.50	13.24	106	80-123	6	20
1,1,1,2-Tetrachloroethane	12.50	13.43	107	80-124	8	20
Ethylbenzene	12.50	13.51	108	80-123	6	21
m,p-Xylenes	25.00	27.99	112	80-126	17	21
o-Xylene	12.50	12.77	102	80-126	8	20
Styrene	12.50	12.96	104	80-122	8	20
Bromoform	12.50	12.61	101	72-132	6	20
Isopropylbenzene	12.50	13.68	109	79-130	2	21
1,1,2,2-Tetrachloroethane	12.50	14.51	116	72-129	2	20
1,2,3-Trichloropropane	12.50	13.62	109	72-124	2	22
Propylbenzene	12.50	13.41	107	79-128	4	21

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

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	234163
Units:	ug/L	Analyzed:	04/16/16
Diln Fac:	1.000		

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Bromobenzene	12.50	12.76	102	80-122	5	20
1,3,5-Trimethylbenzene	12.50	14.85	119	80-129	4	20
2-Chlorotoluene	12.50	14.06	113	80-130	3	20
4-Chlorotoluene	12.50	14.33	115	79-125	26 *	20
tert-Butylbenzene	12.50	13.19	106	79-130	0	23
1,2,4-Trimethylbenzene	12.50	13.32	107	78-124	2	22
sec-Butylbenzene	12.50	13.71	110	79-134	1	23
para-Isopropyl Toluene	12.50	13.38	107	74-125	2	24
1,3-Dichlorobenzene	12.50	13.19	105	80-124	1	20
1,4-Dichlorobenzene	12.50	13.58	109	80-121	6	20
n-Butylbenzene	12.50	14.58	117	69-135	1	28
1,2-Dichlorobenzene	12.50	13.16	105	80-123	4	20
1,2-Dibromo-3-Chloropropane	12.50	14.34	115	59-125	11	23
1,2,4-Trichlorobenzene	12.50	13.03	104	66-133	1	24
Hexachlorobutadiene	12.50	15.02	120	70-152	1	26
Naphthalene	12.50	12.65	101	53-139	1	25
1,2,3-Trichlorobenzene	12.50	12.65	101	64-134	3	25

Surrogate	%REC	Limits
Dibromofluoromethane	94	80-128
1,2-Dichloroethane-d4	100	75-139
Toluene-d8	102	80-120
Bromofluorobenzene	102	80-120

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

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Type:	BLANK	Dil'n Fac:	1.000
Lab ID:	QC831838	Batch#:	234163
Matrix:	Water	Analyzed:	04/16/16
Units:	ug/L		

Analyte	Result	RL	MDL
Freon 12	ND	1.0	0.1
Chloromethane	ND	1.0	0.3
Vinyl Chloride	ND	1.0	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.3
Trichlorofluoromethane	ND	1.0	0.2
Acetone	ND	10	3.3
Freon 113	ND	5.0	0.1
1,1-Dichloroethene	ND	1.0	0.2
Methylene Chloride	ND	10	0.2
Carbon Disulfide	ND	1.0	0.1
MTBE	ND	1.0	0.1
trans-1,2-Dichloroethene	ND	1.0	0.2
Vinyl Acetate	ND	10	1.1
1,1-Dichloroethane	ND	1.0	0.2
2-Butanone	ND	10	0.5
cis-1,2-Dichloroethene	ND	1.0	0.1
2,2-Dichloropropane	ND	1.0	0.1
Chloroform	ND	1.0	0.1
Bromochloromethane	ND	1.0	0.1
1,1,1-Trichloroethane	ND	1.0	0.1
1,1-Dichloropropene	ND	1.0	0.1
Carbon Tetrachloride	ND	1.0	0.1
1,2-Dichloroethane	ND	1.0	0.1
Benzene	ND	1.0	0.1
Trichloroethene	ND	1.0	0.1
1,2-Dichloropropane	ND	1.0	0.1
Bromodichloromethane	ND	1.0	0.1
Dibromomethane	ND	1.0	0.1
4-Methyl-2-Pentanone	ND	10	0.7
cis-1,3-Dichloropropene	ND	1.0	0.1
Toluene	ND	1.0	0.1
trans-1,3-Dichloropropene	ND	1.0	0.1
1,1,2-Trichloroethane	ND	1.0	0.2
2-Hexanone	ND	10	0.5
1,3-Dichloropropane	ND	1.0	0.1
Tetrachloroethene	ND	1.0	0.1
Dibromochloromethane	ND	1.0	0.1
1,2-Dibromoethane	ND	1.0	0.1
Chlorobenzene	ND	1.0	0.1
1,1,1,2-Tetrachloroethane	ND	1.0	0.1
Ethylbenzene	ND	1.0	0.1
m,p-Xylenes	ND	1.0	0.1
o-Xylene	ND	1.0	0.1
Styrene	ND	1.0	0.1
Bromoform	ND	1.0	0.1
Isopropylbenzene	ND	1.0	0.1
1,1,2,2-Tetrachloroethane	ND	1.0	0.1
1,2,3-Trichloropropane	ND	1.0	0.2
Propylbenzene	ND	1.0	0.1
Bromobenzene	ND	1.0	0.1
1,3,5-Trimethylbenzene	ND	1.0	0.1
2-Chlorotoluene	ND	1.0	0.1

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC831838	Batch#:	234163
Matrix:	Water	Analyzed:	04/16/16
Units:	ug/L		

Analyte	Result	RL	MDL
4-Chlorotoluene	ND	1.0	0.1
tert-Butylbenzene	ND	1.0	0.1
1,2,4-Trimethylbenzene	ND	1.0	0.1
sec-Butylbenzene	ND	1.0	0.1
para-Isopropyl Toluene	ND	1.0	0.1
1,3-Dichlorobenzene	ND	1.0	0.1
1,4-Dichlorobenzene	ND	1.0	0.1
n-Butylbenzene	ND	1.0	0.1
1,2-Dichlorobenzene	ND	1.0	0.1
1,2-Dibromo-3-Chloropropane	ND	1.0	0.3
1,2,4-Trichlorobenzene	ND	1.0	0.1
Hexachlorobutadiene	ND	1.0	0.1
Naphthalene	ND	1.0	0.1
1,2,3-Trichlorobenzene	ND	1.0	0.1

Tentatively Identified Compounds

No TICs found.

Surrogate	%REC	Limits
Dibromofluoromethane	100	80-128
1,2-Dichloroethane-d4	110	75-139
Toluene-d8	98	80-120
Bromofluorobenzene	106	80-120

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	234187
Units:	ug/L	Analyzed:	04/18/16
Diln Fac:	1.000		

Type: BS Lab ID: QC831941

Analyte	Spiked	Result	%REC	Limits
Freon 12	10.00	8.463	85	45-131
Chloromethane	10.00	8.561	86	48-133
Vinyl Chloride	10.00	9.392	94	63-132
Bromomethane	10.00	9.918	99	38-161
Chloroethane	10.00	9.260	93	62-131
Trichlorofluoromethane	10.00	9.622	96	64-137
Acetone	12.50	14.63	117	46-151
Freon 113	12.50	10.89	87	61-138
1,1-Dichloroethene	12.50	12.48	100	66-135
Methylene Chloride	12.50	10.80	86	74-131
Carbon Disulfide	12.50	12.40	99	63-150
MTBE	12.50	11.40	91	65-120
trans-1,2-Dichloroethene	12.50	11.88	95	72-134
Vinyl Acetate	12.50	13.56	108	60-194
1,1-Dichloroethane	12.50	11.81	94	68-127
2-Butanone	12.50	13.62	109	50-141
cis-1,2-Dichloroethene	12.50	12.08	97	73-129
2,2-Dichloropropane	12.50	16.13 b	129	72-146
Chloroform	12.50	12.12	97	73-126
Bromochloromethane	12.50	10.92	87	78-127
1,1,1-Trichloroethane	12.50	12.51	100	72-134
1,1-Dichloropropene	12.50	11.07	89	79-135
Carbon Tetrachloride	12.50	12.75	102	72-142
1,2-Dichloroethane	12.50	11.96	96	74-133
Benzene	12.50	12.26	98	80-123
Trichloroethene	12.50	11.59	93	80-123
1,2-Dichloropropane	12.50	11.59	93	74-120
Bromodichloromethane	12.50	11.69	93	79-121
Dibromomethane	12.50	11.86	95	80-120
4-Methyl-2-Pentanone	12.50	12.54	100	57-129
cis-1,3-Dichloropropene	12.50	12.80	102	80-130
Toluene	12.50	13.56	108	80-121
trans-1,3-Dichloropropene	12.50	13.87	111	76-122
1,1,2-Trichloroethane	12.50	14.63	117	80-120
2-Hexanone	12.50	15.10	121	49-136
1,3-Dichloropropane	12.50	13.65	109	80-120
Tetrachloroethene	12.50	13.07	105	78-130
Dibromochloromethane	12.50	12.82	103	80-123
1,2-Dibromoethane	12.50	13.35	107	80-120
Chlorobenzene	12.50	13.48	108	80-123
1,1,1,2-Tetrachloroethane	12.50	12.87	103	80-124
Ethylbenzene	12.50	14.06	112	80-123
m,p-Xylenes	25.00	27.41	110	80-126
o-Xylene	12.50	13.27	106	80-126
Styrene	12.50	13.69	110	80-122
Bromoform	12.50	12.16	97	72-132
Isopropylbenzene	12.50	14.65	117	79-130
1,1,2,2-Tetrachloroethane	12.50	13.98	112	72-129
1,2,3-Trichloropropane	12.50	13.03	104	72-124
Propylbenzene	12.50	14.15	113	79-128
Bromobenzene	12.50	13.26	106	80-122

b= See narrative
RPD= Relative Percent Difference

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	234187
Units:	ug/L	Analyzed:	04/18/16
Diln Fac:	1.000		

Analyte	Spiked	Result	%REC	Limits
1,3,5-Trimethylbenzene	12.50	14.56	116	80-129
2-Chlorotoluene	12.50	13.90	111	80-130
4-Chlorotoluene	12.50	14.60	117	79-125
tert-Butylbenzene	12.50	14.03	112	79-130
1,2,4-Trimethylbenzene	12.50	13.48	108	78-124
sec-Butylbenzene	12.50	14.02	112	79-134
para-Isopropyl Toluene	12.50	14.27	114	74-125
1,3-Dichlorobenzene	12.50	13.43	107	80-124
1,4-Dichlorobenzene	12.50	12.98	104	80-121
n-Butylbenzene	12.50	14.85	119	69-135
1,2-Dichlorobenzene	12.50	13.33	107	80-123
1,2-Dibromo-3-Chloropropane	12.50	14.50	116	59-125
1,2,4-Trichlorobenzene	12.50	12.65	101	66-133
Hexachlorobutadiene	12.50	14.91	119	70-152
Naphthalene	12.50	11.83	95	53-139
1,2,3-Trichlorobenzene	12.50	12.83	103	64-134

Surrogate	%REC	Limits
Dibromofluoromethane	88	80-128
1,2-Dichloroethane-d4	88	75-139
Toluene-d8	110	80-120
Bromofluorobenzene	100	80-120

b= See narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	234187
Units:	ug/L	Analyzed:	04/18/16
Diln Fac:	1.000		

Type: BSD Lab ID: QC831942

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Freon 12	10.00	9.805	98	45-131	15	29
Chloromethane	10.00	10.39	104	48-133	19	25
Vinyl Chloride	10.00	10.63	106	63-132	12	23
Bromomethane	10.00	9.249	92	38-161	7	32
Chloroethane	10.00	10.19	102	62-131	10	24
Trichlorofluoromethane	10.00	9.441	94	64-137	2	23
Acetone	12.50	15.86	127	46-151	8	29
Freon 113	12.50	11.15	89	61-138	2	25
1,1-Dichloroethene	12.50	12.60	101	66-135	1	24
Methylene Chloride	12.50	13.37	107	74-131	21	21
Carbon Disulfide	12.50	13.18	105	63-150	6	25
MTBE	12.50	12.54	100	65-120	10	22
trans-1,2-Dichloroethene	12.50	12.54	100	72-134	5	22
Vinyl Acetate	12.50	14.95	120	60-194	10	25
1,1-Dichloroethane	12.50	13.09	105	68-127	10	21
2-Butanone	12.50	14.33	115	50-141	5	24
cis-1,2-Dichloroethene	12.50	12.87	103	73-129	6	20
2,2-Dichloropropane	12.50	16.12 b	129	72-146	0	24
Chloroform	12.50	12.61	101	73-126	4	20
Bromochloromethane	12.50	12.31	98	78-127	12	20
1,1,1-Trichloroethane	12.50	12.54	100	72-134	0	22
1,1-Dichloropropene	12.50	11.35	91	79-135	3	23
Carbon Tetrachloride	12.50	12.12	97	72-142	5	22
1,2-Dichloroethane	12.50	12.13	97	74-133	1	20
Benzene	12.50	12.89	103	80-123	5	20
Trichloroethene	12.50	12.10	97	80-123	4	20
1,2-Dichloropropane	12.50	12.24	98	74-120	5	20
Bromodichloromethane	12.50	12.12	97	79-121	4	20
Dibromomethane	12.50	12.94	104	80-120	9	20
4-Methyl-2-Pentanone	12.50	12.70	102	57-129	1	23
cis-1,3-Dichloropropene	12.50	13.27	106	80-130	4	20
Toluene	12.50	13.44	108	80-121	1	20
trans-1,3-Dichloropropene	12.50	13.29	106	76-122	4	20
1,1,2-Trichloroethane	12.50	13.66	109	80-120	7	20
2-Hexanone	12.50	14.64	117	49-136	3	24
1,3-Dichloropropane	12.50	13.77	110	80-120	1	20
Tetrachloroethene	12.50	12.70	102	78-130	3	21
Dibromochloromethane	12.50	11.87	95	80-123	8	20
1,2-Dibromoethane	12.50	12.49	100	80-120	7	20
Chlorobenzene	12.50	12.92	103	80-123	4	20
1,1,1,2-Tetrachloroethane	12.50	12.09	97	80-124	6	20
Ethylbenzene	12.50	13.11	105	80-123	7	21
m,p-Xylenes	25.00	25.07	100	80-126	9	21
o-Xylene	12.50	11.88	95	80-126	11	20
Styrene	12.50	12.75	102	80-122	7	20
Bromoform	12.50	11.89	95	72-132	2	20
Isopropylbenzene	12.50	13.33	107	79-130	9	21
1,1,2,2-Tetrachloroethane	12.50	14.02	112	72-129	0	20
1,2,3-Trichloropropane	12.50	12.89	103	72-124	1	22
Propylbenzene	12.50	13.33	107	79-128	6	21
Bromobenzene	12.50	12.40	99	80-122	7	20

b= See narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	234187
Units:	ug/L	Analyzed:	04/18/16
Diln Fac:	1.000		

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,3,5-Trimethylbenzene	12.50	13.94	112	80-129	4	20
2-Chlorotoluene	12.50	13.11	105	80-130	6	20
4-Chlorotoluene	12.50	13.79	110	79-125	6	20
tert-Butylbenzene	12.50	12.91	103	79-130	8	23
1,2,4-Trimethylbenzene	12.50	12.93	103	78-124	4	22
sec-Butylbenzene	12.50	13.31	106	79-134	5	23
para-Isopropyl Toluene	12.50	12.98	104	74-125	10	24
1,3-Dichlorobenzene	12.50	12.49	100	80-124	7	20
1,4-Dichlorobenzene	12.50	12.64	101	80-121	3	20
n-Butylbenzene	12.50	13.71	110	69-135	8	28
1,2-Dichlorobenzene	12.50	12.53	100	80-123	6	20
1,2-Dibromo-3-Chloropropane	12.50	12.55	100	59-125	14	23
1,2,4-Trichlorobenzene	12.50	12.15	97	66-133	4	24
Hexachlorobutadiene	12.50	13.43	107	70-152	10	26
Naphthalene	12.50	12.07	97	53-139	2	25
1,2,3-Trichlorobenzene	12.50	12.36	99	64-134	4	25

Surrogate	%REC	Limits
Dibromofluoromethane	96	80-128
1,2-Dichloroethane-d4	99	75-139
Toluene-d8	103	80-120
Bromofluorobenzene	100	80-120

b= See narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Type:	BLANK	Dil'n Fac:	1.000
Lab ID:	QC831943	Batch#:	234187
Matrix:	Water	Analyzed:	04/18/16
Units:	ug/L		

Analyte	Result	RL	MDL
Freon 12	ND	1.0	0.1
Chloromethane	ND	1.0	0.3
Vinyl Chloride	ND	1.0	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.3
Trichlorofluoromethane	ND	1.0	0.2
Acetone	ND	10	3.3
Freon 113	ND	5.0	0.1
1,1-Dichloroethene	ND	1.0	0.2
Methylene Chloride	ND	10	0.2
Carbon Disulfide	ND	1.0	0.1
MTBE	ND	1.0	0.1
trans-1,2-Dichloroethene	ND	1.0	0.2
Vinyl Acetate	ND	10	1.1
1,1-Dichloroethane	ND	1.0	0.2
2-Butanone	ND	10	0.5
cis-1,2-Dichloroethene	ND	1.0	0.1
2,2-Dichloropropane	ND	1.0	0.1
Chloroform	ND	1.0	0.1
Bromochloromethane	ND	1.0	0.1
1,1,1-Trichloroethane	ND	1.0	0.1
1,1-Dichloropropene	ND	1.0	0.1
Carbon Tetrachloride	ND	1.0	0.1
1,2-Dichloroethane	ND	1.0	0.1
Benzene	ND	1.0	0.1
Trichloroethene	ND	1.0	0.1
1,2-Dichloropropane	ND	1.0	0.1
Bromodichloromethane	ND	1.0	0.1
Dibromomethane	ND	1.0	0.1
4-Methyl-2-Pentanone	ND	10	0.7
cis-1,3-Dichloropropene	ND	1.0	0.1
Toluene	ND	1.0	0.1
trans-1,3-Dichloropropene	ND	1.0	0.1
1,1,2-Trichloroethane	ND	1.0	0.2
2-Hexanone	ND	10	0.5
1,3-Dichloropropane	ND	1.0	0.1
Tetrachloroethene	ND	1.0	0.1
Dibromochloromethane	ND	1.0	0.1
1,2-Dibromoethane	ND	1.0	0.1
Chlorobenzene	ND	1.0	0.1
1,1,1,2-Tetrachloroethane	ND	1.0	0.1
Ethylbenzene	ND	1.0	0.1
m,p-Xylenes	ND	1.0	0.1
o-Xylene	ND	1.0	0.1
Styrene	ND	1.0	0.1
Bromoform	ND	1.0	0.1
Isopropylbenzene	ND	1.0	0.1
1,1,2,2-Tetrachloroethane	ND	1.0	0.1
1,2,3-Trichloropropane	ND	1.0	0.2
Propylbenzene	ND	1.0	0.1
Bromobenzene	ND	1.0	0.1
1,3,5-Trimethylbenzene	ND	1.0	0.1
2-Chlorotoluene	ND	1.0	0.1

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC831943	Batch#:	234187
Matrix:	Water	Analyzed:	04/18/16
Units:	ug/L		

Analyte	Result	RL	MDL
4-Chlorotoluene	ND	1.0	0.1
tert-Butylbenzene	ND	1.0	0.1
1,2,4-Trimethylbenzene	ND	1.0	0.1
sec-Butylbenzene	ND	1.0	0.1
para-Isopropyl Toluene	ND	1.0	0.1
1,3-Dichlorobenzene	ND	1.0	0.1
1,4-Dichlorobenzene	ND	1.0	0.1
n-Butylbenzene	ND	1.0	0.1
1,2-Dichlorobenzene	ND	1.0	0.1
1,2-Dibromo-3-Chloropropane	ND	1.0	0.3
1,2,4-Trichlorobenzene	ND	1.0	0.1
Hexachlorobutadiene	ND	1.0	0.1
Naphthalene	ND	1.0	0.1
1,2,3-Trichlorobenzene	ND	1.0	0.1

Tentatively Identified Compounds

No TICs found.

Surrogate	%REC	Limits
Dibromofluoromethane	90	80-128
1,2-Dichloroethane-d4	94	75-139
Toluene-d8	106	80-120
Bromofluorobenzene	106	80-120

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	234188
Units:	ug/L	Analyzed:	04/18/16
Diln Fac:	1.000		

Type: BS Lab ID: QC831944

Analyte	Spiked	Result	%REC	Limits
Freon 12	10.00	9.635	96	45-131
Chloromethane	10.00	6.685 b	67	48-133
Vinyl Chloride	10.00	10.04	100	63-132
Bromomethane	10.00	18.14 b	181 *	38-161
Chloroethane	10.00	10.24	102	62-131
Trichlorofluoromethane	10.00	9.926	99	64-137
Acetone	12.50	19.74	158 *	46-151
Freon 113	12.50	11.06	88	61-138
1,1-Dichloroethene	12.50	12.84	103	66-135
Methylene Chloride	12.50	13.27	106	74-131
Carbon Disulfide	12.50	14.68	117	63-150
MTBE	12.50	13.25	106	65-120
trans-1,2-Dichloroethene	12.50	12.67	101	72-134
Vinyl Acetate	12.50	15.53	124	60-194
1,1-Dichloroethane	12.50	13.43	107	68-127
2-Butanone	12.50	16.51	132	50-141
cis-1,2-Dichloroethene	12.50	13.83	111	73-129
2,2-Dichloropropane	12.50	14.09	113	72-146
Chloroform	12.50	13.18	105	73-126
Bromochloromethane	12.50	14.63	117	78-127
1,1,1-Trichloroethane	12.50	12.92	103	72-134
1,1-Dichloropropene	12.50	10.76	86	79-135
Carbon Tetrachloride	12.50	11.31	90	72-142
1,2-Dichloroethane	12.50	12.51	100	74-133
Benzene	12.50	12.58	101	80-123
Trichloroethene	12.50	11.61	93	80-123
1,2-Dichloropropane	12.50	12.44	99	74-120
Bromodichloromethane	12.50	12.23	98	79-121
Dibromomethane	12.50	13.05	104	80-120
4-Methyl-2-Pentanone	12.50	13.13	105	57-129
cis-1,3-Dichloropropene	12.50	13.39	107	80-130
Toluene	12.50	12.08	97	80-121
trans-1,3-Dichloropropene	12.50	12.96	104	76-122
1,1,2-Trichloroethane	12.50	12.62	101	80-120
2-Hexanone	12.50	14.26	114	49-136
1,3-Dichloropropane	12.50	12.93	103	80-120
Tetrachloroethene	12.50	10.84	87	78-130
Dibromochloromethane	12.50	12.12	97	80-123
1,2-Dibromoethane	12.50	12.37	99	80-120
Chlorobenzene	12.50	11.82	95	80-123
1,1,1,2-Tetrachloroethane	12.50	11.68	93	80-124
Ethylbenzene	12.50	11.88	95	80-123
m,p-Xylenes	25.00	23.77	95	80-126
o-Xylene	12.50	11.83	95	80-126
Styrene	12.50	12.27	98	80-122
Bromoform	12.50	12.60	101	72-132
Isopropylbenzene	12.50	12.33	99	79-130
1,1,2,2-Tetrachloroethane	12.50	14.27	114	72-129
1,2,3-Trichloropropane	12.50	14.17	113	72-124
Propylbenzene	12.50	12.26	98	79-128

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

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	234188
Units:	ug/L	Analyzed:	04/18/16
Diln Fac:	1.000		

Analyte	Spiked	Result	%REC	Limits
Bromobenzene	12.50	12.08	97	80-122
1,3,5-Trimethylbenzene	12.50	13.11	105	80-129
2-Chlorotoluene	12.50	12.80	102	80-130
4-Chlorotoluene	12.50	12.96	104	79-125
tert-Butylbenzene	12.50	12.22	98	79-130
1,2,4-Trimethylbenzene	12.50	12.68	101	78-124
sec-Butylbenzene	12.50	12.38	99	79-134
para-Isopropyl Toluene	12.50	12.39	99	74-125
1,3-Dichlorobenzene	12.50	12.42	99	80-124
1,4-Dichlorobenzene	12.50	12.54	100	80-121
n-Butylbenzene	12.50	12.75	102	69-135
1,2-Dichlorobenzene	12.50	12.55	100	80-123
1,2-Dibromo-3-Chloropropane	12.50	13.92	111	59-125
1,2,4-Trichlorobenzene	12.50	11.04	88	66-133
Hexachlorobutadiene	12.50	10.76	86	70-152
Naphthalene	12.50	11.52	92	53-139
1,2,3-Trichlorobenzene	12.50	11.39	91	64-134

Surrogate	%REC	Limits
Dibromofluoromethane	108	80-128
1,2-Dichloroethane-d4	102	75-139
Toluene-d8	99	80-120
Bromofluorobenzene	103	80-120

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

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	234188
Units:	ug/L	Analyzed:	04/18/16
Diln Fac:	1.000		

Type: BSD Lab ID: QC831945

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Freon 12	10.00	10.05	101	45-131	4	29
Chloromethane	10.00	6.944 b	69	48-133	4	25
Vinyl Chloride	10.00	10.53	105	63-132	5	23
Bromomethane	10.00	19.97 b	200 *	38-161	10	32
Chloroethane	10.00	10.53	105	62-131	3	24
Trichlorofluoromethane	10.00	10.41	104	64-137	5	23
Acetone	12.50	20.39	163 *	46-151	3	29
Freon 113	12.50	11.53	92	61-138	4	25
1,1-Dichloroethene	12.50	13.42	107	66-135	4	24
Methylene Chloride	12.50	13.68	109	74-131	3	21
Carbon Disulfide	12.50	15.35	123	63-150	4	25
MTBE	12.50	13.25	106	65-120	0	22
trans-1,2-Dichloroethene	12.50	12.81	102	72-134	1	22
Vinyl Acetate	12.50	14.72	118	60-194	5	25
1,1-Dichloroethane	12.50	13.94	111	68-127	4	21
2-Butanone	12.50	16.69	134	50-141	1	24
cis-1,2-Dichloroethene	12.50	14.23	114	73-129	3	20
2,2-Dichloropropane	12.50	14.37	115	72-146	2	24
Chloroform	12.50	13.66	109	73-126	4	20
Bromochloromethane	12.50	14.93	119	78-127	2	20
1,1,1-Trichloroethane	12.50	13.43	107	72-134	4	22
1,1-Dichloropropene	12.50	11.14	89	79-135	3	23
Carbon Tetrachloride	12.50	11.72	94	72-142	4	22
1,2-Dichloroethane	12.50	12.47	100	74-133	0	20
Benzene	12.50	12.95	104	80-123	3	20
Trichloroethene	12.50	12.33	99	80-123	6	20
1,2-Dichloropropane	12.50	12.63	101	74-120	2	20
Bromodichloromethane	12.50	12.33	99	79-121	1	20
Dibromomethane	12.50	12.93	103	80-120	1	20
4-Methyl-2-Pentanone	12.50	13.08	105	57-129	0	23
cis-1,3-Dichloropropene	12.50	13.60	109	80-130	2	20
Toluene	12.50	12.55	100	80-121	4	20
trans-1,3-Dichloropropene	12.50	13.13	105	76-122	1	20
1,1,2-Trichloroethane	12.50	12.68	101	80-120	1	20
2-Hexanone	12.50	14.40	115	49-136	1	24
1,3-Dichloropropane	12.50	13.39	107	80-120	3	20
Tetrachloroethene	12.50	11.38	91	78-130	5	21
Dibromochloromethane	12.50	12.48	100	80-123	3	20
1,2-Dibromoethane	12.50	12.62	101	80-120	2	20
Chlorobenzene	12.50	12.44	99	80-123	5	20
1,1,1,2-Tetrachloroethane	12.50	12.14	97	80-124	4	20
Ethylbenzene	12.50	12.55	100	80-123	5	21
m,p-Xylenes	25.00	25.14	101	80-126	6	21
o-Xylene	12.50	12.26	98	80-126	4	20
Styrene	12.50	12.96	104	80-122	5	20
Bromoform	12.50	13.06	104	72-132	4	20
Isopropylbenzene	12.50	12.69	101	79-130	3	21
1,1,2,2-Tetrachloroethane	12.50	13.82	111	72-129	3	20
1,2,3-Trichloropropane	12.50	13.01	104	72-124	9	22
Propylbenzene	12.50	12.57	101	79-128	2	21

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

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	234188
Units:	ug/L	Analyzed:	04/18/16
Diln Fac:	1.000		

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Bromobenzene	12.50	12.19	98	80-122	1	20
1,3,5-Trimethylbenzene	12.50	13.31	106	80-129	1	20
2-Chlorotoluene	12.50	13.11	105	80-130	2	20
4-Chlorotoluene	12.50	13.27	106	79-125	2	20
tert-Butylbenzene	12.50	12.55	100	79-130	3	23
1,2,4-Trimethylbenzene	12.50	12.85	103	78-124	1	22
sec-Butylbenzene	12.50	12.84	103	79-134	4	23
para-Isopropyl Toluene	12.50	12.89	103	74-125	4	24
1,3-Dichlorobenzene	12.50	12.56	100	80-124	1	20
1,4-Dichlorobenzene	12.50	12.77	102	80-121	2	20
n-Butylbenzene	12.50	13.28	106	69-135	4	28
1,2-Dichlorobenzene	12.50	12.86	103	80-123	2	20
1,2-Dibromo-3-Chloropropane	12.50	13.65	109	59-125	2	23
1,2,4-Trichlorobenzene	12.50	10.90	87	66-133	1	24
Hexachlorobutadiene	12.50	10.99	88	70-152	2	26
Naphthalene	12.50	10.96	88	53-139	5	25
1,2,3-Trichlorobenzene	12.50	11.13	89	64-134	2	25

Surrogate	%REC	Limits
Dibromofluoromethane	106	80-128
1,2-Dichloroethane-d4	100	75-139
Toluene-d8	99	80-120
Bromofluorobenzene	100	80-120

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

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Type:	BLANK	Dil'n Fac:	1.000
Lab ID:	QC831946	Batch#:	234188
Matrix:	Water	Analyzed:	04/18/16
Units:	ug/L		

Analyte	Result	RL	MDL
Freon 12	ND	1.0	0.1
Chloromethane	ND	1.0	0.1
Vinyl Chloride	ND	1.0	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.1
Trichlorofluoromethane	ND	1.0	0.1
Acetone	ND	10	3.3
Freon 113	ND	5.0	0.1
1,1-Dichloroethene	ND	1.0	0.1
Methylene Chloride	ND	10	0.1
Carbon Disulfide	ND	1.0	0.1
MTBE	ND	1.0	0.1
trans-1,2-Dichloroethene	ND	1.0	0.1
Vinyl Acetate	ND	10	0.3
1,1-Dichloroethane	ND	1.0	0.1
2-Butanone	ND	10	0.3
cis-1,2-Dichloroethene	ND	1.0	0.1
2,2-Dichloropropane	ND	1.0	0.1
Chloroform	ND	1.0	0.1
Bromochloromethane	ND	1.0	0.2
1,1,1-Trichloroethane	ND	1.0	0.1
1,1-Dichloropropene	ND	1.0	0.1
Carbon Tetrachloride	ND	1.0	0.1
1,2-Dichloroethane	ND	1.0	0.1
Benzene	ND	1.0	0.1
Trichloroethene	ND	1.0	0.1
1,2-Dichloropropane	ND	1.0	0.1
Bromodichloromethane	ND	1.0	0.1
Dibromomethane	ND	1.0	0.1
4-Methyl-2-Pentanone	ND	10	0.2
cis-1,3-Dichloropropene	ND	1.0	0.1
Toluene	ND	1.0	0.1
trans-1,3-Dichloropropene	ND	1.0	0.1
1,1,2-Trichloroethane	ND	1.0	0.1
2-Hexanone	ND	10	0.2
1,3-Dichloropropane	ND	1.0	0.1
Tetrachloroethene	ND	1.0	0.1
Dibromochloromethane	ND	1.0	0.1
1,2-Dibromoethane	ND	1.0	0.1
Chlorobenzene	ND	1.0	0.1
1,1,1,2-Tetrachloroethane	ND	1.0	0.1
Ethylbenzene	ND	1.0	0.1
m,p-Xylenes	ND	1.0	0.1
o-Xylene	ND	1.0	0.1
Styrene	ND	1.0	0.2
Bromoform	ND	1.0	0.1
Isopropylbenzene	ND	1.0	0.1
1,1,2,2-Tetrachloroethane	ND	1.0	0.1
1,2,3-Trichloropropane	ND	1.0	0.1
Propylbenzene	ND	1.0	0.1
Bromobenzene	ND	1.0	0.1
1,3,5-Trimethylbenzene	ND	1.0	0.1
2-Chlorotoluene	ND	1.0	0.1

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC831946	Batch#:	234188
Matrix:	Water	Analyzed:	04/18/16
Units:	ug/L		

Analyte	Result	RL	MDL
4-Chlorotoluene	ND	1.0	0.1
tert-Butylbenzene	ND	1.0	0.1
1,2,4-Trimethylbenzene	ND	1.0	0.1
sec-Butylbenzene	ND	1.0	0.1
para-Isopropyl Toluene	ND	1.0	0.1
1,3-Dichlorobenzene	ND	1.0	0.1
1,4-Dichlorobenzene	ND	1.0	0.1
n-Butylbenzene	ND	1.0	0.1
1,2-Dichlorobenzene	ND	1.0	0.1
1,2-Dibromo-3-Chloropropane	ND	1.0	0.3
1,2,4-Trichlorobenzene	ND	1.0	0.1
Hexachlorobutadiene	ND	1.0	0.2
Naphthalene	ND	1.0	0.3
1,2,3-Trichlorobenzene	ND	1.0	0.1

Tentatively Identified Compounds

No TICs found.

Surrogate	%REC	Limits
Dibromofluoromethane	109	80-128
1,2-Dichloroethane-d4	100	75-139
Toluene-d8	99	80-120
Bromofluorobenzene	105	80-120

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160407B450	Batch#:	234187
MSS Lab ID:	275865-011	Sampled:	04/07/16
Matrix:	Water	Received:	04/08/16
Units:	ug/L	Analyzed:	04/18/16
Diln Fac:	1.000		

Type: MS Lab ID: QC831994

Analyte	MSS Result	Spiked	Result	%REC	Limits
Freon 12	<0.1000	20.00	19.27	96	54-126
Chloromethane	<0.2724	20.00	16.69	83	54-121
Vinyl Chloride	<0.1000	20.00	19.48	97	66-126
Bromomethane	<0.1830	20.00	15.40	77	31-152
Chloroethane	<0.2673	20.00	17.84	89	69-126
Trichlorofluoromethane	<0.2280	20.00	21.50	107	71-132
Acetone	<3.300	25.00	22.11	88	47-129
Freon 113	<0.1310	25.00	22.86	91	67-127
1,1-Dichloroethene	<0.1519	25.00	23.41	94	73-129
Methylene Chloride	<0.1757	25.00	20.69	83	80-127
Carbon Disulfide	<0.1000	25.00	25.17	101	76-138
MTBE	<0.1119	25.00	21.18	85	71-120
trans-1,2-Dichloroethene	<0.1510	25.00	21.37	85	79-127
Vinyl Acetate	<1.145	25.00	22.28	89	62-173
1,1-Dichloroethane	<0.1587	25.00	24.30	97	77-123
2-Butanone	<0.5000	25.00	21.96	88	56-134
cis-1,2-Dichloroethene	0.1292	25.00	23.45	93	74-126
2,2-Dichloropropane	<0.1440	25.00	29.82 b	119	69-130
Chloroform	<0.1000	25.00	23.87	95	80-123
Bromochloromethane	<0.1372	25.00	20.82	83	80-122
1,1,1-Trichloroethane	<0.1261	25.00	26.93	108	80-130
1,1-Dichloropropene	<0.1299	25.00	25.86	103	80-128
Carbon Tetrachloride	<0.1231	25.00	28.58	114	80-138
1,2-Dichloroethane	<0.1071	25.00	25.73	103	80-130
Benzene	<0.1000	25.00	26.61	106	80-120
Trichloroethene	13.91	25.00	37.37	94	73-123
1,2-Dichloropropane	<0.1371	25.00	24.20	97	80-120
Bromodichloromethane	<0.1212	25.00	25.54	102	80-120
Dibromomethane	<0.1464	25.00	24.12	96	80-120
4-Methyl-2-Pentanone	<0.6539	25.00	24.11	96	67-130
cis-1,3-Dichloropropene	<0.1055	25.00	25.92	104	80-125
Toluene	<0.1000	25.00	26.40	106	80-120
trans-1,3-Dichloropropene	<0.1392	25.00	25.04	100	77-120
1,1,2-Trichloroethane	<0.1539	25.00	25.01	100	80-120
2-Hexanone	<0.5000	25.00	25.53	102	57-131
1,3-Dichloropropane	<0.1488	25.00	25.68	103	80-120
Tetrachloroethene	0.4471	25.00	27.05	106	77-122
Dibromochloromethane	<0.1461	25.00	23.37	93	80-120
1,2-Dibromoethane	<0.1341	25.00	23.92	96	80-120
Chlorobenzene	<0.1296	25.00	26.82	107	80-120
1,1,1,2-Tetrachloroethane	<0.1045	25.00	25.51	102	80-120
Ethylbenzene	<0.1000	25.00	27.70	111	80-120
m,p-Xylenes	<0.1454	50.00	50.51	101	80-121
o-Xylene	<0.1000	25.00	24.66	99	80-120
Styrene	<0.1000	25.00	25.78	103	64-124
Bromoform	<0.1445	25.00	23.88	96	80-126
Isopropylbenzene	<0.1000	25.00	29.85	119	80-121
1,1,2,2-Tetrachloroethane	<0.1197	25.00	27.28	109	80-127

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

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160407B450	Batch#:	234187
MSS Lab ID:	275865-011	Sampled:	04/07/16
Matrix:	Water	Received:	04/08/16
Units:	ug/L	Analyzed:	04/18/16
Diln Fac:	1.000		

Analyte	MSS Result	Spiked	Result	%REC	Limits
1,2,3-Trichloropropane	<0.1540	25.00	26.44	106	76-124
Propylbenzene	<0.1000	25.00	29.09	116	79-120
Bromobenzene	<0.1080	25.00	26.24	105	80-120
1,3,5-Trimethylbenzene	<0.1000	25.00	30.48	122 *	80-121
2-Chlorotoluene	<0.1000	25.00	29.08	116	80-124
4-Chlorotoluene	<0.1000	25.00	29.11	116	80-120
tert-Butylbenzene	<0.1000	25.00	29.10	116	80-120
1,2,4-Trimethylbenzene	<0.1000	25.00	29.16	117	77-120
sec-Butylbenzene	<0.1000	25.00	30.68	123	79-123
para-Isopropyl Toluene	<0.1000	25.00	30.52	122 *	74-120
1,3-Dichlorobenzene	<0.1122	25.00	26.48	106	80-120
1,4-Dichlorobenzene	<0.1000	25.00	27.04	108	80-120
n-Butylbenzene	<0.1000	25.00	30.52	122 *	68-121
1,2-Dichlorobenzene	<0.1000	25.00	27.93	112	80-120
1,2-Dibromo-3-Chloropropane	<0.2500	25.00	27.31	109	67-125
1,2,4-Trichlorobenzene	<0.1325	25.00	26.17	105	68-120
Hexachlorobutadiene	<0.1394	25.00	31.60	126	73-127
Naphthalene	<0.1064	25.00	24.40	98	62-126
1,2,3-Trichlorobenzene	<0.1396	25.00	26.27	105	68-121

Surrogate	%REC	Limits
Dibromofluoromethane	87	80-128
1,2-Dichloroethane-d4	98	75-139
Toluene-d8	99	80-120
Bromofluorobenzene	105	80-120

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

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160407B450	Batch#:	234187
MSS Lab ID:	275865-011	Sampled:	04/07/16
Matrix:	Water	Received:	04/08/16
Units:	ug/L	Analyzed:	04/18/16
Diln Fac:	1.000		

Type: MSD Lab ID: QC831995

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Freon 12	20.00	20.01	100	54-126	4	29
Chloromethane	20.00	18.31	92	54-121	9	27
Vinyl Chloride	20.00	19.25	96	66-126	1	24
Bromomethane	20.00	17.03	85	31-152	10	39
Chloroethane	20.00	19.62	98	69-126	10	29
Trichlorofluoromethane	20.00	21.43	107	71-132	0	24
Acetone	25.00	21.75	87	47-129	2	27
Freon 113	25.00	23.15	93	67-127	1	25
1,1-Dichloroethene	25.00	25.93	104	73-129	10	25
Methylene Chloride	25.00	22.59	90	80-127	9	21
Carbon Disulfide	25.00	26.24	105	76-138	4	24
MTBE	25.00	22.67	91	71-120	7	20
trans-1,2-Dichloroethene	25.00	25.26	101	79-127	17	23
Vinyl Acetate	25.00	22.63	91	62-173	2	24
1,1-Dichloroethane	25.00	25.42	102	77-123	5	22
2-Butanone	25.00	23.40	94	56-134	6	25
cis-1,2-Dichloroethene	25.00	25.28	101	74-126	8	21
2,2-Dichloropropane	25.00	29.24 b	117	69-130	2	29
Chloroform	25.00	25.04	100	80-123	5	22
Bromochloromethane	25.00	21.56	86	80-122	3	20
1,1,1-Trichloroethane	25.00	26.26	105	80-130	3	23
1,1-Dichloropropene	25.00	23.26	93	80-128	11	22
Carbon Tetrachloride	25.00	26.71	107	80-138	7	24
1,2-Dichloroethane	25.00	23.39	94	80-130	10	20
Benzene	25.00	24.48	98	80-120	8	20
Trichloroethene	25.00	37.61	95	73-123	1	20
1,2-Dichloropropane	25.00	23.01	92	80-120	5	20
Bromodichloromethane	25.00	24.14	97	80-120	6	20
Dibromomethane	25.00	22.12	88	80-120	9	20
4-Methyl-2-Pentanone	25.00	23.61	94	67-130	2	22
cis-1,3-Dichloropropene	25.00	24.65	99	80-125	5	20
Toluene	25.00	25.38	102	80-120	4	21
trans-1,3-Dichloropropene	25.00	24.54	98	77-120	2	20
1,1,2-Trichloroethane	25.00	24.13	97	80-120	4	20
2-Hexanone	25.00	22.93	92	57-131	11	24
1,3-Dichloropropane	25.00	24.45	98	80-120	5	20
Tetrachloroethene	25.00	26.33	104	77-122	3	22
Dibromochloromethane	25.00	22.67	91	80-120	3	20
1,2-Dibromoethane	25.00	21.38	86	80-120	11	20
Chlorobenzene	25.00	25.84	103	80-120	4	24
1,1,1,2-Tetrachloroethane	25.00	24.22	97	80-120	5	20
Ethylbenzene	25.00	26.07	104	80-120	6	25
m,p-Xylenes	50.00	50.03	100	80-121	1	23
o-Xylene	25.00	24.01	96	80-120	3	25
Styrene	25.00	24.68	99	64-124	4	22
Bromoform	25.00	21.57	86	80-126	10	20
Isopropylbenzene	25.00	30.01	120	80-121	1	27
1,1,2,2-Tetrachloroethane	25.00	27.71	111	80-127	2	20

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

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160407B450	Batch#:	234187
MSS Lab ID:	275865-011	Sampled:	04/07/16
Matrix:	Water	Received:	04/08/16
Units:	ug/L	Analyzed:	04/18/16
Diln Fac:	1.000		

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,2,3-Trichloropropane	25.00	26.04	104	76-124	2	22
Propylbenzene	25.00	28.93	116	79-120	1	23
Bromobenzene	25.00	26.15	105	80-120	0	22
1,3,5-Trimethylbenzene	25.00	30.16	121	80-121	1	23
2-Chlorotoluene	25.00	28.49	114	80-124	2	23
4-Chlorotoluene	25.00	28.95	116	80-120	1	21
tert-Butylbenzene	25.00	29.37	117	80-120	1	25
1,2,4-Trimethylbenzene	25.00	27.03	108	77-120	8	23
sec-Butylbenzene	25.00	29.40	118	79-123	4	24
para-Isopropyl Toluene	25.00	28.78	115	74-120	6	22
1,3-Dichlorobenzene	25.00	25.70	103	80-120	3	20
1,4-Dichlorobenzene	25.00	26.82	107	80-120	1	20
n-Butylbenzene	25.00	29.71	119	68-121	3	22
1,2-Dichlorobenzene	25.00	26.53	106	80-120	5	20
1,2-Dibromo-3-Chloropropane	25.00	26.72	107	67-125	2	28
1,2,4-Trichlorobenzene	25.00	25.07	100	68-120	4	21
Hexachlorobutadiene	25.00	30.07	120	73-127	5	25
Naphthalene	25.00	23.34	93	62-126	4	25
1,2,3-Trichlorobenzene	25.00	25.37	101	68-121	3	22

Surrogate	%REC	Limits
Dibromofluoromethane	92	80-128
1,2-Dichloroethane-d4	91	75-139
Toluene-d8	119	80-120
Bromofluorobenzene	103	80-120

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

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160408PZ11	Dil'n Fac:	1.000
MSS Lab ID:	275865-015	Batch#:	234187
Matrix:	Water	Sampled:	04/08/16
Units:	ug/L	Received:	04/08/16

Type: MS Analyzed: 04/18/16
Lab ID: QC831996

Analyte	MSS Result	Spiked	Result	%REC	Limits
Freon 12	<0.1000	20.00	16.75	84	54-126
Chloromethane	<0.2724	20.00	16.75	84	54-121
Vinyl Chloride	0.2227	20.00	19.17	95	66-126
Bromomethane	<0.1830	20.00	15.64	78	31-152
Chloroethane	<0.2673	20.00	18.15	91	69-126
Trichlorofluoromethane	<0.2280	20.00	18.86	94	71-132
Acetone	<3.300	25.00	21.66	87	47-129
Freon 113	<0.1310	25.00	21.56	86	67-127
1,1-Dichloroethene	<0.1519	25.00	24.95	100	73-129
Methylene Chloride	<0.1757	25.00	21.11	84	80-127
Carbon Disulfide	<0.1000	25.00	24.00	96	76-138
MTBE	<0.1119	25.00	22.04	88	71-120
trans-1,2-Dichloroethene	0.3162	25.00	22.22	88	79-127
Vinyl Acetate	<1.145	25.00	21.42	86	62-173
1,1-Dichloroethane	<0.1587	25.00	23.56	94	77-123
2-Butanone	<0.5000	25.00	22.68	91	56-134
cis-1,2-Dichloroethene	2.839	25.00	26.59	95	74-126
2,2-Dichloropropane	<0.1440	25.00	27.06 b	108	69-130
Chloroform	<0.1000	25.00	23.08	92	80-123
Bromochloromethane	<0.1372	25.00	21.54	86	80-122
1,1,1-Trichloroethane	<0.1261	25.00	25.25	101	80-130
1,1-Dichloropropene	<0.1299	25.00	23.77	95	80-128
Carbon Tetrachloride	<0.1231	25.00	25.65	103	80-138
1,2-Dichloroethane	<0.1071	25.00	22.05	88	80-130
Benzene	<0.1000	25.00	24.71	99	80-120
Trichloroethene	8.333	25.00	31.17	91	73-123
1,2-Dichloropropane	<0.1371	25.00	22.55	90	80-120
Bromodichloromethane	<0.1212	25.00	23.63	95	80-120
Dibromomethane	<0.1464	25.00	23.09	92	80-120
4-Methyl-2-Pentanone	<0.6539	25.00	25.30	101	67-130
cis-1,3-Dichloropropene	<0.1055	25.00	25.14	101	80-125
Toluene	<0.1000	25.00	24.81	99	80-120
trans-1,3-Dichloropropene	<0.1392	25.00	24.32	97	77-120
1,1,2-Trichloroethane	<0.1539	25.00	24.01	96	80-120
2-Hexanone	<0.5000	25.00	24.80	99	57-131
1,3-Dichloropropane	<0.1488	25.00	25.24	101	80-120
Tetrachloroethene	0.5640	25.00	25.69	101	77-122
Dibromochloromethane	<0.1461	25.00	23.47	94	80-120
1,2-Dibromoethane	<0.1341	25.00	24.29	97	80-120
Chlorobenzene	<0.1296	25.00	25.05	100	80-120
1,1,1,2-Tetrachloroethane	<0.1045	25.00	24.63	99	80-120
Ethylbenzene	<0.1000	25.00	25.38	102	80-120
m,p-Xylenes	<0.1454	50.00	47.07	94	80-121
o-Xylene	<0.1000	25.00	23.50	94	80-120
Styrene	<0.1000	25.00	24.31	97	64-124
Bromoform	<0.1445	25.00	22.18	89	80-126
Isopropylbenzene	<0.1000	25.00	27.05	108	80-121
1,1,2,2-Tetrachloroethane	<0.1197	25.00	26.76	107	80-127
1,2,3-Trichloropropane	<0.1540	25.00	25.76	103	76-124

b= See narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160408PZ11	Dil'n Fac:	1.000
MSS Lab ID:	275865-015	Batch#:	234187
Matrix:	Water	Sampled:	04/08/16
Units:	ug/L	Received:	04/08/16

Analyte	MSS Result	Spiked	Result	%REC	Limits
Propylbenzene	<0.1000	25.00	25.79	103	79-120
Bromobenzene	<0.1080	25.00	23.83	95	80-120
1,3,5-Trimethylbenzene	<0.1000	25.00	27.39	110	80-121
2-Chlorotoluene	<0.1000	25.00	26.25	105	80-124
4-Chlorotoluene	<0.1000	25.00	26.45	106	80-120
tert-Butylbenzene	<0.1000	25.00	27.12	108	80-120
1,2,4-Trimethylbenzene	<0.1000	25.00	26.10	104	77-120
sec-Butylbenzene	<0.1000	25.00	26.64	107	79-123
para-Isopropyl Toluene	<0.1000	25.00	26.65	107	74-120
1,3-Dichlorobenzene	<0.1122	25.00	25.06	100	80-120
1,4-Dichlorobenzene	<0.1000	25.00	24.78	99	80-120
n-Butylbenzene	<0.1000	25.00	27.19	109	68-121
1,2-Dichlorobenzene	<0.1000	25.00	24.19	97	80-120
1,2-Dibromo-3-Chloropropane	<0.2500	25.00	25.68	103	67-125
1,2,4-Trichlorobenzene	<0.1325	25.00	23.29	93	68-120
Hexachlorobutadiene	<0.1394	25.00	27.39	110	73-127
Naphthalene	<0.1064	25.00	23.21	93	62-126
1,2,3-Trichlorobenzene	<0.1396	25.00	24.28	97	68-121

Surrogate	%REC	Limits
Dibromofluoromethane	91	80-128
1,2-Dichloroethane-d4	93	75-139
Toluene-d8	98	80-120
Bromofluorobenzene	101	80-120

b= See narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160408PZ11	Diln Fac:	1.000
MSS Lab ID:	275865-015	Batch#:	234187
Matrix:	Water	Sampled:	04/08/16
Units:	ug/L	Received:	04/08/16

Type: MSD Analyzed: 04/19/16
Lab ID: QC831997

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Freon 12	20.00	17.99	90	54-126	7	29
Chloromethane	20.00	18.28	91	54-121	9	27
Vinyl Chloride	20.00	20.06	99	66-126	5	24
Bromomethane	20.00	16.59	83	31-152	6	39
Chloroethane	20.00	18.84	94	69-126	4	29
Trichlorofluoromethane	20.00	20.00	100	71-132	6	24
Acetone	25.00	22.60	90	47-129	4	27
Freon 113	25.00	22.92	92	67-127	6	25
1,1-Dichloroethene	25.00	26.01	104	73-129	4	25
Methylene Chloride	25.00	23.26	93	80-127	10	21
Carbon Disulfide	25.00	25.93	104	76-138	8	24
MTBE	25.00	23.60	94	71-120	7	20
trans-1,2-Dichloroethene	25.00	23.85	94	79-127	7	23
Vinyl Acetate	25.00	22.89	92	62-173	7	24
1,1-Dichloroethane	25.00	25.02	100	77-123	6	22
2-Butanone	25.00	24.45	98	56-134	8	25
cis-1,2-Dichloroethene	25.00	28.40	102	74-126	7	21
2,2-Dichloropropane	25.00	26.59 b	106	69-130	2	29
Chloroform	25.00	23.97	96	80-123	4	22
Bromochloromethane	25.00	22.84	91	80-122	6	20
1,1,1-Trichloroethane	25.00	25.67	103	80-130	2	23
1,1-Dichloropropene	25.00	24.43	98	80-128	3	22
Carbon Tetrachloride	25.00	26.45	106	80-138	3	24
1,2-Dichloroethane	25.00	24.43	98	80-130	10	20
Benzene	25.00	25.76	103	80-120	4	20
Trichloroethene	25.00	33.02	99	73-123	6	20
1,2-Dichloropropane	25.00	24.03	96	80-120	6	20
Bromodichloromethane	25.00	25.07	100	80-120	6	20
Dibromomethane	25.00	24.36	97	80-120	5	20
4-Methyl-2-Pentanone	25.00	26.70	107	67-130	5	22
cis-1,3-Dichloropropene	25.00	25.65	103	80-125	2	20
Toluene	25.00	27.06	108	80-120	9	21
trans-1,3-Dichloropropene	25.00	25.08	100	77-120	3	20
1,1,2-Trichloroethane	25.00	26.39	106	80-120	9	20
2-Hexanone	25.00	26.58	106	57-131	7	24
1,3-Dichloropropane	25.00	26.67	107	80-120	6	20
Tetrachloroethene	25.00	27.23	107	77-122	6	22
Dibromochloromethane	25.00	23.98	96	80-120	2	20
1,2-Dibromoethane	25.00	25.90	104	80-120	6	20
Chlorobenzene	25.00	26.60	106	80-120	6	24
1,1,1,2-Tetrachloroethane	25.00	25.55	102	80-120	4	20
Ethylbenzene	25.00	26.93	108	80-120	6	25
m,p-Xylenes	50.00	49.95	100	80-121	6	23
o-Xylene	25.00	25.05	100	80-120	6	25
Styrene	25.00	23.91	96	64-124	2	22
Bromoform	25.00	23.82	95	80-126	7	20
Isopropylbenzene	25.00	28.92	116	80-121	7	27
1,1,2,2-Tetrachloroethane	25.00	29.09	116	80-127	8	20
1,2,3-Trichloropropane	25.00	26.58	106	76-124	3	22

b= See narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160408PZ11	Dil'n Fac:	1.000
MSS Lab ID:	275865-015	Batch#:	234187
Matrix:	Water	Sampled:	04/08/16
Units:	ug/L	Received:	04/08/16

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Propylbenzene	25.00	28.36	113	79-120	10	23
Bromobenzene	25.00	26.58	106	80-120	11	22
1,3,5-Trimethylbenzene	25.00	29.46	118	80-121	7	23
2-Chlorotoluene	25.00	28.82	115	80-124	9	23
4-Chlorotoluene	25.00	28.67	115	80-120	8	21
tert-Butylbenzene	25.00	27.70	111	80-120	2	25
1,2,4-Trimethylbenzene	25.00	26.76	107	77-120	3	23
sec-Butylbenzene	25.00	28.18	113	79-123	6	24
para-Isopropyl Toluene	25.00	29.28	117	74-120	9	22
1,3-Dichlorobenzene	25.00	26.61	106	80-120	6	20
1,4-Dichlorobenzene	25.00	26.44	106	80-120	6	20
n-Butylbenzene	25.00	27.79	111	68-121	2	22
1,2-Dichlorobenzene	25.00	26.42	106	80-120	9	20
1,2-Dibromo-3-Chloropropane	25.00	26.67	107	67-125	4	28
1,2,4-Trichlorobenzene	25.00	24.70	99	68-120	6	21
Hexachlorobutadiene	25.00	28.02	112	73-127	2	25
Naphthalene	25.00	24.14	97	62-126	4	25
1,2,3-Trichlorobenzene	25.00	24.77	99	68-121	2	22

Surrogate	%REC	Limits
Dibromofluoromethane	91	80-128
1,2-Dichloroethane-d4	94	75-139
Toluene-d8	100	80-120
Bromofluorobenzene	99	80-120

b= See narrative
RPD= Relative Percent Difference

CURTIS & TOMPKINS BFB TUNE FOR 275865 MSVOA Water
EPA 8260B

Inst : MSVOA08 Run Name : BFB IDF : 1.0
Seqnum : 476138895001 File : hd501 Time : 05-APR-2016 10:55

Standards: S29058

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
50	15% - 40% of mass 95	6620	22.99	
75	30% - 60% of mass 95	13286	46.14	
95		28792	100.00	
96	5% - 9% of mass 95	1802	6.26	
173	< 2% of mass 174	0	0.00	
174	> 50% and < 100% of mass 95	23522	81.70	
175	5% - 9% of mass 174	1845	7.84	
176	> 95% and < 101% of mass 174	23157	98.45	
177	5% - 9% of mass 176	1806	7.80	

Analyst: DAR Date: 04/07/16 Reviewer: LW Date: 04/07/16

CURTIS & TOMPKINS BFB TUNE FOR 275865 MSVOA Water
EPA 8260B

Inst : MSVOA08 Run Name : BFB IDF : 1.0
Seqnum : 476140541004 File : hd604 Time : 06-APR-2016 17:03

Standards: S29058

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
50	15% - 40% of mass 95	6450	24.27	
75	30% - 60% of mass 95	13487	50.74	
95		26581	100.00	
96	5% - 9% of mass 95	1789	6.73	
173	< 2% of mass 174	0	0.00	
174	> 50% and < 100% of mass 95	22722	85.48	
175	5% - 9% of mass 174	1624	7.15	
176	> 95% and < 101% of mass 174	22306	98.17	
177	5% - 9% of mass 176	1519	6.81	

Analyst: DAR Date: 04/07/16 Reviewer: LW Date: 04/07/16

CURTIS & TOMPKINS BFB TUNE FOR 275865 MSVOA Water
EPA 8260B

Inst : MSVOA08 Run Name : BFB IDF : 1.0
Seqnum : 476150372003 File : hdd03 Time : 13-APR-2016 11:43

Standards: S29058

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
50	15% - 40% of mass 95	7659	26.18	
75	30% - 60% of mass 95	14644	50.05	
95		29256	100.00	
96	5% - 9% of mass 95	1862	6.36	
173	< 2% of mass 174	0	0.00	
174	> 50% and < 100% of mass 95	20285	69.34	
175	5% - 9% of mass 174	1824	8.99	
176	> 95% and < 101% of mass 174	19628	96.76	
177	5% - 9% of mass 176	1191	6.07	

Analyst: DAR Date: 04/14/16 Reviewer: LW Date: 04/14/16

CURTIS & TOMPKINS BFB TUNE FOR 275865 MSVOA Water
EPA 8260B

Inst : MSVOA08 Run Name : BFB IDF : 1.0
Seqnum : 476154940004 File : hdg04 Time : 16-APR-2016 16:11

Standards: S29058

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
50	15% - 40% of mass 95	10465	22.82	
75	30% - 60% of mass 95	22024	48.02	
95		45864	100.00	
96	5% - 9% of mass 95	2762	6.02	
173	< 2% of mass 174	0	0.00	
174	> 50% and < 100% of mass 95	34408	75.02	
175	5% - 9% of mass 174	2785	8.09	
176	> 95% and < 101% of mass 174	33344	96.91	
177	5% - 9% of mass 176	2201	6.60	

Analyst: KKM Date: 04/18/16 Reviewer: LW Date: 04/18/16

CURTIS & TOMPKINS BFB TUNE FOR 275865 MSVOA Water
EPA 8260B

Inst : MSVOA08 Run Name : BFB IDF : 1.0
Seqnum : 476157607003 File : hdi03 Time : 18-APR-2016 13:01

Standards: S29058

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
50	15% - 40% of mass 95	9275	28.28	
75	30% - 60% of mass 95	15903	48.50	
95		32792	100.00	
96	5% - 9% of mass 95	2185	6.66	
173	< 2% of mass 174	0	0.00	
174	> 50% and < 100% of mass 95	22867	69.73	
175	5% - 9% of mass 174	1842	8.06	
176	> 95% and < 101% of mass 174	22479	98.30	
177	5% - 9% of mass 176	1394	6.20	

Analyst: DAR Date: 04/18/16 Reviewer: LW Date: 04/19/16

CURTIS & TOMPKINS BFB TUNE FOR 275865 MSVOA Water
EPA 8260B

Inst : MSVOA11 Run Name : BFB IDF : 1.0
Seqnum : 836098562007 File : kc807 Time : 08-MAR-2016 18:13

Standards: S29058

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
50	15% - 40% of mass 95	3959	22.07	
75	30% - 60% of mass 95	9246	51.54	
95		17940	100.00	
96	5% - 9% of mass 95	1105	6.16	
173	< 2% of mass 174	118	0.88	
174	> 50% and < 100% of mass 95	13373	74.54	
175	5% - 9% of mass 174	1112	8.32	
176	> 95% and < 101% of mass 174	13346	99.80	
177	5% - 9% of mass 176	897	6.72	

Analyst: DAR Date: 03/10/16 Reviewer: LW Date: 03/14/16

CURTIS & TOMPKINS BFB TUNE FOR 275865 MSVOA Water
EPA 8260B

Inst : MSVOA11 Run Name : BFB IDF : 1.0
Seqnum : 836100345004 File : kc904 Time : 09-MAR-2016 17:49

Standards: S29058

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
50	15% - 40% of mass 95	4702	20.26	
75	30% - 60% of mass 95	12094	52.12	
95		23203	100.00	
96	5% - 9% of mass 95	1729	7.45	
173	< 2% of mass 174	87	0.46	
174	> 50% and < 100% of mass 95	18989	81.84	
175	5% - 9% of mass 174	1420	7.48	
176	> 95% and < 101% of mass 174	19107	100.62	
177	5% - 9% of mass 176	1264	6.62	

Analyst: DAR Date: 03/10/16 Reviewer: LW Date: 03/14/16

CURTIS & TOMPKINS BFB TUNE FOR 275865 MSVOA Water
EPA 8260B

Inst : MSVOA11 Run Name : BFB IDF : 1.0
Seqnum : 836157604006 File : kdi06 Time : 18-APR-2016 14:31

Standards: S29058

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
50	15% - 40% of mass 95	4567	23.54	
75	30% - 60% of mass 95	11257	58.01	
95		19405	100.00	
96	5% - 9% of mass 95	1388	7.15	
173	< 2% of mass 174	70	0.51	
174	> 50% and < 100% of mass 95	13777	71.00	
175	5% - 9% of mass 174	1138	8.26	
176	> 95% and < 101% of mass 174	13592	98.66	
177	5% - 9% of mass 176	998	7.34	

Analyst: DAR Date: 04/19/16 Reviewer: LW Date: 04/19/16

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 275865 MSVOA Water: EPA 8260B

Inst : MSVOA08 Name : 826GOX8
Calnum : 476138895001 Date : 05-APR-2016 17:23 Type : WATER
Units : ug/L X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	hd507	476138895007	.25/.5	05-APR-2016 17:23	S28620 (2000000X), S29427 (2000000X), S29559 (2000000X), S28142 (1000000X), S29486 (5000X)
L2	hd508	476138895008	.5/1	05-APR-2016 17:57	S28620 (1000000X), S29427 (1000000X), S29559 (1000000X), S28142 (500000X), S29486 (5000X)
L3	hd509	476138895009	2PPB	05-APR-2016 18:31	S28620 (500000X), S29427 (250000X), S29559 (250000X), S28142 (250000X), S29486 (5000X)
L4	hd510	476138895010	5PPB	05-APR-2016 19:06	S29486 (5000X), S28620 (200000X), S29427 (100000X), S29559 (100000X), S28142 (100000X)
L5	hd511	476138895011	10PPB	05-APR-2016 19:40	S29486 (5000X), S28620 (100000X), S29427 (50000X), S29559 (50000X), S28142 (50000X)
L6	hd512	476138895012	20PPB	05-APR-2016 20:14	S29486 (5000X), S28620 (50000X), S29427 (25000X), S29559 (25000X), S28142 (25000X)
L7	hd513	476138895013	50PPB	05-APR-2016 20:48	S29486 (5000X), S28620 (20000X), S29427 (10000X), S29559 (10000X), S28142 (10000X)
L8	hd514	476138895014	75PPB	05-APR-2016 21:23	S29486 (5000X), S28620 (13330X), S29427 (6667X), S29559 (6667X), S28142 (6667X)
L9	hd515	476138895015	100PPB	05-APR-2016 21:57	S29486 (5000X), S28620 (10000X), S29427 (5000X), S29559 (5000X), S28142 (5000X)

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Freon 12		0.9836	0.9520	1.0724	1.0542	1.0013	1.0174	0.9778	0.9803	AVRG		0.99515		1.0049	4	15	0.05	0.99	
Chloromethane	1.1188	1.1825	1.1202	1.0441	1.0633	1.0727	1.0608	1.1220	1.0829	AVRG		0.91211		1.0964	4	15	0.10	0.99	
Vinyl Chloride	0.8257	0.8258	0.8399	0.8697	0.8287	0.8650	0.8810	0.8811	0.8692	AVRG		1.17097		0.8540	3	15	0.05	0.99	
Bromomethane		0.3926	0.4629	0.4752	0.5036	0.5417	0.5446	0.5593	0.5911	AVRG		1.96512		0.5089	13	15	0.05	0.99	
Chloroethane		0.4697	0.4462	0.4350	0.4782	0.4649	0.4830	0.4603	0.5000	AVRG		2.14062		0.4672	4	15	0.05	0.99	
Trichlorofluoromethane		0.9725	0.9628	0.9558	0.9605	0.9734	0.9540	0.9500	0.9423	AVRG		1.04285		0.9589	1	15	0.05	0.99	
Acetone			0.1611	0.1595	0.1874	0.1790	0.1771	0.1685	0.1646	AVRG		5.84662		0.1710	6	15	0.05	0.99	
Freon 113		0.4499	0.4821	0.4738	0.4764	0.4330	0.4324	0.4456	0.4534	AVRG		2.19388		0.4558	4	15	0.05	0.99	
1,1-Dichloroethene		0.3759	0.4113	0.4092	0.4280	0.4137	0.4030	0.4050	0.4179	AVRG		2.45096		0.4080	4	15	0.05	0.99	
Methylene Chloride		0.5052	0.5584	0.5213	0.5374	0.5254	0.5060	0.5205	0.5123	AVRG		1.91085		0.5233	3	15	0.05	0.99	
Carbon Disulfide		1.8757	1.7577	1.6224	1.7848	1.7623	1.7138	1.8179	1.8679	AVRG		0.56328		1.7753	5	15	0.05	0.99	
MTBE		1.1567	1.2947	1.2848	1.3382	1.2874	1.1724	1.2249	1.1897	AVRG		0.80411		1.2436	5	15	0.05	0.99	
trans-1,2-Dichloroethene		0.5124	0.4596	0.4306	0.4671	0.4575	0.4595	0.4610	0.4855	AVRG		2.14292		0.4667	5	15	0.05	0.99	
Vinyl Acetate			1.0990	1.1090	1.1562	1.0756	1.0691	0.9557	1.0937	AVRG		0.92615		1.0797	6	15	0.05	0.99	
1,1-Dichloroethane		1.0557	1.0285	0.9557	1.0006	0.9922	0.9664	0.9913	0.9986	AVRG		1.00136		0.9986	3	15	0.10	0.99	
2-Butanone			0.2168	0.2358	0.2433	0.2203	0.2155	0.2076	0.2117	AVRG		4.51310		0.2216	6	15	0.05	0.99	
2,2-Dichloropropane		0.7030	0.6504	0.6488	0.6428	0.6099	0.5793	0.5871	0.5788	AVRG		1.59999		0.6250	7	15	0.05	0.99	
cis-1,2-Dichloroethene		0.5262	0.5217	0.5224	0.5295	0.5215	0.5158	0.5083	0.5389	AVRG		1.91193		0.5230	2	15	0.05	0.99	
Chloroform		1.0556	0.9586	0.9315	0.9675	0.9883	0.9216	0.9017	0.9487	AVRG		1.04253		0.9592	5	15	0.05	0.99	
Bromochloromethane		0.2870	0.2460	0.2682	0.2720	0.2589	0.2621	0.2654	0.2655	AVRG		3.76446		0.2656	4	15	0.05	0.99	
1,1,1-Trichloroethane		0.7362	0.8425	0.7988	0.7866	0.7861	0.7544	0.7494	0.7468	AVRG		1.29017		0.7751	5	15	0.05	0.99	
1,1-Dichloropropene		0.5662	0.5473	0.5664	0.5266	0.5376	0.5136	0.5069	0.4905	AVRG		1.88012		0.5319	5	15	0.05	0.99	
Carbon Tetrachloride		0.5110	0.5658	0.5659	0.5459	0.5295	0.5117	0.5017	0.4880	AVRG		1.89591		0.5275	6	15	0.05	0.99	
1,2-Dichloroethane		0.6299	0.5803	0.5297	0.5289	0.5350	0.5214	0.4971	0.4882	AVRG		1.85588		0.5388	9	15	0.05	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Benzene		1.4199	1.3984	1.2868	1.3414	1.2724	1.2642	1.2073	1.2744	AVRG		0.76447		1.3081	6	15	0.05	0.99	
Trichloroethene		0.4250	0.4271	0.4099	0.3957	0.3946	0.3705	0.3899	0.3516	AVRG		2.52815		0.3955	7	15	0.05	0.99	
1,2-Dichloropropane		0.4013	0.4229	0.4210	0.4119	0.3982	0.3772	0.4033	0.3607	AVRG		2.50279		0.3996	5	15	0.05	0.99	
Bromodichloromethane		0.4800	0.5114	0.5033	0.5300	0.5326	0.4931	0.4763	0.4848	AVRG		1.99430		0.5014	4	15	0.05	0.99	
Dibromomethane		0.2286	0.2462	0.2200	0.2303	0.2334	0.2198	0.2133	0.2132	AVRG		4.43245		0.2256	5	15	0.05	0.99	
4-Methyl-2-Pentanone			0.3505	0.3732	0.3672	0.3676	0.3647	0.3538	0.3493	AVRG		2.77078		0.3609	3	15	0.05	0.99	
cis-1,3-Dichloropropene		0.5841	0.5986	0.5681	0.5578	0.5626	0.5424	0.5518	0.5265	AVRG		1.78095		0.5615	4	15	0.05	0.99	
Toluene		0.9588	1.0793	1.0132	1.0299	0.9784	1.0254	0.9919	0.9287	AVRG		0.99930		1.0007	5	15	0.05	0.99	
trans-1,3-Dichloropropene		0.5958	0.6353	0.6027	0.5926	0.5745	0.5780	0.5910	0.5766	AVRG		1.68545		0.5933	3	15	0.05	0.99	
1,1,2-Trichloroethane		0.1346	0.1787	0.1920	0.1930	0.1826	0.1859	0.1851	0.1775	AVRG		5.59661		0.1787	10	15	0.05	0.99	
2-Hexanone			0.2948	0.3271	0.3277	0.3014	0.3219	0.3152	0.2823	AVRG		3.22541		0.3100	6	15	0.05	0.99	
1,3-Dichloropropane		0.5838	0.6097	0.6103	0.5885	0.5674	0.5947	0.5822	0.5261	AVRG		1.71574		0.5828	5	15	0.05	0.99	
Tetrachloroethene		0.4434	0.4726	0.4860	0.4742	0.4358	0.4639	0.4766	0.4465	AVRG		2.16276		0.4624	4	15	0.05	0.99	
Dibromochloromethane		0.5110	0.5176	0.5216	0.5177	0.4928	0.4863	0.4761	0.4876	AVRG		1.99469		0.5013	4	15	0.05	0.99	
1,2-Dibromoethane		0.3400	0.3868	0.3998	0.4013	0.3900	0.3837	0.3793	0.3757	AVRG		2.61735		0.3821	5	15	0.05	0.99	
Chlorobenzene		1.1775	1.2475	1.1669	1.1436	1.1863	1.1159	1.1706	1.1189	AVRG		0.85771		1.1659	4	15	0.30	0.99	
1,1,1,2-Tetrachloroethane		0.4603	0.4393	0.4671	0.4608	0.4354	0.4456	0.4468	0.4410	AVRG		2.22452		0.4495	3	15	0.05	0.99	
Ethylbenzene		2.0339	2.0640	2.1171	2.1000	1.9901	1.9644	1.9687	1.9204	AVRG		0.49509		2.0198	3	15	0.05	0.99	
m,p-Xylenes	0.8157	0.7809	0.8159	0.7876	0.8065	0.7175	0.7475	0.7433	0.7090	AVRG		1.29986		0.7693	5	15	0.05	0.99	
o-Xylene		0.7091	0.8488	0.7762	0.8025	0.7435	0.8154	0.7495	0.7357	AVRG		1.29436		0.7726	6	15	0.05	0.99	
Styrene		1.1067	1.2717	1.2992	1.3181	1.2994	1.2714	1.2699	1.2596	AVRG		0.79239		1.2620	5	15	0.05	0.99	
Bromoform		0.2795	0.3485	0.3343	0.3521	0.3298	0.3435	0.3361	0.3232	AVRG		3.02232		0.3309	7	15	0.10	0.99	
Isopropylbenzene		3.5587	3.8652	3.7463	3.6660	3.4895	3.5764	3.4592	3.4574	AVRG		0.27760		3.6023	4	15	0.05	0.99	
1,1,2,2-Tetrachloroethane		0.6964	0.7981	0.7692	0.7975	0.7262	0.7551	0.7406	0.7561	AVRG		1.32470		0.7549	5	15	0.30	0.99	
1,2,3-Trichloropropane		0.2540	0.2217	0.2180	0.2213	0.1896	0.2062	0.1917	0.1972	AVRG		4.70675		0.2125	10	15	0.05	0.99	
Propylbenzene		4.6001	4.7016	4.3930	4.4605	4.1420	4.2517	4.1918	3.9524	AVRG		0.23059		4.3366	6	15	0.05	0.99	
Bromobenzene		0.9984	0.9523	0.9478	0.9415	0.9034	0.9266	0.9248	0.8987	AVRG		1.06759		0.9367	3	15	0.05	0.99	
1,3,5-Trimethylbenzene		2.8982	3.2245	3.1979	3.0621	2.9552	2.8140	2.9668	2.9610	AVRG		0.33223		3.0100	5	15	0.05	0.99	
2-Chlorotoluene		3.1321	3.0615	3.0354	2.8355	2.7118	2.6900	2.7783	2.7844	AVRG		0.34739		2.8786	6	15	0.05	0.99	
4-Chlorotoluene		2.6537	2.6897	2.7765	2.8466	2.5561	2.6625	2.4877	2.5915	AVRG		0.37622		2.6580	4	15	0.05	0.99	
tert-Butylbenzene		2.8671	2.8006	2.7986	2.8848	2.7219	2.6214	2.6111	2.6933	AVRG		0.36366		2.7499	4	15	0.05	0.99	
1,2,4-Trimethylbenzene		3.1869	3.2621	3.2673	3.3623	3.1171	3.0753	3.1388	3.0188	AVRG		0.31461		3.1786	4	15	0.05	0.99	
sec-Butylbenzene		3.9849	4.2108	4.2490	4.2039	3.9334	3.9149	3.8524	3.7645	AVRG		0.24912		4.0142	5	15	0.05	0.99	
para-Isopropyl Toluene		3.3506	3.2535	3.5267	3.3617	3.2574	3.2992	3.1083	3.0230	AVRG		0.30557		3.2726	5	15	0.05	0.99	
1,3-Dichlorobenzene		1.8067	1.8070	1.7952	1.8331	1.7805	1.7710	1.7245	1.7237	AVRG		0.56173		1.7802	2	15	0.05	0.99	
1,4-Dichlorobenzene		1.8274	1.8789	1.8371	1.8796	1.7746	1.7419	1.6679	1.7529	AVRG		0.55709		1.7950	4	15	0.05	0.99	
n-Butylbenzene	2.7736	2.6823	3.0263	2.9871	2.9703	2.7424	2.7481	2.6460	2.6642	AVRG		0.35657		2.8045	5	15	0.05	0.99	
1,2-Dichlorobenzene		1.5988	1.8193	1.7781	1.7314	1.6587	1.6741	1.6805	1.6276	AVRG		0.58961		1.6960	4	15	0.05	0.99	
1,2-Dibromo-3-Chloropropane		0.1474	0.1460	0.1500	0.1428	0.1387	0.1370	0.1410	0.1376	AVRG		7.01480		0.1426	3	15	0.05	0.99	
1,2,4-Trichlorobenzene		1.0347	1.0808	1.1035	1.1315	1.0525	1.0984	1.0726	1.1007	AVRG		0.92222		1.0843	3	15	0.05	0.99	
Hexachlorobutadiene		0.5102	0.5567	0.5869	0.5692	0.5175	0.5311	0.5270	0.5274	AVRG		1.84932		0.5407	5	15	0.05	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Naphthalene		2.0888	2.0690	2.1968	2.3497	2.2831	2.2497	2.2902	2.3612	AVRG		0.44722		2.2361	5	15	0.05	0.99	
1,2,3-Trichlorobenzene		0.9374	0.9743	1.0165	1.0886	1.0062	1.0217	1.0700	1.0402	AVRG		0.98101		1.0194	5	15	0.05	0.99	
Dibromofluoromethane	0.4724	0.4702	0.4502	0.4507	0.4607	0.5006	0.4591	0.4761	0.4671	AVRG		2.13927		0.4674	3	15	0.05	0.99	
1,2-Dichloroethane-d4	0.3601	0.3651	0.3576	0.3395	0.3515	0.3710	0.3446	0.3243	0.3221	AVRG		2.87022		0.3484	5	15	0.05	0.99	
Toluene-d8	1.2301	1.3108	1.3021	1.2930	1.2696	1.2987	1.3162	1.3005	1.2806	AVRG		0.77576		1.2891	2	15	0.05	0.99	
Bromofluorobenzene	0.9575	0.9554	0.9113	0.9122	0.9656	0.9182	0.9402	0.9409	0.9595	AVRG		1.06373		0.9401	2	15	0.05	0.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
Freon 12			1.0000	-2	2.0000	-5	5.0000	7	10.000	5	20.000	0	50.000	1	75.000	-3	100.00	-2
Chloromethane	0.5000	2	1.0000	8	2.0000	2	5.0000	-5	10.000	-3	20.000	-2	50.000	-3	75.000	2	100.00	-1
Vinyl Chloride	0.5000	-3	1.0000	-3	2.0000	-2	5.0000	2	10.000	-3	20.000	1	50.000	3	75.000	3	100.00	2
Bromomethane			1.0000	**-23**	2.0000	-9	5.0000	-7	10.000	-1	20.000	6	50.000	7	75.000	10	100.00	16
Chloroethane			1.0000	1	2.0000	-4	5.0000	-7	10.000	2	20.000	0	50.000	3	75.000	-1	100.00	7
Trichlorofluoromethane			1.0000	1	2.0000	0	5.0000	0	10.000	0	20.000	2	50.000	-1	75.000	-1	100.00	-2
Acetone					2.0000	-6	5.0000	-7	10.000	10	20.000	5	50.000	4	75.000	-1	100.00	-4
Freon 113			0.5000	-1	2.0000	6	5.0000	4	10.000	5	20.000	-5	50.000	-5	75.000	-2	100.00	-1
1,1-Dichloroethene			0.5000	-8	2.0000	1	5.0000	0	10.000	5	20.000	1	50.000	-1	75.000	-1	100.00	2
Methylene Chloride			0.5000	-3	2.0000	7	5.0000	0	10.000	3	20.000	0	50.000	-3	75.000	-1	100.00	-2
Carbon Disulfide			0.5000	6	2.0000	-1	5.0000	-9	10.000	1	20.000	-1	50.000	-3	75.000	2	100.00	5
MTBE			0.5000	-7	2.0000	4	5.0000	3	10.000	8	20.000	4	50.000	-6	75.000	-2	100.00	-4
trans-1,2-Dichloroethene			0.5000	10	2.0000	-2	5.0000	-8	10.000	0	20.000	-2	50.000	-2	75.000	-1	100.00	4
Vinyl Acetate					2.0000	2	5.0000	3	10.000	7	20.000	0	50.000	-1	75.000	-11	100.00	1
1,1-Dichloroethane			0.5000	6	2.0000	3	5.0000	-4	10.000	0	20.000	-1	50.000	-3	75.000	-1	100.00	0
2-Butanone					2.0000	-2	5.0000	6	10.000	10	20.000	-1	50.000	-3	75.000	-6	100.00	-4
2,2-Dichloropropane			0.5000	12	2.0000	4	5.0000	4	10.000	3	20.000	-2	50.000	-7	75.000	-6	100.00	-7
cis-1,2-Dichloroethene			0.5000	1	2.0000	0	5.0000	0	10.000	1	20.000	0	50.000	-1	75.000	-3	100.00	3
Chloroform			0.5000	10	2.0000	0	5.0000	-3	10.000	1	20.000	3	50.000	-4	75.000	-6	100.00	-1
Bromochloromethane			0.5000	8	2.0000	-7	5.0000	1	10.000	2	20.000	-3	50.000	-1	75.000	0	100.00	0
1,1,1-Trichloroethane			0.5000	-5	2.0000	9	5.0000	3	10.000	1	20.000	1	50.000	-3	75.000	-3	100.00	-4
1,1-Dichloropropene			0.5000	6	2.0000	3	5.0000	6	10.000	-1	20.000	1	50.000	-3	75.000	-5	100.00	-8
Carbon Tetrachloride			0.5000	-3	2.0000	7	5.0000	7	10.000	4	20.000	0	50.000	-3	75.000	-5	100.00	-7
1,2-Dichloroethane			0.5000	17	2.0000	8	5.0000	-2	10.000	-2	20.000	-1	50.000	-3	75.000	-8	100.00	-9
Benzene			0.5000	9	2.0000	7	5.0000	-2	10.000	3	20.000	-3	50.000	-3	75.000	-8	100.00	-3
Trichloroethene			0.5000	7	2.0000	8	5.0000	4	10.000	0	20.000	0	50.000	-6	75.000	-1	100.00	-11
1,2-Dichloropropane			0.5000	0	2.0000	6	5.0000	5	10.000	3	20.000	0	50.000	-6	75.000	1	100.00	-10
Bromodichloromethane			0.5000	-4	2.0000	2	5.0000	0	10.000	6	20.000	6	50.000	-2	75.000	-5	100.00	-3
Dibromomethane			0.5000	1	2.0000	9	5.0000	-2	10.000	2	20.000	3	50.000	-3	75.000	-5	100.00	-5
4-Methyl-2-Pentanone					2.0000	-3	5.0000	3	10.000	2	20.000	2	50.000	1	75.000	-2	100.00	-3
cis-1,3-Dichloropropene			0.5000	4	2.0000	7	5.0000	1	10.000	-1	20.000	0	50.000	-3	75.000	-2	100.00	-6
Toluene			0.5000	-4	2.0000	8	5.0000	1	10.000	3	20.000	-2	50.000	2	75.000	-1	100.00	-7
trans-1,3-Dichloropropene			0.5000	0	2.0000	7	5.0000	2	10.000	0	20.000	-3	50.000	-3	75.000	0	100.00	-3
1,1,2-Trichloroethane			0.5000	**-25**	2.0000	0	5.0000	7	10.000	8	20.000	2	50.000	4	75.000	4	100.00	-1
2-Hexanone					2.0000	-5	5.0000	5	10.000	6	20.000	-3	50.000	4	75.000	2	100.00	-9
1,3-Dichloropropane			0.5000	0	2.0000	5	5.0000	5	10.000	1	20.000	-3	50.000	2	75.000	0	100.00	-10
Tetrachloroethene			0.5000	-4	2.0000	2	5.0000	5	10.000	3	20.000	-6	50.000	0	75.000	3	100.00	-3
Dibromochloromethane			0.5000	2	2.0000	3	5.0000	4	10.000	3	20.000	-2	50.000	-3	75.000	-5	100.00	-3
1,2-Dibromoethane			0.5000	-11	2.0000	1	5.0000	5	10.000	5	20.000	2	50.000	0	75.000	-1	100.00	-2
Chlorobenzene			0.5000	1	2.0000	7	5.0000	0	10.000	-2	20.000	2	50.000	-4	75.000	0	100.00	-4
1,1,1,2-Tetrachloroethane			0.5000	2	2.0000	-2	5.0000	4	10.000	3	20.000	-3	50.000	-1	75.000	-1	100.00	-2
Ethylbenzene			0.5000	1	2.0000	2	5.0000	5	10.000	4	20.000	-1	50.000	-3	75.000	-3	100.00	-5

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
m,p-Xylenes	0.5000	6	1.0000	2	4.0000	6	10.000	2	20.000	5	40.000	-7	100.00	-3	150.00	-3	200.00	-8
o-Xylene			0.5000	-8	2.0000	10	5.0000	0	10.000	4	20.000	-4	50.000	6	75.000	-3	100.00	-5
Styrene			0.5000	-12	2.0000	1	5.0000	3	10.000	4	20.000	3	50.000	1	75.000	1	100.00	0
Bromoform			0.5000	-16	2.0000	5	5.0000	1	10.000	6	20.000	0	50.000	4	75.000	2	100.00	-2
Isopropylbenzene			0.5000	-1	2.0000	7	5.0000	4	10.000	2	20.000	-3	50.000	-1	75.000	-4	100.00	-4
1,1,2,2-Tetrachloroethane			0.5000	-8	2.0000	6	5.0000	2	10.000	6	20.000	-4	50.000	0	75.000	-2	100.00	0
1,2,3-Trichloropropane			0.5000	20	2.0000	4	5.0000	3	10.000	4	20.000	-11	50.000	-3	75.000	-10	100.00	-7
Propylbenzene			0.5000	6	2.0000	8	5.0000	1	10.000	3	20.000	-4	50.000	-2	75.000	-3	100.00	-9
Bromobenzene			0.5000	7	2.0000	2	5.0000	1	10.000	1	20.000	-4	50.000	-1	75.000	-1	100.00	-4
1,3,5-Trimethylbenzene			0.5000	-4	2.0000	7	5.0000	6	10.000	2	20.000	-2	50.000	-7	75.000	-1	100.00	-2
2-Chlorotoluene			0.5000	9	2.0000	6	5.0000	5	10.000	-1	20.000	-6	50.000	-7	75.000	-3	100.00	-3
4-Chlorotoluene			0.5000	0	2.0000	1	5.0000	4	10.000	7	20.000	-4	50.000	0	75.000	-6	100.00	-3
tert-Butylbenzene			0.5000	4	2.0000	2	5.0000	2	10.000	5	20.000	-1	50.000	-5	75.000	-5	100.00	-2
1,2,4-Trimethylbenzene			0.5000	0	2.0000	3	5.0000	3	10.000	6	20.000	-2	50.000	-3	75.000	-1	100.00	-5
sec-Butylbenzene			0.5000	-1	2.0000	5	5.0000	6	10.000	5	20.000	-2	50.000	-2	75.000	-4	100.00	-6
para-Isopropyl Toluene			0.5000	2	2.0000	-1	5.0000	8	10.000	3	20.000	0	50.000	1	75.000	-5	100.00	-8
1,3-Dichlorobenzene			0.5000	1	2.0000	2	5.0000	1	10.000	3	20.000	0	50.000	-1	75.000	-3	100.00	-3
1,4-Dichlorobenzene			0.5000	2	2.0000	5	5.0000	2	10.000	5	20.000	-1	50.000	-3	75.000	-7	100.00	-2
n-Butylbenzene	0.2500	-1	0.5000	-4	2.0000	8	5.0000	7	10.000	6	20.000	-2	50.000	-2	75.000	-6	100.00	-5
1,2-Dichlorobenzene			0.5000	-6	2.0000	7	5.0000	5	10.000	2	20.000	-2	50.000	-1	75.000	-1	100.00	-4
1,2-Dibromo-3-Chloropropane			0.5000	3	2.0000	2	5.0000	5	10.000	0	20.000	-3	50.000	-4	75.000	-1	100.00	-3
1,2,4-Trichlorobenzene			0.5000	-5	2.0000	0	5.0000	2	10.000	4	20.000	-3	50.000	1	75.000	-1	100.00	2
Hexachlorobutadiene			0.5000	-6	2.0000	3	5.0000	9	10.000	5	20.000	-4	50.000	-2	75.000	-3	100.00	-2
Naphthalene			0.5000	-7	2.0000	-7	5.0000	-2	10.000	5	20.000	2	50.000	1	75.000	2	100.00	6
1,2,3-Trichlorobenzene			0.5000	-8	2.0000	-4	5.0000	0	10.000	7	20.000	-1	50.000	0	75.000	5	100.00	2
Dibromofluoromethane	50.000	1	50.000	1	50.000	-4	50.000	-4	50.000	-1	50.000	7	50.000	-2	50.000	2	50.000	0
1,2-Dichloroethane-d4	50.000	3	50.000	5	50.000	3	50.000	-3	50.000	1	50.000	6	50.000	-1	50.000	-7	50.000	-8
Toluene-d8	50.000	-5	50.000	2	50.000	1	50.000	0	50.000	-2	50.000	1	50.000	2	50.000	1	50.000	-1
Bromofluorobenzene	50.000	2	50.000	2	50.000	-3	50.000	-3	50.000	3	50.000	-2	50.000	0	50.000	0	50.000	2

DAR 04/07/16 : used third source ICV for Ketones and IODO ICV rerun

Analyst: DAR Date: 04/07/16 Reviewer: LW Date: 04/07/16

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

476138895001

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 275865 MSVOA Water
EPA 8260B

Inst : MSVOA08 Name : 826GOX8
Calnum : 476138895001 Cal Date : 05-APR-2016 Type : WATER

ICV 476138895016 (hd516 05-APR-2016) stds: S29486 (5000X), S28625 (10000X)
ICV 476140541005 (hd605 06-APR-2016) stds: S29448 (10000X), S29207 (10000X), S29290 (10000X), S29486 (5000X)
ICV 476140541006 (hd606 06-APR-2016) stds: S29486 (5000X), S26946 (50000X)

Analyte	ICV Seqnum	Date	Spiked	Quant	Units	%D	Max	Flags
Freon 12	476138895016	05-APR-2016	20.00	14.63	ug/L	**-27**	30	!v-
Chloromethane	476138895016	05-APR-2016	20.00	17.05	ug/L	-15	30	
Vinyl Chloride	476138895016	05-APR-2016	20.00	19.66	ug/L	-2	20	
Bromomethane	476138895016	05-APR-2016	20.00	16.56	ug/L	-17	30	
Chloroethane	476138895016	05-APR-2016	20.00	19.85	ug/L	-1	30	
Trichlorofluoromethane	476138895016	05-APR-2016	20.00	18.10	ug/L	-9	30	
Acetone	476140541006	06-APR-2016	40.00	30.52	ug/L	**-24**	40	!v-
Freon 113	476140541005	06-APR-2016	25.00	20.73	ug/L	-17	30	
1,1-Dichloroethene	476140541005	06-APR-2016	25.00	23.93	ug/L	-4	20	
Methylene Chloride	476140541005	06-APR-2016	25.00	24.84	ug/L	-1	30	
Carbon Disulfide	476140541005	06-APR-2016	25.00	24.04	ug/L	-4	30	
MTBE	476140541005	06-APR-2016	25.00	25.60	ug/L	2	30	
trans-1,2-Dichloroethene	476140541005	06-APR-2016	25.00	22.88	ug/L	-8	30	
Vinyl Acetate	476140541005	06-APR-2016	25.00	30.06	ug/L	20	40	
1,1-Dichloroethane	476140541005	06-APR-2016	25.00	24.44	ug/L	-2	30	
2-Butanone	476140541006	06-APR-2016	40.00	36.19	ug/L	-10	40	
2,2-Dichloropropane	476140541005	06-APR-2016	25.00	31.09	ug/L	**24**	30	!v+
cis-1,2-Dichloroethene	476140541005	06-APR-2016	25.00	24.92	ug/L	0	30	
Chloroform	476140541005	06-APR-2016	25.00	24.21	ug/L	-3	20	
Bromochloromethane	476140541005	06-APR-2016	25.00	24.32	ug/L	-3	30	
1,1,1-Trichloroethane	476140541005	06-APR-2016	25.00	25.23	ug/L	1	30	
1,1-Dichloropropene	476140541005	06-APR-2016	25.00	21.46	ug/L	-14	30	
Carbon Tetrachloride	476140541005	06-APR-2016	25.00	24.16	ug/L	-3	30	
1,2-Dichloroethane	476140541005	06-APR-2016	25.00	23.76	ug/L	-5	30	
Benzene	476140541005	06-APR-2016	25.00	24.01	ug/L	-4	30	
Trichloroethene	476140541005	06-APR-2016	25.00	22.47	ug/L	-10	30	
1,2-Dichloropropane	476140541005	06-APR-2016	25.00	21.92	ug/L	-12	20	
Bromodichloromethane	476140541005	06-APR-2016	25.00	24.02	ug/L	-4	30	
Dibromomethane	476140541005	06-APR-2016	25.00	23.83	ug/L	-5	30	
4-Methyl-2-Pentanone	476140541006	06-APR-2016	40.00	38.23	ug/L	-4	40	
cis-1,3-Dichloropropene	476140541005	06-APR-2016	25.00	26.04	ug/L	4	30	
Toluene	476140541005	06-APR-2016	25.00	23.72	ug/L	-5	20	
trans-1,3-Dichloropropene	476140541005	06-APR-2016	25.00	24.62	ug/L	-2	30	
1,1,2-Trichloroethane	476140541005	06-APR-2016	25.00	24.44	ug/L	-2	30	
2-Hexanone	476140541006	06-APR-2016	40.00	39.30	ug/L	-2	40	
1,3-Dichloropropane	476140541005	06-APR-2016	25.00	25.28	ug/L	1	30	
Tetrachloroethene	476140541005	06-APR-2016	25.00	23.07	ug/L	-8	30	
Dibromochloromethane	476140541005	06-APR-2016	25.00	23.88	ug/L	-4	30	
1,2-Dibromoethane	476140541005	06-APR-2016	25.00	23.93	ug/L	-4	30	
Chlorobenzene	476140541005	06-APR-2016	25.00	24.35	ug/L	-3	30	
1,1,1,2-Tetrachloroethane	476140541005	06-APR-2016	25.00	24.99	ug/L	0	30	
Ethylbenzene	476140541005	06-APR-2016	25.00	23.93	ug/L	-4	20	
m,p-Xylenes	476140541005	06-APR-2016	50.00	45.77	ug/L	-8	30	
o-Xylene	476140541005	06-APR-2016	25.00	22.88	ug/L	-8	30	
Styrene	476140541005	06-APR-2016	25.00	24.39	ug/L	-2	30	
Bromoform	476140541005	06-APR-2016	25.00	26.38	ug/L	6	30	

Analyte	ICV Seqnum	Date	Spiked	Quant	Units	%D	Max	Flags
Isopropylbenzene	476140541005	06-APR-2016	25.00	22.81	ug/L	-9	30	
1,1,2,2-Tetrachloroethane	476140541005	06-APR-2016	25.00	24.64	ug/L	-1	30	
1,2,3-Trichloropropane	476140541005	06-APR-2016	25.00	24.35	ug/L	-3	30	
Propylbenzene	476140541005	06-APR-2016	25.00	22.79	ug/L	-9	30	
Bromobenzene	476140541005	06-APR-2016	25.00	24.14	ug/L	-3	30	
1,3,5-Trimethylbenzene	476140541005	06-APR-2016	25.00	24.75	ug/L	-1	30	
2-Chlorotoluene	476140541005	06-APR-2016	25.00	23.35	ug/L	-7	30	
4-Chlorotoluene	476140541005	06-APR-2016	25.00	24.68	ug/L	-1	30	
tert-Butylbenzene	476140541005	06-APR-2016	25.00	22.88	ug/L	-8	30	
1,2,4-Trimethylbenzene	476140541005	06-APR-2016	25.00	24.08	ug/L	-4	30	
sec-Butylbenzene	476140541005	06-APR-2016	25.00	23.82	ug/L	-5	30	
para-Isopropyl Toluene	476140541005	06-APR-2016	25.00	24.55	ug/L	-2	30	
1,3-Dichlorobenzene	476140541005	06-APR-2016	25.00	23.78	ug/L	-5	30	
1,4-Dichlorobenzene	476140541005	06-APR-2016	25.00	24.65	ug/L	-1	30	
n-Butylbenzene	476140541005	06-APR-2016	25.00	23.98	ug/L	-4	30	
1,2-Dichlorobenzene	476140541005	06-APR-2016	25.00	24.62	ug/L	-2	30	
1,2-Dibromo-3-Chloropropane	476140541005	06-APR-2016	25.00	24.07	ug/L	-4	30	
1,2,4-Trichlorobenzene	476140541005	06-APR-2016	25.00	24.49	ug/L	-2	30	
Hexachlorobutadiene	476140541005	06-APR-2016	25.00	24.06	ug/L	-4	30	
Naphthalene	476140541005	06-APR-2016	25.00	23.53	ug/L	-6	30	
1,2,3-Trichlorobenzene	476140541005	06-APR-2016	25.00	24.96	ug/L	0	30	

476138895016: Analyst: DAR Date: 04/07/16 Reviewer: LW Date: 04/07/16
476140541005: Analyst: DAR Date: 04/07/16 Reviewer: LW Date: 04/07/16
476140541006: Analyst: DAR Date: 04/07/16 Reviewer: LW Date: 04/07/16

!=warning +=high bias -=low bias v=ICV

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 275865 MSVOA Water: EPA 8260B

Inst : MSVOA11 Name : 8260 hexraised
Calnum : 836098562001 Date : 08-MAR-2016 21:28 Type : WATER
Units : ug/L X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	kc814	836098562014	.25PPB	08-MAR-2016 21:28	S28620 (2000000X), S29042 (2000000X), S29228 (2000000X), S27830 (1000000X), S29284 (2500X)
L2	kc815	836098562015	.5PPB	08-MAR-2016 21:56	S29284 (2500X), S28620 (1000000X), S29042 (1000000X), S29228 (1000000X), S27830 (500000X)
L3	kc816	836098562016	2PPB	08-MAR-2016 22:25	S28620 (500000X), S29042 (250000X), S29228 (250000X), S27830 (250000X), S29284 (2500X)
L4	kc817	836098562017	5PPB	08-MAR-2016 22:53	S29284 (2500X), S28620 (200000X), S29042 (100000X), S29228 (100000X), S27830 (100000X)
L5	kc818	836098562018	10PPB	08-MAR-2016 23:21	S29284 (2500X), S28620 (100000X), S29042 (50000X), S29228 (50000X), S27830 (50000X)
L6	kc819	836098562019	20PPB	08-MAR-2016 23:50	S29284 (2500X), S28620 (50000X), S29042 (25000X), S29228 (25000X), S27830 (25000X)
L7	kc820	836098562020	50PPB	09-MAR-2016 00:18	S29284 (2500X), S28620 (20000X), S29042 (10000X), S29228 (10000X), S27830 (10000X)
L8	kc821	836098562021	75PPB	09-MAR-2016 00:46	S29284 (2500X), S28620 (13330X), S29042 (6667X), S29228 (6667X), S27830 (6667X)
L9	kc822	836098562022	100PPB	09-MAR-2016 01:14	S29284 (2500X), S28620 (10000X), S29042 (5000X), S29228 (5000X), S27830 (5000X)

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Freon 12		1.0114m	0.9959m	0.9848m	0.9347	0.8563	0.9420	0.9177	0.9095	AVRG		1.05928		0.9440	5	15	0.05	0.99	
Chloromethane	1.4383m	1.4910	1.3909m	1.3584	1.3560m	1.3198m	1.2750	1.1904	1.1692	AVRG		0.75069		1.3321	8	15	0.10	0.99	
Vinyl Chloride	0.9128	0.9460	0.9153	0.9259	0.9045	0.9040	0.8972	0.8718	0.8538	AVRG		1.10682		0.9035	3	15	0.05	0.99	
Bromomethane		0.2363	0.2778	0.2736	0.2910	0.2703	0.2903	0.2964m	0.3176m	AVRG		3.55045		0.2817	8	15	0.05	0.99	
Chloroethane	0.4547	0.5019	0.5082	0.5204	0.5099	0.5129	0.5074	0.4920	0.4885	AVRG		2.00180		0.4996	4	15	0.05	0.99	
Trichlorofluoromethane		1.0472	1.0088	1.0024	0.9669	0.9290	0.9761	0.9446	0.9381	AVRG		1.02393		0.9766	4	15	0.05	0.99	
Acetone			0.2536	0.2324	0.2334	0.2775	0.2304	0.2326	0.2334	AVRG		4.13408		0.2419	7	15	0.05	0.99	
Freon 113		0.5580	0.4884	0.5495	0.5257	0.5423	0.5035	0.5122	0.5161	AVRG		1.90676		0.5245	5	15	0.05	0.99	
1,1-Dichloroethene		0.5176	0.4861	0.5105	0.5006	0.5152	0.4896	0.4966	0.4929	AVRG		1.99546		0.5011	2	15	0.05	0.99	
Methylene Chloride		0.6506	0.6551	0.6420	0.6881	0.6781	0.6477	0.6436	0.6361	AVRG		1.52635		0.6552	3	15	0.05	0.99	
Carbon Disulfide		1.8918	1.7716	1.8712	1.8899	1.9251	1.8096	1.8165	1.8040	AVRG		0.54128		1.8475	3	15	0.05	0.99	
MTBE		1.9467	1.7681	1.7732	1.9200	1.9321	1.8812	1.9067	1.9261	AVRG		0.53142		1.8818	4	15	0.05	0.99	
trans-1,2-Dichloroethene		0.6152	0.5658	0.5830	0.6072	0.5990	0.5743	0.5794	0.5734	AVRG		1.70313		0.5872	3	15	0.05	0.99	
Vinyl Acetate			1.2568	1.1703	1.4012	1.2040	1.2432	1.4124	1.3005	AVRG		0.77877		1.2841	7	15	0.05	0.99	
1,1-Dichloroethane		1.2071	1.1288	1.1719	1.2124	1.1966	1.1494	1.1577	1.1564	AVRG		0.85286		1.1725	3	15	0.10	0.99	
2-Butanone			0.3201	0.3012	0.3564	0.3728	0.3304	0.3478	0.3490	AVRG		2.94404		0.3397	7	15	0.05	0.99	
2,2-Dichloropropane		0.8920	0.8488	0.8582	0.8714	0.8815	0.8428	0.8512	0.8296	AVRG		1.16355		0.8594	2	15	0.05	0.99	
cis-1,2-Dichloroethene		0.6910	0.6830	0.6744	0.6904	0.6852	0.6735	0.6759	0.6718	AVRG		1.46922		0.6806	1	15	0.05	0.99	
Chloroform		1.2451	1.1304	1.1360	1.1734	1.1556	1.1113	1.1123	1.1165	AVRG		0.87141		1.1476	4	15	0.05	0.99	
Bromochloromethane		0.2714	0.2874	0.2982	0.3005	0.2802	0.2829	0.2755	0.2769	AVRG		3.51951		0.2841	4	15	0.05	0.99	
1,1,1-Trichloroethane		1.0418	0.9104	0.9078	0.9351	0.9403	0.8896	0.9001	0.8997	AVRG		1.07748		0.9281	5	15	0.05	0.99	
1,1-Dichloropropene		0.5240	0.5167	0.5428	0.5403	0.5543	0.5253	0.5394	0.5346	AVRG		1.87028		0.5347	2	15	0.05	0.99	
Carbon Tetrachloride		0.4758	0.4272	0.4489	0.4433	0.4539	0.4297	0.4474	0.4462	AVRG		2.23939		0.4465	3	15	0.05	0.99	
1,2-Dichloroethane		0.5820	0.5390	0.5487	0.5620	0.5569	0.5403	0.5406	0.5361	AVRG		1.81588		0.5507	3	15	0.05	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Benzene		1.7005	1.5927	1.6260	1.6603	1.6292	1.5601	1.5712	1.5523	AVRG		0.62052		1.6115	3	15	0.05	0.99	
Trichloroethene		0.4111	0.4023	0.3949	0.3945	0.4032	0.3901	0.3918	0.3912	AVRG		2.51641		0.3974	2	15	0.05	0.99	
1,2-Dichloropropane		0.4361	0.4187	0.4180	0.4255	0.4276	0.4186	0.4209	0.4169	AVRG		2.36515		0.4228	2	15	0.05	0.99	
Bromodichloromethane		0.5289	0.5080	0.5168	0.5236	0.5236	0.5136	0.5201	0.5191	AVRG		1.92595		0.5192	1	15	0.05	0.99	
Dibromomethane		0.2279	0.2450	0.2398	0.2496	0.2502	0.2394	0.2424	0.2401	AVRG		4.13568		0.2418	3	15	0.05	0.99	
4-Methyl-2-Pentanone			0.3791	0.3697	0.4310	0.4475	0.4053	0.4312	0.4246	AVRG		2.42347		0.4126	7	15	0.05	0.99	
cis-1,3-Dichloropropene		0.6129	0.5931	0.6275	0.6495	0.6589	0.6543	0.6580	0.6520	AVRG		1.56673		0.6383	4	15	0.05	0.99	
Toluene		2.1404	2.0141	1.9775	1.9899	1.9837	1.8573	1.8724	1.8700	AVRG		0.50938		1.9632	5	15	0.05	0.99	
trans-1,3-Dichloropropene		0.6036	0.5951	0.6315	0.6641	0.6701	0.6631	0.6717	0.6709	AVRG		1.54739		0.6463	5	15	0.05	0.99	
1,1,2-Trichloroethane		0.2270	0.2260	0.2316	0.2360	0.2332	0.2240	0.2242	0.2259	AVRG		4.37672		0.2285	2	15	0.05	0.99	
2-Hexanone			0.3004	0.2913	0.3359	0.3610	0.3281	0.3411	0.3483	AVRG		3.03530		0.3295	8	15	0.05	0.99	
1,3-Dichloropropane		0.7541	0.7056	0.7136	0.7443	0.7387	0.6984	0.7019	0.7037	AVRG		1.38880		0.7200	3	15	0.05	0.99	
Tetrachloroethene		0.4116	0.4178	0.4195	0.4119	0.4174	0.3963	0.4045	0.4068	AVRG		2.43485		0.4107	2	15	0.05	0.99	
Dibromochloromethane		0.3881	0.3723	0.3838	0.4059	0.4118	0.4044	0.4130	0.4185	AVRG		2.50173		0.3997	4	15	0.05	0.99	
1,2-Dibromoethane		0.3970	0.3910	0.3886	0.4154	0.4151	0.3912	0.3975	0.3978	AVRG		2.50499		0.3992	3	15	0.05	0.99	
Chlorobenzene		1.2965	1.2385	1.2177	1.2141	1.2140	1.1594	1.1790	1.1820	AVRG		0.82464		1.2126	4	15	0.30	0.99	
1,1,1,2-Tetrachloroethane		0.4334	0.3761	0.3794	0.4007	0.3952	0.3838	0.3914	0.3913	AVRG		2.53859		0.3939	5	15	0.05	0.99	
Ethylbenzene		2.2745	2.2640	2.2223	2.2190	2.2085	2.1001	2.1261	2.1519	AVRG		0.45541		2.1958	3	15	0.05	0.99	
m,p-Xylenes	0.8275	0.7878	0.8020	0.8051	0.8058	0.8080	0.7768	0.7905	0.8105	AVRG		1.24756		0.8016	2	15	0.05	0.99	
o-Xylene		0.7770	0.7709	0.7607	0.7812	0.7874	0.7598	0.7765	0.7894	AVRG		1.28972		0.7754	1	15	0.05	0.99	
Styrene		1.1993	1.2491	1.2781	1.3298	1.3378	1.2931	1.3302	1.3445	AVRG		0.77207		1.2952	4	15	0.05	0.99	
Bromoform		0.2475	0.2309	0.2365	0.2641	0.2749	0.2679	0.2839	0.2928	AVRG		3.81239		0.2623	8	15	0.10	0.99	
Isopropylbenzene		3.9386	3.9369	3.9986	4.0152	4.1169	3.9081	4.0362	4.0721	AVRG		0.24982		4.0028	2	15	0.05	0.99	
1,1,2,2-Tetrachloroethane		1.1094	1.1624	1.0412	1.1423	1.1212	1.0181	1.0885	1.0713	AVRG		0.91385		1.0943	5	15	0.30	0.99	
1,2,3-Trichloropropane		0.9328m	0.9153m	0.8459m	0.8967m	0.9261m	0.8204m	0.8550m	0.8494m	AVRG		1.13610		0.8802	5	15	0.05	0.99	
Propylbenzene		5.3681	5.1324	5.0930	5.1035	5.1442	4.9002	5.0358	5.0121	AVRG		0.19613		5.0987	3	15	0.05	0.99	
Bromobenzene		1.0832	1.0453	1.0046	1.0014	0.9956	0.9410	0.9566	0.9514	AVRG		1.00264		0.9974	5	15	0.05	0.99	
1,3,5-Trimethylbenzene		3.1830	3.3705	3.3250	3.3769	3.3953	3.2500	3.3375	3.3526	AVRG		0.30086		3.3239	2	15	0.05	0.99	
2-Chlorotoluene		3.4770	3.3098	3.3047	3.2555	3.2528	3.1123	3.1758	3.1691	AVRG		0.30702		3.2571	3	15	0.05	0.99	
4-Chlorotoluene		3.0076	3.0042	2.9573	3.0068	3.0221	2.8492	2.9302	2.9038	AVRG		0.33782		2.9601	2	15	0.05	0.99	
tert-Butylbenzene		2.7037	2.7739	2.8650	2.8679	2.8878	2.8023	2.8781	2.8969	AVRG		0.35280		2.8344	2	15	0.05	0.99	
1,2,4-Trimethylbenzene		3.1823	3.4327	3.3587	3.4904	3.4922	3.3218	3.4079	3.4112	AVRG		0.29523		3.3872	3	15	0.05	0.99	
sec-Butylbenzene		4.4491	4.1664	4.4408	4.4376	4.4705	4.2943	4.4086	4.3876	AVRG		0.22821		4.3819	2	15	0.05	0.99	
para-Isopropyl Toluene		3.2297	3.3900	3.5055	3.5153	3.5799	3.4693	3.5511	3.5518	AVRG		0.28785		3.4741	3	15	0.05	0.99	
1,3-Dichlorobenzene		1.9591	1.8579	1.8216	1.8494	1.8276	1.7280	1.7542	1.7482	AVRG		0.54998		1.8182	4	15	0.05	0.99	
1,4-Dichlorobenzene		2.0075	1.9514	1.8616	1.8783	1.8674	1.7488	1.7803	1.7725	AVRG		0.53808		1.8585	5	15	0.05	0.99	
n-Butylbenzene		3.4674	3.3205	3.4080	3.4828	3.4524	3.3450	3.3885	3.3537	AVRG		0.29392		3.4023	2	15	0.05	0.99	
1,2-Dichlorobenzene		1.6881	1.7817	1.6932	1.7236	1.7156	1.6308	1.6644	1.6412	AVRG		0.59090		1.6923	3	15	0.05	0.99	
1,2-Dibromo-3-Chloropropane		0.1818	0.1889	0.1659	0.1868	0.1959	0.1767	0.1896	0.1880	AVRG		5.42884		0.1842	5	15	0.05	0.99	
1,2,4-Trichlorobenzene		1.0294	0.9856	0.9679	1.0035	1.0116	0.9659	1.0091	0.9901	AVRG		1.00465		0.9954	2	15	0.05	0.99	
Hexachlorobutadiene		0.5306	0.5054	0.5172	0.5180	0.5229	0.4992	0.5173	0.5103	AVRG		1.94132		0.5151	2	15	0.05	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Naphthalene		1.9919	2.0817	1.9879	2.4206	2.5649	2.3268	2.5318	2.4217	AVRG		0.43650		2.2909	10	15	0.05	0.99	
1,2,3-Trichlorobenzene		0.6976	0.7919	0.7428	0.8191	0.8189	0.7480	0.8104	0.7598	AVRG		1.29270		0.7736	6	15	0.05	0.99	
Dibromofluoromethane	0.5006	0.5030	0.4904	0.4860	0.4927	0.4934	0.4965	0.4976	0.4984	AVRG		2.01854		0.4954	1	15	0.05	0.99	
1,2-Dichloroethane-d4	0.3840	0.3815	0.3887	0.3825	0.3870	0.3890	0.3895	0.3958	0.3937	AVRG		2.57763		0.3880	1	15	0.05	0.99	
Toluene-d8	1.3894	1.3861	1.4042	1.3917	1.3848	1.3876	1.3815	1.3718	1.3761	AVRG		0.72154		1.3859	1	15	0.05	0.99	
Bromofluorobenzene	1.0091	1.0095	1.0152	1.0092	0.9937	1.0018	0.9970	1.0003	1.0056	AVRG		0.99543		1.0046	1	15	0.05	0.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
Freon 12			1.0000	7	2.0000	5	5.0000	4	10.000	-1	20.000	-9	50.000	0	75.000	-3	100.00	-4
Chloromethane	0.5000	8	1.0000	12	2.0000	4	5.0000	2	10.000	2	20.000	-1	50.000	-4	75.000	-11	100.00	-12
Vinyl Chloride	0.5000	1	1.0000	5	2.0000	1	5.0000	2	10.000	0	20.000	0	50.000	-1	75.000	-4	100.00	-5
Bromomethane			1.0000	-16	2.0000	-1	5.0000	-3	10.000	3	20.000	-4	50.000	3	75.000	5	100.00	13
Chloroethane	0.5000	-9	1.0000	0	2.0000	2	5.0000	4	10.000	2	20.000	3	50.000	2	75.000	-2	100.00	-2
Trichlorofluoromethane			1.0000	7	2.0000	3	5.0000	3	10.000	-1	20.000	-5	50.000	0	75.000	-3	100.00	-4
Acetone					2.0000	5	5.0000	-4	10.000	-4	20.000	15	50.000	-5	75.000	-4	100.00	-4
Freon 113			0.5000	6	2.0000	-7	5.0000	5	10.000	0	20.000	3	50.000	-4	75.000	-2	100.00	-2
1,1-Dichloroethene			0.5000	3	2.0000	-3	5.0000	2	10.000	0	20.000	3	50.000	-2	75.000	-1	100.00	-2
Methylene Chloride			0.5000	-1	2.0000	0	5.0000	-2	10.000	5	20.000	3	50.000	-1	75.000	-2	100.00	-3
Carbon Disulfide			0.5000	2	2.0000	-4	5.0000	1	10.000	2	20.000	4	50.000	-2	75.000	-2	100.00	-2
MTBE			0.5000	3	2.0000	-6	5.0000	-6	10.000	2	20.000	3	50.000	0	75.000	1	100.00	2
trans-1,2-Dichloroethene			0.5000	5	2.0000	-4	5.0000	-1	10.000	3	20.000	2	50.000	-2	75.000	-1	100.00	-2
Vinyl Acetate					2.0000	-2	5.0000	-9	10.000	9	20.000	-6	50.000	-3	75.000	10	100.00	1
1,1-Dichloroethane			0.5000	3	2.0000	-4	5.0000	0	10.000	3	20.000	2	50.000	-2	75.000	-1	100.00	-1
2-Butanone					2.0000	-6	5.0000	-11	10.000	5	20.000	10	50.000	-3	75.000	2	100.00	3
2,2-Dichloropropane			0.5000	4	2.0000	-1	5.0000	0	10.000	1	20.000	3	50.000	-2	75.000	-1	100.00	-3
cis-1,2-Dichloroethene			0.5000	2	2.0000	0	5.0000	-1	10.000	1	20.000	1	50.000	-1	75.000	-1	100.00	-1
Chloroform			0.5000	8	2.0000	-1	5.0000	-1	10.000	2	20.000	1	50.000	-3	75.000	-3	100.00	-3
Bromochloromethane			0.5000	-4	2.0000	1	5.0000	5	10.000	6	20.000	-1	50.000	0	75.000	-3	100.00	-3
1,1,1-Trichloroethane			0.5000	12	2.0000	-2	5.0000	-2	10.000	1	20.000	1	50.000	-4	75.000	-3	100.00	-3
1,1-Dichloropropene			0.5000	-2	2.0000	-3	5.0000	2	10.000	1	20.000	4	50.000	-2	75.000	1	100.00	0
Carbon Tetrachloride			0.5000	7	2.0000	-4	5.0000	1	10.000	-1	20.000	2	50.000	-4	75.000	0	100.00	0
1,2-Dichloroethane			0.5000	6	2.0000	-2	5.0000	0	10.000	2	20.000	1	50.000	-2	75.000	-2	100.00	-3
Benzene			0.5000	6	2.0000	-1	5.0000	1	10.000	3	20.000	1	50.000	-3	75.000	-3	100.00	-4
Trichloroethene			0.5000	3	2.0000	1	5.0000	-1	10.000	-1	20.000	1	50.000	-2	75.000	-1	100.00	-2
1,2-Dichloropropane			0.5000	3	2.0000	-1	5.0000	-1	10.000	1	20.000	1	50.000	-1	75.000	0	100.00	-1
Bromodichloromethane			0.5000	2	2.0000	-2	5.0000	0	10.000	1	20.000	1	50.000	-1	75.000	0	100.00	0
Dibromomethane			0.5000	-6	2.0000	1	5.0000	-1	10.000	3	20.000	3	50.000	-1	75.000	0	100.00	-1
4-Methyl-2-Pentanone					2.0000	-8	5.0000	-10	10.000	4	20.000	8	50.000	-2	75.000	4	100.00	3
cis-1,3-Dichloropropene			0.5000	-4	2.0000	-7	5.0000	-2	10.000	2	20.000	3	50.000	3	75.000	3	100.00	2
Toluene			0.5000	9	2.0000	3	5.0000	1	10.000	1	20.000	1	50.000	-5	75.000	-5	100.00	-5
trans-1,3-Dichloropropene			0.5000	-7	2.0000	-8	5.0000	-2	10.000	3	20.000	4	50.000	3	75.000	4	100.00	4
1,1,2-Trichloroethane			0.5000	-1	2.0000	-1	5.0000	1	10.000	3	20.000	2	50.000	-2	75.000	-2	100.00	-1
2-Hexanone					2.0000	-9	5.0000	-12	10.000	2	20.000	10	50.000	0	75.000	4	100.00	6
1,3-Dichloropropane			0.5000	5	2.0000	-2	5.0000	-1	10.000	3	20.000	3	50.000	-3	75.000	-3	100.00	-2
Tetrachloroethene			0.5000	0	2.0000	2	5.0000	2	10.000	0	20.000	2	50.000	-4	75.000	-2	100.00	-1
Dibromochloromethane			0.5000	-3	2.0000	-7	5.0000	-4	10.000	2	20.000	3	50.000	1	75.000	3	100.00	5
1,2-Dibromoethane			0.5000	-1	2.0000	-2	5.0000	-3	10.000	4	20.000	4	50.000	-2	75.000	0	100.00	0
Chlorobenzene			0.5000	7	2.0000	2	5.0000	0	10.000	0	20.000	0	50.000	-4	75.000	-3	100.00	-3
1,1,1,2-Tetrachloroethane			0.5000	10	2.0000	-5	5.0000	-4	10.000	2	20.000	0	50.000	-3	75.000	-1	100.00	-1
Ethylbenzene			0.5000	4	2.0000	3	5.0000	1	10.000	1	20.000	1	50.000	-4	75.000	-3	100.00	-2

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
m,p-Xylenes	0.5000	3	1.0000	-2	4.0000	0	10.000	0	20.000	1	40.000	1	100.00	-3	150.00	-1	200.00	1
o-Xylene			0.5000	0	2.0000	-1	5.0000	-2	10.000	1	20.000	2	50.000	-2	75.000	0	100.00	2
Styrene			0.5000	-7	2.0000	-4	5.0000	-1	10.000	3	20.000	3	50.000	0	75.000	3	100.00	4
Bromoform			0.5000	-6	2.0000	-12	5.0000	-10	10.000	1	20.000	5	50.000	2	75.000	8	100.00	12
Isopropylbenzene			0.5000	-2	2.0000	-2	5.0000	0	10.000	0	20.000	3	50.000	-2	75.000	1	100.00	2
1,1,2,2-Tetrachloroethane			0.5000	1	2.0000	6	5.0000	-5	10.000	4	20.000	2	50.000	-7	75.000	-1	100.00	-2
1,2,3-Trichloropropane			0.5000	6	2.0000	4	5.0000	-4	10.000	2	20.000	5	50.000	-7	75.000	-3	100.00	-4
Propylbenzene			0.5000	5	2.0000	1	5.0000	0	10.000	0	20.000	1	50.000	-4	75.000	-1	100.00	-2
Bromobenzene			0.5000	9	2.0000	5	5.0000	1	10.000	0	20.000	0	50.000	-6	75.000	-4	100.00	-5
1,3,5-Trimethylbenzene			0.5000	-4	2.0000	1	5.0000	0	10.000	2	20.000	2	50.000	-2	75.000	0	100.00	1
2-Chlorotoluene			0.5000	7	2.0000	2	5.0000	1	10.000	0	20.000	0	50.000	-4	75.000	-2	100.00	-3
4-Chlorotoluene			0.5000	2	2.0000	1	5.0000	0	10.000	2	20.000	2	50.000	-4	75.000	-1	100.00	-2
tert-Butylbenzene			0.5000	-5	2.0000	-2	5.0000	1	10.000	1	20.000	2	50.000	-1	75.000	2	100.00	2
1,2,4-Trimethylbenzene			0.5000	-6	2.0000	1	5.0000	-1	10.000	3	20.000	3	50.000	-2	75.000	1	100.00	1
sec-Butylbenzene			0.5000	2	2.0000	-5	5.0000	1	10.000	1	20.000	2	50.000	-2	75.000	1	100.00	0
para-Isopropyl Toluene			0.5000	-7	2.0000	-2	5.0000	1	10.000	1	20.000	3	50.000	0	75.000	2	100.00	2
1,3-Dichlorobenzene			0.5000	8	2.0000	2	5.0000	0	10.000	2	20.000	1	50.000	-5	75.000	-4	100.00	-4
1,4-Dichlorobenzene			0.5000	8	2.0000	5	5.0000	0	10.000	1	20.000	0	50.000	-6	75.000	-4	100.00	-5
n-Butylbenzene			0.5000	2	2.0000	-2	5.0000	0	10.000	2	20.000	1	50.000	-2	75.000	0	100.00	-1
1,2-Dichlorobenzene			0.5000	0	2.0000	5	5.0000	0	10.000	2	20.000	1	50.000	-4	75.000	-2	100.00	-3
1,2-Dibromo-3-Chloropropane			0.5000	-1	2.0000	3	5.0000	-10	10.000	1	20.000	6	50.000	-4	75.000	3	100.00	2
1,2,4-Trichlorobenzene			0.5000	3	2.0000	-1	5.0000	-3	10.000	1	20.000	2	50.000	-3	75.000	1	100.00	-1
Hexachlorobutadiene			0.5000	3	2.0000	-2	5.0000	0	10.000	1	20.000	2	50.000	-3	75.000	0	100.00	-1
Naphthalene			0.5000	-13	2.0000	-9	5.0000	-13	10.000	6	20.000	12	50.000	2	75.000	11	100.00	6
1,2,3-Trichlorobenzene			0.5000	-10	2.0000	2	5.0000	-4	10.000	6	20.000	6	50.000	-3	75.000	5	100.00	-2
Dibromofluoromethane	50.000	1	50.000	2	50.000	-1	50.000	-2	50.000	-1	50.000	0	50.000	0	50.000	0	50.000	1
1,2-Dichloroethane-d4	50.000	-1	50.000	-2	50.000	0	50.000	-1	50.000	0	50.000	0	50.000	0	50.000	2	50.000	1
Toluene-d8	50.000	0	50.000	0	50.000	1	50.000	0	50.000	0	50.000	0	50.000	0	50.000	-1	50.000	-1
Bromofluorobenzene	50.000	0	50.000	0	50.000	1	50.000	0	50.000	-1	50.000	0	50.000	-1	50.000	0	50.000	0

DAR 03/10/16 [Freon 12]: Combined split peak in multiple levels.

DAR 03/10/16 [Chloromethane]: Combined split peak in multiple levels.

DAR 03/10/16 [Bromomethane]: Combined split peak in multiple levels.

DAR 03/10/16 [1,2,3-Trichloropropane]: Separated from coeluting peak in multiple levels.

DAR 03/10/16 [Iodomethane]: Combined split peak in multiple levels.

Analyst: DAR Date: 03/10/16 Reviewer: LW Date: 03/14/16

m=manual integration

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

836098562001

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 275865 MSVOA Water
EPA 8260B

Inst : MSVOA11 Name : 8260 hexraised
Calnum : 836098562001 Cal Date : 08-MAR-2016 Type : WATER

ICV 836098562023 (kc823 09-MAR-2016) stds: S29123 (10000X), S29284 (2500X)
ICV 836098562024 (kc824 09-MAR-2016) stds: S29207 (10000X), S29290 (10000X), S29230 (10000X), S29284 (2500X)
ICV 836100345005 (kc905 09-MAR-2016) stds: S26946 (50000X), S29284 (2500X)

Analyte	ICV Seqnum	Spiked	Quant	Units	%D	Max	Flags
Freon 12	836098562023	20.00	14.35	ug/L	**-28**	30	!v-
Chloromethane	836098562023	20.00	15.01	ug/L	**-25**	30	!v-
Vinyl Chloride	836098562023	20.00	19.41	ug/L	-3	20	
Bromomethane	836098562023	20.00	18.29	ug/L	-9	30	m
Chloroethane	836098562023	20.00	19.36	ug/L	-3	30	
Trichlorofluoromethane	836098562023	20.00	19.73	ug/L	-1	30	
Acetone	836100345005	40.00	27.70	ug/L	**-31**	40	!v-
Freon 113	836098562024	25.00	20.62	ug/L	-18	30	
1,1-Dichloroethene	836098562024	25.00	23.61	ug/L	-6	20	
Methylene Chloride	836098562024	25.00	24.62	ug/L	-2	30	
Carbon Disulfide	836098562024	25.00	21.71	ug/L	-13	30	
MTBE	836098562024	25.00	24.92	ug/L	0	30	
trans-1,2-Dichloroethene	836098562024	25.00	22.82	ug/L	-9	30	
Vinyl Acetate	836098562024	25.00	25.77	ug/L	3	40	
1,1-Dichloroethane	836098562024	25.00	24.51	ug/L	-2	30	
2-Butanone	836100345005	40.00	31.17	ug/L	**-22**	40	!v-
2,2-Dichloropropane	836098562024	25.00	23.27	ug/L	-7	30	
cis-1,2-Dichloroethene	836098562024	25.00	25.94	ug/L	4	30	
Chloroform	836098562024	25.00	24.29	ug/L	-3	20	
Bromochloromethane	836098562024	25.00	25.18	ug/L	1	30	
1,1,1-Trichloroethane	836098562024	25.00	24.54	ug/L	-2	30	
1,1-Dichloropropene	836098562024	25.00	22.05	ug/L	-12	30	
Carbon Tetrachloride	836098562024	25.00	25.34	ug/L	1	30	
1,2-Dichloroethane	836098562024	25.00	24.57	ug/L	-2	30	
Benzene	836098562024	25.00	24.76	ug/L	-1	30	
Trichloroethene	836098562024	25.00	24.80	ug/L	-1	30	
1,2-Dichloropropane	836098562024	25.00	25.12	ug/L	0	20	
Bromodichloromethane	836098562024	25.00	24.49	ug/L	-2	30	
Dibromomethane	836098562024	25.00	25.18	ug/L	1	30	
4-Methyl-2-Pentanone	836100345005	40.00	33.80	ug/L	-16	40	
cis-1,3-Dichloropropene	836098562024	25.00	26.28	ug/L	5	30	
Toluene	836098562024	25.00	24.81	ug/L	-1	20	
trans-1,3-Dichloropropene	836098562024	25.00	25.51	ug/L	2	30	
1,1,2-Trichloroethane	836098562024	25.00	25.00	ug/L	0	30	
2-Hexanone	836100345005	40.00	34.67	ug/L	-13	40	
1,3-Dichloropropane	836098562024	25.00	26.03	ug/L	4	30	
Tetrachloroethene	836098562024	25.00	25.39	ug/L	2	30	
Dibromochloromethane	836098562024	25.00	25.67	ug/L	3	30	
1,2-Dibromoethane	836098562024	25.00	25.63	ug/L	3	30	
Chlorobenzene	836098562024	25.00	25.05	ug/L	0	30	
1,1,1,2-Tetrachloroethane	836098562024	25.00	25.36	ug/L	1	30	
Ethylbenzene	836098562024	25.00	24.77	ug/L	-1	20	
m,p-Xylenes	836098562024	50.00	50.43	ug/L	1	30	
o-Xylene	836098562024	25.00	25.13	ug/L	1	30	
Styrene	836098562024	25.00	26.38	ug/L	6	30	
Bromoform	836098562024	25.00	26.46	ug/L	6	30	

Analyte	ICV Seqnum	Spiked	Quant	Units	%D	Max	Flags
Isopropylbenzene	836098562024	25.00	25.82	ug/L	3	30	
1,1,2,2-Tetrachloroethane	836098562024	25.00	26.12	ug/L	4	30	
1,2,3-Trichloropropane	836098562024	25.00	25.94	ug/L	4	30	m
Propylbenzene	836098562024	25.00	24.75	ug/L	-1	30	
Bromobenzene	836098562024	25.00	25.29	ug/L	1	30	
1,3,5-Trimethylbenzene	836098562024	25.00	26.69	ug/L	7	30	
2-Chlorotoluene	836098562024	25.00	25.30	ug/L	1	30	
4-Chlorotoluene	836098562024	25.00	25.84	ug/L	3	30	
tert-Butylbenzene	836098562024	25.00	26.10	ug/L	4	30	
1,2,4-Trimethylbenzene	836098562024	25.00	25.58	ug/L	2	30	
sec-Butylbenzene	836098562024	25.00	25.57	ug/L	2	30	
para-Isopropyl Toluene	836098562024	25.00	26.27	ug/L	5	30	
1,3-Dichlorobenzene	836098562024	25.00	25.23	ug/L	1	30	
1,4-Dichlorobenzene	836098562024	25.00	25.39	ug/L	2	30	
n-Butylbenzene	836098562024	25.00	25.52	ug/L	2	30	
1,2-Dichlorobenzene	836098562024	25.00	25.79	ug/L	3	30	
1,2-Dibromo-3-Chloropropane	836098562024	25.00	26.49	ug/L	6	30	
1,2,4-Trichlorobenzene	836098562024	25.00	26.28	ug/L	5	30	
Hexachlorobutadiene	836098562024	25.00	26.63	ug/L	7	30	
Naphthalene	836098562024	25.00	26.73	ug/L	7	30	
1,2,3-Trichlorobenzene	836098562024	25.00	28.38	ug/L	14	30	

836098562023: Analyst: DAR Date: 03/10/16 Reviewer: LW Date: 03/14/16
836098562024: Analyst: DAR Date: 03/10/16 Reviewer: LW Date: 03/14/16
836100345005: Analyst: DAR Date: 03/10/16 Reviewer: LW Date: 03/14/16

!=warning -=low bias m=manual integration v=ICV

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275865 MSVOA Water
EPA 8260B

Inst : MSVOA08 IDF : 1.0
Seqnum : 476150372004 File : hdd04 Time : 13-APR-2016 12:14
Cal : 476138895001 Caldate : 05-APR-2016 Caltype : WATER
Standards: S28620 (20000X), S29427 (20000X), S29559 (20000X), S28142 (20000X), S29486 (5000X)

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Freon 12	1.0049	1.1921	25.00	29.66	ug/L	19	30	0.0500	!v-
Chloromethane	1.0964	1.2869	25.00	29.35	ug/L	17	30	0.1000	
Vinyl Chloride	0.8540	0.9583	25.00	28.05	ug/L	12	20	0.0500	
Bromomethane	0.5089	0.6245	25.00	30.68	ug/L	**23**	30	0.0500	!c+
Chloroethane	0.4672	0.5431	25.00	29.06	ug/L	16	30	0.0500	
Trichlorofluoromethane	0.9589	1.1094	25.00	28.92	ug/L	16	30	0.0500	
Acetone	0.1710	0.2151	25.00	31.44	ug/L	**26**	40	0.0500	!c+ !v-
Freon 113	0.4558	0.5004	25.00	27.45	ug/L	10	30	0.0500	
1,1-Dichloroethene	0.4080	0.4194	25.00	25.70	ug/L	3	20	0.0500	
Methylene Chloride	0.5233	0.5438	25.00	25.98	ug/L	4	30	0.0500	
Carbon Disulfide	1.7753	1.7647	25.00	24.85	ug/L	-1	30	0.0500	
MTBE	1.2436	1.4180	25.00	28.51	ug/L	14	30	0.0500	
trans-1,2-Dichloroethene	0.4667	0.4870	25.00	26.09	ug/L	4	30	0.0500	
Vinyl Acetate	1.0797	1.4006	25.00	32.43	ug/L	**30**	40	0.0500	!c+
1,1-Dichloroethane	0.9986	1.1197	25.00	28.03	ug/L	12	30	0.1000	
2-Butanone	0.2216	0.2528	25.00	28.53	ug/L	14	40	0.0500	
2,2-Dichloropropane	0.6250	0.9509	25.00	38.04	ug/L	**52**	30	0.0500	!v+ c+ ***
cis-1,2-Dichloroethene	0.5230	0.5187	25.00	24.79	ug/L	-1	30	0.0500	
Chloroform	0.9592	1.0598	25.00	27.62	ug/L	10	20	0.0500	
Bromochloromethane	0.2656	0.2747	25.00	25.85	ug/L	3	30	0.0500	
1,1,1-Trichloroethane	0.7751	0.9321	25.00	30.06	ug/L	20	30	0.0500	
1,1-Dichloropropene	0.5319	0.5311	25.00	24.97	ug/L	0	30	0.0500	
Carbon Tetrachloride	0.5275	0.5466	25.00	25.91	ug/L	4	30	0.0500	
1,2-Dichloroethane	0.5388	0.5770	25.00	26.77	ug/L	7	30	0.0500	
Benzene	1.3081	1.2384	25.00	23.67	ug/L	-5	30	0.0500	
Trichloroethene	0.3955	0.3803	25.00	24.04	ug/L	-4	30	0.0500	
1,2-Dichloropropane	0.3996	0.3956	25.00	24.75	ug/L	-1	20	0.0500	
Bromodichloromethane	0.5014	0.5336	25.00	26.60	ug/L	6	30	0.0500	
Dibromomethane	0.2256	0.2106	25.00	23.34	ug/L	-7	30	0.0500	
4-Methyl-2-Pentanone	0.3609	0.3661	25.00	25.36	ug/L	1	40	0.0500	
cis-1,3-Dichloropropene	0.5615	0.5769	25.00	25.68	ug/L	3	30	0.0500	
Toluene	1.0007	1.0395	25.00	25.97	ug/L	4	20	0.0500	
trans-1,3-Dichloropropene	0.5933	0.6836	25.00	28.80	ug/L	15	30	0.0500	
1,1,2-Trichloroethane	0.1787	0.1869	25.00	26.15	ug/L	5	30	0.0500	
2-Hexanone	0.3100	0.3443	25.00	27.77	ug/L	11	40	0.0500	
1,3-Dichloropropane	0.5828	0.6048	25.00	25.94	ug/L	4	30	0.0500	
Tetrachloroethene	0.4624	0.4513	25.00	24.40	ug/L	-2	30	0.0500	
Dibromochloromethane	0.5013	0.4939	25.00	24.63	ug/L	-1	30	0.0500	
1,2-Dibromoethane	0.3821	0.3847	25.00	25.17	ug/L	1	30	0.0500	
Chlorobenzene	1.1659	1.2258	25.00	26.28	ug/L	5	30	0.3000	
1,1,1,2-Tetrachloroethane	0.4495	0.4656	25.00	25.89	ug/L	4	30	0.0500	
Ethylbenzene	2.0198	2.0627	25.00	25.53	ug/L	2	20	0.0500	
m,p-Xylenes	0.7693	0.7861	50.00	51.09	ug/L	2	30	0.0500	
o-Xylene	0.7726	0.7752	25.00	25.09	ug/L	0	30	0.0500	
Styrene	1.2620	1.3105	25.00	25.96	ug/L	4	30	0.0500	
Bromoform	0.3309	0.3242	25.00	24.50	ug/L	-2	30	0.1000	
Isopropylbenzene	3.6023	3.7008	25.00	25.68	ug/L	3	30	0.0500	

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
1,1,2,2-Tetrachloroethane	0.7549	0.7618	25.00	25.23	ug/L	1	30	0.3000	
1,2,3-Trichloropropane	0.2125	0.2013	25.00	23.68	ug/L	-5	30	0.0500	
Propylbenzene	4.3366	4.5514	25.00	26.24	ug/L	5	30	0.0500	
Bromobenzene	0.9367	0.8954	25.00	23.90	ug/L	-4	30	0.0500	
1,3,5-Trimethylbenzene	3.0100	3.2815	25.00	27.26	ug/L	9	30	0.0500	
2-Chlorotoluene	2.8786	3.0232	25.00	26.26	ug/L	5	30	0.0500	
4-Chlorotoluene	2.6580	2.9310	25.00	27.57	ug/L	10	30	0.0500	
tert-Butylbenzene	2.7499	2.9328	25.00	26.66	ug/L	7	30	0.0500	
1,2,4-Trimethylbenzene	3.1786	3.4215	25.00	26.91	ug/L	8	30	0.0500	
sec-Butylbenzene	4.0142	4.3500	25.00	27.09	ug/L	8	30	0.0500	
para-Isopropyl Toluene	3.2726	3.6269	25.00	27.71	ug/L	11	30	0.0500	
1,3-Dichlorobenzene	1.7802	1.8065	25.00	25.37	ug/L	1	30	0.0500	
1,4-Dichlorobenzene	1.7950	1.8313	25.00	25.51	ug/L	2	30	0.0500	
n-Butylbenzene	2.8045	3.1001	25.00	27.64	ug/L	11	30	0.0500	
1,2-Dichlorobenzene	1.6960	1.7054	25.00	25.14	ug/L	1	30	0.0500	
1,2-Dibromo-3-Chloropropane	0.1426	0.1566	25.00	27.46	ug/L	10	30	0.0500	
1,2,4-Trichlorobenzene	1.0843	1.1044	25.00	25.46	ug/L	2	30	0.0500	
Hexachlorobutadiene	0.5407	0.5982	25.00	27.66	ug/L	11	30	0.0500	
Naphthalene	2.2361	2.1860	25.00	24.44	ug/L	-2	30	0.0500	
1,2,3-Trichlorobenzene	1.0194	0.9946	25.00	24.39	ug/L	-2	30	0.0500	
Dibromofluoromethane	0.4674	0.5002	50.00	53.50	ug/L	7	30	0.0500	
1,2-Dichloroethane-d4	0.3484	0.3774	50.00	54.16	ug/L	8	30	0.0500	
Toluene-d8	1.2891	1.2802	50.00	49.66	ug/L	-1	30	0.0500	
Bromofluorobenzene	0.9401	0.9697	50.00	51.57	ug/L	3	30	0.0500	

ISTD (ICAL hd513)	ICAL Area	Area	%Drift	ICAL RT	RT	Drift
Pentafluorobenzene	581578	534284	-8.13	10.05	10.04	-0.01
1,4-Difluorobenzene	813297	835853	2.77	11.25	11.23	-0.02
Chlorobenzene-d5	655806	659553	0.57	15.74	15.74	0.00
1,4-Dichlorobenzene-d4	375808	390478	3.90	18.59	18.59	0.00

Analyst: DAR Date: 04/14/16 Reviewer: LW Date: 04/14/16

!=warning +=high bias -=low bias c=CCV v=ICV

CURTIS & TOMPKINS SPIKE USER REPORT FOR 275865 MSVOA Water
EPA 8260B

Inst : MSVOA08 Run Name : QC831619 IDF : 1.0
Seqnum : 476150372008.2 File : hdd08 Time : 13-APR-2016 14:30
Cal : 476138895001 Caldate : 05-APR-2016 Caltype : WATER
Standards: S29486 (5000X), S29512 (100000X)

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Dibromofluoromethane	0.4674	0.4768	50.00	51.00	ug/L	2	30	0.0500	u
1,2-Dichloroethane-d4	0.3484	0.3819	50.00	54.80	ug/L	10	30	0.0500	u
Toluene-d8	1.2891	1.3541	50.00	52.52	ug/L	5	30	0.0500	u
Bromofluorobenzene	0.9401	0.9734	50.00	51.77	ug/L	4	30	0.0500	u

ISTD (ICAL hd513)	ICAL Area	Area	%Drift	ICAL RT	RT	Drift
Pentafluorobenzene	581578	655561	12.72	10.05	10.04	-0.01
1,4-Difluorobenzene	813297	872797	7.32	11.25	11.23	-0.02
Chlorobenzene-d5	655806	716376	9.24	15.74	15.74	0.00
1,4-Dichlorobenzene-d4	375808	388425	3.36	18.59	18.59	0.00

ISTD (ICAL hdc07)	ICAL Area	Area	%Drift	ICAL RT	RT	Drift
Pentafluorobenzene	691207	655561	-5.16	10.03	10.04	0.01

LW 04/21/16 : A/A

Analyst: KKM Date: 04/19/16 Reviewer: LW Date: 04/21/16

u=use

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275865 MSVOA Water
EPA 8260B

Inst : MSVOA08 IDF : 1.0
Seqnum : 476154940005 File : hdg05 Time : 16-APR-2016 16:39
Cal : 476138895001 Caldate : 05-APR-2016 Caltype : WATER
Standards: S28620 (20000X), S29427 (20000X), S29559 (20000X), S28142 (20000X), S29654 (5000X)

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Freon 12	1.0049	1.2511	25.00	31.12	ug/L	**24**	30	0.0500	!c+ !v-
Chloromethane	1.0964	1.2313	25.00	28.08	ug/L	12	30	0.1000	
Vinyl Chloride	0.8540	0.9310	25.00	27.25	ug/L	9	20	0.0500	
Bromomethane	0.5089	0.6065	25.00	29.80	ug/L	19	30	0.0500	
Chloroethane	0.4672	0.5023	25.00	26.88	ug/L	8	30	0.0500	
Trichlorofluoromethane	0.9589	1.0818	25.00	28.20	ug/L	13	30	0.0500	
Acetone	0.1710	0.1985	25.00	29.02	ug/L	16	40	0.0500	!v-
Freon 113	0.4558	0.4291	25.00	23.53	ug/L	-6	30	0.0500	
1,1-Dichloroethene	0.4080	0.3750	25.00	22.98	ug/L	-8	20	0.0500	
Methylene Chloride	0.5233	0.5276	25.00	25.20	ug/L	1	30	0.0500	
Carbon Disulfide	1.7753	1.6358	25.00	23.04	ug/L	-8	30	0.0500	
MTBE	1.2436	1.2581	25.00	25.29	ug/L	1	30	0.0500	
trans-1,2-Dichloroethene	0.4667	0.4488	25.00	24.04	ug/L	-4	30	0.0500	
Vinyl Acetate	1.0797	1.2689	25.00	29.38	ug/L	18	40	0.0500	
1,1-Dichloroethane	0.9986	1.0519	25.00	26.33	ug/L	5	30	0.1000	
2-Butanone	0.2216	0.2454	25.00	27.68	ug/L	11	40	0.0500	
2,2-Dichloropropane	0.6250	0.8187	25.00	32.75	ug/L	**31**	30	0.0500	!v+ c+ ***
cis-1,2-Dichloroethene	0.5230	0.5159	25.00	24.66	ug/L	-1	30	0.0500	
Chloroform	0.9592	1.0046	25.00	26.18	ug/L	5	20	0.0500	
Bromochloromethane	0.2656	0.2651	25.00	24.95	ug/L	0	30	0.0500	
1,1,1-Trichloroethane	0.7751	0.8331	25.00	26.87	ug/L	7	30	0.0500	
1,1-Dichloropropene	0.5319	0.5390	25.00	25.33	ug/L	1	30	0.0500	
Carbon Tetrachloride	0.5275	0.5631	25.00	26.69	ug/L	7	30	0.0500	
1,2-Dichloroethane	0.5388	0.6082	25.00	28.22	ug/L	13	30	0.0500	
Benzene	1.3081	1.3144	25.00	25.12	ug/L	0	30	0.0500	
Trichloroethene	0.3955	0.4063	25.00	25.68	ug/L	3	30	0.0500	
1,2-Dichloropropane	0.3996	0.4197	25.00	26.26	ug/L	5	20	0.0500	
Bromodichloromethane	0.5014	0.5787	25.00	28.85	ug/L	15	30	0.0500	
Dibromomethane	0.2256	0.2363	25.00	26.19	ug/L	5	30	0.0500	
4-Methyl-2-Pentanone	0.3609	0.4022	25.00	27.86	ug/L	11	40	0.0500	
cis-1,3-Dichloropropene	0.5615	0.6363	25.00	28.33	ug/L	13	30	0.0500	
Toluene	1.0007	1.0250	25.00	25.61	ug/L	2	20	0.0500	
trans-1,3-Dichloropropene	0.5933	0.6801	25.00	28.66	ug/L	15	30	0.0500	
1,1,2-Trichloroethane	0.1787	0.1983	25.00	27.75	ug/L	11	30	0.0500	
2-Hexanone	0.3100	0.3471	25.00	27.99	ug/L	12	40	0.0500	
1,3-Dichloropropane	0.5828	0.6175	25.00	26.49	ug/L	6	30	0.0500	
Tetrachloroethene	0.4624	0.4573	25.00	24.72	ug/L	-1	30	0.0500	
Dibromochloromethane	0.5013	0.5120	25.00	25.53	ug/L	2	30	0.0500	
1,2-Dibromoethane	0.3821	0.3938	25.00	25.77	ug/L	3	30	0.0500	
Chlorobenzene	1.1659	1.1951	25.00	25.63	ug/L	3	30	0.3000	
1,1,1,2-Tetrachloroethane	0.4495	0.4658	25.00	25.90	ug/L	4	30	0.0500	
Ethylbenzene	2.0198	2.1152	25.00	26.18	ug/L	5	20	0.0500	
m,p-Xylenes	0.7693	0.8089	50.00	52.57	ug/L	5	30	0.0500	
o-Xylene	0.7726	0.8185	25.00	26.49	ug/L	6	30	0.0500	
Styrene	1.2620	1.3621	25.00	26.98	ug/L	8	30	0.0500	
Bromoform	0.3309	0.3306	25.00	24.98	ug/L	0	30	0.1000	
Isopropylbenzene	3.6023	3.6702	25.00	25.47	ug/L	2	30	0.0500	

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
1,1,2,2-Tetrachloroethane	0.7549	0.8048	25.00	26.65	ug/L	7	30	0.3000	
1,2,3-Trichloropropane	0.2125	0.2208	25.00	25.98	ug/L	4	30	0.0500	
Propylbenzene	4.3366	4.4285	25.00	25.53	ug/L	2	30	0.0500	
Bromobenzene	0.9367	0.9052	25.00	24.16	ug/L	-3	30	0.0500	
1,3,5-Trimethylbenzene	3.0100	3.0373	25.00	25.23	ug/L	1	30	0.0500	
2-Chlorotoluene	2.8786	2.9629	25.00	25.73	ug/L	3	30	0.0500	
4-Chlorotoluene	2.6580	2.7850	25.00	26.19	ug/L	5	30	0.0500	
tert-Butylbenzene	2.7499	2.7104	25.00	24.64	ug/L	-1	30	0.0500	
1,2,4-Trimethylbenzene	3.1786	3.1927	25.00	25.11	ug/L	0	30	0.0500	
sec-Butylbenzene	4.0142	4.3096	25.00	26.84	ug/L	7	30	0.0500	
para-Isopropyl Toluene	3.2726	3.3669	25.00	25.72	ug/L	3	30	0.0500	
1,3-Dichlorobenzene	1.7802	1.8168	25.00	25.51	ug/L	2	30	0.0500	
1,4-Dichlorobenzene	1.7950	1.8098	25.00	25.21	ug/L	1	30	0.0500	
n-Butylbenzene	2.8045	3.0240	25.00	26.96	ug/L	8	30	0.0500	
1,2-Dichlorobenzene	1.6960	1.7458	25.00	25.73	ug/L	3	30	0.0500	
1,2-Dibromo-3-Chloropropane	0.1426	0.1517	25.00	26.61	ug/L	6	30	0.0500	
1,2,4-Trichlorobenzene	1.0843	1.0650	25.00	24.55	ug/L	-2	30	0.0500	
Hexachlorobutadiene	0.5407	0.5578	25.00	25.79	ug/L	3	30	0.0500	
Naphthalene	2.2361	2.2495	25.00	25.15	ug/L	1	30	0.0500	
1,2,3-Trichlorobenzene	1.0194	0.9920	25.00	24.33	ug/L	-3	30	0.0500	
Dibromofluoromethane	0.4674	0.4780	50.00	51.12	ug/L	2	30	0.0500	
1,2-Dichloroethane-d4	0.3484	0.3736	50.00	53.62	ug/L	7	30	0.0500	
Toluene-d8	1.2891	1.3364	50.00	51.84	ug/L	4	30	0.0500	
Bromofluorobenzene	0.9401	0.9812	50.00	52.19	ug/L	4	30	0.0500	

ISTD (ICAL hd513)	ICAL Area	Area	%Drift	ICAL RT	RT	Drift
Pentafluorobenzene	581578	660432	13.56	10.05	10.05	0.01
1,4-Difluorobenzene	813297	903484	11.09	11.25	11.25	0.00
Chlorobenzene-d5	655806	757994	15.58	15.74	15.75	0.01
1,4-Dichlorobenzene-d4	375808	447559	19.09	18.59	18.60	0.01

Analyst: KKM Date: 04/18/16 Reviewer: LW Date: 04/18/16

!=warning +=high bias -=low bias c=CCV v=ICV

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275865 MSVOA Water
EPA 8260B

Inst : MSVOA08 IDF : 1.0
Seqnum : 476157607004 File : hdi04 Time : 18-APR-2016 13:38
Cal : 476138895001 Caldate : 05-APR-2016 Caltype : WATER
Standards: S28620 (20000X), S29427 (20000X), S29559 (20000X), S28142 (20000X), S29654 (5000X)

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Freon 12	1.0049	1.0129	25.00	25.20	ug/L	1	30	0.0500	!v-
Chloromethane	1.0964	1.0684	25.00	24.36	ug/L	-3	30	0.1000	
Vinyl Chloride	0.8540	0.8488	25.00	24.85	ug/L	-1	20	0.0500	
Bromomethane	0.5089	0.5877	25.00	28.87	ug/L	15	30	0.0500	
Chloroethane	0.4672	0.4576	25.00	24.49	ug/L	-2	30	0.0500	
Trichlorofluoromethane	0.9589	0.9780	25.00	25.50	ug/L	2	30	0.0500	
Acetone	0.1710	0.1669	25.00	24.40	ug/L	-2	40	0.0500	!v-
Freon 113	0.4558	0.4887	25.00	26.80	ug/L	7	30	0.0500	
1,1-Dichloroethene	0.4080	0.4263	25.00	26.12	ug/L	4	20	0.0500	
Methylene Chloride	0.5233	0.5067	25.00	24.21	ug/L	-3	30	0.0500	
Carbon Disulfide	1.7753	1.8239	25.00	25.68	ug/L	3	30	0.0500	
MTBE	1.2436	1.2578	25.00	25.28	ug/L	1	30	0.0500	
trans-1,2-Dichloroethene	0.4667	0.4703	25.00	25.19	ug/L	1	30	0.0500	
Vinyl Acetate	1.0797	1.3576	25.00	31.43	ug/L	**26**	40	0.0500	!c+
1,1-Dichloroethane	0.9986	1.0635	25.00	26.62	ug/L	6	30	0.1000	
2-Butanone	0.2216	0.2282	25.00	25.75	ug/L	3	40	0.0500	
2,2-Dichloropropane	0.6250	0.9221	25.00	36.89	ug/L	**48**	30	0.0500	!v+ c+ ***
cis-1,2-Dichloroethene	0.5230	0.4938	25.00	23.60	ug/L	-6	30	0.0500	
Chloroform	0.9592	1.0230	25.00	26.66	ug/L	7	20	0.0500	
Bromochloromethane	0.2656	0.2462	25.00	23.17	ug/L	-7	30	0.0500	
1,1,1-Trichloroethane	0.7751	0.8630	25.00	27.83	ug/L	11	30	0.0500	
1,1-Dichloropropene	0.5319	0.5965	25.00	28.04	ug/L	12	30	0.0500	
Carbon Tetrachloride	0.5275	0.5837	25.00	27.67	ug/L	11	30	0.0500	
1,2-Dichloroethane	0.5388	0.5878	25.00	27.27	ug/L	9	30	0.0500	
Benzene	1.3081	1.4326	25.00	27.38	ug/L	10	30	0.0500	
Trichloroethene	0.3955	0.4008	25.00	25.33	ug/L	1	30	0.0500	
1,2-Dichloropropane	0.3996	0.4249	25.00	26.59	ug/L	6	20	0.0500	
Bromodichloromethane	0.5014	0.5583	25.00	27.83	ug/L	11	30	0.0500	
Dibromomethane	0.2256	0.2301	25.00	25.50	ug/L	2	30	0.0500	
4-Methyl-2-Pentanone	0.3609	0.3936	25.00	27.27	ug/L	9	40	0.0500	
cis-1,3-Dichloropropene	0.5615	0.6233	25.00	27.75	ug/L	11	30	0.0500	
Toluene	1.0007	1.0803	25.00	26.99	ug/L	8	20	0.0500	
trans-1,3-Dichloropropene	0.5933	0.6856	25.00	28.89	ug/L	16	30	0.0500	
1,1,2-Trichloroethane	0.1787	0.1893	25.00	26.49	ug/L	6	30	0.0500	
2-Hexanone	0.3100	0.3363	25.00	27.11	ug/L	8	40	0.0500	
1,3-Dichloropropane	0.5828	0.6377	25.00	27.35	ug/L	9	30	0.0500	
Tetrachloroethene	0.4624	0.4836	25.00	26.15	ug/L	5	30	0.0500	
Dibromochloromethane	0.5013	0.5007	25.00	24.97	ug/L	0	30	0.0500	
1,2-Dibromoethane	0.3821	0.3791	25.00	24.81	ug/L	-1	30	0.0500	
Chlorobenzene	1.1659	1.2187	25.00	26.13	ug/L	5	30	0.3000	
1,1,1,2-Tetrachloroethane	0.4495	0.4713	25.00	26.21	ug/L	5	30	0.0500	
Ethylbenzene	2.0198	2.1986	25.00	27.21	ug/L	9	20	0.0500	
m,p-Xylenes	0.7693	0.7880	50.00	51.21	ug/L	2	30	0.0500	
o-Xylene	0.7726	0.7807	25.00	25.26	ug/L	1	30	0.0500	
Styrene	1.2620	1.3216	25.00	26.18	ug/L	5	30	0.0500	
Bromoform	0.3309	0.3188	25.00	24.09	ug/L	-4	30	0.1000	
Isopropylbenzene	3.6023	3.9137	25.00	27.16	ug/L	9	30	0.0500	

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
1,1,2,2-Tetrachloroethane	0.7549	0.8191	25.00	27.13	ug/L	9	30	0.3000	
1,2,3-Trichloropropane	0.2125	0.2156	25.00	25.36	ug/L	1	30	0.0500	
Propylbenzene	4.3366	4.7499	25.00	27.38	ug/L	10	30	0.0500	
Bromobenzene	0.9367	0.9147	25.00	24.41	ug/L	-2	30	0.0500	
1,3,5-Trimethylbenzene	3.0100	3.3653	25.00	27.95	ug/L	12	30	0.0500	
2-Chlorotoluene	2.8786	3.1990	25.00	27.78	ug/L	11	30	0.0500	
4-Chlorotoluene	2.6580	2.9359	25.00	27.61	ug/L	10	30	0.0500	
tert-Butylbenzene	2.7499	2.9485	25.00	26.81	ug/L	7	30	0.0500	
1,2,4-Trimethylbenzene	3.1786	3.5878	25.00	28.22	ug/L	13	30	0.0500	
sec-Butylbenzene	4.0142	4.6288	25.00	28.83	ug/L	15	30	0.0500	
para-Isopropyl Toluene	3.2726	3.6221	25.00	27.67	ug/L	11	30	0.0500	
1,3-Dichlorobenzene	1.7802	1.8765	25.00	26.35	ug/L	5	30	0.0500	
1,4-Dichlorobenzene	1.7950	1.8312	25.00	25.50	ug/L	2	30	0.0500	
n-Butylbenzene	2.8045	3.2024	25.00	28.55	ug/L	14	30	0.0500	
1,2-Dichlorobenzene	1.6960	1.6940	25.00	24.97	ug/L	0	30	0.0500	
1,2-Dibromo-3-Chloropropane	0.1426	0.1568	25.00	27.50	ug/L	10	30	0.0500	
1,2,4-Trichlorobenzene	1.0843	1.0667	25.00	24.59	ug/L	-2	30	0.0500	
Hexachlorobutadiene	0.5407	0.6213	25.00	28.72	ug/L	15	30	0.0500	
Naphthalene	2.2361	2.2205	25.00	24.83	ug/L	-1	30	0.0500	
1,2,3-Trichlorobenzene	1.0194	0.9975	25.00	24.46	ug/L	-2	30	0.0500	
Dibromofluoromethane	0.4674	0.4488	50.00	48.01	ug/L	-4	30	0.0500	
1,2-Dichloroethane-d4	0.3484	0.3843	50.00	55.16	ug/L	10	30	0.0500	
Toluene-d8	1.2891	1.2534	50.00	48.62	ug/L	-3	30	0.0500	
Bromofluorobenzene	0.9401	0.9718	50.00	51.69	ug/L	3	30	0.0500	

ISTD (ICAL hd513)	ICAL Area	Area	%Drift	ICAL RT	RT	Drift
Pentafluorobenzene	581578	758781	30.47	10.05	10.04	-0.01
1,4-Difluorobenzene	813297	1019470	25.35	11.25	11.24	-0.01
Chlorobenzene-d5	655806	846564	29.09	15.74	15.75	0.01
1,4-Dichlorobenzene-d4	375808	477887	27.16	18.59	18.60	0.01

Analyst: DAR Date: 04/18/16 Reviewer: LW Date: 04/19/16

!=warning +=high bias -=low bias c=CCV v=ICV

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275865 MSVOA Water
EPA 8260B

Inst : MSVOA11 IDF : 1.0
Seqnum : 836157604007 File : kdi07 Time : 18-APR-2016 14:55
Cal : 836098562001 Caldate : 08-MAR-2016 Caltype : WATER
Standards: S29048 (20000X), S29427 (20000X), S29559 (20000X), S28142 (20000X), S29653 (2500X)

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Freon 12	0.9440	0.8280	25.00	21.93	ug/L	-12	30	0.0500	!v-
Chloromethane	1.3321	0.8704	25.00	16.33	ug/L	**-35**	30	0.1000	!v- c- ***
Vinyl Chloride	0.9035	0.8082	25.00	22.36	ug/L	-11	20	0.0500	
Bromomethane	0.2817	0.5214	25.00	46.28	ug/L	**85**	30	0.0500	c+ ***
Chloroethane	0.4996	0.5002	25.00	25.03	ug/L	0	30	0.0500	
Trichlorofluoromethane	0.9766	0.9080	25.00	23.24	ug/L	-7	30	0.0500	
Acetone	0.2419	0.2699	25.00	27.89	ug/L	12	40	0.0500	!v-
Freon 113	0.5245	0.5708	25.00	27.21	ug/L	9	30	0.0500	
1,1-Dichloroethene	0.5011	0.5356	25.00	26.72	ug/L	7	20	0.0500	
Methylene Chloride	0.6552	0.7057	25.00	26.93	ug/L	8	30	0.0500	
Carbon Disulfide	1.8475	2.1983	25.00	29.75	ug/L	19	30	0.0500	
MTBE	1.8818	2.0837	25.00	27.68	ug/L	11	30	0.0500	
trans-1,2-Dichloroethene	0.5872	0.6380	25.00	27.17	ug/L	9	30	0.0500	
Vinyl Acetate	1.2841	1.7628	25.00	34.32	ug/L	**37**	40	0.0500	!c+
1,1-Dichloroethane	1.1725	1.2809	25.00	27.31	ug/L	9	30	0.1000	
2-Butanone	0.3397	0.3900	25.00	28.71	ug/L	15	40	0.0500	!v-
2,2-Dichloropropane	0.8594	0.9989	25.00	29.06	ug/L	16	30	0.0500	
cis-1,2-Dichloroethene	0.6806	0.7330	25.00	26.92	ug/L	8	30	0.0500	
Chloroform	1.1476	1.2236	25.00	26.66	ug/L	7	20	0.0500	
Bromochloromethane	0.2841	0.3200	25.00	28.16	ug/L	13	30	0.0500	
1,1,1-Trichloroethane	0.9281	0.9568	25.00	25.77	ug/L	3	30	0.0500	
1,1-Dichloropropene	0.5347	0.5200	25.00	24.32	ug/L	-3	30	0.0500	
Carbon Tetrachloride	0.4465	0.4117	25.00	23.05	ug/L	-8	30	0.0500	
1,2-Dichloroethane	0.5507	0.5450	25.00	24.74	ug/L	-1	30	0.0500	
Benzene	1.6115	1.5935	25.00	24.72	ug/L	-1	30	0.0500	
Trichloroethene	0.3974	0.3704	25.00	23.30	ug/L	-7	30	0.0500	
1,2-Dichloropropane	0.4228	0.4197	25.00	24.82	ug/L	-1	20	0.0500	
Bromodichloromethane	0.5192	0.5155	25.00	24.82	ug/L	-1	30	0.0500	
Dibromomethane	0.2418	0.2435	25.00	25.18	ug/L	1	30	0.0500	
4-Methyl-2-Pentanone	0.4126	0.4331	25.00	26.24	ug/L	5	40	0.0500	
cis-1,3-Dichloropropene	0.6383	0.6674	25.00	26.14	ug/L	5	30	0.0500	
Toluene	1.9632	1.8431	25.00	23.47	ug/L	-6	20	0.0500	
trans-1,3-Dichloropropene	0.6463	0.6662	25.00	25.77	ug/L	3	30	0.0500	
1,1,2-Trichloroethane	0.2285	0.2236	25.00	24.47	ug/L	-2	30	0.0500	
2-Hexanone	0.3295	0.3343	25.00	25.37	ug/L	1	40	0.0500	
1,3-Dichloropropane	0.7200	0.7088	25.00	24.61	ug/L	-2	30	0.0500	
Tetrachloroethene	0.4107	0.3514	25.00	21.39	ug/L	-14	30	0.0500	
Dibromochloromethane	0.3997	0.3876	25.00	24.24	ug/L	-3	30	0.0500	
1,2-Dibromoethane	0.3992	0.3875	25.00	24.27	ug/L	-3	30	0.0500	
Chlorobenzene	1.2126	1.1357	25.00	23.41	ug/L	-6	30	0.3000	
1,1,1,2-Tetrachloroethane	0.3939	0.3646	25.00	23.14	ug/L	-7	30	0.0500	
Ethylbenzene	2.1958	2.0773	25.00	23.65	ug/L	-5	20	0.0500	
m,p-Xylenes	0.8016	0.7675	50.00	47.87	ug/L	-4	30	0.0500	
o-Xylene	0.7754	0.7538	25.00	24.31	ug/L	-3	30	0.0500	
Styrene	1.2952	1.3034	25.00	25.16	ug/L	1	30	0.0500	
Bromoform	0.2623	0.2722	25.00	25.94	ug/L	4	30	0.1000	
Isopropylbenzene	4.0028	3.8828	25.00	24.25	ug/L	-3	30	0.0500	

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
1,1,2,2-Tetrachloroethane	1.0943	1.1460	25.00	26.18	ug/L	5	30	0.3000	
1,2,3-Trichloropropane	0.8802	0.9024	25.00	25.63	ug/L	3	30	0.0500	m
Propylbenzene	5.0987	5.0088	25.00	24.56	ug/L	-2	30	0.0500	
Bromobenzene	0.9974	0.9093	25.00	22.79	ug/L	-9	30	0.0500	
1,3,5-Trimethylbenzene	3.3239	3.2498	25.00	24.44	ug/L	-2	30	0.0500	
2-Chlorotoluene	3.2571	3.1996	25.00	24.56	ug/L	-2	30	0.0500	
4-Chlorotoluene	2.9601	2.9608	25.00	25.01	ug/L	0	30	0.0500	
tert-Butylbenzene	2.8344	2.7187	25.00	23.98	ug/L	-4	30	0.0500	
1,2,4-Trimethylbenzene	3.3872	3.4115	25.00	25.18	ug/L	1	30	0.0500	
sec-Butylbenzene	4.3819	4.3777	25.00	24.98	ug/L	0	30	0.0500	
para-Isopropyl Toluene	3.4741	3.4691	25.00	24.96	ug/L	0	30	0.0500	
1,3-Dichlorobenzene	1.8182	1.7337	25.00	23.84	ug/L	-5	30	0.0500	
1,4-Dichlorobenzene	1.8585	1.7824	25.00	23.98	ug/L	-4	30	0.0500	
n-Butylbenzene	3.4023	3.4993	25.00	25.71	ug/L	3	30	0.0500	
1,2-Dichlorobenzene	1.6923	1.6332	25.00	24.13	ug/L	-3	30	0.0500	
1,2-Dibromo-3-Chloropropane	0.1842	0.1948	25.00	26.44	ug/L	6	30	0.0500	
1,2,4-Trichlorobenzene	0.9954	0.8756	25.00	21.99	ug/L	-12	30	0.0500	
Hexachlorobutadiene	0.5151	0.4240	25.00	20.58	ug/L	-18	30	0.0500	
Naphthalene	2.2909	2.0963	25.00	22.88	ug/L	-8	30	0.0500	
1,2,3-Trichlorobenzene	0.7736	0.6892	25.00	22.27	ug/L	-11	30	0.0500	
Dibromofluoromethane	0.4954	0.5396	50.00	54.46	ug/L	9	30	0.0500	
1,2-Dichloroethane-d4	0.3880	0.3964	50.00	51.09	ug/L	2	30	0.0500	
Toluene-d8	1.3859	1.3602	50.00	49.07	ug/L	-2	30	0.0500	
Bromofluorobenzene	1.0046	0.9871	50.00	49.13	ug/L	-2	30	0.0500	

ISTD (ICAL kc820)	ICAL Area	Area	%Drift	ICAL RT	RT	Drift
Pentafluorobenzene	395404	354925	-10.24	10.58	10.58	0.00
1,4-Difluorobenzene	660265	661441	0.18	11.51	11.51	0.00
Chlorobenzene-d5	595282	616924	3.64	14.62	14.62	0.00
1,4-Dichlorobenzene-d4	299473	308149	2.90	16.88	16.87	-0.01

DAR 04/19/16 [1,2,3-Trichloropropane]: Separated from coeluting peak.

Analyst: DAR Date: 04/19/16 Reviewer: LW Date: 04/19/16

!=warning +=high bias -=low bias c=CCV m=manual integration v=ICV

836157604007

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 476150372

Date : 04/13/16 Reference : hd513
Sequence : MSVOA08 hdd Analyzed : 04/05/16 20:48

#	Type	Sample ID	PFLBZ	RT	14DFB	RT	CLBZD5	RT	DCBZ14D4	RT
		ICAL STD	581578	10.05	813297	11.25	655806	15.74	375808	18.59
		LOWER LIMIT	290789	9.55	406649	10.75	327903	15.24	187904	18.09
		UPPER LIMIT	1163156	10.55	1626594	11.75	1311612	16.24	751616	19.09
002	IB		664194	10.04	1005960	11.23	806654	15.74	416605	18.59
004	CCV		534284	10.04	835853	11.23	659553	15.74	390478	18.59
005	BS	QC831379	639499	10.03	932725	11.24	858260	15.74	462599	18.59
006	BSD	QC831380	623910	10.04	938234	11.23	745730	15.74	453818	18.59
007	CCV	A/A	670129	10.04	971030	11.23	776130	15.74	394123	18.59
008	CCV/LCS	QC831619	655561	10.04	872797	11.23	716376	15.74	388425	18.59
009	BLANK	QC831381	585300	10.04	864590	11.24	678663	15.74	382692	18.59
010	SAMPLE	275917-004	596193	10.04	852496	11.24	703681	15.75	372718	18.59
011	SAMPLE	275917-002	615088	10.04	841590	11.24	665233	15.74	366169	18.60
012	SAMPLE	275865-002	630595	10.05	836932	11.24	695645	15.74	369453	18.59
013	SAMPLE	275865-003	571010	10.04	794601	11.24	661092	15.74	337558	18.59
014	SAMPLE	275865-005	603390	10.05	822726	11.24	654379	15.74	356622	18.59
015	SAMPLE	275865-007	592516	10.04	785216	11.24	607030	15.75	325419	18.60
016	SAMPLE	275865-008	584612	10.04	837477	11.24	640290	15.74	360219	18.59
017	SAMPLE	275865-009	566926	10.05	762347	11.24	628228	15.75	353839	18.60
018	SAMPLE	275865-010	587609	10.04	817490	11.23	662441	15.74	353137	18.60
019	SAMPLE	275865-013	546463	10.04	798951	11.24	664032	15.75	393636	18.60
020	SAMPLE	275964-001	545283	10.05	753218	11.24	605045	15.74	322950	18.59
021	SAMPLE	275917-001	533482	10.05	786027	11.24	630505	15.75	361599	18.59
022	SAMPLE	275970-001	542513	10.04	744457	11.24	584297	15.74	323833	18.60
023	SAMPLE	275865-001	535140	10.04	760960	11.24	620714	15.75	320002	18.60
024	IB		521828	10.04	781652	11.25	727345	15.74	411494	18.59
025	IB		515643	10.05	824077	11.25	721589	15.74	435529	18.59

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 476150372

Date : 04/13/16 Reference : hdc07
Sequence : MSVOA08 hdd Analyzed : 04/12/16 16:08

#	Type	Sample ID	PFLBZ	RT
		ICAL STD	691207	10.03
		LOWER LIMIT	345604	9.53
		UPPER LIMIT	1382414	10.53
007	CCV	A/A	670129	10.04
008	CCV/LCS	QC831619	655561	10.04
020	SAMPLE	275964-001	545283	10.05

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 476154940

Date : 04/16/16 Reference : hd513
Sequence : MSVOA08 hdg Analyzed : 04/05/16 20:48

#	Type	Sample ID	PFLBZ	RT	14DFB	RT	CLBZD5	RT	DCBZ14D4	RT
		ICAL STD	581578	10.05	813297	11.25	655806	15.74	375808	18.59
		LOWER LIMIT	290789	9.55	406649	10.75	327903	15.24	187904	18.09
		UPPER LIMIT	1163156	10.55	1626594	11.75	1311612	16.24	751616	19.09
001	IB		892204	10.04	1308716	11.25	1109126	15.74	552970	18.59
003	IB		758566	10.04	1166336	11.24	977497	15.75	500881	18.60
005	CCV		660432	10.05	903484	11.25	757994	15.75	447559	18.60
006	BS	QC831836	786419	10.05	1070111	11.25	879031	15.74	461941	18.60
008	IB	A/A	857337	10.04	1200366	11.25	888886	15.75	483877	18.60
009	BSD	QC831837	699313	10.05	972929	11.24	761865	15.75	434909	18.60
010	IB	A/A	722635	10.05	1008848	11.25	788910	15.75	424577	18.60
011	BLANK	QC831838	762541	10.06	1046388	11.25	876493	15.74	483413	18.60
012	SAMPLE	275865-014	803443	10.05	1102130	11.24	838927	15.75	448949	18.60
013	SAMPLE	275865-027	751325	10.05	1028054	11.24	765646	15.75	430157	18.60
014	SAMPLE	275865-016	737387	10.05	936601	11.24	740477	15.75	408738	18.60
015	SAMPLE	275865-017	708113	10.05	959015	11.24	761331	15.75	407766	18.60
016	SAMPLE	275865-019	729163	10.05	975665	11.25	773493	15.75	416378	18.60
017	SAMPLE	275865-020	691798	10.05	969458	11.25	756707	15.75	393373	18.60
018	SAMPLE	275865-022	625082	10.05	842180	11.24	634938	15.75	325120	18.60
019	SAMPLE	275865-023	648123	10.05	799309	11.25	643118	15.74	344351	18.59
020	SAMPLE	275865-025	689876	10.04	941995	11.25	722764	15.75	364449	18.60
021	SAMPLE	275865-026	634323	10.05	850184	11.24	666678	15.75	331318	18.60
022	SAMPLE	276067-001	657096	10.05	914581	11.24	743903	15.75	403076	18.60
023	SAMPLE	276056-001	809739	10.05	1104590	11.24	834363	15.75	463084	18.60
024	SAMPLE	275906-001	960111	10.05	1290955	11.25	972482	15.75	514733	18.60
025	SAMPLE	275934-005	919780	10.05	1183009	11.25	945487	15.75	493554	18.60

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 476157607

Date : 04/18/16 Reference : hd513
Sequence : MSVOA08 hdi Analyzed : 04/05/16 20:48

#	Type	Sample ID	PFLBZ	RT	14DFB	RT	CLBZD5	RT	DCBZ14D4	RT
		ICAL STD	581578	10.05	813297	11.25	655806	15.74	375808	18.59
		LOWER LIMIT	290789	9.55	406649	10.75	327903	15.24	187904	18.09
		UPPER LIMIT	1163156	10.55	1626594	11.75	1311612	16.24	751616	19.09
002	IB		733071	10.04	1025580	11.24	800386	15.75	418059	18.60
004	CCV		758781	10.04	1019470	11.24	846564	15.75	477887	18.60
005	BS	QC831941	828503	10.04	1127082	11.25	816275	15.75	449343	18.60
006	BSD	QC831942	802814	10.05	1138169	11.25	907398	15.74	503725	18.60
007	IB	A/A	875065	10.05	1237447	11.25	974484	15.74	522947	18.60
008	IB	A/A	832191	10.05	1117958	11.24	867464	15.75	455431	18.60
009	BLANK	QC831943	746371	10.05	1059656	11.25	801465	15.75	433346	18.60
010	SAMPLE	275936-004	814055	10.05	1108242	11.25	907527	15.75	467992	18.60
011	SAMPLE	275936-001	767405	10.05	993105	11.24	754886	15.75	401901	18.60
012	SAMPLE	275936-002	763864	10.05	996138	11.25	743900	15.75	405986	18.60
013	SAMPLE	275936-003	741643	10.05	986186	11.24	730684	15.75	380540	18.60
014	MSS	275865-011	722957	10.05	1005088	11.25	777664	15.75	395659	18.60
015	MSS	275865-015	776142	10.05	1066656	11.25	851324	15.75	473405	18.60
016	SAMPLE	275920-001	704946	10.05	1015116	11.24	788080	15.75	403450	18.60
017	SAMPLE	275920-002	706807	10.05	915404	11.25	694436	15.75	368548	18.60
018	SAMPLE	275920-009	678302	10.04	926570	11.25	679236	15.75	363793	18.60
019	SAMPLE	275933-001	703437	10.05	904457	11.25	716570	15.75	383577	18.60
020	MS	QC831994	662086	10.05	858529	11.25	686851	15.75	371186	18.60
021	MSD	QC831995	743218	10.05	1036536	11.24	825314	15.75	424298	18.60
022	MS	QC831996	837702	10.05	1116014	11.24	886747	15.75	475417	18.60
023	MSD	QC831997	852253	10.05	1139270	11.25	899361	15.75	474547	18.60
024	IB		773205	10.04	1178022	11.25	1070515	15.75	593553	18.60
025	IB		744295	10.05	1125618	11.24	971354	15.75	548472	18.60

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 836157604

Date : 04/18/16 Reference : kc820
Sequence : MSVOA11 kdi Analyzed : 03/09/16 00:18

#	Type	Sample ID	PFLBZ	RT	14DFB	RT	CLBZD5	RT	DCBZ14D4	RT
		ICAL STD	395404	10.58	660265	11.51	595282	14.62	299473	16.88
		LOWER LIMIT	197702	10.08	330133	11.01	297641	14.12	149737	16.38
		UPPER LIMIT	790808	11.08	1320530	12.01	1190564	15.12	598946	17.38
002	IB		376454	10.58	703371	11.51	633408	14.62	284773	16.87
007	CCV		354925	10.58	661441	11.51	616924	14.62	308149	16.87
008	BS	QC831944	359947	10.58	665766	11.51	605464	14.62	287596	16.87
009	BSD	QC831945	355550	10.58	657671	11.51	600473	14.62	296060	16.87
010	IB		348719	10.58	660332	11.51	590767	14.62	270363	16.87
011	BLANK	QC831946	337093	10.58	636930	11.51	571331	14.62	258624	16.87
012	SAMPLE	275856-013	338558	10.58	636431	11.51	572789	14.62	261270	16.87
013	SAMPLE	275856-015	329552	10.58	633204	11.51	568889	14.62	255570	16.87
014	SAMPLE	275917-002	317792	10.57	594184	11.51	532283	14.62	239709	16.87
015	SAMPLE	275917-004	329156	10.57	617233	11.51	554172	14.62	249905	16.87
016	SAMPLE	275919-001	321021	10.58	622904	11.51	555408	14.62	247071	16.87
017	SAMPLE	275919-002	313783	10.58	610661	11.51	541088	14.62	241534	16.87
018	SAMPLE	275919-003	308701	10.58	595845	11.51	531577	14.62	235385	16.87
019	SAMPLE	275919-004	294653	10.58	570961	11.51	515351	14.62	226809	16.87
020	SAMPLE	275865-001	296402	10.58	576829	11.51	509024	14.62	204011	16.87
021	SAMPLE	275865-002	245460	10.58	531963	11.51	479122	14.62	211234	16.87
022	SAMPLE	275865-003	295907	10.58	573923	11.51	509982	14.62	222266	16.87
023	SAMPLE	275865-007	288153	10.58	558410	11.51	490778	14.62	207990	16.87
024	SAMPLE	275865-008	244224	10.58	493486	11.51	447698	14.62	192702	16.87
025	SAMPLE	275865-009	282988	10.58	559027	11.51	502251	14.62	223097	16.87
026	SAMPLE	275865-010	268219	10.58	540627	11.51	484890	14.62	209945	16.87
027	SAMPLE	275865-013	239767	10.58	509010	11.51	430843	14.62	220773	16.87
028	SAMPLE	275906-001	280996	10.58	530782	11.51	431982	14.62	184110	16.87
029	SAMPLE	275917-001	257350	10.58	475144	11.51	463929	14.62	219508	16.87
030	IB		276210	10.58	481375	11.51	490744	14.62	196776	16.87
031	IB		236261	10.58	497891	11.51	439000	14.62	190238	16.87

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 476138895

Instrument : MSVOA08 Begun : 04/05/16 10:55
Method : EPA 8260B SOP Version : TVH_8260B_rv1

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	hd501	TUN	BFB			04/05/16 10:55	1.0	1	
002	hd502	IB				04/05/16 12:17	1.0	2	
003	hd503	X	LOWPT			04/05/16 12:51	1.0	2	
004	hd504	X	IB			04/05/16 13:25	1.0	2	
005	hd505	X	IB			04/05/16 16:15	1.0	2	
006	hd506	IB	CALIB			04/05/16 16:49	1.0	2	
007	hd507	ICAL	.25/.5			04/05/16 17:23	1.0	3 4 5 6 2	
008	hd508	ICAL	.5/1			04/05/16 17:57	1.0	3 4 5 6 2	
009	hd509	ICAL	2PPB			04/05/16 18:31	1.0	3 4 5 6 2	
010	hd510	ICAL	5PPB			04/05/16 19:06	1.0	2 3 4 5 6	
011	hd511	ICAL	10PPB			04/05/16 19:40	1.0	2 3 4 5 6	
012	hd512	ICAL	20PPB			04/05/16 20:14	1.0	2 3 4 5 6	
013	hd513	ICAL	50PPB			04/05/16 20:48	1.0	2 3 4 5 6	
014	hd514	ICAL	75PPB			04/05/16 21:23	1.0	2 3 4 5 6	
015	hd515	ICAL	100PPB			04/05/16 21:57	1.0	2 3 4 5 6	
016	hd516	ICV	GAS			04/05/16 22:31	1.0	2 7	
017	hd517	X	MIX			04/05/16 23:05	1.0	2 8 9 10	<<t
019	hd519	IB				04/06/16 00:13	1.0	2	<<t
020	hd520	IB				04/06/16 00:47	1.0	2	<<t

DAR 04/06/16 : file 18, an IB, cannot be brought into LIMS due to a chemstation bug

DAR 04/06/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 20.

DAR 04/07/16 : file 17 ICV mix out of clock, Xed out so it wouldn't be used

Analyst: DAR Date: 04/06/16 Reviewer: LW Date: 04/07/16

Standards used: 1=S29058 2=S29486 3=S28620 4=S29427 5=S29559 6=S28142 7=S28625 8=S29448 9=S29207 10=S29290

Flags used: <<t=out of clock

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 476140541

Instrument : MSVOA08 Begun : 04/06/16 14:21
Method : EPA 8260B SOP Version : TVH_8260B_rv1

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	hd601	IB				04/06/16 14:21	1.0	1	?t
002	hd602	IB				04/06/16 14:56	1.0	1	?t
003	hd603	TUN	BFB			04/06/16 16:51	1.0	2	t
004	hd604	TUN	BFB			04/06/16 17:03	1.0	2	
005	hd605	ICV				04/06/16 17:28	1.0	3 4 5 1	
006	hd606	ICV	KET			04/06/16 20:01	1.0	1 6	
007	hd607	ICV	IODO			04/06/16 20:36	1.0	1 7	

DAR 04/07/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 7.

Analyst: DAR Date: 04/07/16 Reviewer: LW Date: 04/07/16

Standards used: 1=S29486 2=S29058 3=S29448 4=S29207 5=S29290 6=S26946 7=S28619

Flags used: ?t=missing tune t=tune failure

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 476150372

Instrument : MSVOA08 Begun : 04/13/16 10:12
Method : EPA 8260B SOP Version : TVH_8260B_rv1

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	hdd01	X	HIGHGAS			04/13/16 10:12	1.0	1	
002	hdd02	IB				04/13/16 10:46	1.0	1	?t
003	hdd03	TUN	BFB			04/13/16 11:43	1.0	2	
004	hdd04	CCV				04/13/16 12:14	1.0	3 4 5 6 1	
005	hdd05	BS	QC831379	Water	234050	04/13/16 12:48	1.0	7 8 9 10 1	
006	hdd06	BSD	QC831380	Water	234050	04/13/16 13:22	1.0	7 8 9 10 1	spk
007	hdd07	CCV	A/A			04/13/16 13:56	1.0	1 11	
008	hdd08	CCV/LCS	QC831619	Water	234050	04/13/16 14:30	1.0	1 11	
009	hdd09	BLANK	QC831381	Water	234050	04/13/16 15:04	1.0	1	
010	hdd10	SAMPLE	275917-004	Water	234050	04/13/16 15:38	1.0	1	spk
011	hdd11	SAMPLE	275917-002	Water	234050	04/13/16 16:12	1.0	1	spk
012	hdd12	SAMPLE	275865-002	Water	234050	04/13/16 16:46	1.0	1	spk
013	hdd13	SAMPLE	275865-003	Water	234050	04/13/16 17:20	1.0	1	spk
014	hdd14	SAMPLE	275865-005	Water	234050	04/13/16 17:54	1.0	1	spk
015	hdd15	SAMPLE	275865-007	Water	234050	04/13/16 18:28	1.0	1	spk
016	hdd16	SAMPLE	275865-008	Water	234050	04/13/16 19:02	1.0	1	spk
017	hdd17	SAMPLE	275865-009	Water	234050	04/13/16 19:36	1.0	1	spk
018	hdd18	SAMPLE	275865-010	Water	234050	04/13/16 20:09	1.0	1	spk
019	hdd19	SAMPLE	275865-013	Water	234050	04/13/16 20:43	1.0	1	spk
020	hdd20	SAMPLE	275964-001	Water	234050	04/13/16 21:17	5.0	1	spk , foamer, pH > 2
021	hdd21	SAMPLE	275917-001	Water	234050	04/13/16 21:51	20.0	1	spk , foamer
022	hdd22	SAMPLE	275970-001	Water	234050	04/13/16 22:25	1250	1	spk , pH > 2, 1:ACE=100
023	hdd23	SAMPLE	275865-001	Water	234050	04/13/16 22:59	2.0	1	spk
024	hdd24	IB				04/13/16 23:33	1.0	1	
025	hdd25	IB				04/14/16 00:07	1.0	1	<<t
026	hdd26	X	HIGHGAS			04/14/16 00:41	1.0	1	

DAR 04/14/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 26.

DAR 04/14/16 : Matrix spikes were not performed for this analysis in batch 234050 due to insufficient sample amount.

Analyst: DAR Date: 04/14/16 Reviewer: LW Date: 04/14/16

Standards used: 1=S29486 2=S29058 3=S28620 4=S29427 5=S29559 6=S28142 7=S29448 8=S29207 9=S29290 10=S28625 11=S29512

Flags used: <<t=out of clock ?t=missing tune spk=5% spike rule

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 476154940

Instrument : MSVOA08 Begun : 04/16/16 14:20
Method : EPA 8260B SOP Version : TVH_8260B_rv1

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	hdg01	IB				04/16/16 14:20	1.0	1	?t
002	hdg02	X	HG			04/16/16 15:09	1.0	1	
003	hdg03	IB				04/16/16 15:43	1.0	1	?t
004	hdg04	TUN	BFB			04/16/16 16:11	1.0	2	
005	hdg05	CCV				04/16/16 16:39	1.0	3 4 5 6 1	
006	hdg06	BS	QC831836	Water	234163	04/16/16 17:13	1.0	7 8 9 10 1	
007	hdg07	X	QC831837	Water	234163	04/16/16 17:47	1.0	7 8 9 10 1	spk
008	hdg08	IB	A/A			04/16/16 18:21	1.0	1	
009	hdg09	BSD	QC831837	Water	234163	04/16/16 18:55	1.0	7 8 9 10 1	
010	hdg10	IB	A/A			04/16/16 19:30	1.0	1	
011	hdg11	BLANK	QC831838	Water	234163	04/16/16 20:04	1.0	1	
012	hdg12	SAMPLE	275865-014	Water	234163	04/16/16 20:38	1.0	1	headspace <= 1 mL
013	hdg13	SAMPLE	275865-027	Water	234163	04/16/16 21:12	1.0	1	
014	hdg14	SAMPLE	275865-016	Water	234163	04/16/16 21:46	1.0	1	
015	hdg15	SAMPLE	275865-017	Water	234163	04/16/16 22:20	1.0	1	
016	hdg16	SAMPLE	275865-019	Water	234163	04/16/16 22:54	1.0	1	
017	hdg17	SAMPLE	275865-020	Water	234163	04/16/16 23:28	1.0	1	
018	hdg18	SAMPLE	275865-022	Water	234163	04/17/16 00:02	1.0	1	
019	hdg19	SAMPLE	275865-023	Water	234163	04/17/16 00:36	1.0	1	
020	hdg20	SAMPLE	275865-025	Water	234163	04/17/16 01:10	1.0	1	
021	hdg21	SAMPLE	275865-026	Water	234163	04/17/16 01:44	1.0	1	
022	hdg22	SAMPLE	276067-001	Water	234163	04/17/16 02:18	1.0	1	high HC, pH > 2
023	hdg23	SAMPLE	276056-001	Water	234163	04/17/16 02:52	2.0	1	pH > 2
024	hdg24	SAMPLE	275906-001	Water	234163	04/17/16 03:26	4.0	1	
025	hdg25	SAMPLE	275934-005	Water	234163	04/17/16 04:00	2.0	1	
026	hdg26	X	IB	Water		04/17/16 04:34	1.0	1	

KKM 04/18/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 26.

KKM 04/18/16 : Matrix spikes were not performed for this analysis in batch 234163 due to insufficient sample amount.

Analyst: KKM Date: 04/18/16 Reviewer: LW Date: 04/18/16

Standards used: 1=S29654 2=S29058 3=S28620 4=S29427 5=S29559 6=S28142 7=S29448 8=S29207 9=S29290 10=S28625

Flags used: ?t=missing tune spk=5% spike rule

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 476157607

Instrument : MSVOA08 Begun : 04/18/16 10:47
Method : EPA 8260B SOP Version : TVH_8260B_rv1

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	hdi01	X	HG			04/18/16 10:47	1.0	1	
002	hdi02	IB				04/18/16 11:21	1.0	1	?t
003	hdi03	TUN	BFB			04/18/16 13:01	1.0	2	
004	hdi04	CCV				04/18/16 13:38	1.0	3 4 5 6 1	
005	hdi05	BS	QC831941	Water	234187	04/18/16 14:12	1.0	7 8 9 10 1	
006	hdi06	BSD	QC831942	Water	234187	04/18/16 14:46	1.0	7 8 9 10 1	
007	hdi07	IB	A/A			04/18/16 15:20	1.0	1	
008	hdi08	IB	A/A			04/18/16 15:54	1.0	1	
009	hdi09	BLANK	QC831943	Water	234187	04/18/16 16:28	1.0	1	
010	hdi10	SAMPLE	275936-004	Water	234187	04/18/16 17:02	1.0	1	
011	hdi11	SAMPLE	275936-001	Water	234187	04/18/16 17:36	1.0	1	
012	hdi12	SAMPLE	275936-002	Water	234187	04/18/16 18:11	1.0	1	
013	hdi13	SAMPLE	275936-003	Water	234187	04/18/16 18:45	1.0	1	
014	hdi14	MSS	275865-011	Water	234187	04/18/16 19:19	1.0	1	
015	hdi15	MSS	275865-015	Water	234187	04/18/16 19:53	1.0	1	
016	hdi16	SAMPLE	275920-001	Water	234187	04/18/16 20:27	5.0	1	
017	hdi17	SAMPLE	275920-002	Water	234187	04/18/16 21:01	5.0	1	
018	hdi18	SAMPLE	275920-009	Water	234187	04/18/16 21:35	5.0	1	headspace <= 1 mL
019	hdi19	SAMPLE	275933-001	Water	234187	04/18/16 22:09	7.14	1	
020	hdi20	MS	QC831994	Water	234187	04/18/16 22:43	1.0	1 7 8 9 10	
021	hdi21	MSD	QC831995	Water	234187	04/18/16 23:17	1.0	1 7 8 9 10	
022	hdi22	MS	QC831996	Water	234187	04/18/16 23:51	1.0	1 7 8 9 10	
023	hdi23	MSD	QC831997	Water	234187	04/19/16 00:25	1.0	1 7 8 9 10	
024	hdi24	IB				04/19/16 00:59	1.0	1	
025	hdi25	IB				04/19/16 01:33	1.0	1	<<t
026	hdi26	X	HIGHGAS			04/19/16 02:07	1.0	1	

FBJ 04/19/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 26.

Analyst: FBJ Date: 04/19/16 Reviewer: LW Date: 04/19/16

Standards used: 1=S29654 2=S29058 3=S28620 4=S29427 5=S29559 6=S28142 7=S29448 8=S29564 9=S29290 10=S28625

Flags used: <<t=out of clock ?t=missing tune

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 836098562

Instrument : MSVOA11 Begun : 03/08/16 10:42
Method : EPA 8260B SOP Version : TVH_8260B_rv1

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	kc801	IB				03/08/16 10:42	1.0	1	?t
002	kc802	IB				03/08/16 11:10	1.0	1	?t
003	kc803	IB				03/08/16 11:38	1.0	1	?t
004	kc804	IB				03/08/16 16:04	1.0	1	?t
005	kc805	IB				03/08/16 16:33	1.0	1	?t
006	kc806	IB				03/08/16 17:01	1.0	1	?t
007	kc807	TUN	BFB			03/08/16 18:13	1.0	2	
008	kc808	IB				03/08/16 18:39	1.0	1	
009	kc809	IB				03/08/16 19:07	1.0	1	
010	kc810	IB				03/08/16 19:36	1.0	1	
011	kc811	IB				03/08/16 20:04	1.0	1	
012	kc812	IB				03/08/16 20:32	1.0	1	
013	kc813	IB	CALIB			03/08/16 21:00	1.0	1	
014	kc814	ICAL	.25PPB			03/08/16 21:28	1.0	3 4 5 6 1	
015	kc815	ICAL	.5PPB			03/08/16 21:56	1.0	1 3 4 5 6	
016	kc816	ICAL	2PPB			03/08/16 22:25	1.0	3 4 5 6 1	
017	kc817	ICAL	5PPB			03/08/16 22:53	1.0	1 3 4 5 6	
018	kc818	ICAL	10PPB			03/08/16 23:21	1.0	1 3 4 5 6	
019	kc819	ICAL	20PPB			03/08/16 23:50	1.0	1 3 4 5 6	
020	kc820	ICAL	50PPB			03/09/16 00:18	1.0	1 3 4 5 6	
021	kc821	ICAL	75PPB			03/09/16 00:46	1.0	1 3 4 5 6	
022	kc822	ICAL	100PPB			03/09/16 01:14	1.0	1 3 4 5 6	
023	kc823	ICV	GAS			03/09/16 01:43	1.0	7 1	
024	kc824	ICV				03/09/16 02:11	1.0	8 9 10 1	
025	kc825	IB				03/09/16 02:39	1.0	1	

DAR 03/10/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 25.

Analyst: DAR Date: 03/10/16 Reviewer: LW Date: 03/14/16

Standards used: 1=S29284 2=S29058 3=S28620 4=S29042 5=S29228 6=S27830 7=S29123 8=S29207 9=S29290 10=S29230

Flags used: ?t=missing tune

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 836100345

Instrument : MSVOA11 Begun : 03/09/16 16:25
Method : EPA 8260B SOP Version : TVH_8260B_rv1

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	kc901	IB				03/09/16 16:25	1.0	1	?t
002	kc902	TUN	BFB			03/09/16 16:48	1.0	2	t
003	kc903	TUN	BFB			03/09/16 16:59	1.0	2	t
004	kc904	TUN	BFB			03/09/16 17:49	1.0	2	
005	kc905	ICV				03/09/16 18:14	1.0	3 1	

DAR 03/10/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 5.

DAR 03/10/16 : injector maintenance after file 3

Analyst: DAR Date: 03/10/16 Reviewer: LW Date: 03/14/16

Standards used: 1=S29284 2=S29058 3=S26946

Flags used: ?t=missing tune t=tune failure

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 836157604

Instrument : MSVOA11 Begun : 04/18/16 10:44
Method : EPA 8260B SOP Version : TVH_8260B_rv1

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	kdi01	X	HIGHGAS			04/18/16 10:44	1.0	1	
002	kdi02	IB				04/18/16 11:13	1.0	1	?t
003	kdi03	TUN	BFB			04/18/16 13:02	1.0	2	t
004	kdi04	TUN	BFB			04/18/16 13:27	1.0	2	t
005	kdi05	TUN	BFB			04/18/16 13:56	1.0	2	t
006	kdi06	TUN	BFB			04/18/16 14:31	1.0	2	
007	kdi07	CCV				04/18/16 14:55	1.0	3 4 5 6 1	
008	kdi08	BS	QC831944	Water	234188	04/18/16 15:23	1.0	7 8 9 10 1	
009	kdi09	BSD	QC831945	Water	234188	04/18/16 15:52	1.0	7 8 9 10 1	
010	kdi10	IB				04/18/16 16:19	1.0	1	
011	kdi11	BLANK	QC831946	Water	234188	04/18/16 16:47	1.0	1	
012	kdi12	SAMPLE	275856-013	Water	234188	04/18/16 17:16	1.0	1	
013	kdi13	SAMPLE	275856-015	Water	234188	04/18/16 17:44	1.0	1	
014	kdi14	SAMPLE	275917-002	Water	234188	04/18/16 18:12	1.0	1	
015	kdi15	SAMPLE	275917-004	Water	234188	04/18/16 18:41	1.0	1	
016	kdi16	SAMPLE	275919-001	Water	234188	04/18/16 19:09	1.0	1	
017	kdi17	SAMPLE	275919-002	Water	234188	04/18/16 19:37	1.0	1	
018	kdi18	SAMPLE	275919-003	Water	234188	04/18/16 20:06	1.0	1	
019	kdi19	SAMPLE	275919-004	Water	234188	04/18/16 20:34	1.0	1	
020	kdi20	SAMPLE	275865-001	Water	234188	04/18/16 21:02	1.0	1	
021	kdi21	SAMPLE	275865-002	Water	234188	04/18/16 21:31	1.0	1	
022	kdi22	SAMPLE	275865-003	Water	234188	04/18/16 21:59	1.0	1	
023	kdi23	SAMPLE	275865-007	Water	234188	04/18/16 22:27	1.0	1	
024	kdi24	SAMPLE	275865-008	Water	234188	04/18/16 22:55	1.0	1	
025	kdi25	SAMPLE	275865-009	Water	234188	04/18/16 23:24	1.0	1	
026	kdi26	SAMPLE	275865-010	Water	234188	04/18/16 23:52	1.0	1	
027	kdi27	SAMPLE	275865-013	Water	234188	04/19/16 00:20	1.0	1	
028	kdi28	SAMPLE	275906-001	Water	234188	04/19/16 00:49	2.0	1	1:DIPE=110
029	kdi29	SAMPLE	275917-001	Water	234188	04/19/16 01:17	20.0	1	foamer
030	kdi30	IB				04/19/16 01:45	1.0	1	
031	kdi31	IB				04/19/16 02:13	1.0	1	
032	kdi32	X	HIGHGAS			04/19/16 02:42	1.0	1	

DAR 04/18/16 : adjusted tune after file 4

DAR 04/19/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 32.

DAR 04/19/16 : Matrix spikes were not performed for this analysis in batch 234188 due to insufficient sample amount.

Analyst: DAR Date: 04/19/16 Reviewer: LW Date: 04/19/16

Standards used: 1=S29653 2=S29058 3=S29048 4=S29427 5=S29559 6=S28142 7=S29448 8=S29564 9=S29290 10=S29123

Flags used: ?t=missing tune t=tune failure

MSVOA WATER Prepsheet

Dilutions prepared & pH of dilutions checked (initials/date): 4/13
For Undiluted samples, pH checked (initials/date): 4/14/16

Batch #: 234050
Prep Date: 4/13
Instrument: 8

	Sample ID	Vial	pH <2	pH if >2	HS?	Dil'n flask ID	RR #	DF	Comments	20% ccv?	hold	due	$Rush
1	~~275964-1~~	~~A~~	✓			~~5~~		~~5x~~	~~from vial C~~ needs A/A $/lnp				
2	275970-1	A		3		6		~~2.5~~	250X				
3	275917-1	B	✓			7		20X	from Dil flask 7				
4	2	↓	✓					1x					
5	4	↓	✓					1x					
6	275865-1	B	✓			12		2x					
7	2	↓	✓										
8	3		✓										
9	5		✓						5				
10	7		✓										
11	8		✓										
12	9		✓										
13	10		✓										
14	13	↓	✓										
15	275964-1	D		7		10		5x	former				
16													
17													
18													
19													
20													
21													
22													

MSVOA WATER Prepsheet

Dilutions prepared & pH of dilutions checked (initials/date): [illegible] 4/16/16
For Undiluted samples, pH checked (initials/date): [illegible] 4/17/16

Batch #: 234163
Prep Date: 4/16/16
Instrument: MS8

	Sample ID	Vial	pH <2	pH if >2	HS?	Dil'n flask ID	RR #	DF	Comments	20% ccv?	hold	due	$Rush
1	275934-5	B	✓			11	1	2x	Ace >LR				
2	276056-1	E		9		12	1	2x	Toluene >LR			4/18	$
3	275906-1	C	✓			4	1	4x	Cl2DCE >LR			4/15	
4	276067-1	A		11				1x				4/19	$
5	275865-14	A	✓		Bubble			1x	TB				
6	-16	L	✓										
7	-17	B	✓										
8	-19		✓										
9	-20		✓										
10	-22		✓										
11	-23		✓										
12	-25		✓										
13	-26	↓	✓					↓					
14	-27	A	✓						ER				
15													
16													
17													
18													
19													
20													
21													
22													

F:\home\VOA\water prepsheet_rv3   Curtis & Tompkins, Ltd.   Rev.3, Effective 12/01/14

MSVOA WATER Prepsheet

Dilutions prepared & pH of dilutions checked (initials/date): MH 4/19

For Undiluted samples, pH checked (initials/date): ZH 4/19/16

Batch #: 234152

Prep Date: 4/19/16

Instrument: 8

	Sample ID	Vial	pH <2	pH if >2	HS?	Dil'n flask ID	RR #	DF	Comments	20% ccv?	hold	due	$Rush
1	275920-1	E	✓			1	x	5x	8260C prepped by ziq (diluted due to color				
2	2	E	✓			2			bright yellow samples				
3	9	E	✓		hold	3		1x	↓		+		
4	275865-11	B	✓					1x					
5	15	B	✓					↓					
6	11	C	✓			1A			MS 831444				
7	11	DE	✓			↓			MSD 5				
8	15	C	✓			4			MS 6				
9	15	DE	✓			↓		↓	MSD 7				
10	275936-1	B	✓					1x	FB				
11	2	↓	✓					↓					
12	3	↓	✓										
13	4	A	/					↓	TB				
14	275933-1	C	✓			4		7.14x					
15													
16													
17													
18													
19													
20													
21													
22													

MSVOA WATER Prepsheet

Dilutions prepared & pH of dilutions checked (initials/date): M 4/14

For Undiluted samples, pH checked (initials/date): Za 4/19/16

Batch #: 234186

Prep Date: 4/18

Instrument: 11

		Sample ID	Vial	pH <2	pH if >2	HS?	Dil'n flask ID	RR #	DF	Comments	20% ccv?	hold	due	$Rush
8	1	275917-C	C	✓				1	1x	Toluene TTC				
	2	4	C	✓				1	1x					
7	3	275865-2	C	✓					1x	5-0/0 RSD TTC 5				
	4	3		✓						11				
	5	7		✓										
	6	8		✓										
	7	9		✓										
	8	10		✓										
	9	13		✓					1					
8	10	275917-1	C	✓			4		20x	1,2 DCA				
7	11	275865-1	C	✓					1x	DCA				
8	12	275919-3	B	✓					1x	1,2 DCA				
	13	4		✓										
	14	1		✓										
	15	2		✓					1					
	16	275856-13	B	✓					1x					
	17	15	B	✓										
	18	16												
8	19	275906-1	B	✓			5		2x	runs not matching				
	20													
	21													
	22													

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

Laboratory Job Number 275865
ANALYTICAL REPORT
Metals

Tetra Tech EMI
1999 Harrison Street
Oakland, CA 94612

Project : 1035225323.06
Location : RFS 2016 Groundwater
Level : IV

Sample ID	Lab ID
20160407B150	275865-004
20160407CCC2	275865-005
20160407FG	275865-006
20160407TP1	275865-008
20160407B450	275865-011
20160407B150DUP	275865-012
20160407ER	275865-013
20160408PZ11	275865-015
20160408NRLF	275865-018
20160408BULB1	275865-021
20160408BULB2	275865-022
20160408DHR	275865-024
20160408ER	275865-027

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: 05/06/2016

Mike Dahlquist
Project Manager
mike.dahlquist@ctberk.com

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE
METALS (EPA 6010B, EPA 6020, AND EPA 7470A)

Laboratory number:	**275865**
Client:	**Tetra Tech EMI**
Project:	**1035225323.06**
Location:	**RFS 2016 Groundwater**
Request Date:	**04/08/16**
Samples Received:	**04/08/16**

This data package contains sample and QC results for thirteen water samples, requested for the above referenced project on 04/08/16. See attached cooler receipt form for any sample receipt problems or discrepancies.

Metals (EPA 6010B, EPA 6020, and EPA 7470A):

High response was observed for cobalt in the CCV analyzed 05/04/16 17:06; this analyte was not detected at or above the RL in the associated samples.

High response was observed for cobalt in the CCV analyzed 05/04/16 16:02; this analyte was not detected at or above the RL in the associated samples.

High response was observed for cobalt in the CCV analyzed 05/05/16 15:05; this analyte was not detected at or above the RL in the associated sample.

High response was observed for cobalt in the CCV analyzed 05/05/16 16:06; this analyte was not detected at or above the RL in the associated sample.

High response was observed for cadmium in the CCV analyzed 05/04/16 17:48; this analyte was not detected at or above the RL in the associated sample.

High response was observed for arsenic in the CCV analyzed 05/04/16 17:48; this analyte was not detected at or above the RL in the associated samples.

High response was observed for cobalt in the CCV analyzed 05/04/16 17:48; this analyte was not detected at or above the RL in the associated sample.

High response was observed for zinc in the CCV analyzed 05/04/16 17:48; this analyte was not detected at or above the RL in the associated sample.

High response was observed for arsenic in the CCV analyzed 05/04/16 19:04; this analyte was not detected at or above the RL in the associated sample.

High response was observed for cobalt in the CCV analyzed 05/04/16 15:03; this analyte was not detected at or above the RL in the associated samples.

Copper was detected between the MDL and the RL in the method blank for batch 234207; this analyte was either not detected in samples at or above the RL, or detected at a level at least 10 times that of the blank.

No other analytical problems were encountered.

Chain of Custody

Tetra Tech EM Inc.
San Francisco Office

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

275865

Chain of Custody Record No. 7112

Lab PO#: 160AK35	**Lab:** Curtis + Tompkins	
Project name: 2016 RFS GW	**TtEMI technical contact:** Sara Woolley	**Field samplers:** Dayna Aragon / Quinn Johnson
Project (CTO) number: 103522532 3.06	**TtEMI project manager:** Jason Brodersen	**Field samplers' signatures:**

Preservative Added: HCl; HNO3

No./Container Types: 40 ml VOA; 1 liter Amber; 500 ml Poly; Sleeve; Glass Jar

Analysis Required: VOA; SVOA; Pest/PCBs; Metals *; TPH Purgeables; TPH Extractables

	Sample ID	Sample Location (Pt. ID)	Date	Time	Matrix	MS / MSD	40 ml VOA	1 liter Amber	500 ml Poly	Sleeve	Glass Jar	VOA	SVOA	Pest/PCBs	Metals *	TPH Purgeables	TPH Extractables
1	20160407CCCT		4/7/16	1028	water		3					X					
2	B175S			1148			3					X					
3	B175W			1256			3					X					
4	B150			1418					1						X		
5	CCC2			1543			3		1			X			X		
6	FG			1020					1						X		
7	P29			1115			3					X					
8	TP1			1205			3		1			X			X		
9	B480			1246			3					X					
10	B480D			1250			3					X					
11	B450			1438		X	6		3			X			X		
12	B150DUP			1412					1						X		

	Name (print)	Company Name	Date	Time
Relinquished by:	QUINN JOHNSON	TETRA TECH	04.08.16	1548
Received by:	MIKE PARLQUIST	CT	4/8/16	1548
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				

Turnaround time/remarks:

* metals are field-filtered; standard TAT

Fed Ex #: Hand Delivered

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WHITE-Laboratory Copy YELLOW-Sample Tracker PINK-File Copy

Tetra Tech EM Inc.
San Francisco Office

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275865

Chain of Custody Record No. 7110

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Lab PO#: 16OAK35	**Lab:** Curtis + Tompkins
Project name: 2016 RFS GW	**TtEMI technical contact:** Sara Woolley
Project (CTO) number: 103522532 3.06	**TtEMI project manager:** E. Jason Brodersen
	Field samplers: Dayna Aragon, Quinn Johnson
	Field samplers' signatures:

	Sample ID	Sample Location (Pt. ID)	Date	Time	Matrix	MS / MSD	40 ml VOA	1 liter Amber	500 ml Poly	Sleeve	Glass Jar	VOA	SVOA	Pest/PCBs	Metals *	TPH Purgeables	TPH Extractables
13	20160407 ER		4/7/16	1535	water		3		1			X			X		
14	20160407 TB		4/7/16	0807			3					X					
15	20160408Z11		4/8/16	0925		X	6		3			X			X		
16	B473			1050			3					X					
17	B473D			1055			3					X					
18	NRLF			1210					1						X		
19	TP2			1250			3					X					
20	RWF			1335			3					X					
21	BULB1			1047					1						X		
22	BULB2			0946			3		1			X			X		
23	MFA			1154			3					X					
24	DHR			1336					1						X		

Preservative Added: HCl, HNO3

No./Container Types

Analysis Required

	Name (print)	Company Name	Date	Time
Relinquished by:	QUINN JOHNSON	TETRA TECH	04.08.16	1548
Received by:	MIKE DAHLQUIST	C+T	4/8/16	1549
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				

Turnaround time/remarks:

* metals are field filtered; standard TAT

Fed Ex #: Hand Delivered

WHITE-Laboratory Copy YELLOW-Sample Tracker PINK-File Copy

5 of 604

Tetra Tech EM Inc.
San Francisco Office

135 Main St. Suite 1800
San Francisco. CA 94105
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Chain of Custody Record No. 7111

Page 3 of 3

Lab PO#:	Lab:
16 OAK 35	Curtis + Tompkins

Project name:	TtEMI technical contact:	Field samplers:
2016 RFS GW	Sara Woolley	Dayna Aragon, Quinn Johnson

Project (CTO) number:	TtEMI project manager:	Field samplers' signatures:
1035225323.06	Jason Brodersen	[signature] [signature]

Preservative Added: HCl (VOA); HNO_3 (Metals)

	Sample ID	Sample Location (Pt. ID)	Date	Time	Matrix	MS / MSD	40 ml VOA	1 liter Amber	500 ml Poly	Sleeve	Glass Jar	VOA	SVOA	Pest/PCBs	Metals *	TPH Purgeables	TPH Extractables
25	20160408 MFADUP		4/8/16	1158	WATER		3					X					
26	B278		↓	1443			3					X					
27	ER		↓	1434			3		1			X			X		

	Signature	Name (print)	Company Name	Date	Time
Relinquished by:	[signature]	QUINN JOHNSON	TETRA TECH	04.08.16	1548
Received by:	[signature]	MIKE DAHLQUIST	C+T	4/8/16	1549
Relinquished by:					
Received by:					
Relinquished by:					
Received by:					

Turnaround time/remarks:
*metals are field filtered; standard TAT

Fed Ex #: Hand Delivered

WHITE-Laboratory Copy YELLOW-Sample Tracker PINK-File Copy

COOLER RECEIPT CHECKLIST Curtis & Tompkins, Ltd.

Login # 275865 Date Received 4/8/16 Number of coolers 2
Client _____ Project _____

Date Opened 4/8 By (print) CJN (sign) [signature]
Date Logged in 4/11 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) 2.5, 3.2

☒ Temperature blank(s) included? ☒ Thermometer# 4 ☐ 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? (pH strip lot# HC758444) (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
20. 1/10 VOAs received w/ bubble > 6 mm for sample 11

Rev 12, 12/01/15

Curtis & Tompkins Sample Preservation for 275865

Sample	pH: <2	>9	>12	Other
-004a	[x]	[ ]	[ ]	_____
-005a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[x]	[ ]	[ ]	_____
-006a	[x]	[ ]	[ ]	_____
-008a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[x]	[ ]	[ ]	_____
-011a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[ ]	[ ]	[ ]	_____
e	[ ]	[ ]	[ ]	_____
f	[ ]	[ ]	[ ]	_____
g	[x]	[ ]	[ ]	_____
h	[x]	[ ]	[ ]	_____
i	[x]	[ ]	[ ]	_____
-012a	[x]	[ ]	[ ]	_____
-013a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[x]	[ ]	[ ]	_____
-015a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[ ]	[ ]	[ ]	_____
e	[ ]	[ ]	[ ]	_____
f	[ ]	[ ]	[ ]	_____
g	[x]	[ ]	[ ]	_____
h	[x]	[ ]	[ ]	_____
i	[x]	[ ]	[ ]	_____
-018a	[x]	[ ]	[ ]	_____
-021a	[x]	[ ]	[ ]	_____
-022a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[x]	[ ]	[ ]	_____
-024a	[x]	[ ]	[ ]	_____
-027a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[x]	[ ]	[ ]	_____

Analyst: CJN
Date: 4/11/16

Results & QC Summary

Curtis & Tompkins, Ltd.

Dissolved California Title 22 Metals

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225323.06		
Field ID:	20160407B150	Units:	ug/L
Lab ID:	275865-004	Sampled:	04/07/16
Matrix:	Filtrate	Received:	04/08/16

Analyte	Result	RL	MDL	Diln Fac	Batch#	Prepared	Analyzed	Analysis
Antimony	ND	10	2.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Arsenic	ND	5.0	1.7	1.000	234207	04/18/16	05/04/16	EPA 6010B
Barium	39	5.0	1.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Beryllium	ND	2.0	0.40	1.000	234207	04/18/16	05/04/16	EPA 6010B
Cadmium	ND	5.0	1.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Chromium	1.1 J	5.0	1.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Cobalt	ND	5.0	1.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Copper	2.1 J	5.0	1.2	1.000	234207	04/18/16	05/04/16	EPA 6010B
Lead	ND	5.0	1.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Mercury	ND	0.20	0.040	1.000	234349	04/22/16	04/22/16	EPA 7470A
Molybdenum	1.0 J	5.0	1.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Nickel	1.9 J	5.0	1.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Selenium	38	10	2.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Silver	1.7 J	5.0	1.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Thallium	ND	1.0	0.20	10.00	234207	04/18/16	05/05/16	EPA 6020
Vanadium	1.1 J	5.0	1.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Zinc	ND	20	4.0	1.000	234207	04/18/16	05/04/16	EPA 6010B

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Dissolved California Title 22 Metals

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225323.06		
Field ID:	20160407CCC2	Units:	ug/L
Lab ID:	275865-005	Sampled:	04/07/16
Matrix:	Filtrate	Received:	04/08/16

Analyte	Result	RL	MDL	Diln Fac	Batch#	Prepared	Analyzed	Analysis
Antimony	ND	10	2.0	1.000	234207	04/18/16	05/05/16	EPA 6010B
Arsenic	ND	5.0	1.7	1.000	234207	04/18/16	05/04/16	EPA 6010B
Barium	61	5.0	1.0	1.000	234207	04/18/16	05/05/16	EPA 6010B
Beryllium	ND	2.0	0.40	1.000	234207	04/18/16	05/05/16	EPA 6010B
Cadmium	ND	5.0	1.0	1.000	234207	04/18/16	05/05/16	EPA 6010B
Chromium	1.9 J	5.0	1.0	1.000	234207	04/18/16	05/05/16	EPA 6010B
Cobalt	ND	5.0	1.0	1.000	234207	04/18/16	05/05/16	EPA 6010B
Copper	ND	5.0	1.5	1.000	234207	04/18/16	05/05/16	EPA 6010B
Lead	1.6 J	5.0	1.2	1.000	234207	04/18/16	05/05/16	EPA 6010B
Mercury	ND	0.20	0.040	1.000	234349	04/22/16	04/22/16	EPA 7470A
Molybdenum	ND	5.0	1.0	1.000	234207	04/18/16	05/05/16	EPA 6010B
Nickel	24	5.0	0.67	1.000	234207	04/18/16	05/05/16	EPA 6010B
Selenium	ND	10	3.1	1.000	234207	04/18/16	05/05/16	EPA 6010B
Silver	2.8 J	5.0	1.0	1.000	234207	04/18/16	05/05/16	EPA 6010B
Thallium	ND	1.0	0.20	10.00	234207	04/18/16	05/05/16	EPA 6020
Vanadium	ND	5.0	1.0	1.000	234207	04/18/16	05/05/16	EPA 6010B
Zinc	20 J	20	4.0	1.000	234207	04/18/16	05/05/16	EPA 6010B

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Dissolved California Title 22 Metals

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225323.06		
Field ID:	20160407FG	Units:	ug/L
Lab ID:	275865-006	Sampled:	04/07/16
Matrix:	Filtrate	Received:	04/08/16

Analyte	Result	RL	MDL	Diln Fac	Batch#	Prepared	Analyzed	Analysis
Antimony	ND	10	2.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Arsenic	ND	5.0	1.7	1.000	234207	04/18/16	05/04/16	EPA 6010B
Barium	25	5.0	1.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Beryllium	ND	2.0	0.40	1.000	234207	04/18/16	05/04/16	EPA 6010B
Cadmium	ND	5.0	1.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Chromium	ND	5.0	1.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Cobalt	ND	5.0	1.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Copper	1.3 J	5.0	1.2	1.000	234207	04/18/16	05/04/16	EPA 6010B
Lead	ND	5.0	1.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Mercury	ND	0.20	0.040	1.000	234349	04/22/16	04/22/16	EPA 7470A
Molybdenum	ND	5.0	1.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Nickel	ND	5.0	1.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Selenium	3.4 J	10	2.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Silver	1.5 J	5.0	1.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Thallium	ND	1.0	0.20	10.00	234207	04/18/16	05/05/16	EPA 6020
Vanadium	1.9 J	5.0	1.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Zinc	ND	20	4.0	1.000	234207	04/18/16	05/04/16	EPA 6010B

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Dissolved California Title 22 Metals

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225323.06		
Field ID:	20160407TP1	Diln Fac:	1.000
Lab ID:	275865-008	Sampled:	04/07/16
Matrix:	Filtrate	Received:	04/08/16
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Prepared	Analyzed	Analysis
Antimony	4.1 J	10	2.0	234207	04/18/16	05/04/16	EPA 6010B
Arsenic	ND	5.0	1.7	234207	04/18/16	05/04/16	EPA 6010B
Barium	34	5.0	1.0	234207	04/18/16	05/04/16	EPA 6010B
Beryllium	ND	2.0	0.40	234207	04/18/16	05/04/16	EPA 6010B
Cadmium	ND	5.0	1.0	234207	04/18/16	05/04/16	EPA 6010B
Chromium	ND	5.0	1.0	234207	04/18/16	05/04/16	EPA 6010B
Cobalt	ND	5.0	1.0	234207	04/18/16	05/04/16	EPA 6010B
Copper	1.8 J	5.0	1.2	234207	04/18/16	05/04/16	EPA 6010B
Lead	ND	5.0	1.0	234207	04/18/16	05/04/16	EPA 6010B
Mercury	0.20 J	0.20	0.040	234349	04/22/16	04/22/16	EPA 7470A
Molybdenum	1.9 J	5.0	1.0	234207	04/18/16	05/04/16	EPA 6010B
Nickel	1.5 J	5.0	1.0	234207	04/18/16	05/04/16	EPA 6010B
Selenium	29	10	2.0	234207	04/18/16	05/04/16	EPA 6010B
Silver	4.0 J	5.0	1.0	234207	04/18/16	05/04/16	EPA 6010B
Thallium	ND	10	2.0	234207	04/18/16	05/05/16	EPA 6010B
Vanadium	ND	5.0	1.0	234207	04/18/16	05/04/16	EPA 6010B
Zinc	ND	20	4.0	234207	04/18/16	05/04/16	EPA 6010B

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Dissolved California Title 22 Metals

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225323.06		
Field ID:	20160407B450	Units:	ug/L
Lab ID:	275865-011	Sampled:	04/07/16
Matrix:	Filtrate	Received:	04/08/16

Analyte	Result	RL	MDL	Diln Fac	Batch#	Prepared	Analyzed	Analysis
Antimony	4.2 J	10	2.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Arsenic	ND	5.0	1.7	1.000	234207	04/18/16	05/04/16	EPA 6010B
Barium	56	5.0	1.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Beryllium	ND	2.0	0.40	1.000	234207	04/18/16	05/04/16	EPA 6010B
Cadmium	ND	5.0	1.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Chromium	ND	5.0	1.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Cobalt	ND	5.0	1.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Copper	1.8 J	5.0	1.2	1.000	234207	04/18/16	05/04/16	EPA 6010B
Lead	ND	5.0	1.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Mercury	ND	0.20	0.040	1.000	234349	04/22/16	04/22/16	EPA 7470A
Molybdenum	1.5 J	5.0	1.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Nickel	ND	5.0	1.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Selenium	ND	10	2.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Silver	1.9 J	5.0	1.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Thallium	ND	1.0	0.20	10.00	234207	04/18/16	05/05/16	EPA 6020
Vanadium	3.0 J	5.0	1.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Zinc	ND	20	4.0	1.000	234207	04/18/16	05/04/16	EPA 6010B

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Dissolved California Title 22 Metals

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225323.06		
Field ID:	20160407B150DUP	Units:	ug/L
Lab ID:	275865-012	Sampled:	04/07/16
Matrix:	Filtrate	Received:	04/08/16

Analyte	Result	RL	MDL	Diln Fac	Batch#	Prepared	Analyzed	Analysis
Antimony	ND	10	2.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Arsenic	ND	5.0	1.7	1.000	234207	04/18/16	05/04/16	EPA 6010B
Barium	40	5.0	1.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Beryllium	ND	2.0	0.40	1.000	234207	04/18/16	05/04/16	EPA 6010B
Cadmium	ND	5.0	1.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Chromium	ND	5.0	1.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Cobalt	ND	5.0	1.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Copper	1.7 J	5.0	1.2	1.000	234207	04/18/16	05/04/16	EPA 6010B
Lead	ND	5.0	1.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Mercury	ND	0.20	0.040	1.000	234349	04/22/16	04/22/16	EPA 7470A
Molybdenum	ND	5.0	1.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Nickel	1.7 J	5.0	1.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Selenium	40	10	2.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Silver	1.9 J	5.0	1.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Thallium	ND	1.0	0.20	10.00	234207	04/18/16	05/05/16	EPA 6020
Vanadium	ND	5.0	1.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Zinc	ND	20	4.0	1.000	234207	04/18/16	05/04/16	EPA 6010B

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Dissolved California Title 22 Metals

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225323.06		
Field ID:	20160407ER	Diln Fac:	1.000
Lab ID:	275865-013	Sampled:	04/07/16
Matrix:	Filtrate	Received:	04/08/16
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Prepared	Analyzed	Analysis
Antimony	ND	10	2.0	234207	04/18/16	05/04/16	EPA 6010B
Arsenic	2.2 J	5.0	1.7	234207	04/18/16	05/04/16	EPA 6010B
Barium	1.1 J	5.0	1.0	234207	04/18/16	05/04/16	EPA 6010B
Beryllium	ND	2.0	0.40	234207	04/18/16	05/04/16	EPA 6010B
Cadmium	ND	5.0	1.0	234207	04/18/16	05/04/16	EPA 6010B
Chromium	ND	5.0	1.0	234207	04/18/16	05/04/16	EPA 6010B
Cobalt	ND	5.0	1.0	234207	04/18/16	05/04/16	EPA 6010B
Copper	3.4 J	5.0	1.2	234207	04/18/16	05/04/16	EPA 6010B
Lead	ND	5.0	1.0	234207	04/18/16	05/04/16	EPA 6010B
Mercury	ND	0.20	0.040	234349	04/22/16	04/22/16	EPA 7470A
Molybdenum	ND	5.0	1.0	234207	04/18/16	05/04/16	EPA 6010B
Nickel	ND	5.0	1.0	234207	04/18/16	05/04/16	EPA 6010B
Selenium	ND	10	2.0	234207	04/18/16	05/04/16	EPA 6010B
Silver	1.5 J	5.0	1.0	234207	04/18/16	05/04/16	EPA 6010B
Thallium	ND	10	2.0	234207	04/18/16	05/04/16	EPA 6010B
Vanadium	ND	5.0	1.0	234207	04/18/16	05/04/16	EPA 6010B
Zinc	4.8 J	20	4.0	234207	04/18/16	05/04/16	EPA 6010B

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Dissolved California Title 22 Metals

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225323.06		
Field ID:	20160408PZ11	Diln Fac:	1.000
Lab ID:	275865-015	Sampled:	04/08/16
Matrix:	Filtrate	Received:	04/08/16
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Prepared	Analyzed	Analysis
Antimony	ND	10	2.0	234207	04/18/16	05/05/16	EPA 6010B
Arsenic	ND	5.0	1.7	234207	04/18/16	05/04/16	EPA 6010B
Barium	16	5.0	1.0	234207	04/18/16	05/05/16	EPA 6010B
Beryllium	0.60 J	2.0	0.40	234207	04/18/16	05/05/16	EPA 6010B
Cadmium	6.2	5.0	1.0	234207	04/18/16	05/05/16	EPA 6010B
Chromium	4.3 J	5.0	1.0	234207	04/18/16	05/05/16	EPA 6010B
Cobalt	1.8 J	5.0	1.0	234207	04/18/16	05/05/16	EPA 6010B
Copper	200	5.0	1.5	234207	04/18/16	05/05/16	EPA 6010B
Lead	ND	5.0	1.0	234207	04/18/16	05/04/16	EPA 6010B
Mercury	ND	0.20	0.040	234428	04/25/16	04/25/16	EPA 7470A
Molybdenum	2.5 J	5.0	1.0	234207	04/18/16	05/05/16	EPA 6010B
Nickel	730	5.0	0.67	234207	04/18/16	05/05/16	EPA 6010B
Selenium	ND	10	3.1	234207	04/18/16	05/05/16	EPA 6010B
Silver	2.6 J	5.0	1.0	234207	04/18/16	05/05/16	EPA 6010B
Thallium	ND	10	2.0	234207	04/18/16	05/05/16	EPA 6010B
Vanadium	ND	5.0	1.0	234207	04/18/16	05/05/16	EPA 6010B
Zinc	3,500	20	4.0	234207	04/18/16	05/05/16	EPA 6010B

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Dissolved California Title 22 Metals

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225323.06		
Field ID:	20160408NRLF	Units:	ug/L
Lab ID:	275865-018	Sampled:	04/08/16
Matrix:	Filtrate	Received:	04/08/16

Analyte	Result	RL	MDL	Diln Fac	Batch#	Prepared	Analyzed	Analysis
Antimony	2.4 J	10	2.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Arsenic	6.7	5.0	1.7	1.000	234207	04/18/16	05/04/16	EPA 6010B
Barium	92	5.0	1.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Beryllium	ND	2.0	0.40	1.000	234207	04/18/16	05/04/16	EPA 6010B
Cadmium	ND	5.0	1.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Chromium	ND	5.0	1.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Cobalt	ND	5.0	1.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Copper	ND	5.0	1.2	1.000	234207	04/18/16	05/04/16	EPA 6010B
Lead	ND	5.0	1.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Mercury	ND	0.20	0.040	1.000	234428	04/25/16	04/25/16	EPA 7470A
Molybdenum	1.2 J	5.0	1.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Nickel	ND	5.0	1.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Selenium	9.8 J	10	2.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Silver	2.1 J	5.0	1.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Thallium	ND	1.0	0.20	10.00	234207	04/18/16	05/05/16	EPA 6020
Vanadium	ND	5.0	1.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Zinc	ND	20	4.0	1.000	234207	04/18/16	05/04/16	EPA 6010B

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Dissolved California Title 22 Metals

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225323.06		
Field ID:	20160408BULB1	Units:	ug/L
Lab ID:	275865-021	Sampled:	04/08/16
Matrix:	Filtrate	Received:	04/08/16

Analyte	Result	RL	MDL	Diln Fac	Batch#	Prepared	Analyzed	Analysis
Antimony	6.7 J	10	2.0	1.000	234207	04/18/16	05/05/16	EPA 6010B
Arsenic	15	5.0	1.7	1.000	234207	04/18/16	05/05/16	EPA 6010B
Barium	110	5.0	1.0	1.000	234207	04/18/16	05/05/16	EPA 6010B
Beryllium	1.1 J	2.0	0.40	1.000	234207	04/18/16	05/05/16	EPA 6010B
Cadmium	ND	5.0	1.0	1.000	234207	04/18/16	05/05/16	EPA 6010B
Chromium	ND	5.0	1.0	1.000	234207	04/18/16	05/05/16	EPA 6010B
Cobalt	ND	5.0	1.0	1.000	234207	04/18/16	05/05/16	EPA 6010B
Copper	ND	5.0	1.2	1.000	234207	04/18/16	05/05/16	EPA 6010B
Lead	ND	5.0	1.0	1.000	234207	04/18/16	05/05/16	EPA 6010B
Mercury	ND	0.20	0.040	1.000	234428	04/25/16	04/25/16	EPA 7470A
Molybdenum	4.3 J	5.0	1.0	1.000	234207	04/18/16	05/05/16	EPA 6010B
Nickel	1.7 J	5.0	1.0	1.000	234207	04/18/16	05/05/16	EPA 6010B
Selenium	15	10	2.0	1.000	234207	04/18/16	05/05/16	EPA 6010B
Silver	10	5.0	1.0	1.000	234207	04/18/16	05/05/16	EPA 6010B
Thallium	ND	1.0	0.20	10.00	234207	04/18/16	05/05/16	EPA 6020
Vanadium	ND	5.0	1.0	1.000	234207	04/18/16	05/05/16	EPA 6010B
Zinc	ND	20	4.0	1.000	234207	04/18/16	05/05/16	EPA 6010B

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Dissolved California Title 22 Metals

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225323.06		
Field ID:	20160408BULB2	Units:	ug/L
Lab ID:	275865-022	Sampled:	04/08/16
Matrix:	Filtrate	Received:	04/08/16

Analyte	Result	RL	MDL	Diln Fac	Batch#	Prepared	Analyzed	Analysis
Antimony	2.3 J	10	2.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Arsenic	ND	5.0	1.7	1.000	234207	04/18/16	05/04/16	EPA 6010B
Barium	350	5.0	1.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Beryllium	0.70 J	2.0	0.40	1.000	234207	04/18/16	05/04/16	EPA 6010B
Cadmium	ND	5.0	1.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Chromium	ND	5.0	1.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Cobalt	ND	5.0	1.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Copper	1.2 J	5.0	1.2	1.000	234207	04/18/16	05/04/16	EPA 6010B
Lead	ND	5.0	1.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Mercury	ND	0.20	0.040	1.000	234428	04/25/16	04/25/16	EPA 7470A
Molybdenum	5.9	5.0	1.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Nickel	10	5.0	1.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Selenium	16	10	2.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Silver	4.1 J	5.0	1.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Thallium	ND	1.0	0.20	10.00	234207	04/18/16	05/05/16	EPA 6020
Vanadium	3.2 J	5.0	1.0	1.000	234207	04/18/16	05/04/16	EPA 6010B
Zinc	ND	20	4.0	1.000	234207	04/18/16	05/04/16	EPA 6010B

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Dissolved California Title 22 Metals

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225323.06		
Field ID:	20160408DHR	Diln Fac:	1.000
Lab ID:	275865-024	Sampled:	04/08/16
Matrix:	Filtrate	Received:	04/08/16
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Prepared	Analyzed	Analysis
Antimony	ND	10	2.0	234207	04/18/16	05/05/16	EPA 6010B
Arsenic	ND	5.0	1.7	234207	04/18/16	05/04/16	EPA 6010B
Barium	82	5.0	1.0	234207	04/18/16	05/05/16	EPA 6010B
Beryllium	ND	2.0	0.40	234207	04/18/16	05/05/16	EPA 6010B
Cadmium	ND	5.0	1.0	234207	04/18/16	05/05/16	EPA 6010B
Chromium	11	5.0	1.0	234207	04/18/16	05/05/16	EPA 6010B
Cobalt	9.7	5.0	1.0	234207	04/18/16	05/05/16	EPA 6010B
Copper	ND	5.0	1.5	234207	04/18/16	05/05/16	EPA 6010B
Lead	ND	5.0	1.2	234207	04/18/16	05/05/16	EPA 6010B
Mercury	ND	0.20	0.040	234428	04/25/16	04/25/16	EPA 7470A
Molybdenum	1.1 J	5.0	1.0	234207	04/18/16	05/05/16	EPA 6010B
Nickel	770	5.0	0.67	234207	04/18/16	05/05/16	EPA 6010B
Selenium	14	10	3.1	234207	04/18/16	05/05/16	EPA 6010B
Silver	4.2 J	5.0	1.0	234207	04/18/16	05/05/16	EPA 6010B
Thallium	ND	10	2.0	234207	04/18/16	05/05/16	EPA 6010B
Vanadium	ND	5.0	1.0	234207	04/18/16	05/05/16	EPA 6010B
Zinc	17 J	20	4.0	234207	04/18/16	05/05/16	EPA 6010B

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Dissolved California Title 22 Metals

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225323.06		
Field ID:	20160408ER	Diln Fac:	1.000
Lab ID:	275865-027	Sampled:	04/08/16
Matrix:	Filtrate	Received:	04/08/16
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Prepared	Analyzed	Analysis
Antimony	ND	10	2.0	234207	04/18/16	05/05/16	EPA 6010B
Arsenic	1.8 J	5.0	1.7	234207	04/18/16	05/04/16	EPA 6010B
Barium	1.1 J	5.0	1.0	234207	04/18/16	05/05/16	EPA 6010B
Beryllium	ND	2.0	0.40	234207	04/18/16	05/05/16	EPA 6010B
Cadmium	ND	5.0	1.0	234207	04/18/16	05/05/16	EPA 6010B
Chromium	ND	5.0	1.0	234207	04/18/16	05/05/16	EPA 6010B
Cobalt	ND	5.0	1.0	234207	04/18/16	05/05/16	EPA 6010B
Copper	ND	5.0	1.5	234207	04/18/16	05/05/16	EPA 6010B
Lead	1.6 J	5.0	1.2	234207	04/18/16	05/05/16	EPA 6010B
Mercury	ND	0.20	0.040	234428	04/25/16	04/25/16	EPA 7470A
Molybdenum	ND	5.0	1.0	234207	04/18/16	05/05/16	EPA 6010B
Nickel	ND	5.0	0.67	234207	04/18/16	05/05/16	EPA 6010B
Selenium	ND	10	3.1	234207	04/18/16	05/05/16	EPA 6010B
Silver	2.2 J	5.0	1.0	234207	04/18/16	05/05/16	EPA 6010B
Thallium	ND	10	2.0	234207	04/18/16	05/05/16	EPA 6010B
Vanadium	ND	5.0	1.0	234207	04/18/16	05/05/16	EPA 6010B
Zinc	13 J	20	4.0	234207	04/18/16	05/05/16	EPA 6010B

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225323.06		
Type:	BLANK	Units:	ug/L
Lab ID:	QC832023	Batch#:	234207
Matrix:	Filtrate	Prepared:	04/18/16

Analyte	Result	RL	MDL	Diln Fac	Analyzed	Analysis
Antimony	ND	10	2.0	1.000	05/04/16	EPA 6010B
Arsenic	ND	5.0	1.7	1.000	05/04/16	EPA 6010B
Barium	ND	5.0	1.0	1.000	05/04/16	EPA 6010B
Beryllium	ND	2.0	0.40	1.000	05/04/16	EPA 6010B
Cadmium	ND	5.0	1.0	1.000	05/04/16	EPA 6010B
Chromium	ND	5.0	1.0	1.000	05/04/16	EPA 6010B
Cobalt	ND	5.0	1.0	1.000	05/04/16	EPA 6010B
Copper	1.8 J	5.0	1.2	1.000	05/04/16	EPA 6010B
Lead	ND	5.0	1.0	1.000	05/04/16	EPA 6010B
Molybdenum	ND	5.0	1.0	1.000	05/04/16	EPA 6010B
Nickel	ND	5.0	1.0	1.000	05/04/16	EPA 6010B
Selenium	ND	10	2.0	1.000	05/04/16	EPA 6010B
Silver	ND	5.0	1.0	1.000	05/04/16	EPA 6010B
Thallium	ND	10	2.0	1.000	05/04/16	EPA 6010B
Thallium	ND	1.0	0.20	10.00	05/05/16	EPA 6020
Vanadium	ND	5.0	1.0	1.000	05/04/16	EPA 6010B
Zinc	ND	20	4.0	1.000	05/04/16	EPA 6010B

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225323.06		
Matrix:	Filtrate	Batch#:	234207
Units:	ug/L	Prepared:	04/18/16

Type: BS Lab ID: QC832024

Analyte	Spiked	Result	%REC	Limits	Dil'n Fac	Analyzed	Analysis
Antimony	100.0	104.5	104	79-120	1.000	05/04/16	EPA 6010B
Arsenic	100.0	104.2	104	80-120	1.000	05/04/16	EPA 6010B
Barium	100.0	99.10	99	80-120	1.000	05/04/16	EPA 6010B
Beryllium	100.0	99.42	99	80-120	1.000	05/04/16	EPA 6010B
Cadmium	100.0	104.5	105	80-120	1.000	05/04/16	EPA 6010B
Chromium	100.0	98.26	98	80-120	1.000	05/04/16	EPA 6010B
Cobalt	100.0	88.87	89	80-120	1.000	05/03/16	EPA 6010B
Copper	100.0	95.63	96	80-120	1.000	05/04/16	EPA 6010B
Lead	100.0	93.29	93	80-120	1.000	05/04/16	EPA 6010B
Molybdenum	100.0	100.1	100	80-120	1.000	05/04/16	EPA 6010B
Nickel	100.0	98.40	98	80-120	1.000	05/04/16	EPA 6010B
Selenium	100.0	105.9	106	80-120	1.000	05/04/16	EPA 6010B
Silver	100.0	98.14	98	77-120	1.000	05/04/16	EPA 6010B
Thallium	50.00	52.98	106	80-121	1.000	05/04/16	EPA 6010B
Thallium	50.00	47.09	94	80-120	10.00	05/05/16	EPA 6020
Vanadium	100.0	97.86	98	80-120	1.000	05/04/16	EPA 6010B
Zinc	100.0	97.70	98	80-120	1.000	05/04/16	EPA 6010B

Type: BSD Lab ID: QC832034

Analyte	Spiked	Result	%REC	Limits	RPD	Lim	Dil'n Fac	Analyzed	Analysis
Antimony	100.0	107.3	107	79-120	3	20	1.000	05/04/16	EPA 6010B
Arsenic	100.0	105.5	106	80-120	1	20	1.000	05/04/16	EPA 6010B
Barium	100.0	99.86	100	80-120	1	20	1.000	05/04/16	EPA 6010B
Beryllium	100.0	99.60	100	80-120	0	20	1.000	05/04/16	EPA 6010B
Cadmium	100.0	106.3	106	80-120	2	20	1.000	05/04/16	EPA 6010B
Chromium	100.0	98.55	99	80-120	0	20	1.000	05/04/16	EPA 6010B
Cobalt	100.0	84.33	84	80-120	5	20	1.000	05/03/16	EPA 6010B
Copper	100.0	96.48	96	80-120	1	20	1.000	05/04/16	EPA 6010B
Lead	100.0	93.54	94	80-120	0	20	1.000	05/04/16	EPA 6010B
Molybdenum	100.0	101.2	101	80-120	1	20	1.000	05/04/16	EPA 6010B
Nickel	100.0	97.44	97	80-120	1	20	1.000	05/04/16	EPA 6010B
Selenium	100.0	107.5	108	80-120	2	20	1.000	05/04/16	EPA 6010B
Silver	100.0	101.7	102	77-120	4	20	1.000	05/04/16	EPA 6010B
Thallium	50.00	55.78	112	80-121	5	20	1.000	05/04/16	EPA 6010B
Thallium	50.00	48.99	98	80-120	4	20	10.00	05/05/16	EPA 6020
Vanadium	100.0	98.92	99	80-120	1	20	1.000	05/04/16	EPA 6010B
Zinc	100.0	98.69	99	80-120	1	20	1.000	05/04/16	EPA 6010B

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225323.06		
Field ID:	20160407B450	Batch#:	234207
MSS Lab ID:	275865-011	Sampled:	04/07/16
Matrix:	Filtrate	Received:	04/08/16
Units:	ug/L	Prepared:	04/18/16

Type: MS Lab ID: QC832025

Analyte	MSS Result	Spiked	Result	%REC	Limits	Dln Fac	Analyzed	Analysis
Antimony	4.211	100.0	99.70	95	74-120	1.000	05/05/16	EPA 6010B
Arsenic	<1.657	100.0	106.7	107	80-127	1.000	05/04/16	EPA 6010B
Barium	56.18	100.0	158.8	103	80-120	1.000	05/05/16	EPA 6010B
Beryllium	<0.4000	100.0	103.3	103	80-120	1.000	05/05/16	EPA 6010B
Cadmium	<1.000	100.0	105.2	105	80-120	1.000	05/05/16	EPA 6010B
Chromium	<1.000	100.0	102.0	102	80-120	1.000	05/05/16	EPA 6010B
Cobalt	<1.000	100.0	98.80	99	80-120	1.000	05/05/16	EPA 6010B
Copper	1.783	100.0	99.85	98	80-120	1.000	05/05/16	EPA 6010B
Lead	<1.000	100.0	101.9	102	67-120	1.000	05/05/16	EPA 6010B
Molybdenum	1.479	100.0	103.2	102	80-120	1.000	05/05/16	EPA 6010B
Nickel	<1.000	100.0	100.6	101	80-120	1.000	05/05/16	EPA 6010B
Selenium	<2.000	100.0	108.1	108	73-132	1.000	05/05/16	EPA 6010B
Silver	1.908	100.0	104.0	102	67-120	1.000	05/05/16	EPA 6010B
Thallium	8.117	50.00	56.22	96	76-121	1.000	05/05/16	EPA 6010B
Thallium	<0.2004	50.00	47.77	96	80-120	10.00	05/05/16	EPA 6020
Vanadium	3.036	100.0	107.3	104	80-120	1.000	05/05/16	EPA 6010B
Zinc	<4.000	100.0	109.0	109	80-122	1.000	05/05/16	EPA 6010B

Type: MSD Lab ID: QC832026

Analyte	Spiked	Result	%REC	Limits	RPD	Lim	Dln Fac	Analyzed	Analysis
Antimony	100.0	102.9	99	74-120	3	24	1.000	05/05/16	EPA 6010B
Arsenic	100.0	104.9	105	80-127	2	25	1.000	05/04/16	EPA 6010B
Barium	100.0	159.1	103	80-120	0	20	1.000	05/05/16	EPA 6010B
Beryllium	100.0	104.5	104	80-120	1	20	1.000	05/05/16	EPA 6010B
Cadmium	100.0	105.2	105	80-120	0	20	1.000	05/05/16	EPA 6010B
Chromium	100.0	100.7	101	80-120	1	20	1.000	05/05/16	EPA 6010B
Cobalt	100.0	99.77	100	80-120	1	20	1.000	05/05/16	EPA 6010B
Copper	100.0	101.5	100	80-120	2	20	1.000	05/05/16	EPA 6010B
Lead	100.0	101.3	101	67-120	1	23	1.000	05/05/16	EPA 6010B
Molybdenum	100.0	102.9	101	80-120	0	20	1.000	05/05/16	EPA 6010B
Nickel	100.0	100.3	100	80-120	0	20	1.000	05/05/16	EPA 6010B
Selenium	100.0	96.66	97	73-132	11	30	1.000	05/05/16	EPA 6010B
Silver	100.0	104.6	103	67-120	1	22	1.000	05/05/16	EPA 6010B
Thallium	50.00	46.46	77	76-121	19	20	1.000	05/05/16	EPA 6010B
Thallium	50.00	48.31	97	80-120	1	20	10.00	05/05/16	EPA 6020
Vanadium	100.0	107.7	105	80-120	0	20	1.000	05/05/16	EPA 6010B
Zinc	100.0	109.7	110	80-122	1	20	1.000	05/05/16	EPA 6010B

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225323.06	Analysis:	EPA 6010B
Field ID:	20160408PZ11	Batch#:	234207
MSS Lab ID:	275865-015	Sampled:	04/08/16
Matrix:	Filtrate	Received:	04/08/16
Units:	ug/L	Prepared:	04/18/16
Diln Fac:	1.000		

Type: MS Lab ID: QC832027

Analyte	MSS Result	Spiked	Result	%REC	Limits	Analyzed
Antimony	<2.000	100.0	109.8	110	74-120	05/05/16
Arsenic	<1.657	100.0	97.55	98	80-127	05/04/16
Barium	16.42	100.0	117.4	101	80-120	05/05/16
Beryllium	0.6030	100.0	104.1	103	80-120	05/05/16
Cadmium	6.231	100.0	109.5	103	80-120	05/05/16
Chromium	4.294	100.0	101.8	98	80-120	05/05/16
Cobalt	1.791	100.0	99.83	98	80-120	05/05/16
Copper	197.9	100.0	292.9	95	80-120	05/05/16
Lead	<1.000	100.0	103.1	103	67-120	05/05/16
Molybdenum	2.472	100.0	102.2	100	80-120	05/05/16
Nickel	726.2	100.0	807.0	81 NM	80-120	05/05/16
Selenium	<3.146	100.0	105.6	106	73-132	05/05/16
Silver	2.569	100.0	106.6	104	67-120	05/05/16
Thallium	<2.000	50.00	50.49	101	76-121	05/05/16
Thallium		NA				
Vanadium	<1.000	100.0	99.72	100	80-120	05/05/16
Zinc	3,476	100.0	3,481	4 NM	80-122	05/05/16

Type: MSD Lab ID: QC832028

Analyte	Spiked	Result	%REC	Limits	RPD	Lim	Analyzed
Antimony	100.0	105.9	106	74-120	4	24	05/05/16
Arsenic	100.0	99.16	99	80-127	2	25	05/04/16
Barium	100.0	116.9	100	80-120	0	20	05/05/16
Beryllium	100.0	103.5	103	80-120	1	20	05/05/16
Cadmium	100.0	108.9	103	80-120	1	20	05/05/16
Chromium	100.0	103.7	99	80-120	2	20	05/05/16
Cobalt	100.0	98.38	97	80-120	1	20	05/05/16
Copper	100.0	288.9	91	80-120	1	20	05/05/16
Lead	100.0	100.0	100	67-120	3	23	05/05/16
Molybdenum	100.0	100.9	98	80-120	1	20	05/05/16
Nickel	100.0	787.7	61 NM	80-120	2	20	05/05/16
Selenium	100.0	108.6	109	73-132	3	30	05/05/16
Silver	100.0	106.4	104	67-120	0	22	05/05/16
Thallium	50.00	44.51	89	76-121	13	20	05/05/16
Thallium	NA						
Vanadium	100.0	99.45	99	80-120	0	20	05/05/16
Zinc	100.0	3,381	-96 NM	80-122	3	20	05/05/16

NA= Not Analyzed
NM= Not Meaningful: Sample concentration > 4X spike concentration
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225323.06	Analysis:	EPA 6010B
Field ID:	20160408PZ11	Diln Fac:	5.000
Type:	Serial Dilution	Batch#:	234207
MSS Lab ID:	275865-015	Sampled:	04/08/16
Lab ID:	QC832029	Received:	04/08/16
Matrix:	Filtrate	Analyzed:	05/04/16
Units:	ug/L		

Analyte	MSS Result	MSS RL	Result	RL	% Diff	Lim
Antimony	ND	10.00	ND	50.00	NC	10
Arsenic	ND	5.000	ND	25.00	NC	10
Barium	16.42	5.000	17.81 J	25.00	NC	10
Beryllium	0.6030	2.000	ND	10.00	NC	10
Cadmium	6.231	5.000	5.137 J	25.00	NC	10
Chromium	4.294	5.000	ND	25.00	NC	10
Cobalt	1.791	5.000	ND	25.00	NC	10
Copper	197.9	5.000	213.8	25.00	8	10
Lead	ND	5.000	7.492 J	25.00	NC	10
Molybdenum	2.472	5.000	ND	25.00	NC	10
Nickel	726.2	5.000	747.7	25.00	3	10
Selenium	ND	10.00	17.34 J	50.00	NC	10
Silver	2.569	5.000	ND	25.00	NC	10
Thallium	ND	10.00	26.10 J	50.00	NC	10
Thallium			NA			
Vanadium	ND	5.000	ND	25.00	NC	10
Zinc	3,476	20.00	3,567	100.0	3	10

J= Estimated value
NA= Not Analyzed
NC= Not Calculated
ND= Not Detected at or above MDL
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225323.06	Analysis:	EPA 6010B
Field ID:	20160408PZ11	Units:	ug/L
Type:	Post Digest Spike	Diln Fac:	1.000
MSS Lab ID:	275865-015	Batch#:	234207
Lab ID:	QC832030	Sampled:	04/08/16
Matrix:	Filtrate	Received:	04/08/16

Analyte	MSS Result	Spiked	Result	%REC	Limits	Analyzed
Antimony	<2.000	100.0	98.64	99	75-125	05/05/16
Arsenic	<1.657	100.0	93.76	94	75-125	05/04/16
Barium	16.42	100.0	115.2	99	75-125	05/05/16
Beryllium	0.6030	100.0	101.0	100	75-125	05/05/16
Cadmium	6.231	100.0	106.6	100	75-125	05/05/16
Chromium	4.294	100.0	101.4	97	75-125	05/05/16
Cobalt	1.791	100.0	96.85	95	75-125	05/05/16
Copper	197.9	100.0	281.5	84	75-125	05/05/16
Lead	<1.000	100.0	110.0	110	75-125	05/05/16
Molybdenum	2.472	100.0	97.28	95	75-125	05/05/16
Nickel	726.2	100.0	774.4	48 NM	75-125	05/05/16
Selenium	<3.146	100.0	94.47	94	75-125	05/05/16
Silver	2.569	100.0	107.5	105	75-125	05/05/16
Thallium	<2.000	50.00	41.68	83	75-125	05/05/16
Thallium		NA				
Vanadium	<1.000	100.0	98.65	99	75-125	05/05/16
Zinc	3,476	100.0	3,317	-159 NM	75-125	05/05/16

NA= Not Analyzed
NM= Not Meaningful: Sample concentration > 4X spike concentration

Batch QC Report

Dissolved California Title 22 Metals			
Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225323.06	Analysis:	EPA 7470A
Analyte:	Mercury	Diln Fac:	1.000
Type:	BLANK	Batch#:	234349
Lab ID:	QC832617	Prepared:	04/22/16
Matrix:	Filtrate	Analyzed:	04/22/16
Units:	ug/L		

Result	RL	MDL
ND	0.20	0.040

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225323.06	Analysis:	EPA 7470A
Analyte:	Mercury	Batch#:	234349
Matrix:	Filtrate	Prepared:	04/22/16
Units:	ug/L	Analyzed:	04/22/16
Diln Fac:	1.000		

Type	Lab ID	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC832618	2.500	2.683	107	80-120		
BSD	QC832619	2.500	2.735	109	80-120	2	24

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225323.06	Analysis:	EPA 7470A
Analyte:	Mercury	Batch#:	234349
Field ID:	20160407B450	Sampled:	04/07/16
MSS Lab ID:	275865-011	Received:	04/08/16
Matrix:	Filtrate	Prepared:	04/22/16
Units:	ug/L	Analyzed:	04/22/16
Diln Fac:	1.000		

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
MS	QC832620	<0.04000	2.500	2.735	109	60-130		
MSD	QC832621		2.500	2.735	109	60-130	0	34

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225323.06	Analysis:	EPA 7470A
Analyte:	Mercury	Units:	ug/L
Field ID:	20160407B450	Diln Fac:	5.000
Type:	Serial Dilution	Batch#:	234349
MSS Lab ID:	275865-011	Sampled:	04/07/16
Lab ID:	QC832622	Received:	04/08/16
Matrix:	Filtrate	Analyzed:	04/22/16

MSS Result	MSS RL	Result	RL	% Diff	Lim
ND	0.2000	ND	1.000	NC	10

NC= Not Calculated
ND= Not Detected at or above MDL
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225323.06	Analysis:	EPA 7470A
Analyte:	Mercury	Batch#:	234428
Units:	ug/L	Prepared:	04/25/16
Diln Fac:	1.000	Analyzed:	04/25/16

Type	Lab ID	Matrix	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC832921	Water	2.500	2.665	107	80-120		
BSD	QC832922	Filtrate	2.500	2.895	116	80-120	8	24

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225323.06	Analysis:	EPA 7470A
Analyte:	Mercury	Batch#:	234428
Field ID:	20160408PZ11	Sampled:	04/08/16
MSS Lab ID:	275865-015	Received:	04/08/16
Matrix:	Filtrate	Prepared:	04/25/16
Units:	ug/L	Analyzed:	04/25/16
Diln Fac:	1.000		

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
MS	QC832923	<0.04000	2.500	2.750	110	60-130		
MSD	QC832924		2.500	2.676	107	60-130	3	34

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225323.06	Analysis:	EPA 7470A
Analyte:	Mercury	Units:	ug/L
Field ID:	20160408PZ11	Diln Fac:	5.000
Type:	Serial Dilution	Batch#:	234428
MSS Lab ID:	275865-015	Sampled:	04/08/16
Lab ID:	QC832925	Received:	04/08/16
Matrix:	Filtrate	Analyzed:	04/25/16

MSS Result	MSS RL	Result	RL	% Diff	Lim
ND	0.2000	ND	1.000	NC	10

NC= Not Calculated
ND= Not Detected at or above MDL
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	275865	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225323.06	Analysis:	EPA 7470A
Analyte:	Mercury	Diln Fac:	1.000
Type:	BLANK	Batch#:	234428
Lab ID:	QC832943	Prepared:	04/25/16
Matrix:	Filtrate	Analyzed:	04/25/16
Units:	ug/L		

Result	RL	MDL
ND	0.20	0.040

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

REPORTING SUMMARY FOR 275865 METALS Filtrate
Curtis & Tompkins Laboratories

Lab ID	Inst ID	Analyzed	IDF	SB	AS	BA	BE	CD	CR	CO	CU	PB	HG	MO	NI	SE	AG	TL	V	ZN
275865-004	MET54	04/22/16 13:12	1.0										+							
275865-004	MET09	05/04/16 00:05	5.0																	
275865-004	MET09	05/04/16 16:18	1.0	+	+	+	+	+	+	+	+	+		+	+	+	+		+	+
275865-004	MET26	05/05/16 20:42	10.0															+		
275865-005	MET54	04/22/16 13:13	1.0										+							
275865-005	MET09	05/04/16 00:11	5.0																	
275865-005	MET09	05/04/16 16:32	1.0		+															
275865-005	MET08	05/05/16 13:42	1.0	+		+	+	+	+	+	+	+		+	+	+	+		+	+
275865-005	MET26	05/05/16 20:47	10.0															+		
275865-006	MET54	04/22/16 13:14	1.0										+							
275865-006	MET09	05/04/16 00:28	5.0																	
275865-006	MET09	05/04/16 16:37	1.0	+	+	+	+	+	+	+	+	+		+	+	+	+		+	+
275865-006	MET26	05/05/16 20:52	10.0															+		
275865-008	MET54	04/22/16 13:18	1.0										+							
275865-008	MET09	05/04/16 00:33	5.0																	
275865-008	MET09	05/04/16 16:47	1.0	+	+	+	+	+	+	+	+	+		+	+	+	+		+	+
275865-008	MET08	05/05/16 13:45	1.0															+		
275865-011	MET54	04/22/16 13:07	1.0										+							
275865-011	MET09	05/03/16 23:29	5.0																	
275865-011	MET09	05/04/16 15:29	1.0	+	+	+	+	+	+	+	+	+		+	+	+	+		+	+
275865-011	MET26	05/05/16 20:57	10.0															+		
275865-012	MET54	04/22/16 13:19	1.0										+							
275865-012	MET09	05/04/16 00:38	5.0																	
275865-012	MET09	05/04/16 16:51	1.0	+	+	+	+	+	+	+	+	+		+	+	+	+		+	+
275865-012	MET26	05/05/16 21:11	10.0															+		
275865-013	MET54	04/22/16 13:20	1.0										+							
275865-013	MET09	05/04/16 00:43	5.0																	
275865-013	MET09	05/04/16 16:56	1.0	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
275865-015	MET54	04/25/16 18:29	1.0										+							
275865-015	MET09	05/03/16 23:34	5.0																	
275865-015	MET09	05/04/16 15:34	1.0		+							+								
275865-015	MET09	05/04/16 18:45	1.0																	
275865-015	MET08	05/05/16 13:52	1.0	+		+	+	+	+	+	+			+	+	+	+	+	+	+
275865-018	MET54	04/25/16 18:39	1.0										+							
275865-018	MET09	05/04/16 00:49	5.0																	
275865-018	MET09	05/04/16 17:02	1.0	+	+	+	+	+	+	+	+	+		+	+	+	+		+	+
275865-018	MET09	05/04/16 18:41	1.0																	
275865-018	MET26	05/05/16 21:37	10.0															+		
275865-021	MET54	04/25/16 18:40	1.0										+							
275865-021	MET09	05/04/16 00:53	5.0																	
275865-021	MET09	05/04/16 17:18	1.0																	
275865-021	MET09	05/04/16 18:33	1.0																	
275865-021	MET09	05/05/16 15:45	1.0	+	+	+	+	+	+	+	+	+		+	+	+	+		+	+
275865-021	MET26	05/05/16 16:07	10.0															+		

REPORTING SUMMARY FOR 275865 METALS Filtrate
Curtis & Tompkins Laboratories

Lab ID	Inst ID	Analyzed	IDF	SB	AS	BA	BE	CD	CR	CO	CU	PB	HG	MO	NI	SE	AG	TL	V	ZN
275865-022	MET54	04/25/16 18:41	1.0										+							
275865-022	MET09	05/04/16 01:01	5.0																	
275865-022	MET09	05/04/16 17:26	1.0	+	+	+	+	+	+	+	+	+		+	+	+	+		+	+
275865-022	MET08	05/05/16 16:40	1.0																	
275865-022	MET26	05/05/16 21:47	10.0															+		
275865-024	MET54	04/25/16 18:43	1.0										+							
275865-024	MET09	05/04/16 01:06	5.0																	
275865-024	MET09	05/04/16 17:33	1.0		+															
275865-024	MET08	05/05/16 13:46	1.0	+		+	+	+	+	+	+	+		+	+	+	+	+	+	+
275865-027	MET54	04/25/16 18:44	1.0										+							
275865-027	MET09	05/04/16 01:10	5.0																	
275865-027	MET09	05/04/16 18:28	1.0		+															
275865-027	MET08	05/05/16 13:48	1.0	+		+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC832023	MET09	05/03/16 23:03	1.0																	
QC832023	MET09	05/04/16 15:15	1.0	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC832023	MET26	05/05/16 15:52	10.0																	
QC832023	MET26	05/05/16 16:24	10.0															+		
QC832024	MET09	05/03/16 23:08	1.0							+										
QC832024	MET09	05/04/16 15:21	1.0	+	+	+	+	+	+		+	+		+	+	+	+	+	+	+
QC832024	MET26	05/05/16 15:57	10.0															+		
QC832025	MET09	05/03/16 23:39	5.0																	
QC832025	MET09	05/04/16 15:40	1.0		+															
QC832025	MET08	05/05/16 13:59	1.0	+		+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC832025	MET26	05/05/16 21:02	10.0															+		
QC832026	MET09	05/03/16 23:43	5.0																	
QC832026	MET09	05/04/16 15:44	1.0		+															
QC832026	MET08	05/05/16 14:02	1.0	+		+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC832026	MET26	05/05/16 21:07	10.0															+		
QC832027	MET09	05/03/16 23:48	5.0																	
QC832027	MET09	05/04/16 15:48	1.0		+															
QC832027	MET08	05/05/16 14:04	1.0	+		+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC832028	MET09	05/03/16 23:52	5.0																	
QC832028	MET09	05/04/16 15:52	1.0		+															
QC832028	MET08	05/05/16 14:05	1.0	+		+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC832029	MET09	05/03/16 23:56	25.0																	
QC832029	MET09	05/04/16 15:57	5.0	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC832030	MET09	05/04/16 00:01	5.0																	
QC832030	MET09	05/04/16 16:14	1.0		+															
QC832030	MET08	05/05/16 14:07	1.0	+		+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC832034	MET09	05/03/16 23:13	1.0							+										
QC832034	MET09	05/04/16 15:25	1.0	+	+	+	+	+	+		+	+		+	+	+	+	+	+	+

REPORTING SUMMARY FOR 275865 METALS Filtrate
Curtis & Tompkins Laboratories

Lab ID	Inst ID	Analyzed	IDF	SB	AS	BA	BE	CD	CR	CO	CU	PB	HG	MO	NI	SE	AG	TL	V	ZN
QC832034	MET26	05/05/16 16:02	10.0															+		
QC832617	MET54	04/22/16 13:03	1.0										+							
QC832618	MET54	04/22/16 13:04	1.0										+							
QC832619	MET54	04/22/16 13:06	1.0										+							
QC832620	MET54	04/22/16 13:08	1.0										+							
QC832621	MET54	04/22/16 13:09	1.0										+							
QC832622	MET54	04/22/16 13:11	5.0										+							
QC832623	MET54	04/22/16 13:33	1.0										+							
QC832920	MET54	04/25/16 18:25	1.0										+							
QC832921	MET54	04/25/16 18:27	1.0										+							
QC832922	MET54	04/25/16 18:28	1.0										+							
QC832923	MET54	04/25/16 18:30	1.0										+							
QC832924	MET54	04/25/16 18:32	1.0										+							
QC832925	MET54	04/25/16 18:33	5.0										+							
QC832943	MET54	04/25/16 18:34	1.0										+							

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 96179108

Instrument : MET09
Method : EPA 6010B

Begun : 05/03/16 09:08
SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met09_sn_2016	ICALBLK				05/03/16 09:08	1.0		
002	met09_sn_2016	ICAL	L1			05/03/16 09:13	1.0	1	
003	met09_sn_2016	ICAL	L2			05/03/16 09:18	1.0	2	
004	met09_sn_2016	ICAL	L3			05/03/16 09:22	1.0	3	
005	met09_sn_2016	ICAL	L4			05/03/16 09:26	1.0	4	
006	met09_sn_2016	ICAL	L5			05/03/16 09:33	1.0	5	
007	met09_sn_2016	ICV				05/03/16 09:40	1.0	6	
008	met09_sn_2016	XCRI				05/03/16 09:45	1.0	7	
009	met09_sn_2016	CRI				05/03/16 09:50	1.0	7	
010	met09_sn_2016	ICB				05/03/16 09:57	1.0		
011	met09_sn_2016	ICSA				05/03/16 10:02	1.0	8	10:AL=520000
012	met09_sn_2016	ICSAB				05/03/16 10:39	1.0	9	5:AL=530000
013	met09_sn_2016	BLANK	QC833911	Wipe	234676	05/03/16 10:58	1.0		
014	met09_sn_2016	BS	QC833912	Wipe	234676	05/03/16 11:03	1.0		
015	met09_sn_2016	BSD	QC833913	Wipe	234676	05/03/16 11:07	1.0		
016	met09_sn_2016	SAMPLE	276314-001	Wipe	234676	05/03/16 11:11	1.0		
017	met09_sn_2016	SAMPLE	276315-001	Wipe	234676	05/03/16 11:16	1.0		
018	met09_sn_2016	SAMPLE	276316-001	Wipe	234676	05/03/16 11:21	1.0		
019	met09_sn_2016	SAMPLE	276317-001	Wipe	234676	05/03/16 11:27	1.0		
020	met09_sn_2016	SAMPLE	276318-001	Wipe	234676	05/03/16 11:32	1.0		
021	met09_sn_2016	SAMPLE	276320-001	Wipe	234676	05/03/16 11:37	1.0		
022	met09_sn_2016	SAMPLE	276321-001	Wipe	234676	05/03/16 11:42	1.0		
023	met09_sn_2016	CCV				05/03/16 11:47	1.0	10	
024	met09_sn_2016	CCB				05/03/16 11:54	1.0		
025	met09_sn_2016	SAMPLE	276322-001	Wipe	234676	05/03/16 11:59	1.0		
026	met09_sn_2016	SAMPLE	276323-001	Wipe	234676	05/03/16 12:04	1.0		
027	met09_sn_2016	SAMPLE	276324-001	Wipe	234676	05/03/16 12:10	1.0		
028	met09_sn_2016	SAMPLE	276325-001	Wipe	234676	05/03/16 12:15	1.0		
029	met09_sn_2016	SAMPLE	276331-001	Wipe	234676	05/03/16 12:20	1.0		
030	met09_sn_2016	SAMPLE	276332-001	Wipe	234676	05/03/16 12:25	1.0		
031	met09_sn_2016	SAMPLE	276334-001	Wipe	234676	05/03/16 12:30	1.0		
032	met09_sn_2016	SAMPLE	276335-001	Wipe	234676	05/03/16 12:35	1.0		
033	met09_sn_2016	SAMPLE	276336-001	Wipe	234676	05/03/16 12:40	1.0		
034	met09_sn_2016	SAMPLE	276337-001	Wipe	234676	05/03/16 12:45	1.0		
035	met09_sn_2016	CCV				05/03/16 12:51	1.0	10	
036	met09_sn_2016	CCB				05/03/16 12:57	1.0		
037	met09_sn_2016	SAMPLE	276338-001	Wipe	234676	05/03/16 13:06	1.0		
038	met09_sn_2016	SAMPLE	276339-001	Wipe	234676	05/03/16 13:11	1.0		
039	met09_sn_2016	BLANK	QC833914	Miscell.	234677	05/03/16 13:16	1.0		
040	met09_sn_2016	BS	QC833915	Miscell.	234677	05/03/16 13:21	5.0		1:SR=2000
041	met09_sn_2016	BSD	QC833916	Miscell.	234677	05/03/16 13:26	5.0		1:SR=2100
042	met09_sn_2016	SAMPLE	276314-001	Miscell.	234677	05/03/16 13:30	5.0		
043	met09_sn_2016	SAMPLE	276518-008	Soil	234679	05/03/16 13:34	1.0		5:FE=470000
044	met09_sn_2016	SAMPLE	276518-007	Soil	234679	05/03/16 13:42	1.0		6:FE=540000
045	met09_sn_2016	SAMPLE	276518-006	Soil	234679	05/03/16 13:49	1.0		6:FE=530000
046	met09_sn_2016	SAMPLE	276518-005	Soil	234679	05/03/16 13:57	1.0		5:FE=450000
047	met09_sn_2016	CCV				05/03/16 14:05	1.0	10	
048	met09_sn_2016	CCB				05/03/16 14:12	1.0		
049	met09_sn_2016	SAMPLE	276318-001	Miscell.	234677	05/03/16 14:17	5.0		
050	met09_sn_2016	SAMPLE	276320-001	Miscell.	234677	05/03/16 14:22	5.0		
051	met09_sn_2016	SAMPLE	276321-001	Miscell.	234677	05/03/16 14:27	5.0		
052	met09_sn_2016	SAMPLE	276322-001	Miscell.	234677	05/03/16 14:32	5.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 96179108

Instrument : MET09
Method : EPA 6010B
Begun : 05/03/16 09:08
SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met09_sn_2016	SAMPLE	276323-001	Miscell.	234677	05/03/16 14:37	5.0		
054	met09_sn_2016	SAMPLE	276324-001	Miscell.	234677	05/03/16 14:42	5.0		
055	met09_sn_2016	SAMPLE	276325-001	Miscell.	234677	05/03/16 14:46	5.0		
056	met09_sn_2016	SAMPLE	276326-001	Miscell.	234677	05/03/16 14:51	5.0		
057	met09_sn_2016	SAMPLE	276327-001	Miscell.	234677	05/03/16 14:56	5.0		
058	met09_sn_2016	SAMPLE	276328-001	Miscell.	234677	05/03/16 15:00	5.0		
059	met09_sn_2016	CCV				05/03/16 15:05	1.0	10	
060	met09_sn_2016	CCB				05/03/16 15:11	1.0		
061	met09_sn_2016	SAMPLE	276329-001	Miscell.	234677	05/03/16 15:17	5.0		
062	met09_sn_2016	SAMPLE	276330-001	Miscell.	234677	05/03/16 15:22	5.0		
063	met09_sn_2016	SAMPLE	276332-001	Miscell.	234677	05/03/16 15:27	5.0		
064	met09_sn_2016	SAMPLE	276333-001	Miscell.	234677	05/03/16 15:31	5.0		
065	met09_sn_2016	SAMPLE	276334-001	Miscell.	234677	05/03/16 15:36	5.0		
066	met09_sn_2016	SAMPLE	276335-001	Miscell.	234677	05/03/16 15:41	5.0		
067	met09_sn_2016	SAMPLE	276336-001	Miscell.	234677	05/03/16 15:46	5.0		
068	met09_sn_2016	SAMPLE	276337-001	Miscell.	234677	05/03/16 15:51	5.0		
069	met09_sn_2016	SAMPLE	276338-001	Miscell.	234677	05/03/16 15:55	5.0		
070	met09_sn_2016	BLANK	QC832639	Water	234355	05/03/16 16:00	1.0		
071	met09_sn_2016	CCV				05/03/16 16:05	1.0	10	
072	met09_sn_2016	CCB				05/03/16 16:12	1.0		
073	met09_sn_2016	BS	QC832640	Water	234355	05/03/16 16:17	1.0		
074	met09_sn_2016	BSD	QC832641	Water	234355	05/03/16 16:21	1.0		
075	met09_sn_2016	SAMPLE	276141-001	Water	234355	05/03/16 16:25	1.0		
076	met09_sn_2016	SAMPLE	276141-002	Water	234355	05/03/16 16:30	1.0		
077	met09_sn_2016	SAMPLE	276141-003	Water	234355	05/03/16 16:35	1.0		
078	met09_sn_2016	SAMPLE	276141-004	Water	234355	05/03/16 16:41	1.0		
079	met09_sn_2016	SAMPLE	276141-005	Water	234355	05/03/16 16:46	1.0		
080	met09_sn_2016	SAMPLE	276141-006	Water	234355	05/03/16 16:51	1.0		
081	met09_sn_2016	SAMPLE	276148-001	Water	234355	05/03/16 16:56	1.0		
082	met09_sn_2016	SAMPLE	276148-002	Water	234355	05/03/16 17:01	1.0		
083	met09_sn_2016	CCV				05/03/16 17:06	1.0	10	
084	met09_sn_2016	CCB				05/03/16 17:13	1.0		
085	met09_sn_2016	SAMPLE	276318-001	Miscell.	234677	05/03/16 17:19	1.0		
086	met09_sn_2016	SAMPLE	276320-001	Miscell.	234677	05/03/16 17:23	1.0		
087	met09_sn_2016	SAMPLE	276321-001	Miscell.	234677	05/03/16 17:28	1.0		
088	met09_sn_2016	SAMPLE	276322-001	Miscell.	234677	05/03/16 17:33	1.0		
089	met09_sn_2016	SAMPLE	276326-001	Miscell.	234677	05/03/16 17:38	1.0		
090	met09_sn_2016	SAMPLE	276327-001	Miscell.	234677	05/03/16 17:44	1.0		
091	met09_sn_2016	SAMPLE	276328-001	Miscell.	234677	05/03/16 17:48	1.0		
092	met09_sn_2016	SAMPLE	276329-001	Miscell.	234677	05/03/16 17:52	1.0		
093	met09_sn_2016	SAMPLE	276330-001	Miscell.	234677	05/03/16 17:56	1.0		
094	met09_sn_2016	SAMPLE	276333-001	Miscell.	234677	05/03/16 18:01	1.0		
095	met09_sn_2016	CCV				05/03/16 18:07	1.0	10	
096	met09_sn_2016	CCB				05/03/16 18:13	1.0		
097	met09_sn_2016	SAMPLE	276335-001	Miscell.	234677	05/03/16 18:19	1.0		
098	met09_sn_2016	SAMPLE	276336-001	Miscell.	234677	05/03/16 18:24	1.0		
099	met09_sn_2016	SAMPLE	276337-001	Miscell.	234677	05/03/16 18:29	1.0		
100	met09_sn_2016	SAMPLE	276338-001	Miscell.	234677	05/03/16 18:36	1.0		
101	met09_sn_2016	SAMPLE	276336-001	Miscell.	234677	05/03/16 18:41	1.0		
102	met09_sn_2016	SAMPLE	276337-001	Miscell.	234677	05/03/16 18:46	1.0		3:CA=240000
103	met09_sn_2016	CCV				05/03/16 18:50	1.0	10	
104	met09_sn_2016	CCB				05/03/16 18:57	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 96179108

Instrument : MET09 Begun : 05/03/16 09:08
Method : EPA 6010B SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
105	met09_sn_2016	SAMPLE	276148-003	Water	234355	05/03/16 19:31	1.0		
106	met09_sn_2016	SAMPLE	276186-001	Water	234355	05/03/16 19:36	1.0		
107	met09_sn_2016	SAMPLE	276186-002	Water	234355	05/03/16 19:41	1.0		
108	met09_sn_2016	SAMPLE	276186-003	Water	234355	05/03/16 19:46	1.0		
109	met09_sn_2016	SAMPLE	276161-001	Water	234355	05/03/16 19:51	1.0		
110	met09_sn_2016	MSS	276177-001	Water	234355	05/03/16 19:56	1.0		
111	met09_sn_2016	SAMPLE	276177-002	Water	234355	05/03/16 20:04	1.0		2:CA=110000
112	met09_sn_2016	SAMPLE	276177-007	Water	234355	05/03/16 20:13	1.0		
113	met09_sn_2016	SAMPLE	276177-008	Water	234355	05/03/16 20:22	1.0		3:CA=200000
114	met09_sn_2016	MS	QC832642	Water	234355	05/03/16 20:30	1.0		
115	met09_sn_2016	CCV				05/03/16 20:38	1.0	10	
116	met09_sn_2016	CCB				05/03/16 20:45	1.0		
117	met09_sn_2016	MSD	QC832643	Water	234355	05/03/16 20:50	1.0		
118	met09_sn_2016	MS	QC832269	Soil	234264	05/03/16 20:58	1.0		1:FE=320000
119	met09_sn_2016	MSD	QC832270	Soil	234264	05/03/16 21:05	1.0		1:FE=320000
120	met09_sn_2016	SER	QC832271	Soil	234264	05/03/16 21:11	5.0		
121	met09_sn_2016	PDS	QC832272	Soil	234264	05/03/16 21:19	1.0	11 12 13	2:FE=430000
122	met09_sn_2016	SAMPLE	276007-001	Water	234217	05/03/16 21:27	1.0		
123	met09_sn_2016	MSS	276013-001	Water	234217	05/03/16 21:32	1.0		1:MN=18000
124	met09_sn_2016	SAMPLE	276013-002	Water	234217	05/03/16 21:41	1.0		
125	met09_sn_2016	SAMPLE	276013-003	Water	234217	05/03/16 21:49	1.0		2:CA=1000000
126	met09_sn_2016	SAMPLE	276013-004	Water	234217	05/03/16 21:57	1.0		4:CA=1300000
127	met09_sn_2016	CCV				05/03/16 22:05	1.0	10	
128	met09_sn_2016	CCB				05/03/16 22:12	1.0		
129	met09_sn_2016	SAMPLE	276013-005	Water	234217	05/03/16 22:17	1.0		4:CA=610000
130	met09_sn_2016	SAMPLE	276013-006	Water	234217	05/03/16 22:22	1.0		3:CA=460000
131	met09_sn_2016	SAMPLE	276013-007	Water	234217	05/03/16 22:30	5.0		1:NA=200000
132	met09_sn_2016	SAMPLE	276013-008	Water	234217	05/03/16 22:34	1.0		3:CA=300000
133	met09_sn_2016	SAMPLE	276013-009	Water	234217	05/03/16 22:42	1.0		3:CA=480000
134	met09_sn_2016	SAMPLE	276013-010	Water	234217	05/03/16 22:50	1.0		1:CA=200000
135	met09_sn_2016	SAMPLE	276013-011	Water	234217	05/03/16 22:58	1.0		
136	met09_sn_2016	BLANK	QC832023	Filtrate	234207	05/03/16 23:03	1.0		
137	met09_sn_2016	BS	QC832024	Filtrate	234207	05/03/16 23:08	1.0		
138	met09_sn_2016	BSD	QC832034	Filtrate	234207	05/03/16 23:13	1.0		
139	met09_sn_2016	CCV				05/03/16 23:17	1.0	10	
140	met09_sn_2016	CCB				05/03/16 23:24	1.0		
141	met09_sn_2016	MSS	275865-011	Filtrate	234207	05/03/16 23:29	5.0		
142	met09_sn_2016	MSS	275865-015	Filtrate	234207	05/03/16 23:34	5.0		
143	met09_sn_2016	MS	QC832025	Filtrate	234207	05/03/16 23:39	5.0		
144	met09_sn_2016	MSD	QC832026	Filtrate	234207	05/03/16 23:43	5.0		
145	met09_sn_2016	MS	QC832027	Filtrate	234207	05/03/16 23:48	5.0		
146	met09_sn_2016	MSD	QC832028	Filtrate	234207	05/03/16 23:52	5.0		
147	met09_sn_2016	SER	QC832029	Filtrate	234207	05/03/16 23:56	25.0		
148	met09_sn_2016	PDS	QC832030	Filtrate	234207	05/04/16 00:01	5.0	11 12 13	
149	met09_sn_2016	SAMPLE	275865-004	Filtrate	234207	05/04/16 00:05	5.0		
150	met09_sn_2016	SAMPLE	275865-005	Filtrate	234207	05/04/16 00:11	5.0		
151	met09_sn_2016	CCV				05/04/16 00:16	1.0	10	
152	met09_sn_2016	CCB				05/04/16 00:23	1.0		
153	met09_sn_2016	SAMPLE	275865-006	Filtrate	234207	05/04/16 00:28	5.0		
154	met09_sn_2016	SAMPLE	275865-008	Filtrate	234207	05/04/16 00:33	5.0		
155	met09_sn_2016	SAMPLE	275865-012	Filtrate	234207	05/04/16 00:38	5.0		
156	met09_sn_2016	SAMPLE	275865-013	Filtrate	234207	05/04/16 00:43	5.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 96179108

Instrument : MET09 Begun : 05/03/16 09:08
Method : EPA 6010B SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
157	met09_sn_2016	SAMPLE	275865-018	Filtrate	234207	05/04/16 00:49	5.0		
158	met09_sn_2016	SAMPLE	275865-021	Filtrate	234207	05/04/16 00:53	5.0		2:MG=170000
159	met09_sn_2016	SAMPLE	275865-022	Filtrate	234207	05/04/16 01:01	5.0		1:NA=260000
160	met09_sn_2016	SAMPLE	275865-024	Filtrate	234207	05/04/16 01:06	5.0		1:NA=130000
161	met09_sn_2016	SAMPLE	275865-027	Filtrate	234207	05/04/16 01:10	5.0		
162	met09_sn_2016	CCV				05/04/16 01:15	1.0	10	
163	met09_sn_2016	CCB				05/04/16 01:22	1.0		

KER 05/03/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 26.

Standards used: 1=S29300 2=S29393 3=S29394 4=S29395 5=S29761 6=S29396 7=S29301 8=S29660 9=S29661 10=S29397 11=S28386 12=S28385 13=S29742

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 96179108

Date : 05/03/16 Reference : met09_sn_2016
Sequence : MET09 05/03/16 Analyzed : 05/03/16 09:13

#	Type	Sample ID	Y A
		ICAL STD	4282210
		LOWER LIMIT	1284663
		UPPER LIMIT	8564419
010	ICB		4372232
011	ICSA		3681575
012	ICSAB		3793323
013	BLANK	QC833911	4451774
014	BS	QC833912	4395039
015	BSD	QC833913	4365836
016	SAMPLE	276314-001	4433472
017	SAMPLE	276315-001	4406255
018	SAMPLE	276316-001	4402949
019	SAMPLE	276317-001	4558874
020	SAMPLE	276318-001	4660263
021	SAMPLE	276320-001	4625605
022	SAMPLE	276321-001	4752221
023	CCV		4292394
024	CCB		4394489
025	SAMPLE	276322-001	4431045
026	SAMPLE	276323-001	4401833
027	SAMPLE	276324-001	4517000
028	SAMPLE	276325-001	4519202
029	SAMPLE	276331-001	4460277
030	SAMPLE	276332-001	4525210
031	SAMPLE	276334-001	4560554
032	SAMPLE	276335-001	4501092
033	SAMPLE	276336-001	4516776
034	SAMPLE	276337-001	4542644
035	CCV		4317698
036	CCB		4450392
037	SAMPLE	276338-001	4463711
038	SAMPLE	276339-001	4410456
039	BLANK	QC833914	4499943
040	BS	QC833915	4377547
041	BSD	QC833916	4447662
042	SAMPLE	276314-001	4373380
043	SAMPLE	276518-008	4097703
044	SAMPLE	276518-007	4243537
045	SAMPLE	276518-006	4208338
046	SAMPLE	276518-005	4182663
047	CCV		4329010
048	CCB		4544704
049	SAMPLE	276318-001	4469722
050	SAMPLE	276320-001	4534040
051	SAMPLE	276321-001	4501645
052	SAMPLE	276322-001	4555442
053	SAMPLE	276323-001	4352653
054	SAMPLE	276324-001	4447176
055	SAMPLE	276325-001	4480922
056	SAMPLE	276326-001	4625594
057	SAMPLE	276327-001	4564865

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 96179108

Date : 05/03/16 Reference : met09_sn_2016
Sequence : MET09 05/03/16 Analyzed : 05/03/16 09:13

#	Type	Sample ID	Y	A
058	SAMPLE	276328-001	4630536	
059	CCV		4404154	
060	CCB		4608392	
061	SAMPLE	276329-001	4577940	
062	SAMPLE	276330-001	4530051	
063	SAMPLE	276332-001	4456343	
064	SAMPLE	276333-001	4606407	
065	SAMPLE	276334-001	4579855	
066	SAMPLE	276335-001	4517750	
067	SAMPLE	276336-001	4443523	
068	SAMPLE	276337-001	4360483	
069	SAMPLE	276338-001	4555214	
070	BLANK	QC832639	4539313	
071	CCV		4338543	
072	CCB		4472335	
073	BS	QC832640	4454790	
074	BSD	QC832641	4387258	
075	SAMPLE	276141-001	4497101	
076	SAMPLE	276141-002	4494664	
077	SAMPLE	276141-003	4510634	
078	SAMPLE	276141-004	4478712	
079	SAMPLE	276141-005	4429229	
080	SAMPLE	276141-006	4372661	
081	SAMPLE	276148-001	4387890	
082	SAMPLE	276148-002	4417894	
083	CCV		4327347	
084	CCB		4487171	
085	SAMPLE	276318-001	4577898	
086	SAMPLE	276320-001	4508205	
087	SAMPLE	276321-001	4517308	
088	SAMPLE	276322-001	4584082	
089	SAMPLE	276326-001	4571718	
090	SAMPLE	276327-001	4436965	
091	SAMPLE	276328-001	4528818	
092	SAMPLE	276329-001	4610643	
093	SAMPLE	276330-001	4612347	
094	SAMPLE	276333-001	4529290	
095	CCV		4381194	
096	CCB		4604801	
097	SAMPLE	276335-001	4550676	
098	SAMPLE	276336-001	20107379	*
099	SAMPLE	276337-001	19464744	*
100	SAMPLE	276338-001	4550744	
101	SAMPLE	276336-001	4468658	
102	SAMPLE	276337-001	4214067	
103	CCV		4421557	
104	CCB		4423583	
105	SAMPLE	276148-003	4448212	
106	SAMPLE	276186-001	4442449	
107	SAMPLE	276186-002	4416914	
108	SAMPLE	276186-003	4399524	
109	SAMPLE	276161-001	4374490	

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 96179108

Date : 05/03/16 Reference : met09_sn_2016
Sequence : MET09 05/03/16 Analyzed : 05/03/16 09:13

#	Type	Sample ID	Y A
110	MSS	276177-001	4021480
114	MS	QC832642	3958188
115	CCV		4312808
116	CCB		4442407
117	MSD	QC832643	3971804
118	MS	QC832269	4088321
119	MSD	QC832270	4178638
120	SER	QC832271	4450067
121	PDS	QC832272	4268953
123	MSS	276013-001	4006514
124	SAMPLE	276013-002	4014383
125	SAMPLE	276013-003	3316254
126	SAMPLE	276013-004	3237541
127	CCV		4298448
128	CCB		4483010
129	SAMPLE	276013-005	3739168
130	SAMPLE	276013-006	3518864
131	SAMPLE	276013-007	4160316
132	SAMPLE	276013-008	3607557
133	SAMPLE	276013-009	3460870
134	SAMPLE	276013-010	3745823
135	SAMPLE	276013-011	4427636
136	BLANK	QC832023	4456706
137	BS	QC832024	4346212
138	BSD	QC832034	4440091
139	CCV		4277018
140	CCB		4490836
141	MSS	275865-011	4358852
142	MSS	275865-015	4266043
143	MS	QC832025	4347429
144	MSD	QC832026	4383338
145	MS	QC832027	4307863
146	MSD	QC832028	4242177
147	SER	QC832029	4383872
148	PDS	QC832030	4347451
149	SAMPLE	275865-004	4352908
150	SAMPLE	275865-005	4281507
151	CCV		4260378
152	CCB		4401990
153	SAMPLE	275865-006	4435460
154	SAMPLE	275865-008	4254448
155	SAMPLE	275865-012	4439943
156	SAMPLE	275865-013	4476785
157	SAMPLE	275865-018	4339498
158	SAMPLE	275865-021	3529835
159	SAMPLE	275865-022	4070663
160	SAMPLE	275865-024	4143456
161	SAMPLE	275865-027	4403507
162	CCV		4259191
163	CCB		4484526

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 275865 METALS Filtrate: EPA 6010B

Inst : MET09
Calnum : 96179108001
Units : ug/L

Date : 03-MAY-2016 09:08
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met09_sn_2016	96179108002	L1	03-MAY-2016 09:13	S29300
L2	met09_sn_2016	96179108003	L2	03-MAY-2016 09:18	S29393
L3	met09_sn_2016	96179108004	L3	03-MAY-2016 09:22	S29394
L4	met09_sn_2016	96179108005	L4	03-MAY-2016 09:26	S29395
L5	met09_sn_2016	96179108006	L5	03-MAY-2016 09:33	S29761

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Antimony	A	3.4600	3.6870	3.4773	3.4960		LOR0	0.00000	0.28605		3.5301	1.000	0.995	
Arsenic	A	1.7000	1.8910	1.8028	1.8174		LOR0	0.00000	0.55029		1.8028	1.000	0.995	
Barium	A	78.040	80.910	74.770	72.841		LOR0	0.00000	0.01372		76.640	1.000	0.995	
Beryllium	A	5749.8	5866.1	5525.1			LOR0	0.00000	1.81E-4		5713.7	1.000	0.995	
Cadmium	A	107.52	112.56	104.39	99.681		LOR0	0.00000	0.01003		106.04	1.000	0.995	
Chromium	A	194.94	202.37	188.90	184.43		LOR0	0.00000	0.00542		192.66	1.000	0.995	
Cobalt	A	29.120	30.977	30.388	30.533		LOR0	0.00000	0.03275		30.255	1.000	0.995	
Copper	A	663.98	456.99	423.63	428.34		LOR0	0.00000	0.00233		493.24	1.000	0.995	
Lead	A	12.280	14.056	13.518	13.574		LOR0	0.00000	0.07367		13.357	1.000	0.995	
Molybdenum	A	27.280	27.745	26.172	25.827		LOR0	0.00000	0.03871		26.756	1.000	0.995	
Nickel	A	91.120	93.077	88.717	86.526		LOR0	0.00000	0.01155		89.860	1.000	0.995	
Selenium	A	2.7900	2.8590	2.7744	2.8363		LOR0	0.00000	0.35265		2.8149	1.000	0.995	
Silver	A	85.320	90.015	87.143	87.070		LOR0	0.00000	0.01148		87.387	1.000	0.995	
Thallium	A	2.5800	2.3160	2.1908	2.2358		LOR0	0.00000	0.44736		2.3306	1.000	0.995	
Vanadium	A	262.20	259.01	242.37	239.75		LOR0	0.00000	0.00417		250.83	1.000	0.995	
Zinc	A	49.320	42.715	41.215	40.629		LOR0	0.00000	0.02461		43.470	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Antimony	A	10.000	-1	100.00	5	1000.0	-1	10000	0		
Arsenic	A	5.0000	-6	100.00	4	1000.0	-1	10000	0		
Barium	A	5.0000	7	100.00	11	1000.0	3	10000	0		
Beryllium	A	2.0000	4	100.00	6	1000.0	0				
Cadmium	A	5.0000	8	100.00	13	1000.0	5	10000	0		
Chromium	A	5.0000	6	100.00	10	1000.0	2	10000	0		
Cobalt	A	5.0000	-5	100.00	1	1000.0	0	10000	0		
Copper	A	5.0000	**55**	100.00	7	1000.0	-1	10000	0		
Lead	A	5.0000	-10	100.00	4	1000.0	0	10000	0		
Molybdenum	A	5.0000	6	100.00	7	1000.0	1	10000	0		
Nickel	A	5.0000	5	100.00	8	1000.0	3	10000	0		
Selenium	A	10.000	-2	100.00	1	1000.0	-2	10000	0		
Silver	A	5.0000	-2	20.000	3	200.00	0	2000.0	0		
Thallium	A	10.000	15	100.00	4	1000.0	-2	10000	0		
Vanadium	A	5.0000	9	100.00	8	1000.0	1	10000	0		
Zinc	A	20.000	**21**	100.00	5	1000.0	1	10000	0		

Instrument amount = a0 + response * a1 + response^2 * a2; LOR0=Linear regression forced thru origin, including 0,0 point

96179108001

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 275865 METALS Filtrate
EPA 6010B

Inst : MET09
Calnum : 96179108001 Cal Date : 03-MAY-2016

ICV 96179108007 (03-MAY-2016) stds: S29396

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	5000	4852	ug/L	-3	10	
Arsenic	A	5000	5167	ug/L	3	10	
Barium	A	5000	5077	ug/L	2	10	
Beryllium	A	500.0	510.0	ug/L	2	10	
Cadmium	A	5000	5114	ug/L	2	10	
Chromium	A	5000	5049	ug/L	1	10	
Cobalt	A	5000	4988	ug/L	0	10	
Copper	A	5000	5045	ug/L	1	10	
Lead	A	5000	4971	ug/L	-1	10	
Molybdenum	A	5000	4930	ug/L	-1	10	
Nickel	A	5000	5002	ug/L	0	10	
Selenium	A	5000	5012	ug/L	0	10	
Silver	A	1000	994.5	ug/L	-1	10	
Thallium	A	5000	5068	ug/L	1	10	
Vanadium	A	5000	5032	ug/L	1	10	
Zinc	A	5000	5095	ug/L	2	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275865 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96179108010 File : met09_sn_2016 Time : 03-MAY-2016 09:57
Cal : 96179108001 Caldate : 03-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	2.500	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4282210	4372232	2.10

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 275865 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96179108011 File : met09_sn_2016 Time : 03-MAY-2016 10:02
Cal : 96179108001 Caldate : 03-MAY-2016
Standards: S29660

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	[-7.852]	10.00	ug/L	
Arsenic	A	[2.788]	5.000	ug/L	
Barium	A	[1.623]	5.000	ug/L	
Beryllium	A	[1.392]	2.000	ug/L	
Cadmium	A	[0.9295]	5.000	ug/L	
Cobalt	A	[-0.1207]	5.000	ug/L	
Lead	A	[4.444]	5.000	ug/L	
Molybdenum	A	[-0.7112]	5.000	ug/L	
Selenium	A	[-0.7837]	10.00	ug/L	
Silver	A	[4.379]	5.000	ug/L	
Thallium	A	[-8.758]	10.00	ug/L	
Zinc	A	[6.804]	20.00	ug/L	

Interferent	Ch	Spiked	Quant	Units	%Rec	Flags
Chromium	A	20000	18620	ug/L	93	
Copper	A	20000	21590	ug/L	108	
Manganese	A	20000	18470	ug/L	92	
Nickel	A	20000	17120	ug/L	86	
Vanadium	A	20000	19430	ug/L	97	
Aluminum	R	500000	521000	ug/L	104	
Calcium	R	500000	485400	ug/L	97	
Iron	R	200000	185900	ug/L	93	
Magnesium	R	500000	483700	ug/L	97	
Titanium	R	20000	20710	ug/L	104	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4282210	3681575	-14.03

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 275865 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96179108012 File : met09_sn_2016 Time : 03-MAY-2016 10:39
Cal : 96179108001 Caldate : 03-MAY-2016
Standards: S29661

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	551.2	ug/L	10	20	
Arsenic	A	500.0	520.2	ug/L	4	20	
Barium	A	500.0	494.3	ug/L	-1	20	
Beryllium	A	500.0	496.0	ug/L	-1	20	
Cadmium	A	1000	950.9	ug/L	-5	20	
Chromium	A	500.0	473.4	ug/L	-5	20	
Cobalt	A	500.0	483.8	ug/L	-3	20	
Copper	A	500.0	526.0	ug/L	5	20	
Lead	A	1000	912.7	ug/L	-9	20	
Molybdenum	A	500.0	487.0	ug/L	-3	20	
Nickel	A	1000	873.4	ug/L	-13	20	
Selenium	A	500.0	564.1	ug/L	13	20	
Silver	A	1000	1086	ug/L	9	20	
Thallium	A	500.0	495.3	ug/L	-1	20	
Vanadium	A	500.0	506.5	ug/L	1	20	
Zinc	A	1000	913.7	ug/L	-9	20	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4282210	3793323	-11.42

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275865 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96179108127 File : met09_sn_2016 Time : 03-MAY-2016 22:05
Cal : 96179108001 Caldate : 03-MAY-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	3.5301	3.1909	5000	4564	ug/L	-9	10	
Arsenic	A	1.8028	1.8264	5000	5025	ug/L	1	10	
Barium	A	76.640	73.665	5000	5055	ug/L	1	10	
Beryllium	A	5713.7	5612.5	500.0	507.6	ug/L	2	10	
Cadmium	A	106.04	98.555	5000	4941	ug/L	-1	10	
Chromium	A	192.66	186.63	5000	5058	ug/L	1	10	
Cobalt	A	30.255	31.128	5000	5098	ug/L	2	10	
Copper	A	493.24	430.97	5000	5031	ug/L	1	10	
Lead	A	13.357	13.164	5000	4849	ug/L	-3	10	
Molybdenum	A	26.756	23.817	5000	4610	ug/L	-8	10	
Nickel	A	89.860	86.809	5000	5015	ug/L	0	10	
Selenium	A	2.8149	2.7676	5000	4880	ug/L	-2	10	
Silver	A	87.387	85.004	1000	976.3	ug/L	-2	10	
Thallium	A	2.3306	2.2059	5000	4934	ug/L	-1	10	
Vanadium	A	250.83	242.15	5000	5050	ug/L	1	10	
Zinc	A	43.470	39.401	5000	4848	ug/L	-3	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4282210	4298448	0.38

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275865 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96179108128 File : met09_sn_2016 Time : 03-MAY-2016 22:12
Cal : 96179108001 Caldate : 03-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	2.500	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4282210	4483010	4.69

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275865 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96179108139 File : met09_sn_2016 Time : 03-MAY-2016 23:17
Cal : 96179108001 Caldate : 03-MAY-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	3.5301	2.7193	5000	3889	ug/L	**-22**	10	c- ***
Arsenic	A	1.8028	1.5780	5000	4342	ug/L	**-13**	10	c- ***
Barium	A	76.640	71.300	5000	4893	ug/L	-2	10	
Beryllium	A	5713.7	5622.6	500.0	508.5	ug/L	2	10	
Cadmium	A	106.04	88.219	5000	4423	ug/L	**-12**	10	c- ***
Chromium	A	192.66	184.11	5000	4990	ug/L	0	10	
Cobalt	A	30.255	27.547	5000	4511	ug/L	-10	10	
Copper	A	493.24	432.52	5000	5049	ug/L	1	10	
Lead	A	13.357	12.104	5000	4459	ug/L	**-11**	10	c- ***
Molybdenum	A	26.756	21.039	5000	4072	ug/L	**-19**	10	c- ***
Nickel	A	89.860	82.757	5000	4781	ug/L	-4	10	
Selenium	A	2.8149	2.3813	5000	4199	ug/L	**-16**	10	c- ***
Silver	A	87.387	84.249	1000	967.6	ug/L	-3	10	
Thallium	A	2.3306	1.9824	5000	4434	ug/L	**-11**	10	c- ***
Vanadium	A	250.83	240.98	5000	5025	ug/L	1	10	
Zinc	A	43.470	34.748	5000	4276	ug/L	**-14**	10	c- ***

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4282210	4277018	-0.12

-=low bias c=CCV

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275865 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96179108140 File : met09_sn_2016 Time : 03-MAY-2016 23:24
Cal : 96179108001 Caldate : 03-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	2.500	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4282210	4490836	4.87

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 96180549

Instrument : MET09 Begun : 05/04/16 09:09
Method : EPA 6010B SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met09_sn_2016	ICALBLK				05/04/16 09:09	1.0		
002	met09_sn_2016	ICAL	L1			05/04/16 09:14	1.0	1	
003	met09_sn_2016	ICAL	L2			05/04/16 09:19	1.0	2	
004	met09_sn_2016	ICAL	L3			05/04/16 09:23	1.0	3	
005	met09_sn_2016	ICAL	L4			05/04/16 09:27	1.0	4	
006	met09_sn_2016	ICAL	L5			05/04/16 09:34	1.0	5	
007	met09_sn_2016	ICV				05/04/16 09:41	1.0	6	
008	met09_sn_2016	XCRI				05/04/16 09:46	1.0	7	
009	met09_sn_2016	CRI				05/04/16 09:52	1.0	7	
010	met09_sn_2016	ICB				05/04/16 09:58	1.0		
011	met09_sn_2016	ICSA				05/04/16 10:03	1.0	8	10:AL=520000
012	met09_sn_2016	ICSAB				05/04/16 10:19	1.0	9	5:AL=530000
013	met09_sn_2016	BLANK	QC834000	Soil	234704	05/04/16 11:09	1.0		
014	met09_sn_2016	BS	QC834001	Soil	234704	05/04/16 11:14	1.0		
015	met09_sn_2016	BSD	QC834002	Soil	234704	05/04/16 11:19	1.0		
016	met09_sn_2016	MSS	276511-001	Soil	234704	05/04/16 11:23	1.0		4:FE=320000
017	met09_sn_2016	MS	QC834003	Soil	234704	05/04/16 11:30	1.0		
018	met09_sn_2016	MSD	QC834004	Soil	234704	05/04/16 11:37	1.0		
019	met09_sn_2016	SER	QC834005	Soil	234704	05/04/16 11:44	5.0		
020	met09_sn_2016	PDS	QC834006	Soil	234704	05/04/16 11:52	1.0	10 11 12	6:FE=320000
021	met09_sn_2016	SAMPLE	276431-005	Soil	234704	05/04/16 11:59	1.0		6:FE=470000
022	met09_sn_2016	SAMPLE	276431-011	Soil	234704	05/04/16 12:06	1.0		6:FE=480000
023	met09_sn_2016	CCV				05/04/16 12:13	1.0	13	
024	met09_sn_2016	CCB				05/04/16 12:20	1.0		
025	met09_sn_2016	SAMPLE	276431-012	Soil	234704	05/04/16 12:25	1.0		6:FE=460000
026	met09_sn_2016	SAMPLE	276431-022	Soil	234704	05/04/16 12:32	1.0		6:FE=560000
027	met09_sn_2016	SAMPLE	276431-028	Soil	234704	05/04/16 12:39	1.0		6:FE=470000
028	met09_sn_2016	SAMPLE	276431-029	Soil	234704	05/04/16 12:45	1.0		7:FE=470000
029	met09_sn_2016	SAMPLE	276431-030	Soil	234704	05/04/16 12:52	1.0		6:FE=500000
030	met09_sn_2016	SAMPLE	276435-001	Soil	234704	05/04/16 12:59	1.0		3:FE=280000
031	met09_sn_2016	SAMPLE	276473-002	Soil	234704	05/04/16 13:07	1.0		2:FE=230000
032	met09_sn_2016	SAMPLE	276473-003	Soil	234704	05/04/16 13:15	1.0		2:FE=390000
033	met09_sn_2016	SAMPLE	276473-004	Soil	234704	05/04/16 13:22	1.0		1:FE=160000
034	met09_sn_2016	SAMPLE	276501-001	Soil	234704	05/04/16 13:30	1.0		5:FE=350000
035	met09_sn_2016	CCV				05/04/16 13:37	1.0	13	
036	met09_sn_2016	CCB				05/04/16 13:44	1.0		
037	met09_sn_2016	SAMPLE	276522-001	Soil	234704	05/04/16 13:49	1.0		5:CA=420000
038	met09_sn_2016	SAMPLE	276501-001	Soil	234704	05/04/16 13:56	1.0		5:FE=350000
039	met09_sn_2016	SAMPLE	276435-001	Soil	234704	05/04/16 14:02	1.0		3:FE=290000
040	met09_sn_2016	SAMPLE	276301-001	Soil	234704	05/04/16 14:10	1.0		1:FE=160000
041	met09_sn_2016	SAMPLE	276301-002	Soil	234704	05/04/16 14:18	1.0		1:FE=150000
042	met09_sn_2016	SAMPLE	276301-004	Soil	234704	05/04/16 14:26	1.0		3:FE=540000
043	met09_sn_2016	SAMPLE	276301-005	Soil	234704	05/04/16 14:33	1.0		3:FE=560000
044	met09_sn_2016	MSD	QC834004	Soil	234704	05/04/16 14:41	1.0		
045	met09_sn_2016	SAMPLE	276301-007	Soil	234704	05/04/16 14:48	1.0		2:FE=230000
046	met09_sn_2016	SAMPLE	276441-001	Soil	234704	05/04/16 14:55	1.0		5:CA=920000
047	met09_sn_2016	CCV				05/04/16 15:03	1.0	13	
048	met09_sn_2016	CCB				05/04/16 15:10	1.0		
049	met09_sn_2016	BLANK	QC832023	Filtrate	234207	05/04/16 15:15	1.0		
050	met09_sn_2016	BS	QC832024	Filtrate	234207	05/04/16 15:21	1.0		
051	met09_sn_2016	BSD	QC832034	Filtrate	234207	05/04/16 15:25	1.0		
052	met09_sn_2016	MSS	275865-011	Filtrate	234207	05/04/16 15:29	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 96180549

Instrument : MET09 Begun : 05/04/16 09:09
Method : EPA 6010B SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met09_sn_2016	MSS	275865-015	Filtrate	234207	05/04/16 15:34	1.0		3:MG=220000
054	met09_sn_2016	MS	QC832025	Filtrate	234207	05/04/16 15:40	1.0		
055	met09_sn_2016	MSD	QC832026	Filtrate	234207	05/04/16 15:44	1.0		
056	met09_sn_2016	MS	QC832027	Filtrate	234207	05/04/16 15:48	1.0		3:MG=200000
057	met09_sn_2016	MSD	QC832028	Filtrate	234207	05/04/16 15:52	1.0		3:MG=200000
058	met09_sn_2016	SER	QC832029	Filtrate	234207	05/04/16 15:57	5.0		
059	met09_sn_2016	CCV				05/04/16 16:02	1.0	13	
060	met09_sn_2016	CCB				05/04/16 16:09	1.0		
061	met09_sn_2016	PDS	QC832030	Filtrate	234207	05/04/16 16:14	1.0	10 11 12	3:MG=200000
062	met09_sn_2016	SAMPLE	275865-004	Filtrate	234207	05/04/16 16:18	1.0		
063	met09_sn_2016	MS	QC831919	Filtrate	234182	05/04/16 16:23	1.0		
064	met09_sn_2016	MSD	QC831920	Filtrate	234182	05/04/16 16:27	1.0		
065	met09_sn_2016	SAMPLE	275865-005	Filtrate	234207	05/04/16 16:32	1.0		3:CA=160000
066	met09_sn_2016	SAMPLE	275865-006	Filtrate	234207	05/04/16 16:37	1.0		
067	met09_sn_2016	SAMPLE	275865-008	Filtrate	234207	05/04/16 16:47	1.0		2:NA=280000
068	met09_sn_2016	SAMPLE	275865-012	Filtrate	234207	05/04/16 16:51	1.0		
069	met09_sn_2016	SAMPLE	275865-013	Filtrate	234207	05/04/16 16:56	1.0		
070	met09_sn_2016	SAMPLE	275865-018	Filtrate	234207	05/04/16 17:02	1.0		
071	met09_sn_2016	CCV				05/04/16 17:06	1.0	13	
072	met09_sn_2016	CCB				05/04/16 17:13	1.0		
073	met09_sn_2016	SAMPLE	275865-021	Filtrate	234207	05/04/16 17:18	1.0		4:MG=930000
074	met09_sn_2016	SAMPLE	275865-022	Filtrate	234207	05/04/16 17:26	1.0		3:MG=170000
075	met09_sn_2016	SAMPLE	275865-024	Filtrate	234207	05/04/16 17:33	1.0		3:CA=380000
076	met09_sn_2016	MSD	QC834004	Soil	234704	05/04/16 17:41	1.0		
077	met09_sn_2016	CCV				05/04/16 17:48	1.0	13	
078	met09_sn_2016	CCB				05/04/16 17:55	1.0		
079	met09_sn_2016	BS	QC832889	Soil	234420	05/04/16 18:05	1.0		
080	met09_sn_2016	BSD	QC832890	Soil	234420	05/04/16 18:09	1.0		
081	met09_sn_2016	SAMPLE	276522-001	Soil	234704	05/04/16 18:13	1.0		5:CA=430000
082	met09_sn_2016	MSS	276221-001	Soil	234420	05/04/16 18:20	1.0		4:FE=420000
083	met09_sn_2016	SAMPLE	275865-027	Filtrate	234207	05/04/16 18:28	1.0		
084	met09_sn_2016	SAMPLE	275865-021	Filtrate	234207	05/04/16 18:33	1.0		4:MG=970000
085	met09_sn_2016	SAMPLE	275865-018	Filtrate	234207	05/04/16 18:41	1.0		
086	met09_sn_2016	MSS	275865-015	Filtrate	234207	05/04/16 18:45	1.0		
087	met09_sn_2016	MS	QC832891	Soil	234420	05/04/16 18:50	1.0		
088	met09_sn_2016	MSD	QC832892	Soil	234420	05/04/16 18:57	1.0		
089	met09_sn_2016	CCV				05/04/16 19:04	1.0	13	
090	met09_sn_2016	CCB				05/04/16 19:11	1.0		
091	met09_sn_2016	SAMPLE	276221-002	Soil	234420	05/04/16 19:16	1.0		3:FE=500000
092	met09_sn_2016	SAMPLE	276221-003	Soil	234420	05/04/16 19:24	1.0		4:FE=630000
093	met09_sn_2016	SAMPLE	276221-006	Soil	234420	05/04/16 19:31	1.0		2:FE=240000
094	met09_sn_2016	SAMPLE	276221-009	Soil	234420	05/04/16 19:39	1.0		3:FE=430000
095	met09_sn_2016	SAMPLE	276221-012	Soil	234420	05/04/16 19:47	1.0		1:FE=180000
096	met09_sn_2016	SAMPLE	276221-015	Soil	234420	05/04/16 19:55	1.0		2:FE=270000
097	met09_sn_2016	SAMPLE	276235-001	Soil	234420	05/04/16 20:02	1.0		5:FE=480000
098	met09_sn_2016	SAMPLE	276248-001	Soil	234420	05/04/16 20:10	1.0		2:FE=340000
099	met09_sn_2016	SAMPLE	276248-002	Soil	234420	05/04/16 20:18	1.0		3:FE=470000
100	met09_sn_2016	SAMPLE	276248-005	Soil	234420	05/04/16 20:26	1.0		2:FE=430000
101	met09_sn_2016	CCV				05/04/16 20:33	1.0	13	
102	met09_sn_2016	CCB				05/04/16 20:40	1.0		
103	met09_sn_2016	CCB				05/04/16 20:44	1.0		
104	met09_sn_2016	SAMPLE	276248-006	Soil	234420	05/04/16 20:49	1.0		2:FE=230000

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 96180549

Instrument : MET09 Begun : 05/04/16 09:09
Method : EPA 6010B SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
105	met09_sn_2016	SAMPLE	276250-001	Soil	234420	05/04/16 20:57	1.0		1:FE=140000
106	met09_sn_2016	SAMPLE	276250-002	Soil	234420	05/04/16 21:05	1.0		1:FE=160000
107	met09_sn_2016	SAMPLE	276250-004	Soil	234420	05/04/16 21:13	1.0		3:FE=370000
108	met09_sn_2016	SAMPLE	276250-005	Soil	234420	05/04/16 21:20	1.0		4:FE=580000
109	met09_sn_2016	SAMPLE	276250-006	Soil	234420	05/04/16 21:28	1.0		6:FE=630000
110	met09_sn_2016	SAMPLE	276250-007	Soil	234420	05/04/16 21:35	1.0		2:FE=350000
111	met09_sn_2016	SAMPLE	276111-001	Soil	234278	05/04/16 21:43	1.0		8:FE=400000
112	met09_sn_2016	SAMPLE	276114-001	Miscell.	234278	05/04/16 21:51	1.0		4:FE=710000
113	met09_sn_2016	SAMPLE	276114-002	Miscell.	234278	05/04/16 21:58	1.0		3:AL=450000
114	met09_sn_2016	CCV				05/04/16 22:05	1.0	13	
115	met09_sn_2016	CCB				05/04/16 22:11	1.0		
116	met09_sn_2016	CCB				05/04/16 22:16	1.0		
117	met09_sn_2016	SAMPLE	276123-001	Soil	234278	05/04/16 22:21	1.0		2:FE=270000
118	met09_sn_2016	SAMPLE	276013-005	Water	234217	05/04/16 22:29	1.0		4:CA=680000
119	met09_sn_2016	SAMPLE	276013-006	Water	234217	05/04/16 22:34	1.0		4:CA=530000
120	met09_sn_2016	SAMPLE	276013-007	Water	234217	05/04/16 22:41	1.0		3:CA=260000
121	met09_sn_2016	SAMPLE	276013-008	Water	234217	05/04/16 22:49	1.0		2:CA=340000
122	met09_sn_2016	SAMPLE	276013-009	Water	234217	05/04/16 22:57	1.0		4:CA=560000
123	met09_sn_2016	SAMPLE	276013-010	Water	234217	05/04/16 23:05	1.0		1:CA=230000
124	met09_sn_2016	SAMPLE	276013-011	Water	234217	05/04/16 23:13	1.0		
125	met09_sn_2016	CCV				05/04/16 23:18	1.0	13	
126	met09_sn_2016	CCB				05/04/16 23:25	1.0		

KER 05/04/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 37.

Standards used: 1=S29300 2=S29393 3=S29394 4=S29395 5=S29761 6=S29396 7=S29301 8=S29660 9=S29661 10=S28385 11=S28386 12=S29742 13=S29397

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 96180549

Date : 05/04/16 Reference : met09_sn_2016
Sequence : MET09 05/04/16 Analyzed : 05/04/16 09:14

#	Type	Sample ID	Y A
		ICAL STD	4334017
		LOWER LIMIT	1300205
		UPPER LIMIT	8668033
010	ICB		4338513
011	ICSA		3584254
012	ICSAB		3612083
013	BLANK	QC834000	4460671
014	BS	QC834001	4322476
015	BSD	QC834002	4296109
016	MSS	276511-001	3984284
017	MS	QC834003	4114235
018	MSD	QC834004	4095838
019	SER	QC834005	4327154
020	PDS	QC834006	3734945
021	SAMPLE	276431-005	4340753
022	SAMPLE	276431-011	4247958
023	CCV		4167525
024	CCB		4253185
025	SAMPLE	276431-012	4256636
026	SAMPLE	276431-022	4222853
027	SAMPLE	276431-028	4172669
028	SAMPLE	276431-029	4238743
029	SAMPLE	276431-030	4151142
030	SAMPLE	276435-001	4211607
031	SAMPLE	276473-002	4194154
032	SAMPLE	276473-003	4284056
033	SAMPLE	276473-004	4228331
034	SAMPLE	276501-001	4052314
035	CCV		4218243
036	CCB		4291618
037	SAMPLE	276522-001	4060155
038	SAMPLE	276501-001	4021222
039	SAMPLE	276435-001	4226131
040	SAMPLE	276301-001	4265808
041	SAMPLE	276301-002	4247822
042	SAMPLE	276301-004	4104417
043	SAMPLE	276301-005	4071549
044	MSD	QC834004	4011417
045	SAMPLE	276301-007	4240767
046	SAMPLE	276441-001	3580703
047	CCV		4181267
048	CCB		4315252
049	BLANK	QC832023	4269898
050	BS	QC832024	4208612
051	BSD	QC832034	4162885
052	MSS	275865-011	4086952
053	MSS	275865-015	3963031
054	MS	QC832025	3980461
055	MSD	QC832026	3964383
056	MS	QC832027	3934996
057	MSD	QC832028	4008909

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 96180549

Date : 05/04/16 Reference : met09_sn_2016
Sequence : MET09 05/04/16 Analyzed : 05/04/16 09:14

#	Type	Sample ID	Y	A
058	SER	QC832029	4058229	
059	CCV		4188857	
060	CCB		4242433	
061	PDS	QC832030	3947675	
062	SAMPLE	275865-004	4218792	
063	MS	QC831919	3855123	
064	MSD	QC831920	4012629	
065	SAMPLE	275865-005	3908111	
066	SAMPLE	275865-006	4222409	
067	SAMPLE	275865-008	4024517	
068	SAMPLE	275865-012	4209223	
069	SAMPLE	275865-013	4214547	
070	SAMPLE	275865-018	4141471	
071	CCV		4050975	
072	CCB		4274534	
073	SAMPLE	275865-021	2981211	
074	SAMPLE	275865-022	3741237	
075	SAMPLE	275865-024	3862072	
076	MSD	QC834004	4093832	
077	CCV		4271835	
078	CCB		4409047	
079	BS	QC832889	4295895	
080	BSD	QC832890	4271860	
081	SAMPLE	276522-001	4087903	
082	MSS	276221-001	4205330	
083	SAMPLE	275865-027	4390860	
084	SAMPLE	275865-021	2973259	
085	SAMPLE	275865-018	4074404	
086	MSS	275865-015	21483118	*
087	MS	QC832891	4182667	
088	MSD	QC832892	4254295	
089	CCV		4196077	
090	CCB		4322441	
091	SAMPLE	276221-002	4213394	
092	SAMPLE	276221-003	4232227	
093	SAMPLE	276221-006	4402440	
094	SAMPLE	276221-009	4264168	
095	SAMPLE	276221-012	4338995	
096	SAMPLE	276221-015	4356753	
097	SAMPLE	276235-001	4256874	
098	SAMPLE	276248-001	4148892	
099	SAMPLE	276248-002	4180151	
100	SAMPLE	276248-005	4176095	
101	CCV		4131060	
102	CCB		4233778	
103	CCB		4276010	
104	SAMPLE	276248-006	4248159	
105	SAMPLE	276250-001	4225812	
106	SAMPLE	276250-002	4237056	
107	SAMPLE	276250-004	4070216	
108	SAMPLE	276250-005	4149516	
109	SAMPLE	276250-006	3978748	

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 96180549

Date : 05/04/16 Reference : met09_sn_2016
Sequence : MET09 05/04/16 Analyzed : 05/04/16 09:14

#	Type	Sample ID	Y A
110	SAMPLE	276250-007	4087006
111	SAMPLE	276111-001	4000167
112	SAMPLE	276114-001	3986480
113	SAMPLE	276114-002	3988226
114	CCV		4156513
115	CCB		4213981
116	CCB		4186825
117	SAMPLE	276123-001	4148188
118	SAMPLE	276013-005	3714296
119	SAMPLE	276013-006	3527254
120	SAMPLE	276013-007	3741136
121	SAMPLE	276013-008	3681442
122	SAMPLE	276013-009	3580241
123	SAMPLE	276013-010	3830379
124	SAMPLE	276013-011	4284854
125	CCV		4237132
126	CCB		4342949

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 275865 METALS Filtrate: EPA 6010B

Inst : MET09
Calnum : 96180549001
Units : ug/L

Date : 04-MAY-2016 09:09
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met09_sn_2016	96180549002	L1	04-MAY-2016 09:14	S29300
L2	met09_sn_2016	96180549003	L2	04-MAY-2016 09:19	S29393
L3	met09_sn_2016	96180549004	L3	04-MAY-2016 09:23	S29394
L4	met09_sn_2016	96180549005	L4	04-MAY-2016 09:27	S29395
L5	met09_sn_2016	96180549006	L5	04-MAY-2016 09:34	S29761

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Antimony	A	3.0400	3.4440	3.3923	3.4480		LOR0	0.00000	0.29007		3.3311	1.000	0.995	
Arsenic	A	1.9800	1.6430	1.6757	1.7090		LOR0	0.00000	0.58524		1.7519	1.000	0.995	
Barium	A	75.100	76.173	76.105	74.682		LOR0	0.00000	0.01339		75.515	1.000	0.995	
Beryllium	A	5559.5	5646.1	5568.2			LOR0	0.00000	1.80E-4		5591.3	1.000	0.995	
Cadmium	A	100.20	103.44	104.49	100.07		LOR0	0.00000	0.00999		102.05	1.000	0.995	
Chromium	A	192.86	187.70	187.63	186.00		LOR0	0.00000	0.00538		188.55	1.000	0.995	
Cobalt	A	24.740	25.320	26.468	26.657		LOR0	0.00000	0.03752		25.796	1.000	0.995	
Copper	A	738.72	433.42	435.40	442.86		LOR0	0.00000	0.00226		512.60	1.000	0.995	
Lead	A	12.720	13.786	13.858	14.014		LOR0	0.00000	0.07136		13.595	1.000	0.995	
Molybdenum	A	26.760	26.872	26.966	26.521		LOR0	0.00000	0.03770		26.780	1.000	0.995	
Nickel	A	88.380	86.125	88.446	87.583		LOR0	0.00000	0.01142		87.633	1.000	0.995	
Selenium	A	2.3700	2.6570	2.6769	2.7453		LOR0	0.00000	0.36435		2.6123	1.000	0.995	
Silver	A	91.840	84.610	86.988	88.328		LOR0	0.00000	0.01132		87.941	1.000	0.995	
Thallium	A	1.9200	2.1970	2.2341	2.2515		LOR0	0.00000	0.44418		2.1507	1.000	0.995	
Vanadium	A	234.88	243.04	243.50	245.14		LOR0	0.00000	0.00408		241.64	1.000	0.995	
Zinc	A	41.700	38.637	40.718	40.470		LOR0	0.00000	0.02471		40.381	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Antimony	A	10.000	-12	100.00	0	1000.0	-2	10000	0		
Arsenic	A	5.0000	16	100.00	-4	1000.0	-2	10000	0		
Barium	A	5.0000	1	100.00	2	1000.0	2	10000	0		
Beryllium	A	2.0000	0	100.00	1	1000.0	0				
Cadmium	A	5.0000	0	100.00	3	1000.0	4	10000	0		
Chromium	A	5.0000	4	100.00	1	1000.0	1	10000	0		
Cobalt	A	5.0000	-7	100.00	-5	1000.0	-1	10000	0		
Copper	A	5.0000	**67**	100.00	-2	1000.0	-2	10000	0		
Lead	A	5.0000	-9	100.00	-2	1000.0	-1	10000	0		
Molybdenum	A	5.0000	1	100.00	1	1000.0	2	10000	0		
Nickel	A	5.0000	1	100.00	-2	1000.0	1	10000	0		
Selenium	A	10.000	-14	100.00	-3	1000.0	-2	10000	0		
Silver	A	5.0000	4	20.000	-4	200.00	-2	2000.0	0		
Thallium	A	10.000	-15	100.00	-2	1000.0	-1	10000	0		
Vanadium	A	5.0000	-4	100.00	-1	1000.0	-1	10000	0		
Zinc	A	20.000	3	100.00	-5	1000.0	1	10000	0		

Instrument amount = a0 + response * a1 + response^2 * a2; LOR0=Linear regression forced thru origin, including 0,0 point

96180549001

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 275865 METALS Filtrate
EPA 6010B

Inst : MET09
Calnum : 96180549001 Cal Date : 04-MAY-2016

ICV 96180549007 (04-MAY-2016) stds: S29396

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	5000	4943	ug/L	-1	10	
Arsenic	A	5000	5217	ug/L	4	10	
Barium	A	5000	5109	ug/L	2	10	
Beryllium	A	500.0	521.5	ug/L	4	10	
Cadmium	A	5000	5159	ug/L	3	10	
Chromium	A	5000	5069	ug/L	1	10	
Cobalt	A	5000	5092	ug/L	2	10	
Copper	A	5000	5074	ug/L	1	10	
Lead	A	5000	4996	ug/L	0	10	
Molybdenum	A	5000	4955	ug/L	-1	10	
Nickel	A	5000	5047	ug/L	1	10	
Selenium	A	5000	5069	ug/L	1	10	
Silver	A	1000	995.8	ug/L	0	10	
Thallium	A	5000	5082	ug/L	2	10	
Vanadium	A	5000	5053	ug/L	1	10	
Zinc	A	5000	5151	ug/L	3	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275865 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96180549010.1 File : met09_sn_2016 Time : 04-MAY-2016 09:58
Cal : 96180549001 Caldate : 04-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	2.500	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4334017	4338513	0.10

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 275865 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96180549011.1 File : met09_sn_2016 Time : 04-MAY-2016 10:03
Cal : 96180549001 Caldate : 04-MAY-2016
Standards: S29660

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	[7.792]	10.00	ug/L	
Arsenic	A	[2.761]	5.000	ug/L	
Barium	A	[2.685]	5.000	ug/L	
Beryllium	A	[1.944]	2.000	ug/L	
Cadmium	A	[0.5434]	5.000	ug/L	
Cobalt	A	[-2.023]	5.000	ug/L	
Lead	A	[-2.100]	5.000	ug/L	
Molybdenum	A	[-1.053]	5.000	ug/L	
Selenium	A	[0.2653]	10.00	ug/L	
Silver	A	[4.676]	5.000	ug/L	
Thallium	A	[-9.862]	10.00	ug/L	
Zinc	A	[9.623]	20.00	ug/L	

Interferent	Ch	Spiked	Quant	Units	%Rec	Flags
Chromium	A	20000	18550	ug/L	93	
Copper	A	20000	21610	ug/L	108	
Manganese	A	20000	18530	ug/L	93	
Nickel	A	20000	17080	ug/L	85	
Vanadium	A	20000	19340	ug/L	97	
Aluminum	R	500000	518700	ug/L	104	
Calcium	R	500000	489900	ug/L	98	
Iron	R	200000	188600	ug/L	94	
Magnesium	R	500000	492500	ug/L	99	
Titanium	R	20000	21720	ug/L	109	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4334017	3584254	-17.30

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 275865 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96180549012.1 File : met09_sn_2016 Time : 04-MAY-2016 10:19
Cal : 96180549001 Caldate : 04-MAY-2016
Standards: S29661

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	593.0	ug/L	19	20	
Arsenic	A	500.0	562.1	ug/L	12	20	
Barium	A	500.0	510.4	ug/L	2	20	
Beryllium	A	500.0	514.5	ug/L	3	20	
Cadmium	A	1000	980.9	ug/L	-2	20	
Chromium	A	500.0	491.4	ug/L	-2	20	
Cobalt	A	500.0	496.5	ug/L	-1	20	
Copper	A	500.0	546.1	ug/L	9	20	
Lead	A	1000	941.8	ug/L	-6	20	
Molybdenum	A	500.0	505.5	ug/L	1	20	
Nickel	A	1000	906.5	ug/L	-9	20	
Selenium	A	500.0	549.8	ug/L	10	20	
Silver	A	1000	1120	ug/L	12	20	
Thallium	A	500.0	514.8	ug/L	3	20	
Vanadium	A	500.0	521.7	ug/L	4	20	
Zinc	A	1000	945.7	ug/L	-5	20	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4334017	3612083	-16.66

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275865 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96180549047 File : met09_sn_2016 Time : 04-MAY-2016 15:03
Cal : 96180549001 Caldate : 04-MAY-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	3.3311	3.2883	5000	4769	ug/L	-5	10	
Arsenic	A	1.7519	1.8239	5000	5337	ug/L	7	10	
Barium	A	75.515	74.615	5000	4995	ug/L	0	10	
Beryllium	A	5591.3	5637.9	500.0	506.2	ug/L	1	10	
Cadmium	A	102.05	101.24	5000	5057	ug/L	1	10	
Chromium	A	188.55	185.39	5000	4983	ug/L	0	10	
Cobalt	A	25.796	29.951	5000	5618	ug/L	**12**	10	c+ ***
Copper	A	512.60	442.59	5000	4998	ug/L	0	10	
Lead	A	13.595	13.576	5000	4844	ug/L	-3	10	
Molybdenum	A	26.780	25.850	5000	4873	ug/L	-3	10	
Nickel	A	87.633	86.700	5000	4949	ug/L	-1	10	
Selenium	A	2.6123	2.8025	5000	5105	ug/L	2	10	
Silver	A	87.941	86.703	1000	981.8	ug/L	-2	10	
Thallium	A	2.1507	2.2856	5000	5076	ug/L	2	10	
Vanadium	A	241.64	242.63	5000	4949	ug/L	-1	10	
Zinc	A	40.381	40.847	5000	5046	ug/L	1	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4334017	4181267	-3.52

+=high bias c=CCV

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275865 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96180549048 File : met09_sn_2016 Time : 04-MAY-2016 15:10
Cal : 96180549001 Caldate : 04-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	2.500	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	[3.366]	5.000	2.500	ug/L	!CCB
Lead	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4334017	4315252	-0.43

!=warning CCB=instrument blank

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275865 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96180549059.1 File : met09_sn_2016 Time : 04-MAY-2016 16:02
Cal : 96180549001 Caldate : 04-MAY-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	3.3311	3.1793	5000	4611	ug/L	-8	10	
Arsenic	A	1.7519	1.7738	5000	5191	ug/L	4	10	
Barium	A	75.515	74.599	5000	4993	ug/L	0	10	
Beryllium	A	5591.3	5648.9	500.0	507.2	ug/L	1	10	
Cadmium	A	102.05	99.489	5000	4969	ug/L	-1	10	
Chromium	A	188.55	185.81	5000	4994	ug/L	0	10	
Cobalt	A	25.796	30.065	5000	5640	ug/L	**13**	10	c+ ***
Copper	A	512.60	440.90	5000	4979	ug/L	0	10	
Lead	A	13.595	13.434	5000	4794	ug/L	-4	10	
Molybdenum	A	26.780	25.052	5000	4722	ug/L	-6	10	
Nickel	A	87.633	86.646	5000	4946	ug/L	-1	10	
Selenium	A	2.6123	2.7170	5000	4950	ug/L	-1	10	
Silver	A	87.941	87.070	1000	985.9	ug/L	-1	10	
Thallium	A	2.1507	2.2552	5000	5009	ug/L	0	10	
Vanadium	A	241.64	243.45	5000	4966	ug/L	-1	10	
Zinc	A	40.381	39.666	5000	4900	ug/L	-2	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4334017	4188857	-3.35

+=high bias c=CCV

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275865 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96180549060.1 File : met09_sn_2016 Time : 04-MAY-2016 16:09
Cal : 96180549001 Caldate : 04-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	2.500	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4334017	4242433	-2.11

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275865 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96180549071 File : met09_sn_2016 Time : 04-MAY-2016 17:06
Cal : 96180549001 Caldate : 04-MAY-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	3.3311	3.3521	5000	4862	ug/L	-3	10	
Arsenic	A	1.7519	1.8533	5000	5423	ug/L	8	10	
Barium	A	75.515	76.714	5000	5135	ug/L	3	10	
Beryllium	A	5591.3	5810.7	500.0	521.7	ug/L	4	10	
Cadmium	A	102.05	105.01	5000	5245	ug/L	5	10	
Chromium	A	188.55	190.71	5000	5126	ug/L	3	10	
Cobalt	A	25.796	29.778	5000	5586	ug/L	**12**	10	c+ ***
Copper	A	512.60	449.68	5000	5078	ug/L	2	10	
Lead	A	13.595	14.101	5000	5031	ug/L	1	10	
Molybdenum	A	26.780	26.685	5000	5030	ug/L	1	10	
Nickel	A	87.633	89.252	5000	5095	ug/L	2	10	
Selenium	A	2.6123	2.8777	5000	5242	ug/L	5	10	
Silver	A	87.941	88.491	1000	1002	ug/L	0	10	
Thallium	A	2.1507	2.3383	5000	5193	ug/L	4	10	
Vanadium	A	241.64	249.12	5000	5082	ug/L	2	10	
Zinc	A	40.381	42.490	5000	5249	ug/L	5	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4334017	4050975	-6.53

+=high bias c=CCV

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275865 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96180549072 File : met09_sn_2016 Time : 04-MAY-2016 17:13
Cal : 96180549001 Caldate : 04-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	2.500	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4334017	4274534	-1.37

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275865 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96180549077 File : met09_sn_2016 Time : 04-MAY-2016 17:48
Cal : 96180549001 Caldate : 04-MAY-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	3.3311	3.3819	5000	4905	ug/L	-2	10	
Arsenic	A	1.7519	1.9158	5000	5606	ug/L	**12**	10	c+ ***
Barium	A	75.515	77.297	5000	5174	ug/L	3	10	
Beryllium	A	5591.3	5850.3	500.0	525.3	ug/L	5	10	
Cadmium	A	102.05	110.77	5000	5533	ug/L	**11**	10	c+ ***
Chromium	A	188.55	192.75	5000	5181	ug/L	4	10	
Cobalt	A	25.796	30.077	5000	5642	ug/L	**13**	10	c+ ***
Copper	A	512.60	427.03	5000	4822	ug/L	-4	10	
Lead	A	13.595	14.557	5000	5194	ug/L	4	10	
Molybdenum	A	26.780	26.809	5000	5053	ug/L	1	10	
Nickel	A	87.633	91.303	5000	5212	ug/L	4	10	
Selenium	A	2.6123	2.9558	5000	5385	ug/L	8	10	
Silver	A	87.941	86.497	1000	979.4	ug/L	-2	10	
Thallium	A	2.1507	2.3898	5000	5308	ug/L	6	10	
Vanadium	A	241.64	247.68	5000	5052	ug/L	1	10	
Zinc	A	40.381	45.502	5000	5621	ug/L	**12**	10	c+ ***

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4334017	4271835	-1.43

+=high bias c=CCV

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275865 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96180549078 File : met09_sn_2016 Time : 04-MAY-2016 17:55
Cal : 96180549001 Caldate : 04-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	2.500	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4334017	4409047	1.73

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275865 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96180549089 File : met09_sn_2016 Time : 04-MAY-2016 19:04
Cal : 96180549001 Caldate : 04-MAY-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	3.3311	3.5890	5000	5205	ug/L	4	10	
Arsenic	A	1.7519	2.2300	5000	6525	ug/L	**31**	10	c+ ***
Barium	A	75.515	85.676	5000	5735	ug/L	**15**	10	c+ ***
Beryllium	A	5591.3	6450.7	500.0	579.2	ug/L	**16**	10	c+ ***
Cadmium	A	102.05	137.38	5000	6861	ug/L	**37**	10	c+ ***
Chromium	A	188.55	215.95	5000	5805	ug/L	**16**	10	c+ ***
Cobalt	A	25.796	32.974	5000	6185	ug/L	**24**	10	c+ ***
Copper	A	512.60	409.39	5000	4623	ug/L	-8	10	
Lead	A	13.595	17.239	5000	6151	ug/L	**23**	10	c+ ***
Molybdenum	A	26.780	29.620	5000	5583	ug/L	**12**	10	c+ ***
Nickel	A	87.633	105.43	5000	6019	ug/L	**20**	10	c+ ***
Selenium	A	2.6123	3.4144	5000	6220	ug/L	**24**	10	c+ ***
Silver	A	87.941	88.132	1000	997.9	ug/L	0	10	
Thallium	A	2.1507	2.6388	5000	5860	ug/L	**17**	10	c+ ***
Vanadium	A	241.64	266.68	5000	5440	ug/L	9	10	
Zinc	A	40.381	58.468	5000	7223	ug/L	**44**	10	c+ ***

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4334017	4196077	-3.18

+=high bias c=CCV

96180549089

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275865 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96180549090 File : met09_sn_2016 Time : 04-MAY-2016 19:11
Cal : 96180549001 Caldate : 04-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	2.500	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4334017	4322441	-0.27

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 96181981

Instrument : MET09 Begun : 05/05/16 09:01
Method : EPA 6010B SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met09_sn_2016	ICALBLK				05/05/16 09:01	1.0		
002	met09_sn_2016	ICAL	L1			05/05/16 09:06	1.0	1	
003	met09_sn_2016	ICAL	L2			05/05/16 09:11	1.0	2	
004	met09_sn_2016	ICAL	L3			05/05/16 09:15	1.0	3	
005	met09_sn_2016	ICAL	L4			05/05/16 09:20	1.0	4	
006	met09_sn_2016	ICAL	L5			05/05/16 09:27	1.0	5	
007	met09_sn_2016	ICV				05/05/16 09:33	1.0	6	
008	met09_sn_2016	XCRI				05/05/16 09:40	1.0	7	
009	met09_sn_2016	CRI				05/05/16 09:50	1.0	7	
010	met09_sn_2016	ICB				05/05/16 09:57	1.0		
011	met09_sn_2016	ICSA				05/05/16 10:02	1.0	8	10:AL=520000
012	met09_sn_2016	ICSAB				05/05/16 10:29	1.0	9	5:AL=520000
013	met09_sn_2016	BLANK	QC834208	Soil	234765	05/05/16 11:18	1.0		
014	met09_sn_2016	BS	QC834209	Soil	234765	05/05/16 11:23	1.0		
015	met09_sn_2016	BSD	QC834210	Soil	234765	05/05/16 11:27	1.0		
016	met09_sn_2016	MSS	276301-008	Soil	234765	05/05/16 11:31	1.0		3:FE=380000
017	met09_sn_2016	MS	QC834211	Soil	234765	05/05/16 11:39	1.0		
018	met09_sn_2016	MSD	QC834212	Soil	234765	05/05/16 11:46	1.0		
019	met09_sn_2016	SAMPLE	276567-002	Soil	234765	05/05/16 11:52	1.0		1:FE=170000
020	met09_sn_2016	SAMPLE	276574-002	Soil	234765	05/05/16 12:00	1.0		4:FE=340000
021	met09_sn_2016	SAMPLE	276574-003	Soil	234765	05/05/16 12:08	1.0		2:FE=370000
022	met09_sn_2016	SAMPLE	276574-004	Soil	234765	05/05/16 12:16	1.0		4:FE=340000
023	met09_sn_2016	CCV				05/05/16 12:23	1.0	10	
024	met09_sn_2016	CCB				05/05/16 12:30	1.0		
025	met09_sn_2016	SAMPLE	276574-005	Soil	234765	05/05/16 12:35	1.0		4:FE=290000
026	met09_sn_2016	SAMPLE	276574-006	Soil	234765	05/05/16 12:43	1.0		2:FE=370000
027	met09_sn_2016	SAMPLE	276574-007	Soil	234765	05/05/16 12:51	1.0		4:FE=420000
028	met09_sn_2016	SAMPLE	276574-008	Soil	234765	05/05/16 12:59	1.0		4:FE=440000
029	met09_sn_2016	SAMPLE	276574-009	Soil	234765	05/05/16 13:06	1.0		4:FE=370000
030	met09_sn_2016	SAMPLE	276574-010	Soil	234765	05/05/16 13:14	1.0		3:FE=470000
031	met09_sn_2016	SAMPLE	276574-011	Soil	234765	05/05/16 13:22	1.0		3:FE=410000
032	met09_sn_2016	SAMPLE	276574-012	Soil	234765	05/05/16 13:29	1.0		2:FE=380000
033	met09_sn_2016	SAMPLE	276301-010	Soil	234765	05/05/16 13:37	1.0		2:FE=260000
034	met09_sn_2016	BLANK	QC834291	WET Leachate	234787	05/05/16 13:45	10.0		1:NA=120000
035	met09_sn_2016	CCV				05/05/16 13:50	1.0	10	
036	met09_sn_2016	CCB				05/05/16 13:57	1.0		
037	met09_sn_2016	BS	QC834292	WET Leachate	234787	05/05/16 14:02	1.0		
038	met09_sn_2016	BSD	QC834293	WET Leachate	234787	05/05/16 14:06	1.0		
039	met09_sn_2016	SAMPLE	276522-001	WET Leachate	234787	05/05/16 14:10	10.0		1:NA=130000
040	met09_sn_2016	SAMPLE	276301-011	Soil	234765	05/05/16 14:15	1.0		2:FE=190000
041	met09_sn_2016	SAMPLE	276301-012	Soil	234765	05/05/16 14:22	1.0		1:FE=130000
042	met09_sn_2016	SAMPLE	276301-014	Soil	234765	05/05/16 14:30	1.0		1:FE=140000
043	met09_sn_2016	SAMPLE	276301-024	Soil	234765	05/05/16 14:38	1.0		2:FE=270000
044	met09_sn_2016	SAMPLE	276301-026	Soil	234765	05/05/16 14:46	1.0		3:FE=330000
045	met09_sn_2016	SAMPLE	276301-027	Soil	234765	05/05/16 14:53	1.0		2:FE=190000
046	met09_sn_2016	MSS	276513-001	WET Leachate	234787	05/05/16 15:01	10.0		1:NA=130000
047	met09_sn_2016	CCV				05/05/16 15:05	1.0	10	
048	met09_sn_2016	CCB				05/05/16 15:12	1.0		
049	met09_sn_2016	SAMPLE	276513-002	WET Leachate	234787	05/05/16 15:18	10.0		1:NA=130000
050	met09_sn_2016	MS	QC834294	WET Leachate	234787	05/05/16 15:22	10.0		
051	met09_sn_2016	MSD	QC834295	WET Leachate	234787	05/05/16 15:26	10.0		
052	met09_sn_2016	SER	QC834296	WET Leachate	234787	05/05/16 15:30	50.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 96181981

Instrument : MET09 Begun : 05/05/16 09:01
Method : EPA 6010B SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met09_sn_2016	PDS	QC834297	WET Leachate	234787	05/05/16 15:35	10.0	11 12 13	1:NA=140000
054	met09_sn_2016	X	QC834298		234787	05/05/16 15:40	10.0		
055	met09_sn_2016	SAMPLE	275865-021	Filtrate	234207	05/05/16 15:45	1.0		4:MG=830000
056	met09_sn_2016	BLANK	QC833528	TCLP Leachate	234578	05/05/16 15:53	10.0		1:NA=150000
057	met09_sn_2016	BS	QC833529	TCLP Leachate	234578	05/05/16 15:58	1.0		
058	met09_sn_2016	BSD	QC833530	TCLP Leachate	234578	05/05/16 16:02	1.0		
059	met09_sn_2016	CCV				05/05/16 16:06	1.0	10	
060	met09_sn_2016	CCB				05/05/16 16:13	1.0		
061	met09_sn_2016	MSS	276192-001	TCLP Leachate	234578	05/05/16 16:18	10.0		1:NA=140000
062	met09_sn_2016	SAMPLE	276395-001	TCLP Leachate	234578	05/05/16 16:24	10.0		1:NA=140000
063	met09_sn_2016	MS	QC833531	TCLP Leachate	234578	05/05/16 16:29	10.0		
064	met09_sn_2016	MSD	QC833532	TCLP Leachate	234578	05/05/16 16:33	10.0		
065	met09_sn_2016	SER	QC833533	TCLP Leachate	234578	05/05/16 16:37	50.0		
066	met09_sn_2016	PDS	QC833534	TCLP Leachate	234578	05/05/16 16:42	10.0	11 12 13	1:NA=150000
067	met09_sn_2016	MSS	275719-002	Water	234045	05/05/16 16:47	1.0		4:CA=300000
068	met09_sn_2016	SAMPLE	275719-003	Water	234045	05/05/16 16:51	1.0		4:CA=270000
069	met09_sn_2016	SAMPLE	275719-004	Water	234045	05/05/16 16:55	1.0		4:CA=270000
070	met09_sn_2016	SAMPLE	275719-007	Water	234045	05/05/16 17:00	1.0		3:NA=250000
071	met09_sn_2016	CCV				05/05/16 17:04	1.0	10	
072	met09_sn_2016	CCB				05/05/16 17:11	1.0		
073	met09_sn_2016	SAMPLE	275719-008	Water	234045	05/05/16 17:16	1.0		3:NA=220000
074	met09_sn_2016	SAMPLE	275719-009	Water	234045	05/05/16 17:21	1.0		1:NA=300000
075	met09_sn_2016	SAMPLE	275719-010	Water	234045	05/05/16 17:25	1.0		4:CA=560000
076	met09_sn_2016	SAMPLE	275719-011	Water	234045	05/05/16 17:29	1.0		5:CA=620000
077	met09_sn_2016	SAMPLE	275719-012	Water	234045	05/05/16 17:37	1.0		
078	met09_sn_2016	SAMPLE	275719-013	Water	234045	05/05/16 17:42	1.0		
079	met09_sn_2016	SAMPLE	275878-001	Water	234045	05/05/16 17:47	1.0		5:CA=420000
080	met09_sn_2016	SAMPLE	275878-002	Water	234045	05/05/16 17:55	1.0		4:CA=1400000
081	met09_sn_2016	SAMPLE	275878-003	Water	234045	05/05/16 18:03	1.0		4:CA=420000
082	met09_sn_2016	MS	QC831362	Water	234045	05/05/16 18:08	1.0		
083	met09_sn_2016	CCV				05/05/16 18:12	1.0	10	
084	met09_sn_2016	CCB				05/05/16 18:19	1.0		
085	met09_sn_2016	MSD	QC831363	Water	234045	05/05/16 18:24	1.0		
086	met09_sn_2016	SER	QC831364	Water	234045	05/05/16 18:29	5.0		
087	met09_sn_2016	PDS	QC831365	Water	234045	05/05/16 18:34	1.0	12 11 13	4:CA=340000
088	met09_sn_2016	SAMPLE	275869-001	Soil	234061	05/05/16 18:38	1.0		1:FE=160000
089	met09_sn_2016	SAMPLE	275873-001	Soil	234061	05/05/16 18:46	1.0		2:CA=160000
090	met09_sn_2016	SAMPLE	275870-001	Soil	234061	05/05/16 18:54	1.0		2:FE=190000
091	met09_sn_2016	BLANK	QC832425	WET Leachate	234301	05/05/16 19:01	10.0		1:NA=160000
092	met09_sn_2016	BLANK	QC832426	WET Leachate	234301	05/05/16 19:06	10.0		1:NA=150000
093	met09_sn_2016	BS	QC832427	WET Leachate	234301	05/05/16 19:12	1.0		
094	met09_sn_2016	BSD	QC832428	WET Leachate	234301	05/05/16 19:16	1.0		
095	met09_sn_2016	CCV				05/05/16 19:20	1.0	10	
096	met09_sn_2016	CCB				05/05/16 19:27	1.0		
097	met09_sn_2016	SAMPLE	276114-001	WET Leachate	234301	05/05/16 19:32	10.0		1:NA=140000
098	met09_sn_2016	MSS	276114-002	WET Leachate	234301	05/05/16 19:36	10.0		1:NA=140000
099	met09_sn_2016	MS	QC833008	Water	234452	05/05/16 19:40	1.0		
100	met09_sn_2016	MSD	QC833009	Water	234452	05/05/16 19:45	1.0		
101	met09_sn_2016	CCV				05/05/16 19:49	1.0	10	
102	met09_sn_2016	CCB				05/05/16 19:56	1.0		

KER 05/05/16 : I verified that the vials loaded on the instrument matched the

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 96181981

Instrument : MET09 Begun : 05/05/16 09:01
Method : EPA 6010B SOP Version : icp metals_rv17

sequence data entry, for runs 1 through 26.

Standards used: 1=S29300 2=S29393 3=S29394 4=S29395 5=S29761 6=S29396 7=S29301 8=S29660 9=S29661 10=S29397 11=S28385 12=S28386 13=S29742

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 96181981

Date : 05/05/16 Reference : met09_sn_2016
Sequence : MET09 05/05/16 Analyzed : 05/05/16 09:06

#	Type	Sample ID	Y A
		ICAL STD	4481751
		LOWER LIMIT	1344525
		UPPER LIMIT	5378101
010	ICB		4463817
011	ICSA		3832081
012	ICSAB		3847109
047	CCV		4285015
048	CCB		4471355
059	CCV		4128481
060	CCB		4336146
061	MSS	276192-001	3974698
071	CCV		4326357
072	CCB		4409967
088	SAMPLE	275869-001	4322711
089	SAMPLE	275873-001	4253362
090	SAMPLE	275870-001	4438236

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 96181981

Date : 05/05/16 Reference : met09_sn_2016
Sequence : MET09 05/05/16 Analyzed : 05/05/16 09:06

#	Type	Sample ID	Y A
		ICAL STD	4481751
		LOWER LIMIT	1344525
		UPPER LIMIT	8963501
013	BLANK	QC834208	4498406
014	BS	QC834209	4466888
015	BSD	QC834210	4431600
016	MSS	276301-008	4336993
017	MS	QC834211	4289984
018	MSD	QC834212	4314932
019	SAMPLE	276567-002	5128284
020	SAMPLE	276574-002	4613901
021	SAMPLE	276574-003	4798388
022	SAMPLE	276574-004	4721842
023	CCV		4372749
024	CCB		4427067
025	SAMPLE	276574-005	4646771
026	SAMPLE	276574-006	4812422
027	SAMPLE	276574-007	4706574
028	SAMPLE	276574-008	4712033
029	SAMPLE	276574-009	4796546
030	SAMPLE	276574-010	4863375
031	SAMPLE	276574-011	4657940
032	SAMPLE	276574-012	4823681
033	SAMPLE	276301-010	4361281
034	BLANK	QC834291	4311573
035	CCV		4358790
036	CCB		4499124
037	BS	QC834292	4411305
038	BSD	QC834293	4482628
039	SAMPLE	276522-001	4258419
040	SAMPLE	276301-011	4336538
041	SAMPLE	276301-012	4411086
042	SAMPLE	276301-014	4398434
043	SAMPLE	276301-024	4353854
044	SAMPLE	276301-026	4232685
045	SAMPLE	276301-027	4299819
046	MSS	276513-001	4140504
049	SAMPLE	276513-002	4121556
050	MS	QC834294	4184156
051	MSD	QC834295	4162047
052	SER	QC834296	4219723
053	PDS	QC834297	4296304
055	SAMPLE	275865-021	2970494
056	BLANK	QC833528	4129997
057	BS	QC833529	4145612
058	BSD	QC833530	4111444
062	SAMPLE	276395-001	4131880
063	MS	QC833531	4016875
064	MSD	QC833532	4099695
065	SER	QC833533	4267077
066	PDS	QC833534	4148562

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 96181981

Date : 05/05/16 Reference : met09_sn_2016
Sequence : MET09 05/05/16 Analyzed : 05/05/16 09:06

#	Type	Sample ID	Y A
067	MSS	275719-002	3887282
068	SAMPLE	275719-003	4039871
069	SAMPLE	275719-004	3963242
070	SAMPLE	275719-007	4032847
073	SAMPLE	275719-008	4085925
074	SAMPLE	275719-009	4143012
075	SAMPLE	275719-010	3686446
076	SAMPLE	275719-011	3791845
077	SAMPLE	275719-012	4290473
078	SAMPLE	275719-013	4300049
079	SAMPLE	275878-001	3896392
080	SAMPLE	275878-002	3472673
081	SAMPLE	275878-003	3807728
082	MS	QC831362	3828583
083	CCV		4141361
084	CCB		4273267
085	MSD	QC831363	3739890
086	SER	QC831364	4173799
087	PDS	QC831365	3877277
091	BLANK	QC832425	4157606
092	BLANK	QC832426	4235997
093	BS	QC832427	4500182
094	BSD	QC832428	4643497
095	CCV		4119496
096	CCB		4361904
097	SAMPLE	276114-001	4136231
098	MSS	276114-002	4210184
099	MS	QC833008	4523358
100	MSD	QC833009	4553676
101	CCV		4122196
102	CCB		4204227

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 275865 METALS Filtrate: EPA 6010B

Inst : MET09
Calnum : 96181981001
Units : ug/L

Date : 05-MAY-2016 09:01
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met09_sn_2016	96181981002	L1	05-MAY-2016 09:06	S29300
L2	met09_sn_2016	96181981003	L2	05-MAY-2016 09:11	S29393
L3	met09_sn_2016	96181981004	L3	05-MAY-2016 09:15	S29394
L4	met09_sn_2016	96181981005	L4	05-MAY-2016 09:20	S29395
L5	met09_sn_2016	96181981006	L5	05-MAY-2016 09:27	S29761

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Antimony	A	4.9100	3.5460	3.5729	3.5355		LOR0	0.00000	0.28282		3.8911	1.000	0.995	
Arsenic	A	1.9800	1.8050	1.8116	1.7866		LOR0	0.00000	0.55966		1.8458	1.000	0.995	
Barium	A	77.480	79.651	78.102	75.778		LOR0	0.00000	0.01319		77.753	1.000	0.995	
Beryllium	A	5962.8	5959.0	5859.2			LOR0	0.00000	1.71E-4		5927.0	1.000	0.995	
Cadmium	A	112.24	112.60	111.64	105.68		LOR0	0.00000	0.00946		110.54	1.000	0.995	
Chromium	A	214.50	199.02	195.34	190.86		LOR0	0.00000	0.00524		199.93	1.000	0.995	
Cobalt	A	27.620	25.797	26.279	26.528		LOR0	0.00000	0.03770		26.556	1.000	0.995	
Copper	A	746.52	450.99	439.49	446.40		LOR0	0.00000	0.00224		520.85	1.000	0.995	
Lead	A	15.300	14.645	14.761	14.700		LOR0	0.00000	0.06802		14.852	1.000	0.995	
Molybdenum	A	28.780	28.617	28.156	27.689		LOR0	0.00000	0.03611		28.310	1.000	0.995	
Nickel	A	96.540	92.869	92.848	90.990		LOR0	0.00000	0.01099		93.312	1.000	0.995	
Selenium	A	3.3900	2.9430	2.9387	2.9238		LOR0	0.00000	0.34201		3.0489	1.000	0.995	
Silver	A	83.120	90.415	88.502	89.016		LOR0	0.00000	0.01123		87.763	1.000	0.995	
Thallium	A	2.2800	2.3110	2.3377	2.3326		LOR0	0.00000	0.42871		2.3153	1.000	0.995	
Vanadium	A	271.36	255.33	252.28	249.27		LOR0	0.00000	0.00401		257.06	1.000	0.995	
Zinc	A	44.895	43.080	44.085	43.522		LOR0	0.00000	0.02297		43.895	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Antimony	A	10.000	**39**	100.00	0	1000.0	1	10000	0		
Arsenic	A	5.0000	11	100.00	1	1000.0	1	10000	0		
Barium	A	5.0000	2	100.00	5	1000.0	3	10000	0		
Beryllium	A	2.0000	2	100.00	2	1000.0	0				
Cadmium	A	5.0000	6	100.00	6	1000.0	6	10000	0		
Chromium	A	5.0000	12	100.00	4	1000.0	2	10000	0		
Cobalt	A	5.0000	4	100.00	-3	1000.0	-1	10000	0		
Copper	A	5.0000	**67**	100.00	1	1000.0	-2	10000	0		
Lead	A	5.0000	4	100.00	0	1000.0	0	10000	0		
Molybdenum	A	5.0000	4	100.00	3	1000.0	2	10000	0		
Nickel	A	5.0000	6	100.00	2	1000.0	2	10000	0		
Selenium	A	10.000	16	100.00	1	1000.0	1	10000	0		
Silver	A	5.0000	-7	20.000	2	200.00	-1	2000.0	0		
Thallium	A	10.000	-2	100.00	-1	1000.0	0	10000	0		
Vanadium	A	5.0000	9	100.00	2	1000.0	1	10000	0		
Zinc	A	20.000	3	100.00	-1	1000.0	1	10000	0		

Instrument amount = a0 + response * a1 + response^2 * a2; LOR0=Linear regression forced thru origin, including 0,0 point

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 275865 METALS Filtrate
EPA 6010B

Inst : MET09
Calnum : 96181981001 Cal Date : 05-MAY-2016

ICV 96181981007 (05-MAY-2016) stds: S29396

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	5000	4907	ug/L	-2	10	
Arsenic	A	5000	5179	ug/L	4	10	
Barium	A	5000	5147	ug/L	3	10	
Beryllium	A	500.0	513.0	ug/L	3	10	
Cadmium	A	5000	5187	ug/L	4	10	
Chromium	A	5000	5112	ug/L	2	10	
Cobalt	A	5000	5099	ug/L	2	10	
Copper	A	5000	5065	ug/L	1	10	
Lead	A	5000	5029	ug/L	1	10	
Molybdenum	A	5000	4952	ug/L	-1	10	
Nickel	A	5000	5068	ug/L	1	10	
Selenium	A	5000	5028	ug/L	1	10	
Silver	A	1000	1002	ug/L	0	10	
Thallium	A	5000	5050	ug/L	1	10	
Vanadium	A	5000	5122	ug/L	2	10	
Zinc	A	5000	5136	ug/L	3	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275865 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96181981010.1 File : met09_sn_2016 Time : 05-MAY-2016 09:57
Cal : 96181981001 Caldate : 05-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	2.500	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4481751	4463817	-0.40

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 275865 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96181981011.1 File : met09_sn_2016 Time : 05-MAY-2016 10:02
Cal : 96181981001 Caldate : 05-MAY-2016
Standards: S29660

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	[0.6029]	10.00	ug/L	
Arsenic	A	[-4.258]	5.000	ug/L	
Barium	A	[2.441]	5.000	ug/L	
Beryllium	A	[1.890]	2.000	ug/L	
Cadmium	A	[1.021]	5.000	ug/L	
Cobalt	A	[-1.804]	5.000	ug/L	
Lead	A	[-0.3306]	5.000	ug/L	
Molybdenum	A	[-0.6811]	5.000	ug/L	
Selenium	A	[-0.5568]	10.00	ug/L	
Silver	A	[4.675]	5.000	ug/L	
Thallium	A	[5.534]	10.00	ug/L	
Zinc	A	[8.581]	20.00	ug/L	

Interferent	Ch	Spiked	Quant	Units	%Rec	Flags
Chromium	A	20000	18620	ug/L	93	
Copper	A	20000	21400	ug/L	107	
Manganese	A	20000	18180	ug/L	91	
Nickel	A	20000	17100	ug/L	86	
Vanadium	A	20000	19500	ug/L	98	
Aluminum	R	500000	517100	ug/L	103	
Calcium	R	500000	479400	ug/L	96	
Iron	R	200000	184100	ug/L	92	
Magnesium	R	500000	476900	ug/L	95	
Titanium	R	20000	21340	ug/L	107	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4481751	3832081	-14.50

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 275865 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96181981012.1 File : met09_sn_2016 Time : 05-MAY-2016 10:29
Cal : 96181981001 Caldate : 05-MAY-2016
Standards: S29661

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	600.6	ug/L	20	20	
Arsenic	A	500.0	523.3	ug/L	5	20	
Barium	A	500.0	506.7	ug/L	1	20	
Beryllium	A	500.0	500.1	ug/L	0	20	
Cadmium	A	1000	965.5	ug/L	-3	20	
Chromium	A	500.0	488.2	ug/L	-2	20	
Cobalt	A	500.0	494.3	ug/L	-1	20	
Copper	A	500.0	536.2	ug/L	7	20	
Lead	A	1000	927.3	ug/L	-7	20	
Molybdenum	A	500.0	491.4	ug/L	-2	20	
Nickel	A	1000	893.0	ug/L	-11	20	
Selenium	A	500.0	536.7	ug/L	7	20	
Silver	A	1000	1111	ug/L	11	20	
Thallium	A	500.0	530.5	ug/L	6	20	
Vanadium	A	500.0	520.6	ug/L	4	20	
Zinc	A	1000	921.2	ug/L	-8	20	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4481751	3847109	-14.16

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275865 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96181981047.1 File : met09_sn_2016 Time : 05-MAY-2016 15:05
Cal : 96181981001 Caldate : 05-MAY-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	3.8911	3.4625	5000	4896	ug/L	-2	10	
Arsenic	A	1.8458	1.9290	5000	5398	ug/L	8	10	
Barium	A	77.753	76.650	5000	5056	ug/L	1	10	
Beryllium	A	5927.0	5817.6	500.0	496.4	ug/L	-1	10	
Cadmium	A	110.54	106.63	5000	5042	ug/L	1	10	
Chromium	A	199.93	192.63	5000	5045	ug/L	1	10	
Cobalt	A	26.556	30.388	5000	5728	ug/L	**15**	10	c+ ***
Copper	A	520.85	448.72	5000	5027	ug/L	1	10	
Lead	A	14.852	14.142	5000	4810	ug/L	-4	10	
Molybdenum	A	28.310	26.636	5000	4809	ug/L	-4	10	
Nickel	A	93.312	90.229	5000	4957	ug/L	-1	10	
Selenium	A	3.0489	2.9955	5000	5122	ug/L	2	10	
Silver	A	87.763	88.731	1000	996.9	ug/L	0	10	
Thallium	A	2.3153	2.3580	5000	5054	ug/L	1	10	
Vanadium	A	257.06	251.61	5000	5046	ug/L	1	10	
Zinc	A	43.895	43.170	5000	4959	ug/L	-1	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4481751	4285015	-4.39

+=high bias c=CCV

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275865 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96181981048.1 File : met09_sn_2016 Time : 05-MAY-2016 15:12
Cal : 96181981001 Caldate : 05-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	2.500	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4481751	4471355	-0.23

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275865 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96181981059.1 File : met09_sn_2016 Time : 05-MAY-2016 16:06
Cal : 96181981001 Caldate : 05-MAY-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	3.8911	3.5200	5000	4978	ug/L	0	10	
Arsenic	A	1.8458	1.9726	5000	5520	ug/L	10	10	
Barium	A	77.753	76.303	5000	5033	ug/L	1	10	
Beryllium	A	5927.0	5823.8	500.0	496.9	ug/L	-1	10	
Cadmium	A	110.54	107.03	5000	5061	ug/L	1	10	
Chromium	A	199.93	192.91	5000	5053	ug/L	1	10	
Cobalt	A	26.556	31.188	5000	5879	ug/L	**18**	10	c+ ***
Copper	A	520.85	443.21	5000	4965	ug/L	-1	10	
Lead	A	14.852	14.122	5000	4803	ug/L	-4	10	
Molybdenum	A	28.310	26.608	5000	4804	ug/L	-4	10	
Nickel	A	93.312	90.356	5000	4964	ug/L	-1	10	
Selenium	A	3.0489	3.0310	5000	5183	ug/L	4	10	
Silver	A	87.763	88.694	1000	996.4	ug/L	0	10	
Thallium	A	2.3153	2.3770	5000	5095	ug/L	2	10	
Vanadium	A	257.06	250.99	5000	5034	ug/L	1	10	
Zinc	A	43.895	43.488	5000	4995	ug/L	0	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4481751	4128481	-7.88

+=high bias c=CCV

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275865 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96181981060.1 File : met09_sn_2016 Time : 05-MAY-2016 16:13
Cal : 96181981001 Caldate : 05-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	2.500	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4481751	4336146	-3.25

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 1016182035

Instrument : MET26
Method : EPA 6020

Begun : 05/05/16 09:51
SOP Version : icpms_rv10

#	File	Type	Sample ID	P	Matrix	Batch	Analyzed	IDF	Stds Used	
001	16e05j00001	X	RINSE				05/05/16 09:51	1.0	1	
002	16e05j00002	TUN					05/05/16 09:55	1.0	2	
003	16e05j00003	X	RINSE				05/05/16 10:00	1.0	1	
004	16e05j00004	ICALBLK	CALBLANK				05/05/16 10:05	1.0	1	
005	16e05j00005	ICAL					05/05/16 10:10	1.0	3 1	
006	16e05j00006	ICAL					05/05/16 10:15	1.0	4 1	
007	16e05j00007	ICAL					05/05/16 10:20	1.0	5 1	
008	16e05j00008	ICAL					05/05/16 10:24	1.0	6 1	
009	16e05j00009	ICAL					05/05/16 10:29	1.0	7 1	
010	16e05j00010	ICAL					05/05/16 10:34	1.0	8 1	
011	16e05j00011	X	RINSE				05/05/16 10:39	1.0	1	
012	16e05j00012	XICV					05/05/16 10:49	1.0	9 1	
013	16e05j00013	XICV					05/05/16 10:54	1.0	9 1	
014	16e05j00014	ICV					05/05/16 10:58	1.0	9 1	1:U=940
015	16e05j00015	XCRI					05/05/16 11:03	1.0	10 1	
016	16e05j00016	XICB					05/05/16 11:08	1.0	1	
017	16e05j00017	XICB					05/05/16 11:13	1.0	1	
018	16e05j00018	ICB					05/05/16 11:18	1.0	1	
019	16e05j00019	CRI					05/05/16 11:23	1.0	10 1	
020	16e05j00020	ICSA					05/05/16 11:28	1.0	11 1	8:CA=290000
021	16e05j00021	ICSAB					05/05/16 11:33	1.0	12 1	8:CA=290000
022	16e05j00022	X	RINSE				05/05/16 11:38	1.0	1	
023	16e05j00023	X	RINSE				05/05/16 11:43	1.0	1	
024	16e05j00024	X	RINSE				05/05/16 15:17	1.0	1	
025	16e05j00025	X	RINSE				05/05/16 15:22	1.0	1	
026	16e05j00026	X	RINSE				05/05/16 15:28	1.0	1	
027	16e05j00027	BS	QC833659	F	Air	234612	05/05/16 15:32	100.0	1	
028	16e05j00028	BSD	QC833660	F	Air	234612	05/05/16 15:47	100.0	1	
029	16e05j00029	BLANK	QC832023		Filtrate	234207	05/05/16 15:52	10.0	1	
030	16e05j00030	BS	QC832024		Filtrate	234207	05/05/16 15:57	10.0	1	
031	16e05j00031	BSD	QC832034		Filtrate	234207	05/05/16 16:02	10.0	1	
032	16e05j00032	SAMPLE	275865-021		Filtrate	234207	05/05/16 16:07	10.0	1	4:NA=780000
033	16e05j00033	X	RINSE				05/05/16 16:12	1.0	1	
034	16e05j00034	X	RINSE				05/05/16 16:17	1.0	1	
035	16e05j00035	BLANK	QC832023		Filtrate	234207	05/05/16 16:24	10.0	1	
036	16e05j00036	CCV					05/05/16 16:29	1.0	13 1	1:U=950
037	16e05j00037	X	XCCB				05/05/16 16:33	1.0	1	
038	16e05j00038	CCB					05/05/16 16:38	1.0	1	
039	16e05j00039	X	RINSE				05/05/16 16:43	1.0	1	
040	16e05j00040	ICSA					05/05/16 16:48	1.0	11 1	8:CA=290000
041	16e05j00041	ICSAB					05/05/16 16:53	1.0	12 1	8:CA=290000
042	16e05j00042	X	RINSE				05/05/16 16:58	1.0	1	
043	16e05j00043	X	RINSE				05/05/16 18:43	1.0	1	
044	16e05j00044	X	RINSE				05/05/16 18:48	1.0	1	
045	16e05j00045	X	RINSE				05/05/16 18:54	1.0	1	
046	16e05j00046	X	RINSE				05/05/16 18:59	1.0	1	
047	16e05j00047	X	RINSE				05/05/16 19:04	1.0	1	
048	16e05j00048	CCV					05/05/16 19:09	1.0	13 1	1:U=940
049	16e05j00049	X	XCCB				05/05/16 19:14	1.0	1	
050	16e05j00050	CCB					05/05/16 19:19	1.0	1	
051	16e05j00051	BLANK	QC834434		Soil	234827	05/05/16 19:23	25.0	1	
052	16e05j00052	BS	QC834435		Soil	234827	05/05/16 19:28	25.0	1	

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 1016182035

Instrument : MET26
Method : EPA 6020
Begun : 05/05/16 09:51
SOP Version : icpms_rv10

#	File	Type	Sample ID	P	Matrix	Batch	Analyzed	IDF	Stds Used	
053	16e05j00053	BSD	QC834436		Soil	234827	05/05/16 19:33	25.0	1	
054	16e05j00054	MSS	276422-025		Soil	234827	05/05/16 19:38	25.0	1	2:FE=22000
055	16e05j00055	MS	QC834437		Soil	234827	05/05/16 19:43	25.0	1	2:FE=22000
056	16e05j00056	MSD	QC834438		Soil	234827	05/05/16 19:48	25.0	1	2:FE=21000
057	16e05j00057	SAMPLE	276583-005		Soil	234827	05/05/16 19:53	25.0	1	1:MN=320
058	16e05j00058	SAMPLE	276584-005		Soil	234827	05/05/16 19:58	25.0	1	3:CA=63000
059	16e05j00059	SAMPLE	276422-026		Soil	234827	05/05/16 20:03	25.0	1	2:FE=24000
060	16e05j00060	SAMPLE	276422-027		Soil	234827	05/05/16 20:07	25.0	1	2:FE=25000
061	16e05j00061	CCV					05/05/16 20:12	1.0	13 1	1:U=940
062	16e05j00062	X	XCCB				05/05/16 20:17	1.0	1	
063	16e05j00063	CCB					05/05/16 20:22	1.0	1	
064	16e05j00064	SAMPLE	276422-028		Soil	234827	05/05/16 20:27	25.0	1	3:CA=66000
065	16e05j00065	SAMPLE	276422-029		Soil	234827	05/05/16 20:32	25.0	1	1:FE=23000
066	16e05j00066	SAMPLE	276422-030		Soil	234827	05/05/16 20:37	25.0	1	3:FE=26000
067	16e05j00067	SAMPLE	275865-004		Filtrate	234207	05/05/16 20:42	10.0	1	
068	16e05j00068	SAMPLE	275865-005		Filtrate	234207	05/05/16 20:47	10.0	1	
069	16e05j00069	SAMPLE	275865-006		Filtrate	234207	05/05/16 20:52	10.0	1	
070	16e05j00070	MSS	275865-011		Filtrate	234207	05/05/16 20:57	10.0	1	
071	16e05j00071	MS	QC832025		Filtrate	234207	05/05/16 21:02	10.0	1	
072	16e05j00072	MSD	QC832026		Filtrate	234207	05/05/16 21:07	10.0	1	
073	16e05j00073	SAMPLE	275865-012		Filtrate	234207	05/05/16 21:11	10.0	1	
074	16e05j00074	CCV					05/05/16 21:16	1.0	13 1	1:U=940
075	16e05j00075	X	XCCB				05/05/16 21:21	1.0	1	
076	16e05j00076	CCB					05/05/16 21:26	1.0	1	
077	16e05j00077	X	RINSE				05/05/16 21:32	1.0	1	
078	16e05j00078	SAMPLE	275865-018		Filtrate	234207	05/05/16 21:37	10.0	1	
079	16e05j00079	X	RINSE				05/05/16 21:42	1.0	1	
080	16e05j00080	SAMPLE	275865-022		Filtrate	234207	05/05/16 21:47	10.0	1	1:NA=110000
081	16e05j00081	X	RINSE				05/05/16 21:52	1.0	1	
082	16e05j00082	CCV					05/05/16 21:57	1.0	13 1	1:U=940
083	16e05j00083	X	XCCB				05/05/16 22:02	1.0	1	
084	16e05j00084	CCB					05/05/16 22:07	1.0	1	
085	16e05j00085	ICSA					05/05/16 22:12	1.0	11 1	8:CA=290000
086	16e05j00086	ICSAB					05/05/16 22:17	1.0	12 1	8:CA=290000
087	16e05j00087	X	RINSE				05/05/16 22:22	1.0	1	
088	16e05j00088	X	RINSE				05/05/16 22:27	1.0	1	
089	16e05j00089	X	RINSE				05/05/16 22:32	1.0	1	
090	16e05j00090	X	RINSE				05/05/16 22:37	1.0	1	
091	16e05j00091	X	RINSE				05/05/16 22:42	1.0	1	
092	16e05j00092	X	RINSE				05/05/16 22:47	1.0	1	
093	16e05j00093	X	RINSE				05/05/16 22:52	1.0	1	
094	16e05j00094	X	RINSE				05/05/16 22:57	1.0	1	

VQ 05/06/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 94.

Standards used: 1=S29292 2=S29291 3=S29499 4=S29500 5=S29501 6=S29502 7=S29497 8=S29498 9=S29525 10=S29610 11=S29514 12=S29515 13=S29547

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 1016182035

Date : 05/05/16 Reference : 16e05j00004
Sequence : MET26 16e05j00 Analyzed : 05/05/16 10:05

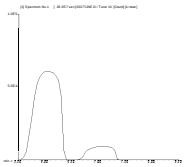
#	Type	Sample ID	LI A	SC A	SC E	SC H	GE H	GE E	IN A	BI A	Y A	TB A
		IB+ICALBLK STD	595713	732142	101470	438641	115037	50457	1166666	1390109	1123288	1874713
		LOWER LIMIT	178714	219643	30441	131592	34511	15137	350000	417033	336986	562414
		UPPER LIMIT	714856	878570	121764	526369	138044	60548	1399999	1668131	1347946	2249656
018	ICB		621363	765703	107524	449795	119009	53419	1227123	1429480	1173248	1938588
020	ICSA		559188	716293	99302	452279	116805	54258	998997	1253804	1090579	1813552
021	ICSAB		555101	711952	101355	442557	116277	54623	994996	1248757	1086441	1804258
027	BS	QC833659	585973	721201	111407	461181	115672	53110	1154962	1369887	1102545	1841479
028	BSD	QC833660	589874	742223	114661	465907	114739	52945	1169598	1386039	1107598	1852214
029	BLANK	QC832023	584148	693964	105111	417857	114136	52529	1141547	1351374	1099986	1828619
030	BS	QC832024	578146	703510	108474	497763	126112	52307	1140886	1347298	1082813	1816611
031	BSD	QC832034	580311	693728	104393	428008	114013	52176	1143876	1345505	1093183	1825634
032	SAMPLE	275865-021	553994	695133	106103	416303	109142	50753	1008522	1107850	1061351	1756276
035	BLANK	QC832023	613327	720891	110705	450274	119076	53934	1163477	1355873	1118863	1847137
036	CCV		576766	703734	107688	431804	114503	52427	1133191	1319549	1099449	1838269
038	CCB		600283	722531	109368	439219	116307	53436	1175950	1394198	1128794	1861304
040	ICSA		530037	670848	104657	442590	115775	55680	963734	1208300	1041734	1749118
041	ICSAB		530159	667952	102709	432546	114373	55263	962782	1123682	1043040	1762507
048	CCV		561087	704560	108351	427579	113809	53008	1143288	1339180	1108339	1855971
050	CCB		586456	719154	109324	434055	116500	53491	1189447	1395778	1130751	1888094
051	BLANK	QC834434	584637	719608	109661	437971	116182	53428	1174321	1390728	1129583	1870612
052	BS	QC834435	580066	718022	109423	439624	116884	53187	1174788	1382562	1128845	1887527
053	BSD	QC834436	579153	710169	108294	433897	115986	53157	1178951	1386813	1116663	1858755
054	MSS	276422-025	583621	764178	116123	466793	117053	54212	1169858	1396541	1209428	1888228
055	MS	QC834437	590835	777431	117774	468688	118257	55087	1194113	1407663	1229731	1904229
056	MSD	QC834438	602767	788013	118931	472359	120467	56265	1212518	1412916	1259065	1932291
057	SAMPLE	276583-005	613693	797328	119934	477202	122227	56827	1223816	1421742	1287798	1961134
058	SAMPLE	276584-005	575796	741476	112428	451725	116223	53604	1157936	1362280	1185413	1876088
059	SAMPLE	276422-026	601320	794484	117882	469862	118207	55156	1212932	1411765	1262116	1926357
060	SAMPLE	276422-027	627842	828600	125327 *	497835	124342	58389	1242918	1420582	1313016	1982015
061	CCV		606727	766166	115119	462562	123145	56949	1219337	1379574	1198662	1941174
063	CCB		660324	789399	119162	474296	126745	58379	1279705	1444714	1235049	1984586
064	SAMPLE	276422-028	582625	764136	115942	468991	117604	54531	1179810	1384493	1218608	1882841
065	SAMPLE	276422-029	620604	824529	120600	476347	119634	56099	1239394	1428076	1304564	1967723
066	SAMPLE	276422-030	694953	847121	127029 *	502871	125994	59086	1266137	1440778	1343905	1994237
067	SAMPLE	275865-004	633153	784901	119215	477078	129025	58572	1279230	1444568	1233260	1976420
068	SAMPLE	275865-005	609365	766102	116004	466392	125938	57611	1236542	1399968	1204498	1955910
069	SAMPLE	275865-006	620516	774165	116246	464634	125729	57594	1261118	1449364	1203686	1961232
070	MSS	275865-011	612525	766666	115214	464035	125275	57313	1248023	1422458	1191220	1962036
071	MS	QC832025	606565	762997	115213	463057	124564	56824	1238659	1406303	1194063	1952824
072	MSD	QC832026	605444	756736	114018	459783	123480	56588	1219288	1398921	1175717	1942570
073	SAMPLE	275865-012	606172	757188	113778	456155	124041	56460	1236993	1420966	1190395	1925624
074	CCV		586129	744237	113049	447415	119932	55697	1200246	1372049	1173450	1924594
076	CCB		610146	755981	114668	457066	122047	56308	1245200	1430044	1198572	1936754
078	SAMPLE	275865-018	590963	738763	112852	455299	122523	55538	1214247	1400277	1150894	1913403
080	SAMPLE	275865-022	572240	736657	112192	448403	117902	54526	1180815	1324378	1142023	1879005
082	CCV		573935	722409	110647	443276	118970	54814	1179723	1367329	1154203	1907381
084	CCB		594829	742003	112761	448260	119575	55182	1228319	1422042	1166202	1919424
085	ICSA		515403	666217	104479	437246	115382	56002	973035	1222337	1051730	1775958
086	ICSAB		502719	652782	102001	425476	113772	55234	957187	1194197	1044495	1746753

MET26 QC Tune Report

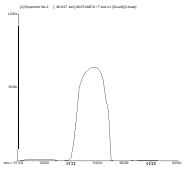
Data File: C:\ICPCHEM\1\DATA\16E05j00.B\002TUNE.D
Date Acquired: May 5 2016 09:55 am
Acq. Method: TN6020F.M
Operator:
Sample Name: tun,s29291
Misc Info:
Vial Number: 1307
Current Method: C:\ICPCHEM\1\METHODS\TN6020F.M

RSD (%)

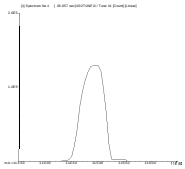
Element	Rep1	Rep2	Rep3	Rep4	Rep5	Actual	Required	Flag
7 Li	50537	50492	50687	50016	49811	0.84	5.00	
59 Co	36005	36158	35506	35728	35520	1.48	5.00	
115 In	647989	647652	646278	644548	642532	1.18	5.00	
205 Tl	38003	38166	37852	37958	37752	0.51	5.00	



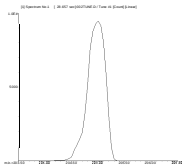
7 Li
Mass Calib.
Actual: 7.10
Required: 6.90 - 7.10
Flag:
Peak Width @ 5%
Actual: 0.65
Required: 0.75
Flag:



59 Co
Mass Calib.
Actual: 58.90
Required: 58.90 - 59.10
Flag:
Peak Width @ 5%
Actual: 0.65
Required: 0.75
Flag:



115 In
Mass Calib.
Actual: 114.95
Required: 114.90 - 115.10
Flag:
Peak Width @ 5%
Actual: 0.65
Required: 0.75
Flag:



205 Tl
Mass Calib.
Actual: 205.00
Required: 204.90 - 205.10
Flag:
Peak Width @ 5%
Actual: 0.65
Required: 0.75
Flag:

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 275865 METALS Filtrate: EPA 6020

Inst : MET26
Calnum : 1016182035001
Units : ug/L

Date : 05-MAY-2016 10:05
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	16e05j00005	1016182035005		05-MAY-2016 10:10	S29499, S29292
L2	16e05j00006	1016182035006		05-MAY-2016 10:15	S29500, S29292
L3	16e05j00007	1016182035007		05-MAY-2016 10:20	S29501, S29292
L4	16e05j00008	1016182035008		05-MAY-2016 10:24	S29502, S29292
L5	16e05j00009	1016182035009		05-MAY-2016 10:29	S29497, S29292
L6	16e05j00010	1016182035010		05-MAY-2016 10:34	S29498, S29292

Analyte	Ch	L1	L2	L3	L4	L5	L6	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Thallium	A	0.0072	0.0066	0.0065	0.0064	0.0065	0.0066	BLNK	-0.0033	151.751		0.0066	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D
Thallium	A	0.0500	3	0.2500	-1	0.5000	-1	5.0000	-3	50.000	-2	100.00	1

Instrument amount = a0 + response * a1 + response^2 * a2; BLNK=Y=aX+[blank]

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 275865 METALS Filtrate
EPA 6020

Inst : MET26
Calnum : 1016182035001 Cal Date : 05-MAY-2016

ICV 1016182035014 (16e05j00014 05-MAY-2016) stds: S29525, S29292

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Thallium	A	50.00	48.10	ug/L	-4	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275865 METALS Filtrate
EPA 6020

Inst : MET26 IDF : 1.0
Seqnum : 1016182035018 File : 16e05j00018 Time : 05-MAY-2016 11:18
Cal : 1016182035001 Caldate : 05-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Thallium	A	ND	0.05000	0.05000	ug/L	

ISTD (ICALBLK 16e05j00004)	Ch	ICALBLK Abund	Abund	%Drift
Lithium	A	595713	621363	4.31
Scandium	A	732142	765703	4.58
Scandium	E	101470	107524	5.97
Scandium	H	438641	449795	2.54
Germanium	H	115037	119009	3.45
Germanium	E	50457	53419	5.87
Indium	A	1166666	1227123	5.18
Bismuth	A	1390109	1429480	2.83
Yttrium	A	1123288	1173248	4.45
Terbium	A	1874713	1938588	3.41

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 275865 METALS Filtrate
EPA 6020

Inst : MET26 IDF : 1.0
Seqnum : 1016182035020 File : 16e05j00020 Time : 05-MAY-2016 11:28
Cal : 1016182035001 Caldate : 05-MAY-2016
Standards: S29514, S29292

Analyte	Ch	Quant	IQL	Units	Flags
Thallium	A	[0.03710]	0.05000	ug/L	

Interferent	Ch	Spiked	Quant	Units	%Rec	Flags
Aluminum	A	100000	98640	ug/L	99	
Calcium	A	300000	288400	ug/L	96	
Magnesium	A	100000	97150	ug/L	97	
Molybdenum	A	2000	2035	ug/L	102	
Potassium	A	100000	98800	ug/L	99	
Sodium	E	250000	243600	ug/L	97	
Phosphorus	E	100000	104800	ug/L	105	
Iron	H	250000	218400	ug/L	87	

ISTD (ICALBLK 16e05j00004)	Ch	ICALBLK Abund	Abund	%Drift
Lithium	A	595713	559188	-6.13
Scandium	A	732142	716293	-2.16
Scandium	E	101470	99302	-2.14
Scandium	H	438641	452279	3.11
Germanium	H	115037	116805	1.54
Germanium	E	50457	54258	7.53
Indium	A	1166666	998997	-14.37
Bismuth	A	1390109	1253804	-9.81
Yttrium	A	1123288	1090579	-2.91
Terbium	A	1874713	1813552	-3.26

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275865 METALS Filtrate
EPA 6020

Inst : MET26 IDF : 1.0
Seqnum : 1016182035036 File : 16e05j00036 Time : 05-MAY-2016 16:29
Cal : 1016182035001 Caldate : 05-MAY-2016
Standards: S29547, S29292

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Thallium	A	0.0066	0.0064	50.00	48.48	ug/L	-3	10	

ISTD (ICALBLK 16e05j00004)	Ch	ICALBLK Abund	Abund	%Drift
Lithium	A	595713	576766	-3.18
Scandium	A	732142	703734	-3.88
Scandium	E	101470	107688	6.13
Scandium	H	438641	431804	-1.56
Germanium	H	115037	114503	-0.46
Germanium	E	50457	52427	3.90
Indium	A	1166666	1133191	-2.87
Bismuth	A	1390109	1319549	-5.08
Yttrium	A	1123288	1099449	-2.12
Terbium	A	1874713	1838269	-1.94

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275865 METALS Filtrate
EPA 6020

Inst : MET26 IDF : 1.0
Seqnum : 1016182035038 File : 16e05j00038 Time : 05-MAY-2016 16:38
Cal : 1016182035001 Caldate : 05-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Thallium	A	ND	0.05000	0.05000	ug/L	

ISTD (ICALBLK 16e05j00004)	Ch	ICALBLK Abund	Abund	%Drift
Lithium	A	595713	600283	0.77
Scandium	A	732142	722531	-1.31
Scandium	E	101470	109368	7.78
Scandium	H	438641	439219	0.13
Germanium	H	115037	116307	1.10
Germanium	E	50457	53436	5.90
Indium	A	1166666	1175950	0.80
Bismuth	A	1390109	1394198	0.29
Yttrium	A	1123288	1128794	0.49
Terbium	A	1874713	1861304	-0.72

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 275865 METALS Filtrate
EPA 6020

Inst : MET26 IDF : 1.0
Seqnum : 1016182035040 File : 16e05j00040 Time : 05-MAY-2016 16:48
Cal : 1016182035001 Caldate : 05-MAY-2016
Standards: S29514, S29292

Analyte	Ch	Quant	IQL	Units	Flags
Thallium	A	[0.03260]	0.05000	ug/L	

Interferent	Ch	Spiked	Quant	Units	%Rec	Flags
Aluminum	A	100000	98590	ug/L	99	
Calcium	A	300000	286900	ug/L	96	
Magnesium	A	100000	96780	ug/L	97	
Molybdenum	A	2000	2061	ug/L	103	
Potassium	A	100000	98180	ug/L	98	
Sodium	E	250000	229900	ug/L	92	
Phosphorus	E	100000	103700	ug/L	104	
Iron	H	250000	218300	ug/L	87	

ISTD (ICALBLK 16e05j00004)	Ch	ICALBLK Abund	Abund	%Drift
Lithium	A	595713	530037	-11.02
Scandium	A	732142	670848	-8.37
Scandium	E	101470	104657	3.14
Scandium	H	438641	442590	0.90
Germanium	H	115037	115775	0.64
Germanium	E	50457	55680	10.35
Indium	A	1166666	963734	-17.39
Bismuth	A	1390109	1208300	-13.08
Yttrium	A	1123288	1041734	-7.26
Terbium	A	1874713	1749118	-6.70

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275865 METALS Filtrate
EPA 6020

Inst : MET26 IDF : 1.0
Seqnum : 1016182035061 File : 16e05j00061 Time : 05-MAY-2016 20:12
Cal : 1016182035001 Caldate : 05-MAY-2016
Standards: S29547, S29292

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Thallium	A	0.0066	0.0065	50.00	49.02	ug/L	-2	10	

ISTD (ICALBLK 16e05j00004)	Ch	ICALBLK Abund	Abund	%Drift
Lithium	A	595713	606727	1.85
Scandium	A	732142	766166	4.65
Scandium	E	101470	115119	13.45
Scandium	H	438641	462562	5.45
Germanium	H	115037	123145	7.05
Germanium	E	50457	56949	12.87
Indium	A	1166666	1219337	4.51
Bismuth	A	1390109	1379574	-0.76
Yttrium	A	1123288	1198662	6.71
Terbium	A	1874713	1941174	3.55

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275865 METALS Filtrate
EPA 6020

Inst : MET26 IDF : 1.0
Seqnum : 1016182035063 File : 16e05j00063 Time : 05-MAY-2016 20:22
Cal : 1016182035001 Caldate : 05-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Thallium	A	ND	0.05000	0.05000	ug/L	

ISTD (ICALBLK 16e05j00004)	Ch	ICALBLK Abund	Abund	%Drift
Lithium	A	595713	660324	10.85
Scandium	A	732142	789399	7.82
Scandium	E	101470	119162	17.44
Scandium	H	438641	474296	8.13
Germanium	H	115037	126745	10.18
Germanium	E	50457	58379	15.70
Indium	A	1166666	1279705	9.69
Bismuth	A	1390109	1444714	3.93
Yttrium	A	1123288	1235049	9.95
Terbium	A	1874713	1984586	5.86

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275865 METALS Filtrate
EPA 6020

Inst : MET26 IDF : 1.0
Seqnum : 1016182035074 File : 16e05j00074 Time : 05-MAY-2016 21:16
Cal : 1016182035001 Caldate : 05-MAY-2016
Standards: S29547, S29292

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Thallium	A	0.0066	0.0064	50.00	48.60	ug/L	-3	10	

ISTD (ICALBLK 16e05j00004)	Ch	ICALBLK Abund	Abund	%Drift
Lithium	A	595713	586129	-1.61
Scandium	A	732142	744237	1.65
Scandium	E	101470	113049	11.41
Scandium	H	438641	447415	2.00
Germanium	H	115037	119932	4.26
Germanium	E	50457	55697	10.39
Indium	A	1166666	1200246	2.88
Bismuth	A	1390109	1372049	-1.30
Yttrium	A	1123288	1173450	4.47
Terbium	A	1874713	1924594	2.66

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275865 METALS Filtrate
EPA 6020

Inst : MET26 IDF : 1.0
Seqnum : 1016182035076 File : 16e05j00076 Time : 05-MAY-2016 21:26
Cal : 1016182035001 Caldate : 05-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Thallium	A	ND	0.05000	0.05000	ug/L	

ISTD (ICALBLK 16e05j00004)	Ch	ICALBLK Abund	Abund	%Drift
Lithium	A	595713	610146	2.42
Scandium	A	732142	755981	3.26
Scandium	E	101470	114668	13.01
Scandium	H	438641	457066	4.20
Germanium	H	115037	122047	6.09
Germanium	E	50457	56308	11.60
Indium	A	1166666	1245200	6.73
Bismuth	A	1390109	1430044	2.87
Yttrium	A	1123288	1198572	6.70
Terbium	A	1874713	1936754	3.31

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275865 METALS Filtrate
EPA 6020

Inst : MET26 IDF : 1.0
Seqnum : 1016182035082 File : 16e05j00082 Time : 05-MAY-2016 21:57
Cal : 1016182035001 Caldate : 05-MAY-2016
Standards: S29547, S29292

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Thallium	A	0.0066	0.0064	50.00	48.21	ug/L	-4	10	

ISTD (ICALBLK 16e05j00004)	Ch	ICALBLK Abund	Abund	%Drift
Lithium	A	595713	573935	-3.66
Scandium	A	732142	722409	-1.33
Scandium	E	101470	110647	9.04
Scandium	H	438641	443276	1.06
Germanium	H	115037	118970	3.42
Germanium	E	50457	54814	8.64
Indium	A	1166666	1179723	1.12
Bismuth	A	1390109	1367329	-1.64
Yttrium	A	1123288	1154203	2.75
Terbium	A	1874713	1907381	1.74

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275865 METALS Filtrate
EPA 6020

Inst : MET26 IDF : 1.0
Seqnum : 1016182035084 File : 16e05j00084 Time : 05-MAY-2016 22:07
Cal : 1016182035001 Caldate : 05-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Thallium	A	ND	0.05000	0.05000	ug/L	

ISTD (ICALBLK 16e05j00004)	Ch	ICALBLK Abund	Abund	%Drift
Lithium	A	595713	594829	-0.15
Scandium	A	732142	742003	1.35
Scandium	E	101470	112761	11.13
Scandium	H	438641	448260	2.19
Germanium	H	115037	119575	3.94
Germanium	E	50457	55182	9.36
Indium	A	1166666	1228319	5.28
Bismuth	A	1390109	1422042	2.30
Yttrium	A	1123288	1166202	3.82
Terbium	A	1874713	1919424	2.38

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 275865 METALS Filtrate
EPA 6020

Inst : MET26 IDF : 1.0
Seqnum : 1016182035085 File : 16e05j00085 Time : 05-MAY-2016 22:12
Cal : 1016182035001 Caldate : 05-MAY-2016
Standards: S29514, S29292

Analyte	Ch	Quant	IQL	Units	Flags
Thallium	A	[0.03260]	0.05000	ug/L	

Interferent	Ch	Spiked	Quant	Units	%Rec	Flags
Aluminum	A	100000	98580	ug/L	99	
Calcium	A	300000	287900	ug/L	96	
Magnesium	A	100000	95980	ug/L	96	
Molybdenum	A	2000	2065	ug/L	103	
Potassium	A	100000	98960	ug/L	99	
Sodium	E	250000	227700	ug/L	91	
Phosphorus	E	100000	104400	ug/L	104	
Iron	H	250000	223200	ug/L	89	

ISTD (ICALBLK 16e05j00004)	Ch	ICALBLK Abund	Abund	%Drift
Lithium	A	595713	515403	-13.48
Scandium	A	732142	666217	-9.00
Scandium	E	101470	104479	2.97
Scandium	H	438641	437246	-0.32
Germanium	H	115037	115382	0.30
Germanium	E	50457	56002	10.99
Indium	A	1166666	973035	-16.60
Bismuth	A	1390109	1222337	-12.07
Yttrium	A	1123288	1051730	-6.37
Terbium	A	1874713	1775958	-5.27

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 86182094

Instrument : MET08 Begun : 05/05/16 10:54
Method : EPA 6010B SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met08_sn_6010	ICALBLK				05/05/16 10:54	1.0		
002	met08_sn_6010	ICAL	L1			05/05/16 10:57	1.0	1	
003	met08_sn_6010	ICAL	L2			05/05/16 11:00	1.0	2	
004	met08_sn_6010	ICAL	L3			05/05/16 11:03	1.0	3	
005	met08_sn_6010	ICAL	L4			05/05/16 11:05	1.0	4	
006	met08_sn_6010	ICAL	L5			05/05/16 11:07	1.0	5	
007	met08_sn_6010	ICV				05/05/16 11:09	1.0	6	
008	met08_sn_6010	XCRI				05/05/16 11:18	1.0	1	
009	met08_sn_6010	CRI				05/05/16 11:22	1.0	1	
010	met08_sn_6010	ICB				05/05/16 11:25	1.0		
011	met08_sn_6010	ICSA				05/05/16 11:28	1.0	7	10:AL=490000
012	met08_sn_6010	ICSAB				05/05/16 11:46	1.0	8	
013	met08_sn_6010	BLANK	QC832450	Water	234309	05/05/16 12:39	1.0		
014	met08_sn_6010	SAMPLE	275499-001	Water	234309	05/05/16 12:42	5.0		1:ZN=190000
015	met08_sn_6010	SAMPLE	275499-002	Water	234309	05/05/16 12:46	5.0		1:ZN=180000
016	met08_sn_6010	SAMPLE	275499-003	Water	234309	05/05/16 12:50	5.0		1:ZN=200000
017	met08_sn_6010	SAMPLE	275499-004	Water	234309	05/05/16 12:54	5.0		1:ZN=200000
018	met08_sn_6010	SAMPLE	275499-005	Water	234309	05/05/16 12:58	5.0		1:ZN=190000
019	met08_sn_6010	SAMPLE	275499-006	Water	234309	05/05/16 13:02	5.0		1:ZN=200000
020	met08_sn_6010	SAMPLE	275499-007	Water	234309	05/05/16 13:06	5.0		1:ZN=190000
021	met08_sn_6010	SAMPLE	275499-008	Water	234309	05/05/16 13:10	5.0		1:ZN=190000
022	met08_sn_6010	SAMPLE	275499-009	Water	234309	05/05/16 13:14	5.0		1:ZN=91000
023	met08_sn_6010	CCV				05/05/16 13:18	1.0	9	
024	met08_sn_6010	CCB				05/05/16 13:20	1.0		
025	met08_sn_6010	SAMPLE	275499-010	Water	234309	05/05/16 13:24	5.0		1:ZN=95000
026	met08_sn_6010	SAMPLE	275499-011	Water	234309	05/05/16 13:28	5.0		
027	met08_sn_6010	SAMPLE	275652-001	Water	234309	05/05/16 13:32	5.0		1:ZN=180000
028	met08_sn_6010	SAMPLE	275652-002	Water	234309	05/05/16 13:36	5.0		
029	met08_sn_6010	SAMPLE	275652-003	Water	234309	05/05/16 13:39	5.0		
030	met08_sn_6010	SAMPLE	275865-005	Filtrate	234207	05/05/16 13:42	1.0		3:CA=160000
031	met08_sn_6010	SAMPLE	275865-008	Filtrate	234207	05/05/16 13:45	1.0		2:NA=290000
032	met08_sn_6010	SAMPLE	275865-024	Filtrate	234207	05/05/16 13:46	1.0		3:NA=740000
033	met08_sn_6010	SAMPLE	275865-027	Filtrate	234207	05/05/16 13:48	1.0		
034	met08_sn_6010	MSS	275865-015	Filtrate	234207	05/05/16 13:52	1.0		3:MG=190000
035	met08_sn_6010	CCV				05/05/16 13:54	1.0	9	
036	met08_sn_6010	CCB				05/05/16 13:56	1.0		
037	met08_sn_6010	MS	QC832025	Filtrate	234207	05/05/16 13:59	1.0		
038	met08_sn_6010	MSD	QC832026	Filtrate	234207	05/05/16 14:02	1.0		
039	met08_sn_6010	MS	QC832027	Filtrate	234207	05/05/16 14:04	1.0		3:MG=180000
040	met08_sn_6010	MSD	QC832028	Filtrate	234207	05/05/16 14:05	1.0		3:MG=190000
041	met08_sn_6010	PDS	QC832030	Filtrate	234207	05/05/16 14:07	1.0	10 11 12	3:MG=180000
042	met08_sn_6010	SAMPLE	275711-005	Water	233807	05/05/16 14:08	10.0		
043	met08_sn_6010	MS	QC830409	Water	233807	05/05/16 14:11	20.0		
044	met08_sn_6010	MSD	QC830410	Water	233807	05/05/16 14:14	20.0		
045	met08_sn_6010	SER	QC830411	Water	233807	05/05/16 14:16	100.0		
046	met08_sn_6010	PDS	QC830412	Water	233807	05/05/16 14:19	20.0	10 11 12	
047	met08_sn_6010	CCV				05/05/16 14:22	1.0	9	
048	met08_sn_6010	CCB				05/05/16 14:24	1.0		
049	met08_sn_6010	CCB				05/05/16 14:27	1.0		
050	met08_sn_6010	BLANK	QC831840	Water	234165	05/05/16 14:30	1.0		
051	met08_sn_6010	BS	QC831841	Water	234165	05/05/16 14:33	1.0		
052	met08_sn_6010	BSD	QC831842	Water	234165	05/05/16 14:36	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 86182094

Instrument : MET08 Begun : 05/05/16 10:54
Method : EPA 6010B SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met08_sn_6010	MSS	275920-001	Water	234233	05/05/16 14:38	5.0		
054	met08_sn_6010	SAMPLE	275920-002	Water	234233	05/05/16 14:40	5.0		
055	met08_sn_6010	SAMPLE	275920-003	Water	234233	05/05/16 14:43	5.0		
056	met08_sn_6010	SAMPLE	275920-004	Water	234233	05/05/16 14:45	5.0		
057	met08_sn_6010	SAMPLE	275920-009	Water	234233	05/05/16 14:47	5.0		
058	met08_sn_6010	SAMPLE	275920-011	Water	234233	05/05/16 14:50	5.0		
059	met08_sn_6010	SAMPLE	276111-001	Soil	234278	05/05/16 14:53	1.0		6:FE=360000
060	met08_sn_6010	CCV				05/05/16 14:55	1.0	9	
061	met08_sn_6010	CCB				05/05/16 14:57	1.0		
062	met08_sn_6010	SAMPLE	276114-001	Miscell.	234278	05/05/16 15:00	1.0		
063	met08_sn_6010	SAMPLE	276114-002	Miscell.	234278	05/05/16 15:04	1.0		3:AL=430000
064	met08_sn_6010	BS	QC832889	Soil	234420	05/05/16 15:06	1.0		1:SR=10000
065	met08_sn_6010	BSD	QC832890	Soil	234420	05/05/16 15:07	1.0		1:SR=11000
066	met08_sn_6010	MSS	276221-001	Soil	234420	05/05/16 15:09	1.0		4:FE=450000
067	met08_sn_6010	MS	QC832891	Soil	234420	05/05/16 15:11	1.0		1:FE=250000
068	met08_sn_6010	MSD	QC832892	Soil	234420	05/05/16 15:13	1.0		1:FE=230000
069	met08_sn_6010	SAMPLE	276221-003	Soil	234420	05/05/16 15:15	1.0		3:FE=580000
070	met08_sn_6010	SAMPLE	276221-006	Soil	234420	05/05/16 15:17	1.0		1:FE=200000
071	met08_sn_6010	SAMPLE	276221-009	Soil	234420	05/05/16 15:19	1.0		3:FE=410000
072	met08_sn_6010	CCV				05/05/16 15:21	1.0	9	
073	met08_sn_6010	XCCB				05/05/16 15:23	1.0		
074	met08_sn_6010	CCB				05/05/16 15:26	1.0		
075	met08_sn_6010	SAMPLE	276221-012	Soil	234420	05/05/16 15:29	1.0		1:FE=160000
076	met08_sn_6010	SAMPLE	276221-015	Soil	234420	05/05/16 15:31	1.0		2:FE=240000
077	met08_sn_6010	SAMPLE	276235-001	Soil	234420	05/05/16 15:34	1.0		4:FE=440000
078	met08_sn_6010	SAMPLE	276248-001	Soil	234420	05/05/16 15:36	1.0		2:FE=300000
079	met08_sn_6010	SAMPLE	276116-003	Filtrate	234434	05/05/16 15:38	1.0		1:NA=110000
080	met08_sn_6010	SAMPLE	276116-011	Filtrate	234434	05/05/16 15:41	1.0		
081	met08_sn_6010	MSS	276177-001	Filtrate	234479	05/05/16 15:44	10.0		
082	met08_sn_6010	SAMPLE	276177-002	Filtrate	234479	05/05/16 15:47	10.0		
083	met08_sn_6010	SAMPLE	276177-003	Filtrate	234479	05/05/16 15:50	25.0		
084	met08_sn_6010	SAMPLE	276177-004	Filtrate	234479	05/05/16 15:53	10.0		
085	met08_sn_6010	CCV				05/05/16 15:56	1.0	9	
086	met08_sn_6010	XCCB				05/05/16 15:59	1.0		
087	met08_sn_6010	CCB				05/05/16 16:01	1.0		
088	met08_sn_6010	SAMPLE	276177-005	Filtrate	234479	05/05/16 16:05	1.0		3:NA=700000
089	met08_sn_6010	SAMPLE	276177-006	Filtrate	234479	05/05/16 16:07	10.0		
090	met08_sn_6010	SAMPLE	276177-007	Filtrate	234479	05/05/16 16:10	10.0		
091	met08_sn_6010	SAMPLE	276177-009	Filtrate	234479	05/05/16 16:13	10.0		
092	met08_sn_6010	SAMPLE	276177-010	Filtrate	234479	05/05/16 16:16	1.0		4:NA=600000
093	met08_sn_6010	SAMPLE	276177-011	Filtrate	234479	05/05/16 16:18	1.0		4:NA=760000
094	met08_sn_6010	SAMPLE	276177-008	Filtrate	234479	05/05/16 16:20	1.0		3:NA=520000
095	met08_sn_6010	SAMPLE	276177-012	Filtrate	234479	05/05/16 16:23	1.0		2:NA=420000
096	met08_sn_6010	SAMPLE	275988-001	Water	234483	05/05/16 16:25	5.0		
097	met08_sn_6010	SAMPLE	276294-001	Soil	234516	05/05/16 16:28	1.0		6:FE=830000
098	met08_sn_6010	CCV				05/05/16 16:30	1.0	9	
099	met08_sn_6010	XCCB				05/05/16 16:32	1.0		
100	met08_sn_6010	CCB				05/05/16 16:35	1.0		
101	met08_sn_6010	SAMPLE	276294-002	Soil	234516	05/05/16 16:38	1.0		3:FE=460000
102	met08_sn_6010	SAMPLE	275865-022	Filtrate	234207	05/05/16 16:40	1.0		2:CA=150000
103	met08_sn_6010	SAMPLE	276294-003	Soil	234516	05/05/16 16:43	1.0		6:FE=700000
104	met08_sn_6010	XSAMPLE	276284-004	Soil	234518	05/05/16 16:45	1.0		17:FE=40000000

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 86182094

Instrument : MET08 Begun : 05/05/16 10:54
Method : EPA 6010B SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
105	met08_sn_6010	XSAMPLE	276284-008	Soil	234518	05/05/16 16:47	1.0		17:FE=38000000
106	met08_sn_6010	XMS	QC833276	Soil	234518	05/05/16 16:49	1.0		
107	met08_sn_6010	XMSD	QC833277	Soil	234518	05/05/16 16:51	1.0		
108	met08_sn_6010	XMS	QC833278	Soil	234518	05/05/16 16:53	1.0		
109	met08_sn_6010	XMSD	QC833279	Soil	234518	05/05/16 16:55	1.0		
110	met08_sn_6010	XSAMPLE	276278-001	Soil	234518	05/05/16 16:57	1.0		19:CA=110000000
111	met08_sn_6010	XCCV				05/05/16 16:59	1.0	9	26:K=100000000
112	met08_sn_6010	XCCB				05/05/16 17:01	1.0		13:K=7100000
113	met08_sn_6010	XCCB				05/05/16 17:04	1.0		12:K=7000000
114	met08_sn_6010	XSAMPLE	276278-002	Soil	234518	05/05/16 17:08	1.0		18:CA=33000000
115	met08_sn_6010	XSAMPLE	276284-001	Soil	234518	05/05/16 17:10	1.0		16:FE=32000000
116	met08_sn_6010	X	RINSE			05/05/16 17:18	1.0		
117	met08_sn_6010	CCV				05/05/16 17:21	1.0	9	
118	met08_sn_6010	CCB				05/05/16 17:23	1.0		
119	met08_sn_6010	X	RINSE			05/05/16 17:26	1.0		
120	met08_sn_6010	SAMPLE	276284-003	Soil	234518	05/05/16 17:30	1.0		5:FE=340000
121	met08_sn_6010	SAMPLE	276284-005	Soil	234518	05/05/16 17:32	1.0		5:FE=400000
122	met08_sn_6010	SAMPLE	276284-006	Soil	234518	05/05/16 17:34	1.0		3:FE=230000
123	met08_sn_6010	SAMPLE	276284-007	Soil	234518	05/05/16 17:36	1.0		4:FE=420000
124	met08_sn_6010	SAMPLE	276284-009	Soil	234518	05/05/16 17:38	1.0		4:FE=320000
125	met08_sn_6010	SAMPLE	276248-002	Soil	234420	05/05/16 17:40	1.0		3:FE=440000
126	met08_sn_6010	SAMPLE	276248-005	Soil	234420	05/05/16 17:42	1.0		2:FE=370000
127	met08_sn_6010	SAMPLE	276248-006	Soil	234420	05/05/16 17:44	1.0		2:FE=200000
128	met08_sn_6010	XBLANK	QC832136	Water	234233	05/05/16 17:46	1.0		
129	met08_sn_6010	CCV				05/05/16 17:50	1.0	9	
130	met08_sn_6010	CCB				05/05/16 17:52	1.0		
131	met08_sn_6010	XBS	QC832137	Water	234233	05/05/16 17:55	1.0		
132	met08_sn_6010	BLANK	QC834448	Soil	234829	05/05/16 18:02	1.0		
133	met08_sn_6010	BS	QC834449	Soil	234829	05/05/16 18:05	1.0		1:SR=10000
134	met08_sn_6010	BSD	QC834450	Soil	234829	05/05/16 18:07	1.0		1:SR=10000
135	met08_sn_6010	SAMPLE	276591-001	Soil	234829	05/05/16 18:08	1.0		2:FE=370000
136	met08_sn_6010	SAMPLE	276591-002	Soil	234829	05/05/16 18:10	1.0		2:FE=370000
137	met08_sn_6010	BLANK	QC832948	Filtrate	234434	05/05/16 18:12	1.0		
138	met08_sn_6010	BLANK	QC832949	Filtrate	234434	05/05/16 18:16	1.0		
139	met08_sn_6010	BS	QC832950	Filtrate	234434	05/05/16 18:19	1.0		
140	met08_sn_6010	BSD	QC832951	Filtrate	234434	05/05/16 18:22	1.0		
141	met08_sn_6010	CCV				05/05/16 18:24	1.0	9	
142	met08_sn_6010	CCB				05/05/16 18:26	1.0		
143	met08_sn_6010	CCB				05/05/16 18:29	1.0		
144	met08_sn_6010	MS	QC832952	Filtrate	234434	05/05/16 18:32	10.0		
145	met08_sn_6010	MSD	QC832953	Filtrate	234434	05/05/16 18:35	10.0		
146	met08_sn_6010	SER	QC832954	Filtrate	234434	05/05/16 18:37	50.0		
147	met08_sn_6010	PDS	QC832955	Filtrate	234434	05/05/16 18:40	10.0	11 10 12	
148	met08_sn_6010	SAMPLE	275842-002	Water	233992	05/05/16 18:43	5.0		
149	met08_sn_6010	SAMPLE	275841-006	Water	233992	05/05/16 18:44	5.0		1:CA=100000
150	met08_sn_6010	MSS	276255-002	Filtrate	234555	05/05/16 18:46	10.0		
151	met08_sn_6010	SAMPLE	276255-004	Filtrate	234555	05/05/16 18:50	10.0		
152	met08_sn_6010	SAMPLE	276255-005	Filtrate	234555	05/05/16 18:52	10.0		
153	met08_sn_6010	SAMPLE	276255-006	Filtrate	234555	05/05/16 18:54	10.0		
154	met08_sn_6010	CCV				05/05/16 18:58	1.0	9	
155	met08_sn_6010	CCB				05/05/16 19:00	1.0		
156	met08_sn_6010	SAMPLE	276255-007	Filtrate	234555	05/05/16 19:03	10.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 86182094

Instrument : MET08 Begun : 05/05/16 10:54
Method : EPA 6010B SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
157	met08_sn_6010	SAMPLE	276294-032	Soil	234679	05/05/16 19:06	1.0		2:FE=340000
158	met08_sn_6010	SER	QC833927	Soil	234679	05/05/16 19:08	5.0		
159	met08_sn_6010	PDS	QC833928	Soil	234679	05/05/16 19:10	1.0	10 11 12	5:FE=310000
160	met08_sn_6010	SAMPLE	276339-001	Miscell.	234679	05/05/16 19:12	1.0		3:CA=770000
161	met08_sn_6010	BLANK	QC833057	Soil	234466	05/05/16 19:14	1.0		
162	met08_sn_6010	BS	QC833058	Soil	234466	05/05/16 19:17	1.0		1:SR=10000
163	met08_sn_6010	BSD	QC833059	Soil	234466	05/05/16 19:19	1.0		1:SR=10000
164	met08_sn_6010	MSS	276264-001	Soil	234466	05/05/16 19:20	1.0		1:FE=150000
165	met08_sn_6010	MS	QC833060	Soil	234466	05/05/16 19:22	1.0		1:FE=130000
166	met08_sn_6010	CCV				05/05/16 19:24	1.0	9	
167	met08_sn_6010	XCCB				05/05/16 19:26	1.0		
168	met08_sn_6010	CCB				05/05/16 19:29	1.0		
169	met08_sn_6010	MSD	QC833061	Soil	234466	05/05/16 19:33	1.0		1:FE=150000
170	met08_sn_6010	SAMPLE	276264-002	Soil	234466	05/05/16 19:35	1.0		3:FE=330000
171	met08_sn_6010	SAMPLE	276264-003	Soil	234466	05/05/16 19:37	1.0		3:FE=400000
172	met08_sn_6010	SAMPLE	276264-004	Soil	234466	05/05/16 19:39	1.0		1:FE=180000
173	met08_sn_6010	SAMPLE	276264-005	Soil	234466	05/05/16 19:41	1.0		1:FE=150000
174	met08_sn_6010	SAMPLE	276264-006	Soil	234466	05/05/16 19:43	1.0		3:FE=350000
175	met08_sn_6010	SAMPLE	276264-007	Soil	234466	05/05/16 19:45	1.0		2:FE=220000
176	met08_sn_6010	SAMPLE	276264-008	Soil	234466	05/05/16 19:47	1.0		2:CA=280000
177	met08_sn_6010	SAMPLE	276264-009	Soil	234466	05/05/16 19:49	1.0		3:FE=500000
178	met08_sn_6010	SAMPLE	276264-010	Soil	234466	05/05/16 19:51	1.0		2:FE=360000
179	met08_sn_6010	CCV				05/05/16 19:53	1.0	9	
180	met08_sn_6010	CCB				05/05/16 19:55	1.0		
181	met08_sn_6010	SAMPLE	276264-011	Soil	234466	05/05/16 19:59	1.0		3:FE=760000
182	met08_sn_6010	SAMPLE	276264-012	Soil	234466	05/05/16 20:01	1.0		3:FE=390000
183	met08_sn_6010	SAMPLE	276264-013	Soil	234466	05/05/16 20:03	1.0		1:FE=170000
184	met08_sn_6010	SAMPLE	276264-014	Soil	234466	05/05/16 20:05	1.0		1:FE=150000
185	met08_sn_6010	SAMPLE	276264-015	Soil	234466	05/05/16 20:07	1.0		3:FE=430000
186	met08_sn_6010	SAMPLE	276264-016	Soil	234466	05/05/16 20:09	1.0		3:FE=430000
187	met08_sn_6010	SAMPLE	276264-017	Soil	234466	05/05/16 20:11	1.0		2:FE=170000
188	met08_sn_6010	SAMPLE	276264-018	Soil	234466	05/05/16 20:13	1.0		3:FE=390000
189	met08_sn_6010	SAMPLE	276264-019	Soil	234466	05/05/16 20:15	1.0		2:FE=220000
190	met08_sn_6010	SAMPLE	276264-020	Soil	234466	05/05/16 20:17	1.0		3:FE=440000
191	met08_sn_6010	CCV				05/05/16 20:19	1.0	9	
192	met08_sn_6010	XCCB				05/05/16 20:21	1.0		
193	met08_sn_6010	CCB				05/05/16 20:24	1.0		
194	met08_sn_6010	BLANK	QC832136	Water	234233	05/05/16 20:28	1.0		
195	met08_sn_6010	BS	QC832137	Water	234233	05/05/16 20:31	1.0		
196	met08_sn_6010	BSD	QC832138	Water	234233	05/05/16 20:33	1.0		
197	met08_sn_6010	SAMPLE	275920-011	Water	234233	05/05/16 20:36	1.0		
198	met08_sn_6010	SAMPLE	276114-001	Miscell.	234278	05/05/16 20:39	1.0		4:FE=620000
199	met08_sn_6010	SAMPLE	276284-002	Soil	234518	05/05/16 20:41	1.0		5:FE=420000
200	met08_sn_6010	MSS	276080-005	Soil	234829	05/05/16 20:43	1.0		4:FE=490000
201	met08_sn_6010	SAMPLE	276080-010	Soil	234829	05/05/16 20:45	1.0		4:FE=440000
202	met08_sn_6010	SAMPLE	276378-014	Soil	234829	05/05/16 20:47	1.0		4:FE=380000
203	met08_sn_6010	SAMPLE	276378-015	Soil	234829	05/05/16 20:49	1.0		1:FE=160000
204	met08_sn_6010	CCV				05/05/16 20:51	1.0	9	
205	met08_sn_6010	CCB				05/05/16 20:53	1.0		
206	met08_sn_6010	XCCB				05/05/16 20:56	1.0		
207	met08_sn_6010	SAMPLE	276378-016	Soil	234829	05/05/16 21:00	1.0		8:FE=820000
208	met08_sn_6010	SAMPLE	276378-017	Soil	234829	05/05/16 21:02	1.0		6:FE=610000

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 86182094

Instrument : MET08 Begun : 05/05/16 10:54
Method : EPA 6010B SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
209	met08_sn_6010	SAMPLE	276378-027	Soil	234829	05/05/16 21:04	1.0		4:FE=600000
210	met08_sn_6010	SAMPLE	276378-028	Soil	234829	05/05/16 21:06	1.0		3:FE=310000
211	met08_sn_6010	SAMPLE	276378-029	Soil	234829	05/05/16 21:08	1.0		2:FE=200000
212	met08_sn_6010	SAMPLE	276378-030	Soil	234829	05/05/16 21:10	1.0		2:FE=260000
213	met08_sn_6010	SAMPLE	276378-031	Soil	234829	05/05/16 21:12	1.0		4:FE=390000
214	met08_sn_6010	SAMPLE	276378-032	Soil	234829	05/05/16 21:14	1.0		4:FE=420000
215	met08_sn_6010	SAMPLE	276565-018	Soil	234829	05/05/16 21:16	1.0		5:FE=600000
216	met08_sn_6010	SAMPLE	276565-019	Soil	234829	05/05/16 21:18	1.0		5:MG=1200000
217	met08_sn_6010	CCV				05/05/16 21:21	1.0	9	
218	met08_sn_6010	CCB				05/05/16 21:23	1.0		
219	met08_sn_6010	XCCB				05/05/16 21:26	1.0		
220	met08_sn_6010	SAMPLE	276565-020	Soil	234829	05/05/16 21:29	1.0		6:MG=1200000
221	met08_sn_6010	MS	QC834451	Soil	234829	05/05/16 21:31	1.0		1:CA=650000
222	met08_sn_6010	MSD	QC834452	Soil	234829	05/05/16 21:34	1.0		1:FE=520000
223	met08_sn_6010	BLANK	QC832481	Water	234318	05/05/16 21:36	1.0		
224	met08_sn_6010	BS	QC832482	Water	234318	05/05/16 21:39	1.0		
225	met08_sn_6010	BSD	QC832483	Water	234318	05/05/16 21:42	1.0		
226	met08_sn_6010	MSS	276149-001	Water	234318	05/05/16 21:44	1.0		1:NA=530000
227	met08_sn_6010	MS	QC832484	Water	234318	05/05/16 21:47	1.0		
228	met08_sn_6010	MSD	QC832485	Water	234318	05/05/16 21:50	1.0		
229	met08_sn_6010	SAMPLE	276086-001	Water	234318	05/05/16 21:53	1.0		2:SR=65000
230	met08_sn_6010	CCV				05/05/16 21:56	1.0	9	
231	met08_sn_6010	CCB				05/05/16 21:59	1.0		
232	met08_sn_6010	XCCB				05/05/16 22:01	1.0		
233	met08_sn_6010	SAMPLE	276086-009	Water	234318	05/05/16 22:05	1.0		
234	met08_sn_6010	SAMPLE	276149-004	Water	234318	05/05/16 22:07	1.0		
235	met08_sn_6010	BLANK	QC834111	Air	234738	05/05/16 22:10	1.0		
236	met08_sn_6010	BS	QC834112	Air	234738	05/05/16 22:13	1.0		
237	met08_sn_6010	BSD	QC834113	Air	234738	05/05/16 22:14	1.0		
238	met08_sn_6010	MSS	276063-001	Air	234738	05/05/16 22:16	1.0		
239	met08_sn_6010	MS	QC834114	Air	234738	05/05/16 22:18	1.0		
240	met08_sn_6010	MSD	QC834115	Air	234738	05/05/16 22:19	1.0		
241	met08_sn_6010	SER	QC834116	Air	234738	05/05/16 22:21	5.0		
242	met08_sn_6010	PDS	QC834117	Air	234738	05/05/16 22:24	1.0	10 11 12	
243	met08_sn_6010	CCV				05/05/16 22:26	1.0	9	
244	met08_sn_6010	CCB				05/05/16 22:29	1.0		
245	met08_sn_6010	XCCB				05/05/16 22:31	1.0		
246	met08_sn_6010	SAMPLE	276063-002	Air	234738	05/05/16 22:35	1.0		
247	met08_sn_6010	SAMPLE	276063-003	Air	234738	05/05/16 22:37	1.0		
248	met08_sn_6010	SAMPLE	276063-004	Air	234738	05/05/16 22:40	1.0		
249	met08_sn_6010	SAMPLE	276063-005	Air	234738	05/05/16 22:42	1.0		
250	met08_sn_6010	SAMPLE	276063-006	Air	234738	05/05/16 22:44	1.0		
251	met08_sn_6010	SAMPLE	276063-007	Air	234738	05/05/16 22:47	1.0		
252	met08_sn_6010	SAMPLE	276063-008	Air	234738	05/05/16 22:49	1.0		
253	met08_sn_6010	SAMPLE	276063-009	Air	234738	05/05/16 22:51	1.0		
254	met08_sn_6010	SAMPLE	276063-010	Air	234738	05/05/16 22:54	1.0		
255	met08_sn_6010	SAMPLE	276063-011	Air	234738	05/05/16 22:57	1.0		
256	met08_sn_6010	CCV				05/05/16 23:00	1.0	9	
257	met08_sn_6010	CCB				05/05/16 23:02	1.0		
258	met08_sn_6010	XCCB				05/05/16 23:05	1.0		3:NA=360000000
259	met08_sn_6010	SAMPLE	276063-012	Air	234738	05/05/16 23:09	1.0		
260	met08_sn_6010	SAMPLE	276063-013	Air	234738	05/05/16 23:13	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 86182094

Instrument : MET08 Begun : 05/05/16 10:54
Method : EPA 6010B SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
261	met08_sn_6010	SAMPLE	276063-014	Air	234738	05/05/16 23:15	1.0		
262	met08_sn_6010	SAMPLE	276063-015	Air	234738	05/05/16 23:17	1.0		
263	met08_sn_6010	SAMPLE	276063-016	Air	234738	05/05/16 23:21	1.0		
264	met08_sn_6010	SAMPLE	276063-017	Air	234738	05/05/16 23:24	1.0		
265	met08_sn_6010	SAMPLE	276063-018	Air	234738	05/05/16 23:26	1.0		
266	met08_sn_6010	SAMPLE	276063-021	Air	234738	05/05/16 23:30	1.0		
267	met08_sn_6010	SAMPLE	276063-022	Air	234738	05/05/16 23:33	1.0		
268	met08_sn_6010	CCV				05/05/16 23:36	1.0	9	
269	met08_sn_6010	CCB				05/05/16 23:38	1.0		
270	met08_sn_6010	XCCB				05/05/16 23:41	1.0		

KER 05/05/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 68.

Standards used: 1=S29301 2=S29393 3=S29394 4=S29395 5=S29761 6=S29396 7=S29660 8=S29661 9=S29397 10=S28385 11=S28386 12=S29742

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 86182094

Date : 05/05/16 Reference : met08_sn_6010
Sequence : MET08 05/05/16 Analyzed : 05/05/16 10:57

#	Type	Sample ID	Y	A
		ICAL STD	12319335	
		LOWER LIMIT	3695801	
		UPPER LIMIT	24638670	
010	ICB		12418449	
011	ICSA		11113744	
012	ICSAB		11576464	
013	BLANK	QC832450	12189207	
014	SAMPLE	275499-001	12930833	
015	SAMPLE	275499-002	12818654	
016	SAMPLE	275499-003	12572407	
017	SAMPLE	275499-004	12256066	
018	SAMPLE	275499-005	12945482	
019	SAMPLE	275499-006	12739203	
020	SAMPLE	275499-007	12581347	
021	SAMPLE	275499-008	12778487	
022	SAMPLE	275499-009	12853096	
023	CCV		12327967	
024	CCB		12304134	
025	SAMPLE	275499-010	12139295	
027	SAMPLE	275652-001	13017631	
028	SAMPLE	275652-002	12876321	
029	SAMPLE	275652-003	13187526	
030	SAMPLE	275865-005	12554380	
031	SAMPLE	275865-008	12761199	
032	SAMPLE	275865-024	12332701	
033	SAMPLE	275865-027	12919548	
034	MSS	275865-015	12241899	
035	CCV		12597399	
036	CCB		12611401	
037	MS	QC832025	12417713	
038	MSD	QC832026	12219457	
039	MS	QC832027	12509325	
040	MSD	QC832028	12722142	
041	PDS	QC832030	13014853	
043	MS	QC830409	12731244	
044	MSD	QC830410	12781669	
045	SER	QC830411	12413936	
046	PDS	QC830412	12704201	
047	CCV		12547541	
048	CCB		12693176	
049	CCB		12909466	
050	BLANK	QC831840	12883823	
051	BS	QC831841	12715171	
052	BSD	QC831842	12848845	
059	SAMPLE	276111-001	12487573	
060	CCV		12136024	
061	CCB		12247163	
062	SAMPLE	276114-001	25387358	*
063	SAMPLE	276114-002	12647260	
064	BS	QC832889	12662775	
065	BSD	QC832890	12791967	

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 86182094

Date : 05/05/16 Reference : met08_sn_6010
Sequence : MET08 05/05/16 Analyzed : 05/05/16 10:57

#	Type	Sample ID	Y A
066	MSS	276221-001	12347732
067	MS	QC832891	12215622
068	MSD	QC832892	12610481
069	SAMPLE	276221-003	12747022
070	SAMPLE	276221-006	12841204
071	SAMPLE	276221-009	12560205
072	CCV		11953812
074	CCB		12591780
075	SAMPLE	276221-012	12654198
076	SAMPLE	276221-015	12659254
077	SAMPLE	276235-001	12739927
078	SAMPLE	276248-001	12640833
081	MSS	276177-001	12955732
082	SAMPLE	276177-002	12538582
083	SAMPLE	276177-003	12634621
084	SAMPLE	276177-004	12694428
085	CCV		12123275
087	CCB		12850850
088	SAMPLE	276177-005	12023869
089	SAMPLE	276177-006	12746352
090	SAMPLE	276177-007	12589509
091	SAMPLE	276177-009	12285331
093	SAMPLE	276177-011	12177747
094	SAMPLE	276177-008	12253065
095	SAMPLE	276177-012	11977824
096	SAMPLE	275988-001	12970176
097	SAMPLE	276294-001	11786150
098	CCV		12361709
100	CCB		12245342
101	SAMPLE	276294-002	12816673
102	SAMPLE	275865-022	12057618
103	SAMPLE	276294-003	12324974
117	CCV		12533785
118	CCB		12567823
120	SAMPLE	276284-003	12229785
121	SAMPLE	276284-005	12685642
122	SAMPLE	276284-006	12709960
123	SAMPLE	276284-007	12692057
124	SAMPLE	276284-009	12572208
125	SAMPLE	276248-002	12835361
126	SAMPLE	276248-005	12723946
127	SAMPLE	276248-006	12642658
129	CCV		12980509
130	CCB		12660124
132	BLANK	QC834448	12949973
133	BS	QC834449	12669749
134	BSD	QC834450	13478019
135	SAMPLE	276591-001	12800104
136	SAMPLE	276591-002	12686172
137	BLANK	QC832948	12897047
138	BLANK	QC832949	13257062
139	BS	QC832950	13138622

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 86182094

Date : 05/05/16 Reference : met08_sn_6010
Sequence : MET08 05/05/16 Analyzed : 05/05/16 10:57

#	Type	Sample ID	Y A
140	BSD	QC832951	12443189
141	CCV		12379732
142	CCB		12275161
143	CCB		13072171
144	MS	QC832952	13188340
145	MSD	QC832953	13040630
146	SER	QC832954	13098021
147	PDS	QC832955	12833626
148	SAMPLE	275842-002	12916531
149	SAMPLE	275841-006	12536352
150	MSS	276255-002	12782186
151	SAMPLE	276255-004	12851656
152	SAMPLE	276255-005	12958500
153	SAMPLE	276255-006	12865147
154	CCV		12414714
155	CCB		12560190
156	SAMPLE	276255-007	12883208
157	SAMPLE	276294-032	12171207
158	SER	QC833927	12771101
159	PDS	QC833928	12429132
160	SAMPLE	276339-001	11651950
161	BLANK	QC833057	13157914
162	BS	QC833058	12702392
163	BSD	QC833059	12903577
164	MSS	276264-001	12413724
165	MS	QC833060	12550299
166	CCV		12427959
168	CCB		12767304
169	MSD	QC833061	12848663
170	SAMPLE	276264-002	12588702
171	SAMPLE	276264-003	12552546
172	SAMPLE	276264-004	12498153
173	SAMPLE	276264-005	12572391
174	SAMPLE	276264-006	12965003
175	SAMPLE	276264-007	12774590
176	SAMPLE	276264-008	12576235
177	SAMPLE	276264-009	12257838
178	SAMPLE	276264-010	12838880
179	CCV		12153807
180	CCB		12419277
181	SAMPLE	276264-011	12574499
182	SAMPLE	276264-012	12408121
183	SAMPLE	276264-013	12362890
184	SAMPLE	276264-014	12946781
185	SAMPLE	276264-015	12173205
186	SAMPLE	276264-016	12583159
187	SAMPLE	276264-017	12907075
188	SAMPLE	276264-018	12469525
189	SAMPLE	276264-019	12757445
190	SAMPLE	276264-020	12226302
191	CCV		12315082
193	CCB		12342482

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 86182094

Date : 05/05/16 Reference : met08_sn_6010
Sequence : MET08 05/05/16 Analyzed : 05/05/16 10:57

#	Type	Sample ID	Y A
194	BLANK	QC832136	12923237
195	BS	QC832137	12445970
196	BSD	QC832138	12483939
198	SAMPLE	276114-001	12755228
199	SAMPLE	276284-002	12338513
200	MSS	276080-005	12699572
201	SAMPLE	276080-010	12864663
202	SAMPLE	276378-014	12422678
203	SAMPLE	276378-015	12396771
204	CCV		12834889
205	CCB		12723553
207	SAMPLE	276378-016	12670888
208	SAMPLE	276378-017	13122338
209	SAMPLE	276378-027	12694355
210	SAMPLE	276378-028	13029633
211	SAMPLE	276378-029	12586852
212	SAMPLE	276378-030	12657510
213	SAMPLE	276378-031	12807084
214	SAMPLE	276378-032	12867177
215	SAMPLE	276565-018	12833472
216	SAMPLE	276565-019	12427461
217	CCV		12469312
218	CCB		12974139
220	SAMPLE	276565-020	12299498
221	MS	QC834451	12431912
222	MSD	QC834452	12654862
223	BLANK	QC832481	12873493
224	BS	QC832482	12824010
225	BSD	QC832483	12925850
226	MSS	276149-001	12881556
227	MS	QC832484	12850755
228	MSD	QC832485	12911326
229	SAMPLE	276086-001	12314551
230	CCV		12463393
231	CCB		12566773
233	SAMPLE	276086-009	13485055
234	SAMPLE	276149-004	13031758
235	BLANK	QC834111	13004219
236	BS	QC834112	13177077
237	BSD	QC834113	13010518
238	MSS	276063-001	13098112
239	MS	QC834114	13026945
240	MSD	QC834115	13076811
241	SER	QC834116	12770946
242	PDS	QC834117	12971516
243	CCV		12624942
244	CCB		12706285
246	SAMPLE	276063-002	13096367
247	SAMPLE	276063-003	13150434
248	SAMPLE	276063-004	12909743
249	SAMPLE	276063-005	13328776
250	SAMPLE	276063-006	13068741

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 86182094

Date : 05/05/16 Reference : met08_sn_6010
Sequence : MET08 05/05/16 Analyzed : 05/05/16 10:57

#	Type	Sample ID	Y	A
251	SAMPLE	276063-007	12996472	
252	SAMPLE	276063-008	12972031	
253	SAMPLE	276063-009	13302349	
254	SAMPLE	276063-010	13036043	
255	SAMPLE	276063-011	13185924	
256	CCV		12955865	
257	CCB		26247278	*
259	SAMPLE	276063-012	13490569	
260	SAMPLE	276063-013	13265083	
261	SAMPLE	276063-014	13234066	
262	SAMPLE	276063-015	13254325	
263	SAMPLE	276063-016	13033809	
264	SAMPLE	276063-017	12807515	
265	SAMPLE	276063-018	12723841	
268	CCV		12936144	
269	CCB		26526066	*

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 275865 METALS Filtrate: EPA 6010B

Inst : MET08
Calnum : 86182094001
Units : ug/L

Date : 05-MAY-2016 10:54
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met08_sn_6010	86182094002	L1	05-MAY-2016 10:57	S29301
L2	met08_sn_6010	86182094003	L2	05-MAY-2016 11:00	S29393
L3	met08_sn_6010	86182094004	L3	05-MAY-2016 11:03	S29394
L4	met08_sn_6010	86182094005	L4	05-MAY-2016 11:05	S29395
L5	met08_sn_6010	86182094006	L5	05-MAY-2016 11:07	S29761

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Antimony	A	18.710	19.261	19.535	19.879		LOR0	0.00000	0.05031		19.346	1.000	0.995	
Barium	A	368.88	359.52	354.17	352.28		LOR0	0.00000	0.00284		358.71	1.000	0.995	
Beryllium	A	4092.2	3900.5	3988.4			LOR0	0.00000	2.51E-4		3993.7	1.000	0.995	
Cadmium	A	189.18	191.55	188.58	189.15		LOR0	0.00000	0.00529		189.62	1.000	0.995	
Chromium	A	119.90	115.10	112.17	113.29		LOR0	0.00000	0.00883		115.11	1.000	0.995	
Cobalt	A	130.14	129.49	127.10	128.65		LOR0	0.00000	0.00777		128.84	1.000	0.995	
Copper	A	595.06	355.12	338.80	340.10		LOR0	0.00000	0.00294		407.27	1.000	0.995	
Lead	A	36.800	39.962	39.570	40.819		LOR0	0.00000	0.02451		39.288	1.000	0.995	
Molybdenum	A	24.840	27.821	27.566	27.742		LOR0	0.00000	0.03605		26.992	1.000	0.995	
Nickel	A	40.040	42.129	41.796	42.620		LOR0	0.00000	0.02347		41.646	1.000	0.995	
Selenium	A	26.190	30.663	30.113	31.342		LOR0	0.00000	0.03192		29.577	1.000	0.995	
Silver	A	1842.7	1771.0	1630.7	1660.9		LOR0	0.00000	6.02E-4		1726.3	1.000	0.995	
Thallium	A	8.4300	14.153	14.271	14.941		LOR0	0.00000	0.06696		12.949	1.000	0.995	
Vanadium	A	111.56	105.60	104.72	107.47		LOR0	0.00000	0.00931		107.34	1.000	0.995	
Zinc	A	83.680	85.465	81.049	82.853		LOR0	0.00000	0.01207		83.262	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Antimony	A	10.000	-6	100.00	-3	1000.0	-2	10000	0		
Barium	A	5.0000	5	100.00	2	1000.0	1	10000	0		
Beryllium	A	2.0000	3	100.00	-2	1000.0	0				
Cadmium	A	5.0000	0	100.00	1	1000.0	0	10000	0		
Chromium	A	5.0000	6	100.00	2	1000.0	-1	10000	0		
Cobalt	A	5.0000	1	100.00	1	1000.0	-1	10000	0		
Copper	A	5.0000	**75**	100.00	4	1000.0	0	10000	0		
Lead	A	5.0000	-10	100.00	-2	1000.0	-3	10000	0		
Molybdenum	A	5.0000	-10	100.00	0	1000.0	-1	10000	0		
Nickel	A	5.0000	-6	100.00	-1	1000.0	-2	10000	0		
Selenium	A	10.000	-16	100.00	-2	1000.0	-4	10000	0		
Silver	A	5.0000	11	20.000	7	200.00	-2	2000.0	0		
Thallium	A	10.000	**-44**	100.00	-5	1000.0	-4	10000	0		
Vanadium	A	5.0000	4	100.00	-2	1000.0	-3	10000	0		
Zinc	A	20.000	1	100.00	3	1000.0	-2	10000	0		

KER 05/05/16 : As removed due to high bias in low point

Instrument amount = a0 + response * a1 + response^2 * a2; LOR0=Linear regression forced thru origin, including 0,0 point

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 275865 METALS Filtrate
EPA 6010B

Inst : MET08
Calnum : 86182094001 Cal Date : 05-MAY-2016

ICV 86182094007 (05-MAY-2016) stds: S29396

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	5000	5166	ug/L	3	10	
Barium	A	5000	5166	ug/L	3	10	
Beryllium	A	500.0	520.0	ug/L	4	10	
Cadmium	A	5000	5245	ug/L	5	10	
Chromium	A	5000	5176	ug/L	4	10	
Cobalt	A	5000	5074	ug/L	1	10	
Copper	A	5000	5058	ug/L	1	10	
Lead	A	5000	5205	ug/L	4	10	
Molybdenum	A	5000	4957	ug/L	-1	10	
Nickel	A	5000	5182	ug/L	4	10	
Selenium	A	5000	5113	ug/L	2	10	
Silver	A	1000	1032	ug/L	3	10	
Thallium	A	5000	4775	ug/L	-5	10	
Vanadium	A	5000	5170	ug/L	3	10	
Zinc	A	5000	5226	ug/L	5	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275865 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86182094010 File : met08_sn_6010 Time : 05-MAY-2016 11:25
Cal : 86182094001 Caldate : 05-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	8.000	ug/L	
Barium	A	ND	5.000	4.000	ug/L	
Beryllium	A	ND	2.000	1.600	ug/L	
Cadmium	A	ND	5.000	4.000	ug/L	
Chromium	A	ND	5.000	4.000	ug/L	
Cobalt	A	ND	5.000	4.000	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	4.000	ug/L	
Molybdenum	A	ND	5.000	4.000	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	8.000	ug/L	
Vanadium	A	ND	5.000	4.000	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	12319335	12418449	0.80

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 275865 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86182094011 File : met08_sn_6010 Time : 05-MAY-2016 11:28
Cal : 86182094001 Caldate : 05-MAY-2016
Standards: S29660

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	[-2.575]	10.00	ug/L	
Barium	A	[-2.418]	5.000	ug/L	
Beryllium	A	[0.06747]	2.000	ug/L	
Cadmium	A	[-0.8794]	5.000	ug/L	
Cobalt	A	[2.146]	5.000	ug/L	
Lead	A	[0.7884]	5.000	ug/L	
Molybdenum	A	[-0.6506]	5.000	ug/L	
Selenium	A	[3.677]	10.00	ug/L	
Silver	A	[2.048]	5.000	ug/L	
Thallium	A	[-9.261]	10.00	ug/L	
Zinc	A	[16.51]	20.00	ug/L	

Interferent	Ch	Spiked	Quant	Units	%Rec	Flags
Chromium	A	20000	19560	ug/L	98	
Copper	A	20000	20580	ug/L	103	
Manganese	A	20000	19490	ug/L	97	
Nickel	A	20000	18990	ug/L	95	
Vanadium	A	20000	19780	ug/L	99	
Aluminum	R	500000	491800	ug/L	98	
Calcium	R	500000	474200	ug/L	95	
Iron	R	200000	186800	ug/L	93	
Magnesium	R	500000	483200	ug/L	97	
Titanium	R	20000	20870	ug/L	104	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	12319335	11113744	-9.79

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 275865 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86182094012 File : met08_sn_6010 Time : 05-MAY-2016 11:46
Cal : 86182094001 Caldate : 05-MAY-2016
Standards: S29661

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	574.2	ug/L	15	20	
Barium	A	500.0	513.9	ug/L	3	20	
Beryllium	A	500.0	513.4	ug/L	3	20	
Cadmium	A	1000	984.7	ug/L	-2	20	
Chromium	A	500.0	500.2	ug/L	0	20	
Cobalt	A	500.0	513.9	ug/L	3	20	
Copper	A	500.0	506.0	ug/L	1	20	
Lead	A	1000	941.9	ug/L	-6	20	
Molybdenum	A	500.0	485.1	ug/L	-3	20	
Nickel	A	1000	966.8	ug/L	-3	20	
Selenium	A	500.0	461.3	ug/L	-8	20	
Silver	A	1000	1033	ug/L	3	20	
Thallium	A	500.0	491.0	ug/L	-2	20	
Vanadium	A	500.0	540.9	ug/L	8	20	
Zinc	A	1000	990.6	ug/L	-1	20	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	12319335	11576464	-6.03

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275865 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86182094023 File : met08_sn_6010 Time : 05-MAY-2016 13:18
Cal : 86182094001 Caldate : 05-MAY-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	19.346	20.094	5000	5055	ug/L	1	10	
Barium	A	358.71	358.15	5000	5083	ug/L	2	10	
Beryllium	A	3993.7	4033.0	500.0	505.7	ug/L	1	10	
Cadmium	A	189.62	194.38	5000	5138	ug/L	3	10	
Chromium	A	115.11	114.90	5000	5071	ug/L	1	10	
Cobalt	A	128.84	127.27	5000	4938	ug/L	-1	10	
Copper	A	407.27	337.36	5000	4960	ug/L	-1	10	
Lead	A	39.288	41.619	5000	5100	ug/L	2	10	
Molybdenum	A	26.992	26.788	5000	4828	ug/L	-3	10	
Nickel	A	41.646	43.416	5000	5094	ug/L	2	10	
Selenium	A	29.577	30.900	5000	4931	ug/L	-1	10	
Silver	A	1726.3	1686.5	1000	1016	ug/L	2	10	
Thallium	A	12.949	13.813	5000	4625	ug/L	-8	10	
Vanadium	A	107.34	110.07	5000	5122	ug/L	2	10	
Zinc	A	83.262	84.545	5000	5103	ug/L	2	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	12319335	12327967	0.07

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275865 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86182094024 File : met08_sn_6010 Time : 05-MAY-2016 13:20
Cal : 86182094001 Caldate : 05-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	8.000	ug/L	
Barium	A	ND	5.000	4.000	ug/L	
Beryllium	A	ND	2.000	1.600	ug/L	
Cadmium	A	ND	5.000	4.000	ug/L	
Chromium	A	ND	5.000	4.000	ug/L	
Cobalt	A	ND	5.000	4.000	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	4.000	ug/L	
Molybdenum	A	ND	5.000	4.000	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	8.000	ug/L	
Vanadium	A	ND	5.000	4.000	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	12319335	12304134	-0.12

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275865 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86182094035 File : met08_sn_6010 Time : 05-MAY-2016 13:54
Cal : 86182094001 Caldate : 05-MAY-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	19.346	20.312	5000	5110	ug/L	2	10	
Barium	A	358.71	352.47	5000	5002	ug/L	0	10	
Beryllium	A	3993.7	3982.5	500.0	499.4	ug/L	0	10	
Cadmium	A	189.62	194.93	5000	5153	ug/L	3	10	
Chromium	A	115.11	112.23	5000	4953	ug/L	-1	10	
Cobalt	A	128.84	125.64	5000	4875	ug/L	-3	10	
Copper	A	407.27	334.06	5000	4911	ug/L	-2	10	
Lead	A	39.288	42.750	5000	5238	ug/L	5	10	
Molybdenum	A	26.992	26.788	5000	4828	ug/L	-3	10	
Nickel	A	41.646	43.259	5000	5076	ug/L	2	10	
Selenium	A	29.577	31.423	5000	5015	ug/L	0	10	
Silver	A	1726.3	1675.1	1000	1009	ug/L	1	10	
Thallium	A	12.949	13.924	5000	4662	ug/L	-7	10	
Vanadium	A	107.34	108.91	5000	5068	ug/L	1	10	
Zinc	A	83.262	83.650	5000	5049	ug/L	1	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	12319335	12597399	2.26

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275865 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86182094036 File : met08_sn_6010 Time : 05-MAY-2016 13:56
Cal : 86182094001 Caldate : 05-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	8.000	ug/L	
Barium	A	ND	5.000	4.000	ug/L	
Beryllium	A	ND	2.000	1.600	ug/L	
Cadmium	A	ND	5.000	4.000	ug/L	
Chromium	A	ND	5.000	4.000	ug/L	
Cobalt	A	ND	5.000	4.000	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	4.000	ug/L	
Molybdenum	A	ND	5.000	4.000	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	8.000	ug/L	
Vanadium	A	ND	5.000	4.000	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	12319335	12611401	2.37

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275865 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86182094047 File : met08_sn_6010 Time : 05-MAY-2016 14:22
Cal : 86182094001 Caldate : 05-MAY-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	19.346	20.716	5000	5211	ug/L	4	10	
Barium	A	358.71	358.83	5000	5093	ug/L	2	10	
Beryllium	A	3993.7	4045.9	500.0	507.3	ug/L	1	10	
Cadmium	A	189.62	199.05	5000	5262	ug/L	5	10	
Chromium	A	115.11	113.84	5000	5025	ug/L	0	10	
Cobalt	A	128.84	127.36	5000	4942	ug/L	-1	10	
Copper	A	407.27	339.66	5000	4994	ug/L	0	10	
Lead	A	39.288	43.403	5000	5318	ug/L	6	10	
Molybdenum	A	26.992	27.416	5000	4942	ug/L	-1	10	
Nickel	A	41.646	44.070	5000	5171	ug/L	3	10	
Selenium	A	29.577	32.250	5000	5147	ug/L	3	10	
Silver	A	1726.3	1705.5	1000	1027	ug/L	3	10	
Thallium	A	12.949	14.966	5000	5011	ug/L	0	10	
Vanadium	A	107.34	111.01	5000	5166	ug/L	3	10	
Zinc	A	83.262	84.727	5000	5114	ug/L	2	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	12319335	12547541	1.85

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275865 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86182094048 File : met08_sn_6010 Time : 05-MAY-2016 14:24
Cal : 86182094001 Caldate : 05-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	8.000	ug/L	
Barium	A	ND	5.000	4.000	ug/L	
Beryllium	A	ND	2.000	1.600	ug/L	
Cadmium	A	ND	5.000	4.000	ug/L	
Chromium	A	ND	5.000	4.000	ug/L	
Cobalt	A	ND	5.000	4.000	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	4.000	ug/L	
Molybdenum	A	ND	5.000	4.000	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	8.000	ug/L	
Vanadium	A	ND	5.000	4.000	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	12319335	12693176	3.03

SAMPLE PREPARATION SUMMARY

Batch # : 234207 Analysis : ICP
Started By : RLG Prep Date : 18-APR-2016 18:15 Finished By : RLG
Method : METHOD Units : mL
Spike #1 ID : S29076 Spike #2 ID : S29077 Spike #3 ID : S28732

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
275865-004		Filtrate	50	50	1	1.0						6010	
275865-005		Filtrate	50	50	1	1.0						6010	
275865-006		Filtrate	50	50	1	1.0						6010	
275865-008		Filtrate	50	50	1	1.0						6010	
275865-011		Filtrate	50	50	1	1.0						6010	
275865-012		Filtrate	50	50	1	1.0						6010	
275865-013		Filtrate	50	50	1	1.0						6010	
275865-015		Filtrate	50	50	1	1.0						6010	
275865-018		Filtrate	50	50	1	1.0						6010	
275865-021		Filtrate	50	50	1	1.0						6010	
275865-022		Filtrate	50	50	1	1.0						6010	
275865-024		Filtrate	50	50	1	1.0						6010	
275865-027		Filtrate	50	50	1	1.0						6010	
QC832023	BLANK	Filtrate	50	50	1	1.0							
QC832024	BS	Filtrate	50	50	1	1.0		.5	.5	.5			
QC832025	MS	Filtrate	50	50	1	1.0		.5	.5	.5			
QC832026	MSD	Filtrate	50	50	1	1.0		.5	.5	.5			
QC832027	MS	Filtrate	50	50	1	1.0		.5	.5	.5			
QC832028	MSD	Filtrate	50	50	1	1.0		.5	.5	.5			
QC832029	SER	Filtrate	50	50	1	1.0							
QC832030	PDS	Filtrate	50	50	1	1.0							
QC832034	BSD	Filtrate	50	50	1	1.0		.5	.5	.5			

Analyst: KER Date: 05/04/16 Reviewer: PRW Date: 05/04/16

Water Digestion for ICP

Curtis & Tompkins, Ltd.

LIMS Batch #: 234207
Digested by: ~~4/18/16~~ RLG
Date Digested: 4/18/16

Digestion Method
☐ EPA 3010a for ICP
☐ EPA 200.7
☒ Filtrates

BK 3879
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Lvl.	Sample #	Container ID	Volume Sample(mL)	Final Volume (mL)	Filtered? (y/n)	ID ✓	Comments
	BLANK		☒ 50 ☐	☒ 50 ☐	N	✓	QC832023
	BS		☒ 50 ☐	☒ 50 ☐		✓	QC832024
	BSD		☒ 50 ☐	☒ 50 ☐		✓	QC832034 ~~025~~ RG 4/19/16
	MS		☒ 50 ☐	☒ 50 ☐		✓	QC832025
5	MSD		☒ 50 ☐	☒ 50 ☐		✓	026
	MS		☒ 50 ☐	☒ 50 ☐		✓	027
	MSD		☒ 50 ☐	☒ 50 ☐		✓	028
IV	275865-004	A	☒ 50 ☐	☒ 50 ☐		✓	
	-005	D	☒ 50 ☐	☒ 50 ☐		✓	
10	-006	A	☒ 50 ☐	☒ 50 ☐		✓	
	-008	D	☒ 50 ☐	☒ 50 ☐		✓	
	-011	C	☒ 50 ☐	☒ 50 ☐		✓	MS5
	-012	A	☒ 50 ☐	☒ 50 ☐		✓	
	-013	D	☒ 50 ☐	☒ 50 ☐		✓	
15	-015	G	☒ 50 ☐	☒ 50 ☐		✓	MS5
	-018	A	☒ 50 ☐	☒ 50 ☐		✓	
	-021	A	☒ 50 ☐	☒ 50 ☐		✓	
	-022	D	☒ 50 ☐	☒ 50 ☐		✓	
	-024	A	☒ 50 ☐	☒ 50 ☐		✓	
20	-027	D	☒ 50 ☐	☒ 50 ☐		✓	
			☐ 50 ☐	☐ 50 ☐			
			☐ 50 ☐	☐ 50 ☐			
			☐ 50 ☐	☐ 50 ☐			
			☐ 50 ☐	☐ 50 ☐			
			☐ 50 ☐	☐ 50 ☐			

	Reagent ID or LIMS #	Initials / Date
Digestion tubes/ Watch glasses, lot #	ACCUFLOW	RLG 4/18/16
.5 mL of spike solution (Std1) was added to all spikes	529076	
.5 mL of spike solution (Std2) was added to all spikes	529077	
.5 mL of spike solution (Std3) was added to all spikes	528732	
Digestion Block ID/ Probe Location		
Thermometer ID, Temperature (°C)		
Digestion begun at (time)		
☒ Conc. HNO3 lot#, or ☐ 1:1 HNO3 reagent ID	JTB 127622	
☒ Conc. HCl lot#, or ☐ 1:1 HCl reagent ID	FS 411510	
digestion ended at (time)		
☐ filtered thru' Whatman # 541, lot#		
Relinquished to ICP group	ICP	

Pipettes

Vol.(mL)	ID
.5	N27150D

Prep Chemist / Date 4/18/16

Continued from page 05.
Continued on page _____.

Reviewed Online / See LIMS
Version 12, Dec.2015

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 1076163493

Instrument : MET54
Method : EPA 7470A

Begun : 04/22/16 12:53
SOP Version : hg_water_rv16

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met54	ICALBLK				04/22/16 12:53	1.0		
002	met54	ICAL	ICAL1			04/22/16 12:55	1.0	1	
003	met54	ICAL	ICAL2			04/22/16 12:56	1.0	1	
004	met54	ICAL	ICAL3			04/22/16 12:57	1.0	1	
005	met54	ICAL	ICAL4			04/22/16 12:58	1.0	1	
006	met54	ICAL	ICAL5			04/22/16 12:59	1.0	1	
007	met54	ICV				04/22/16 13:01	1.0	2	
008	met54	ICB				04/22/16 13:02	1.0		
009	met54	BLANK	QC832617	Filtrate	234349	04/22/16 13:03	1.0		
010	met54	BS	QC832618	Filtrate	234349	04/22/16 13:04	1.0		
011	met54	BSD	QC832619	Filtrate	234349	04/22/16 13:06	1.0		
012	met54	MSS	275865-011	Filtrate	234349	04/22/16 13:07	1.0		
013	met54	MS	QC832620	Filtrate	234349	04/22/16 13:08	1.0		
014	met54	MSD	QC832621	Filtrate	234349	04/22/16 13:09	1.0		
015	met54	SER	QC832622	Filtrate	234349	04/22/16 13:11	5.0		
016	met54	SAMPLE	275865-004	Filtrate	234349	04/22/16 13:12	1.0		
017	met54	SAMPLE	275865-005	Filtrate	234349	04/22/16 13:13	1.0		
018	met54	SAMPLE	275865-006	Filtrate	234349	04/22/16 13:14	1.0		
019	met54	CCV				04/22/16 13:16	1.0	3	
020	met54	CCB				04/22/16 13:17	1.0		
021	met54	SAMPLE	275865-008	Filtrate	234349	04/22/16 13:18	1.0		
022	met54	SAMPLE	275865-012	Filtrate	234349	04/22/16 13:19	1.0		
023	met54	SAMPLE	275865-013	Filtrate	234349	04/22/16 13:20	1.0		
024	met54	SAMPLE	275899-005	Water	234349	04/22/16 13:22	1.0		
025	met54	SAMPLE	275899-006	Water	234349	04/22/16 13:23	1.0		
026	met54	SAMPLE	276046-001	Water	234349	04/22/16 13:24	1.0		
027	met54	SAMPLE	276046-002	Water	234349	04/22/16 13:25	1.0		
028	met54	SAMPLE	276046-003	Water	234349	04/22/16 13:27	1.0		
029	met54	SAMPLE	276046-005	Water	234349	04/22/16 13:28	1.0		
030	met54	SAMPLE	276046-006	Water	234349	04/22/16 13:29	1.0		
031	met54	CCV				04/22/16 13:30	1.0	3	
032	met54	CCB				04/22/16 13:32	1.0		
033	met54	BLANK	QC832623	TCLP Leachate	234349	04/22/16 13:33	1.0		
034	met54	SAMPLE	275187-001	TCLP Leachate	234349	04/22/16 13:34	1.0		
035	met54	SAMPLE	275187-002	TCLP Leachate	234349	04/22/16 13:35	1.0		
036	met54	SAMPLE	275187-003	TCLP Leachate	234349	04/22/16 13:37	1.0		
037	met54	CCV				04/22/16 13:38	1.0	3	
038	met54	CCB				04/22/16 13:39	1.0		

LCS 04/22/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 38.

Standards used: 1=S29706 2=S29708 3=S29709

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 275865 METALS Filtrate: EPA 7470A

Inst : MET54
Calnum : 1076163493001
Units : ug/L

Date : 22-APR-2016 12:53
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met54	1076163493002	ICAL1	22-APR-2016 12:55	S29706 (500X)
L2	met54	1076163493003	ICAL2	22-APR-2016 12:56	S29706 (200X)
L3	met54	1076163493004	ICAL3	22-APR-2016 12:57	S29706 (50X)
L4	met54	1076163493005	ICAL4	22-APR-2016 12:58	S29706 (20X)
L5	met54	1076163493006	ICAL5	22-APR-2016 12:59	S29706 (10X)

Analyte	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Mercury	0.0465	0.0512	0.0511	0.0521	0.0499	LIN0	-0.0282	19.9388		0.0501	1.000	.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Mercury	0.2000	**-21**	0.5000	-4	2.0000	0	5.0000	3	10.000	-1

Instrument amount = a0 + response * a1 + response^2 * a2; LIN0=Linear regression including 0,0 point

1076163493001

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 275865 METALS Filtrate
EPA 7470A

Inst : MET54
Calnum : 1076163493001 Cal Date : 22-APR-2016

ICV 1076163493007 (22-APR-2016) stds: S29708

Analyte	Spiked	Quant	Units	%D	Max	Flags
Mercury	5.000	5.018	ug/L	0	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275865 METALS Filtrate
EPA 7470A

Inst : MET54 IDF : 1.0
Seqnum : 1076163493008 File : met54 Time : 22-APR-2016 13:02
Cal : 1076163493001 Caldate : 22-APR-2016

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275865 METALS Filtrate
EPA 7470A

Inst : MET54 IDF : 1.0
Seqnum : 1076163493019 File : met54 Time : 22-APR-2016 13:16
Cal : 1076163493001 Caldate : 22-APR-2016
Standards: S29709

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0501	0.0523	5.000	5.184	ug/L	4	20	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275865 METALS Filtrate
EPA 7470A

Inst : MET54 IDF : 1.0
Seqnum : 1076163493020 File : met54 Time : 22-APR-2016 13:17
Cal : 1076163493001 Caldate : 22-APR-2016

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275865 METALS Filtrate
EPA 7470A

Inst : MET54 IDF : 1.0
Seqnum : 1076163493031 File : met54 Time : 22-APR-2016 13:30
Cal : 1076163493001 Caldate : 22-APR-2016
Standards: S29709

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0501	0.0523	5.000	5.188	ug/L	4	20	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275865 METALS Filtrate
EPA 7470A

Inst : MET54 IDF : 1.0
Seqnum : 1076163493032 File : met54 Time : 22-APR-2016 13:32
Cal : 1076163493001 Caldate : 22-APR-2016

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 1076168134

Instrument : MET54 Begun : 04/25/16 18:14
Method : EPA 7470A SOP Version : hg_water_rv16

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used
001	met54	ICALBLK				04/25/16 18:14	1.0	
002	met54	ICAL	ICAL1			04/25/16 18:15	1.0	1
003	met54	ICAL	ICAL2			04/25/16 18:17	1.0	1
004	met54	ICAL	ICAL3			04/25/16 18:18	1.0	1
005	met54	ICAL	ICAL4			04/25/16 18:19	1.0	1
006	met54	ICAL	ICAL5			04/25/16 18:20	1.0	1
007	met54	ICV				04/25/16 18:22	1.0	2
008	met54	ICB				04/25/16 18:23	1.0	
009	met54	LOD	255715-021	Water	234428	04/25/16 18:24	1.0	
010	met54	BLANK	QC832920	Water	234428	04/25/16 18:25	1.0	
011	met54	BS	QC832921	Water	234428	04/25/16 18:27	1.0	
012	met54	BSD	QC832922	Filtrate	234428	04/25/16 18:28	1.0	
013	met54	MSS	275865-015	Filtrate	234428	04/25/16 18:29	1.0	
014	met54	MS	QC832923	Filtrate	234428	04/25/16 18:30	1.0	
015	met54	MSD	QC832924	Filtrate	234428	04/25/16 18:32	1.0	
016	met54	SER	QC832925	Filtrate	234428	04/25/16 18:33	5.0	
017	met54	BLANK	QC832943	Filtrate	234428	04/25/16 18:34	1.0	
018	met54	SAMPLE	275161-015	Water	234428	04/25/16 18:35	1.0	
019	met54	CCV				04/25/16 18:36	1.0	3
020	met54	CCB				04/25/16 18:38	1.0	
021	met54	SAMPLE	275865-018	Filtrate	234428	04/25/16 18:39	1.0	
022	met54	SAMPLE	275865-021	Filtrate	234428	04/25/16 18:40	1.0	
023	met54	SAMPLE	275865-022	Filtrate	234428	04/25/16 18:41	1.0	
024	met54	SAMPLE	275865-024	Filtrate	234428	04/25/16 18:43	1.0	
025	met54	SAMPLE	275865-027	Filtrate	234428	04/25/16 18:44	1.0	
026	met54	SAMPLE	275899-003	Filtrate	234428	04/25/16 18:45	1.0	
027	met54	SAMPLE	275899-004	Filtrate	234428	04/25/16 18:46	1.0	
028	met54	SAMPLE	275899-008	Filtrate	234428	04/25/16 18:48	1.0	
029	met54	SAMPLE	276066-001	Water	234428	04/25/16 18:49	1.0	
030	met54	SAMPLE	276066-002	Water	234428	04/25/16 18:50	1.0	
031	met54	CCV				04/25/16 18:51	1.0	3
032	met54	CCB				04/25/16 18:52	1.0	
033	met54	SAMPLE	276066-003	Water	234428	04/25/16 18:54	1.0	
034	met54	SAMPLE	276066-004	Water	234428	04/25/16 18:55	1.0	
035	met54	SAMPLE	276066-005	Water	234428	04/25/16 18:56	1.0	
036	met54	SAMPLE	276066-007	Water	234428	04/25/16 18:57	1.0	
037	met54	SAMPLE	276066-008	Water	234428	04/25/16 18:59	1.0	
038	met54	SAMPLE	276243-002	Filtrate	234428	04/25/16 19:00	1.0	
039	met54	CCV				04/25/16 19:01	1.0	3
040	met54	CCB				04/25/16 19:02	1.0	

LCS 04/25/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 40.

Standards used: 1=S29719 2=S29721 3=S29722

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 275865 METALS Filtrate: EPA 7470A

Inst : MET54
Calnum : 1076168134001
Units : ug/L

Date : 25-APR-2016 18:14
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met54	1076168134002	ICAL1	25-APR-2016 18:15	S29719 (500X)
L2	met54	1076168134003	ICAL2	25-APR-2016 18:17	S29719 (200X)
L3	met54	1076168134004	ICAL3	25-APR-2016 18:18	S29719 (50X)
L4	met54	1076168134005	ICAL4	25-APR-2016 18:19	S29719 (20X)
L5	met54	1076168134006	ICAL5	25-APR-2016 18:20	S29719 (10X)

Analyte	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Mercury	0.0475	0.0480	0.0478	0.0484	0.0453	LIN0	-0.0614	21.9142		0.0474	0.999	.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Mercury	0.2000	**-27**	0.5000	-7	2.0000	2	5.0000	5	10.000	-1

Instrument amount = a0 + response * a1 + response^2 * a2; LIN0=Linear regression including 0,0 point

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 275865 METALS Filtrate
EPA 7470A

Inst : MET54
Calnum : 1076168134001 Cal Date : 25-APR-2016

ICV 1076168134007 (25-APR-2016) stds: S29721

Analyte	Spiked	Quant	Units	%D	Max	Flags
Mercury	5.000	5.018	ug/L	0	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275865 METALS Filtrate
EPA 7470A

Inst : MET54 IDF : 1.0
Seqnum : 1076168134008 File : met54 Time : 25-APR-2016 18:23
Cal : 1076168134001 Caldate : 25-APR-2016

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275865 METALS Filtrate
EPA 7470A

Inst : MET54 IDF : 1.0
Seqnum : 1076168134019 File : met54 Time : 25-APR-2016 18:36
Cal : 1076168134001 Caldate : 25-APR-2016
Standards: S29722

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0474	0.0450	5.000	4.867	ug/L	-3	20	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275865 METALS Filtrate
EPA 7470A

Inst : MET54 IDF : 1.0
Seqnum : 1076168134020 File : met54 Time : 25-APR-2016 18:38
Cal : 1076168134001 Caldate : 25-APR-2016

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275865 METALS Filtrate
EPA 7470A

Inst : MET54 IDF : 1.0
Seqnum : 1076168134031 File : met54 Time : 25-APR-2016 18:51
Cal : 1076168134001 Caldate : 25-APR-2016
Standards: S29722

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0474	0.0457	5.000	4.942	ug/L	-1	20	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275865 METALS Filtrate
EPA 7470A

Inst : MET54 IDF : 1.0
Seqnum : 1076168134032 File : met54 Time : 25-APR-2016 18:52
Cal : 1076168134001 Caldate : 25-APR-2016

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

SAMPLE PREPARATION SUMMARY

Batch # : 234349
Started By : LCS
Method : METHOD
Spike #1 ID : S29706

Prep Date : 22-APR-2016 09:00

Analysis : HG
Finished By : LCS
Units : mL

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
275187-001		TCLP Leachate	10	50	1	5.0						7470-HG	
275187-002		TCLP Leachate	10	50	1	5.0						7470-HG	
275187-003		TCLP Leachate	10	50	1	5.0						7470-HG	
275865-004		Filtrate	50	50	1	1.0						T22/HG	
275865-005		Filtrate	50	50	1	1.0						T22/HG	
275865-006		Filtrate	50	50	1	1.0						T22/HG	
275865-008		Filtrate	50	50	1	1.0						T22/HG	
275865-011		Filtrate	50	50	1	1.0						T22/HG	
275865-012		Filtrate	50	50	1	1.0						T22/HG	
275865-013		Filtrate	50	50	1	1.0						T22/HG	
275899-005		Water	50	50	1	1.0						T22/HG	
275899-006		Water	50	50	1	1.0						T22/HG	
276046-001		Water	50	50	1	1.0						T22/HG	
276046-002		Water	50	50	1	1.0						T22/HG	
276046-003		Water	50	50	1	1.0						T22/HG	
276046-005		Water	50	50	1	1.0						T22/HG	
276046-006		Water	50	50	1	1.0						T22/HG	
QC832617	BLANK	Filtrate	50	50	1	1.0							
QC832618	BS	Filtrate	50	50	1	1.0		1.25					
QC832619	BSD	Filtrate	50	50	1	1.0		1.25					
QC832620	MS	Filtrate	50	50	1	1.0		1.25					
QC832621	MSD	Filtrate	50	50	1	1.0		1.25					
QC832622	SER	Filtrate	50	50	1	1.0							
QC832623	BLANK	TCLP Leachate	10	50	1	5.0							

Analyst: LCS Date: 04/22/16 Reviewer: PRW Date: 04/22/16

Water Digestion for Mercury — Curtis & Tompkins, Ltd. — Wate

LIMS Batch #: 234349 — Digestion Method: ☒ EPA 7470A/ EPA 245.1 — BK3846 — LIM

Date Digested: 4/22/16 — ☐ _____ — Page 34 — Dat

Sample #	container ID	Volume Sample (mL)	Final Volume (mL)	Filtered? (y/n)	Comments
MB		☒50 ☐	☒50 ☐	n	
BS		☒50 ☐	☒50 ☐		
BSD		☒50 ☐	☒50 ☐		
MS		☒50 ☐	☒50 ☐		
MSD		☒50 ☐	☒50 ☐		
275187-001		☐50 ☒10	☒50 ☐		
-002		☐50 ☒10	☒50 ☐		
-003		☐50 ☒10	☒50 ☐		
275865-004		☒50 ☐	☒50 ☐		
-005		☒50 ☐	☒50 ☐		
-006		☒50 ☐	☒50 ☐		
-008		☒50 ☐	☒50 ☐		
-011		☒50 ☐	☒50 ☐		MSS
-012		☒50 ☐	☒50 ☐		
-013		☒50 ☐	☒50 ☐		
275899-005		☒50 ☐	☒50 ☐		
-006		☒50 ☐	☒50 ☐		
276046-001		☒50 ☐	☒50 ☐		
-002		☒50 ☐	☒50 ☐		
-003		☒50 ☐	☒50 ☐		
LJ 4/22 ~~-004~~		☐50 ☐	☒50 ☐		
-005		☒50 ☐	☐50 ☒		
-006		☐50 ☐	☒50 ☐		
QC 832623		☐50 ☒10	☒50 ☐		TCLP Leachate Blank
		☐50 ☐	☐50 ☐		

	Reagent ID/ LIMS# / Time	Initials / Date
Digestion Tube Lot #	EV 16028	LJ 4/22
1.25 mL of spike solution was added to all spikes	S29706	
Using pipette #	L3040780	
☐ **CAL digested with this batch? ICAL Std S#**	S29707 LJ 4/22	
ICV / CCV LIMS S#	S29708 / S29709	
Digestion Temperature (°C), Block and Probe Location	~~4/22 Denali~~ 91 2	
Digestion Block ID: Denali — Thermometer #	L91303	
Digestion Started at (time)	9:52	
concentrated H_2SO_4	FS 157449	
concentrated HNO_3	JTB 133393	
5% $KMnO_4$ Reagent ID	4.18.16	
5% $K_2S_2O_8$ Reagent ID	4.19.16	
NaCl.hydroxylamine hydrochloride Reagent ID	4.21.16	
Stannous Chloride Reagent ID	4.19.16	
Digestion Completed at (time)	11:55	
☐ filtered thru' 0.45 um syringe filter (lot #)		

Pipettes

Vol.(mL)	ID
.1	J28153D
.25-1	G15693E
1.25-4	L3678D
5-10	R29101

4/22/16
Prep Chemist / Date

Continued from page _____
Continued on page _____

Reviewed Online / See LIMS
Version 5, Dec.2015

SAMPLE PREPARATION SUMMARY

Batch # : 234428
Started By : LCS
Method : METHOD
Spike #1 ID : S29719

Prep Date : 25-APR-2016 15:18

Analysis : HG
Finished By : LCS
Units : mL

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
255715-021		Water	50	50	1	1.0		.05				HG	
275161-015		Water	50	50	1	1.0						T22/HG	
275865-015		Filtrate	50	50	1	1.0						T22/HG	
275865-018		Filtrate	50	50	1	1.0						T22/HG	
275865-021		Filtrate	50	50	1	1.0						T22/HG	
275865-022		Filtrate	50	50	1	1.0						T22/HG	
275865-024		Filtrate	50	50	1	1.0						T22/HG	
275865-027		Filtrate	50	50	1	1.0						T22/HG	
275899-003		Filtrate	50	50	1	1.0						T22/HG	
275899-004		Filtrate	50	50	1	1.0						T22/HG	
275899-008		Filtrate	50	50	1	1.0						T22/HG	
276066-001		Water	50	50	1	1.0						T22/HG	
276066-002		Water	50	50	1	1.0						T22/HG	
276066-003		Water	50	50	1	1.0						T22/HG	
276066-004		Water	50	50	1	1.0						T22/HG	
276066-005		Water	50	50	1	1.0						T22/HG	
276066-007		Water	50	50	1	1.0						T22/HG	
276066-008		Water	50	50	1	1.0						T22/HG	
276243-002		Filtrate	50	50	1	1.0						T22/HG	
QC832920	BLANK	Water	50	50	1	1.0							
QC832921	BS	Water	50	50	1	1.0		1.25					
QC832922	BSD	Filtrate	50	50	1	1.0		1.25					
QC832923	MS	Filtrate	50	50	1	1.0		1.25					
QC832924	MSD	Filtrate	50	50	1	1.0		1.25					
QC832925	SER	Filtrate	50	50	1	1.0							
QC832943	BLANK	Filtrate	50	50	1	1.0							

LCS 05/02/16 : corrected typo -025 as -027. Added 243 to bottom after verification it was ran

Analyst: LCS Date: 04/25/16 Reviewer: PRW Date: 05/04/16

Water Digestion for Mercury

Curtis & Tompkins, Ltd.

LIMS Batch #: 234428 Digestion Method: ☒ EPA 7470A/ EPA 245.1 BK3846

Date Digested: 4/25/16 ☐ _____ Page 35

Sample #	container ID	Volume Sample (mL)	Final Volume (mL)	Filtered? (y/n)	Comments
LOD: 255715-021		☒ 50 ☐ ___	☒ 50 ☐ ___	N	Spiked S29719 @ 0.5 mL
275161-015	A	☒ 50 ☐ ___	☒ 50 ☐ ___		
275865-015		☒ 50 ☐ ___	☒ 50 ☐ ___		MSS
275865-018		☒ 50 ☐ ___	☒ 50 ☐ ___		
-021		☒ 50 ☐ ___	☒ 50 ☐ ___		
-022		☒ 50 ☐ ___	☒ 50 ☐ ___		
-024		☒ 50 ☐ ___	☒ 50 ☐ ___		
-025 275 5/2		☒ 50 ☐ ___	☒ 50 ☐ ___		
275899-003 5/2	B	☒ 50 ☐ ___	☒ 50 ☐ ___		
-004		☒ 50 ☐ ___	☒ 50 ☐ ___		
-005		☒ 50 ☐ ___	☒ 50 ☐ ___		
276066-001	A	☒ 50 ☐ ___	☒ 50 ☐ ___		
-002		☒ 50 ☐ ___	☒ 50 ☐ ___		
-003		☒ 50 ☐ ___	☒ 50 ☐ ___		
-004		☒ 50 ☐ ___	☒ 50 ☐ ___		
-005		☒ 50 ☐ ___	☒ 50 ☐ ___		
-007		☒ 50 ☐ ___	☒ 50 ☐ ___		
-008		☒ 50 ☐ ___	☒ 50 ☐ ___		
MB		☒ 50 ☐ ___	☒ 50 ☐ ___		
BS		☒ 50 ☐ ___	☒ 50 ☐ ___		
BSD		☒ 50 ☐ ___	☒ 50 ☐ ___		
MS		☒ 50 ☐ ___	☒ 50 ☐ ___		
MSD		☒ 50 ☐ ___	☒ 50 ☐ ___		
FH.BLK		☒ 50 ☐ ___	☒ 50 ☐ ___		QC832943
276243-002 5/2		☒ 50 ☐ ___	☒ 50 ☐ ___		

	Reagent ID/ LIMS# / Time	Initials / Date
Digestion Tube Lot #	EK160028	LS 4/25
1.25 mL of spike solution was added to all spikes	S29719	
Using pipette #	L30 4078D	
☒ CAL digested with this batch? ICAL Std S#	S29720	
ICV / CCV LIMS S#	S29721/S29721	
Digestion Temperature (°C), Block and Probe Location	94 / 3	
Digestion Block ID: Denali Thermometer #	L91303	
Digestion Started at (time)	15:18	
concentrated H_2SO_4	ES157449	
concentrated HNO_3	JTB133393	
5% $KMnO_4$ Reagent ID	4-21-16	
5% $K_2S_2O_8$ Reagent ID	4-19-16	
NaCl.hydroxylamine hydrochloride Reagent ID	4-21-16	
Stannous Chloride Reagent ID	4-19-16	
Digestion Completed at (time)	17:18	✓
☐ filtered thru' 0.45 um syringe filter (lot #)		

153D
693E
678D
101

4/25/16

omist / Date

Continued from page _____
Continued on page _____

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Version 5, Dec.2015


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 275899
ANALYTICAL REPORT
Volatile Organics by GC/MS

Tetra Tech EMI	Project : 1035225323.06
1999 Harrison Street	Location : RFS 2016 Groundwater
Oakland, CA 94612	Level : IV

Sample ID	Lab ID
20160411GEO	275899-001
20160411B280A	275899-002
20160411CTP	275899-003
20160411B195	275899-004
20160411B277	275899-007
20160411ER	275899-008
20160411TB	275899-009

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: 05/10/2016

Mike Dahlquist
Project Manager
mike.dahlquist@ctberk.com

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE
VOLATILE ORGANICS BY GC/MS (EPA 8260B)

Laboratory number:	**275899**
Client:	**Tetra Tech EMI**
Project:	**1035225323.06**
Location:	**RFS 2016 Groundwater**
Request Date:	**04/11/16**
Samples Received:	**04/11/16**

This data package contains sample and QC results for seven water samples, requested for the above referenced project on 04/11/16. See attached cooler receipt form for any sample receipt problems or discrepancies.

Volatile Organics by GC/MS (EPA 8260B):

High response was observed for 2,2-dichloropropane in the CCV analyzed 04/19/16 12:40; this analyte was not detected at or above the RL in the associated samples, and affected data was qualified with "b".

Low response was observed for chloromethane in the CCV analyzed 04/20/16 14:03; this analyte met minimum response criteria, and affected data was qualified with "b". High responses were observed for bromomethane, carbon disulfide, and vinyl acetate; affected data was qualified with "b".

High recoveries were observed for bromomethane in the BS/BSD for batch 234286; the associated RPD was within limits, and these high recoveries were not associated with any reported results.

No other analytical problems were encountered.

Chain of Custody

275899

Chain of Custody Record No. 7113

Page 1 of 1

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

Project name: 2016 RFS GW	**Lab PO#:** 160AK35	**Lab:** CT	
Project (CTO) number: 103522532306	**TtEMI technical contact:** Sara Woolley	**Field samplers:** Cynthia Breed & Mark Duffy	
	TtEMI project manager: Jason Brodersen	**Field samplers' signatures:**	

Preservative Added: HCl; HNO3

No./Container Types: 40 ml VOA; 1 liter Amber; 500 ml Poly; Sleeve; Glass Jar

Analysis Required: VOA; SVOA; Pest/PCBs; Metals; TPH Purgeables; TPH Extractables

	Sample ID	Sample Location (Pt. ID)	Date	Time	Matrix	MS / MSD	40 ml VOA	1 liter Amber	500 ml Poly	Sleeve	Glass Jar	VOA	SVOA	Pest/PCBs	Metals	TPH Purgeables	TPH Extractables
1	20160411GED		4/11/16	0920	Water		3					X					
2	20160411B280A			0955			3					X					
3	20160411CTB			1025			3		1			X			X		
4	20160411B195			1127			3		1			X			X		
5	20160411EERC			1300					1						X*		
6	20160411B474			1410 ~~1355~~					1						X*		
7	20160411B277			1450			3					X					
8	20160411ER			1530			3		1			X			X		
9	20160411TB			0900			~~2~~					X					

	Name (print)	Company Name	Date	Time
Relinquished by:	Mark Duffy	Tetra Tech CT	4-11-16	1600
Received by:	Mikelle Chong		4/11/16	1600
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				

Turnaround time/remarks:
* Metals filtered in field

Fed Ex #: NA

WHITE-Laboratory Copy YELLOW-Sample Tracker PINK-File Copy

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 275899 Date Received 4/11/16 Number of coolers 1
Client TetraTech EM Inc. Project 2016 RFS GW

Date Opened 4/11 By (print) CJN (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) ____
   CJN
   ☒ 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) ____
   ☐ Temperature blank(s) included? ☐ Thermometer# ____ ☐ 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? (pH strip lot# HC 285444) (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
20. 1/2 VOAs Received w/ bubble 76mm for sample 9

Rev 12, 12/01/15

Curtis & Tompkins Sample Preservation for 275899

Sample	pH: <2	>9	>12	Other
-003a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[X]	[ ]	[ ]	_____
-004a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[X]	[ ]	[ ]	_____
-005a	[X]	[ ]	[ ]	_____
-006a	[X]	[ ]	[ ]	_____
-008a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[X]	[ ]	[ ]	_____

Analyst: CJN
Date: 4/11/16

Results & QC Summary

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275899	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160411GEO	Dil'n Fac:	1.000
Lab ID:	275899-001	Sampled:	04/11/16
Matrix:	Water	Received:	04/11/16
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Analyzed
Freon 12	ND	1.0	0.1	234239	04/19/16
Chloromethane	ND	1.0	0.3	234239	04/19/16
Vinyl Chloride	ND	1.0	0.1	234239	04/19/16
Bromomethane	ND	1.0	0.2	234239	04/19/16
Chloroethane	ND	1.0	0.3	234239	04/19/16
Trichlorofluoromethane	ND	1.0	0.2	234239	04/19/16
Acetone	ND	10	3.3	234239	04/19/16
Freon 113	ND	5.0	0.1	234239	04/19/16
1,1-Dichloroethene	ND	1.0	0.2	234239	04/19/16
Methylene Chloride	ND	10	0.2	234239	04/19/16
Carbon Disulfide	ND	1.0	0.1	234239	04/19/16
MTBE	ND	1.0	0.1	234239	04/19/16
trans-1,2-Dichloroethene	ND	1.0	0.2	234239	04/19/16
Vinyl Acetate	ND	10	1.1	234239	04/19/16
1,1-Dichloroethane	ND	1.0	0.2	234239	04/19/16
2-Butanone	ND	10	0.5	234239	04/19/16
cis-1,2-Dichloroethene	ND	1.0	0.1	234239	04/19/16
2,2-Dichloropropane	ND	1.0	0.1	234239	04/19/16
Chloroform	0.6 J	1.0	0.1	234239	04/19/16
Bromochloromethane	ND	1.0	0.1	234239	04/19/16
1,1,1-Trichloroethane	ND	1.0	0.1	234239	04/19/16
1,1-Dichloropropene	ND	1.0	0.1	234239	04/19/16
Carbon Tetrachloride	0.8 J	1.0	0.1	234239	04/19/16
1,2-Dichloroethane	ND	1.0	0.1	234239	04/19/16
Benzene	ND	1.0	0.1	234239	04/19/16
Trichloroethene	ND	1.0	0.1	234239	04/19/16
1,2-Dichloropropane	ND	1.0	0.1	234239	04/19/16
Bromodichloromethane	ND	1.0	0.1	234239	04/19/16
Dibromomethane	ND	1.0	0.1	234239	04/19/16
4-Methyl-2-Pentanone	ND	10	0.7	234239	04/19/16
cis-1,3-Dichloropropene	ND	1.0	0.1	234239	04/19/16
Toluene	ND	1.0	0.1	234239	04/19/16
trans-1,3-Dichloropropene	ND	1.0	0.1	234239	04/19/16
1,1,2-Trichloroethane	ND	1.0	0.2	234239	04/19/16
2-Hexanone	ND	10	0.5	234239	04/19/16
1,3-Dichloropropane	ND	1.0	0.1	234239	04/19/16
Tetrachloroethene	ND	1.0	0.1	234239	04/19/16
Dibromochloromethane	ND	1.0	0.1	234239	04/19/16
1,2-Dibromoethane	ND	1.0	0.1	234239	04/19/16
Chlorobenzene	ND	1.0	0.1	234239	04/19/16
1,1,1,2-Tetrachloroethane	ND	1.0	0.1	234239	04/19/16
Ethylbenzene	ND	1.0	0.1	234239	04/19/16
m,p-Xylenes	ND	1.0	0.1	234239	04/19/16
o-Xylene	ND	1.0	0.1	234239	04/19/16
Styrene	ND	1.0	0.1	234239	04/19/16
Bromoform	ND	1.0	0.1	234239	04/19/16
Isopropylbenzene	ND	1.0	0.1	234239	04/19/16
1,1,2,2-Tetrachloroethane	ND	1.0	0.1	234239	04/19/16
1,2,3-Trichloropropane	ND	1.0	0.2	234239	04/19/16
Propylbenzene	ND	1.0	0.1	234239	04/19/16
Bromobenzene	ND	1.0	0.1	234239	04/19/16
1,3,5-Trimethylbenzene	ND	1.0	0.1	234239	04/19/16
2-Chlorotoluene	ND	1.0	0.1	234239	04/19/16

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275899	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160411GEO	Dil'n Fac:	1.000
Lab ID:	275899-001	Sampled:	04/11/16
Matrix:	Water	Received:	04/11/16
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Analyzed
4-Chlorotoluene	ND	1.0	0.1	234239	04/19/16
tert-Butylbenzene	ND	1.0	0.1	234239	04/19/16
1,2,4-Trimethylbenzene	ND	1.0	0.1	234286	04/20/16
sec-Butylbenzene	ND	1.0	0.1	234239	04/19/16
para-Isopropyl Toluene	ND	1.0	0.1	234239	04/19/16
1,3-Dichlorobenzene	ND	1.0	0.1	234239	04/19/16
1,4-Dichlorobenzene	ND	1.0	0.1	234239	04/19/16
n-Butylbenzene	ND	1.0	0.1	234239	04/19/16
1,2-Dichlorobenzene	ND	1.0	0.1	234239	04/19/16
1,2-Dibromo-3-Chloropropane	ND	1.0	0.3	234239	04/19/16
1,2,4-Trichlorobenzene	ND	1.0	0.1	234239	04/19/16
Hexachlorobutadiene	ND	1.0	0.1	234239	04/19/16
Naphthalene	ND	1.0	0.3	234286	04/20/16
1,2,3-Trichlorobenzene	ND	1.0	0.1	234239	04/19/16

Tentatively Identified Compounds	Batch#	Analyzed
No TICs found.	234239	04/19/16

Surrogate	%REC	Limits	Batch#	Analyzed
Dibromofluoromethane	82	80-128	234239	04/19/16
1,2-Dichloroethane-d4	86	75-139	234239	04/19/16
Toluene-d8	105	80-120	234239	04/19/16
Bromofluorobenzene	99	80-120	234239	04/19/16

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275899	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160411B280A	Diln Fac:	1.000
Lab ID:	275899-002	Sampled:	04/11/16
Matrix:	Water	Received:	04/11/16
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Analyzed
Freon 12	ND	1.0	0.1	234239	04/19/16
Chloromethane	ND	1.0	0.3	234239	04/19/16
Vinyl Chloride	ND	1.0	0.1	234239	04/19/16
Bromomethane	ND	1.0	0.2	234239	04/19/16
Chloroethane	ND	1.0	0.3	234239	04/19/16
Trichlorofluoromethane	ND	1.0	0.2	234239	04/19/16
Acetone	ND	10	3.3	234239	04/19/16
Freon 113	ND	5.0	0.1	234239	04/19/16
1,1-Dichloroethene	ND	1.0	0.2	234239	04/19/16
Methylene Chloride	ND	10	0.2	234239	04/19/16
Carbon Disulfide	ND	1.0	0.1	234239	04/19/16
MTBE	ND	1.0	0.1	234239	04/19/16
trans-1,2-Dichloroethene	ND	1.0	0.2	234239	04/19/16
Vinyl Acetate	ND	10	1.1	234239	04/19/16
1,1-Dichloroethane	ND	1.0	0.2	234239	04/19/16
2-Butanone	ND	10	0.5	234239	04/19/16
cis-1,2-Dichloroethene	ND	1.0	0.1	234239	04/19/16
2,2-Dichloropropane	ND	1.0	0.1	234239	04/19/16
Chloroform	0.2 J	1.0	0.1	234239	04/19/16
Bromochloromethane	ND	1.0	0.1	234239	04/19/16
1,1,1-Trichloroethane	ND	1.0	0.1	234239	04/19/16
1,1-Dichloropropene	ND	1.0	0.1	234239	04/19/16
Carbon Tetrachloride	0.6 J	1.0	0.1	234239	04/19/16
1,2-Dichloroethane	ND	1.0	0.1	234239	04/19/16
Benzene	ND	1.0	0.1	234239	04/19/16
Trichloroethene	ND	1.0	0.1	234239	04/19/16
1,2-Dichloropropane	ND	1.0	0.1	234239	04/19/16
Bromodichloromethane	ND	1.0	0.1	234239	04/19/16
Dibromomethane	ND	1.0	0.1	234239	04/19/16
4-Methyl-2-Pentanone	ND	10	0.7	234239	04/19/16
cis-1,3-Dichloropropene	ND	1.0	0.1	234239	04/19/16
Toluene	ND	1.0	0.1	234239	04/19/16
trans-1,3-Dichloropropene	ND	1.0	0.1	234239	04/19/16
1,1,2-Trichloroethane	ND	1.0	0.2	234239	04/19/16
2-Hexanone	ND	10	0.5	234239	04/19/16
1,3-Dichloropropane	ND	1.0	0.1	234239	04/19/16
Tetrachloroethene	ND	1.0	0.1	234239	04/19/16
Dibromochloromethane	ND	1.0	0.1	234239	04/19/16
1,2-Dibromoethane	ND	1.0	0.1	234239	04/19/16
Chlorobenzene	ND	1.0	0.1	234239	04/19/16
1,1,1,2-Tetrachloroethane	ND	1.0	0.1	234239	04/19/16
Ethylbenzene	ND	1.0	0.1	234239	04/19/16
m,p-Xylenes	ND	1.0	0.1	234239	04/19/16
o-Xylene	ND	1.0	0.1	234239	04/19/16
Styrene	ND	1.0	0.1	234239	04/19/16
Bromoform	ND	1.0	0.1	234239	04/19/16
Isopropylbenzene	ND	1.0	0.1	234239	04/19/16
1,1,2,2-Tetrachloroethane	ND	1.0	0.1	234239	04/19/16
1,2,3-Trichloropropane	ND	1.0	0.2	234239	04/19/16
Propylbenzene	ND	1.0	0.1	234239	04/19/16
Bromobenzene	ND	1.0	0.1	234239	04/19/16
1,3,5-Trimethylbenzene	ND	1.0	0.1	234239	04/19/16
2-Chlorotoluene	ND	1.0	0.1	234239	04/19/16

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275899	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160411B280A	Dil'n Fac:	1.000
Lab ID:	275899-002	Sampled:	04/11/16
Matrix:	Water	Received:	04/11/16
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Analyzed
4-Chlorotoluene	ND	1.0	0.1	234239	04/19/16
tert-Butylbenzene	ND	1.0	0.1	234239	04/19/16
1,2,4-Trimethylbenzene	ND	1.0	0.1	234239	04/19/16
sec-Butylbenzene	ND	1.0	0.1	234239	04/19/16
para-Isopropyl Toluene	ND	1.0	0.1	234239	04/19/16
1,3-Dichlorobenzene	ND	1.0	0.1	234239	04/19/16
1,4-Dichlorobenzene	ND	1.0	0.1	234239	04/19/16
n-Butylbenzene	ND	1.0	0.1	234239	04/19/16
1,2-Dichlorobenzene	ND	1.0	0.1	234239	04/19/16
1,2-Dibromo-3-Chloropropane	ND	1.0	0.3	234239	04/19/16
1,2,4-Trichlorobenzene	ND	1.0	0.1	234239	04/19/16
Hexachlorobutadiene	ND	1.0	0.1	234239	04/19/16
Naphthalene	ND	1.0	0.3	234286	04/20/16
1,2,3-Trichlorobenzene	ND	1.0	0.1	234239	04/19/16

Tentatively Identified Compounds	Batch#	Analyzed
No TICs found.	234239	04/19/16

Surrogate	%REC	Limits	Batch#	Analyzed
Dibromofluoromethane	84	80-128	234239	04/19/16
1,2-Dichloroethane-d4	80	75-139	234239	04/19/16
Toluene-d8	107	80-120	234239	04/19/16
Bromofluorobenzene	101	80-120	234239	04/19/16

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275899	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160411CTP	Batch#:	234239
Lab ID:	275899-003	Sampled:	04/11/16
Matrix:	Water	Received:	04/11/16
Units:	ug/L	Analyzed:	04/19/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
Freon 12	ND	1.0	0.1
Chloromethane	ND	1.0	0.3
Vinyl Chloride	ND	1.0	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.3
Trichlorofluoromethane	ND	1.0	0.2
Acetone	ND	10	3.3
Freon 113	ND	5.0	0.1
1,1-Dichloroethene	ND	1.0	0.2
Methylene Chloride	ND	10	0.2
Carbon Disulfide	ND	1.0	0.1
MTBE	ND	1.0	0.1
trans-1,2-Dichloroethene	ND	1.0	0.2
Vinyl Acetate	ND	10	1.1
1,1-Dichloroethane	ND	1.0	0.2
2-Butanone	ND	10	0.5
cis-1,2-Dichloroethene	ND	1.0	0.1
2,2-Dichloropropane	ND	1.0	0.1
Chloroform	3.5	1.0	0.1
Bromochloromethane	ND	1.0	0.1
1,1,1-Trichloroethane	ND	1.0	0.1
1,1-Dichloropropene	ND	1.0	0.1
Carbon Tetrachloride	7.8	1.0	0.1
1,2-Dichloroethane	ND	1.0	0.1
Benzene	ND	1.0	0.1
Trichloroethene	0.3 J	1.0	0.1
1,2-Dichloropropane	ND	1.0	0.1
Bromodichloromethane	ND	1.0	0.1
Dibromomethane	ND	1.0	0.1
4-Methyl-2-Pentanone	ND	10	0.7
cis-1,3-Dichloropropene	ND	1.0	0.1
Toluene	ND	1.0	0.1
trans-1,3-Dichloropropene	ND	1.0	0.1
1,1,2-Trichloroethane	ND	1.0	0.2
2-Hexanone	ND	10	0.5
1,3-Dichloropropane	ND	1.0	0.1
Tetrachloroethene	ND	1.0	0.1
Dibromochloromethane	ND	1.0	0.1
1,2-Dibromoethane	ND	1.0	0.1
Chlorobenzene	ND	1.0	0.1
1,1,1,2-Tetrachloroethane	ND	1.0	0.1
Ethylbenzene	ND	1.0	0.1
m,p-Xylenes	ND	1.0	0.1
o-Xylene	ND	1.0	0.1
Styrene	ND	1.0	0.1
Bromoform	ND	1.0	0.1
Isopropylbenzene	ND	1.0	0.1
1,1,2,2-Tetrachloroethane	ND	1.0	0.1
1,2,3-Trichloropropane	ND	1.0	0.2
Propylbenzene	ND	1.0	0.1
Bromobenzene	ND	1.0	0.1
1,3,5-Trimethylbenzene	ND	1.0	0.1

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275899	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160411CTP	Batch#:	234239
Lab ID:	275899-003	Sampled:	04/11/16
Matrix:	Water	Received:	04/11/16
Units:	ug/L	Analyzed:	04/19/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
2-Chlorotoluene	ND	1.0	0.1
4-Chlorotoluene	ND	1.0	0.1
tert-Butylbenzene	ND	1.0	0.1
1,2,4-Trimethylbenzene	ND	1.0	0.1
sec-Butylbenzene	ND	1.0	0.1
para-Isopropyl Toluene	ND	1.0	0.1
1,3-Dichlorobenzene	ND	1.0	0.1
1,4-Dichlorobenzene	ND	1.0	0.1
n-Butylbenzene	ND	1.0	0.1
1,2-Dichlorobenzene	ND	1.0	0.1
1,2-Dibromo-3-Chloropropane	ND	1.0	0.3
1,2,4-Trichlorobenzene	ND	1.0	0.1
Hexachlorobutadiene	ND	1.0	0.1
Naphthalene	ND	1.0	0.1
1,2,3-Trichlorobenzene	ND	1.0	0.1

Tentatively Identified Compounds

No TICs found.

Surrogate	%REC	Limits
Dibromofluoromethane	87	80-128
1,2-Dichloroethane-d4	89	75-139
Toluene-d8	104	80-120
Bromofluorobenzene	97	80-120

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275899	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160411B195	Batch#:	234239
Lab ID:	275899-004	Sampled:	04/11/16
Matrix:	Water	Received:	04/11/16
Units:	ug/L	Analyzed:	04/19/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
Freon 12	ND	1.0	0.1
Chloromethane	ND	1.0	0.3
Vinyl Chloride	ND	1.0	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.3
Trichlorofluoromethane	ND	1.0	0.2
Acetone	ND	10	3.3
Freon 113	ND	5.0	0.1
1,1-Dichloroethene	ND	1.0	0.2
Methylene Chloride	ND	10	0.2
Carbon Disulfide	ND	1.0	0.1
MTBE	ND	1.0	0.1
trans-1,2-Dichloroethene	ND	1.0	0.2
Vinyl Acetate	ND	10	1.1
1,1-Dichloroethane	ND	1.0	0.2
2-Butanone	ND	10	0.5
cis-1,2-Dichloroethene	0.9 J	1.0	0.1
2,2-Dichloropropane	ND	1.0	0.1
Chloroform	ND	1.0	0.1
Bromochloromethane	ND	1.0	0.1
1,1,1-Trichloroethane	ND	1.0	0.1
1,1-Dichloropropene	ND	1.0	0.1
Carbon Tetrachloride	ND	1.0	0.1
1,2-Dichloroethane	ND	1.0	0.1
Benzene	ND	1.0	0.1
Trichloroethene	45	1.0	0.1
1,2-Dichloropropane	ND	1.0	0.1
Bromodichloromethane	ND	1.0	0.1
Dibromomethane	ND	1.0	0.1
4-Methyl-2-Pentanone	ND	10	0.7
cis-1,3-Dichloropropene	ND	1.0	0.1
Toluene	ND	1.0	0.1
trans-1,3-Dichloropropene	ND	1.0	0.1
1,1,2-Trichloroethane	ND	1.0	0.2
2-Hexanone	ND	10	0.5
1,3-Dichloropropane	ND	1.0	0.1
Tetrachloroethene	1.6	1.0	0.1
Dibromochloromethane	ND	1.0	0.1
1,2-Dibromoethane	ND	1.0	0.1
Chlorobenzene	ND	1.0	0.1
1,1,1,2-Tetrachloroethane	ND	1.0	0.1
Ethylbenzene	ND	1.0	0.1
m,p-Xylenes	ND	1.0	0.1
o-Xylene	ND	1.0	0.1
Styrene	ND	1.0	0.1
Bromoform	ND	1.0	0.1
Isopropylbenzene	ND	1.0	0.1
1,1,2,2-Tetrachloroethane	ND	1.0	0.1
1,2,3-Trichloropropane	ND	1.0	0.2
Propylbenzene	ND	1.0	0.1
Bromobenzene	ND	1.0	0.1
1,3,5-Trimethylbenzene	ND	1.0	0.1

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275899	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160411B195	Batch#:	234239
Lab ID:	275899-004	Sampled:	04/11/16
Matrix:	Water	Received:	04/11/16
Units:	ug/L	Analyzed:	04/19/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
2-Chlorotoluene	ND	1.0	0.1
4-Chlorotoluene	ND	1.0	0.1
tert-Butylbenzene	ND	1.0	0.1
1,2,4-Trimethylbenzene	ND	1.0	0.1
sec-Butylbenzene	ND	1.0	0.1
para-Isopropyl Toluene	ND	1.0	0.1
1,3-Dichlorobenzene	ND	1.0	0.1
1,4-Dichlorobenzene	ND	1.0	0.1
n-Butylbenzene	ND	1.0	0.1
1,2-Dichlorobenzene	ND	1.0	0.1
1,2-Dibromo-3-Chloropropane	ND	1.0	0.3
1,2,4-Trichlorobenzene	ND	1.0	0.1
Hexachlorobutadiene	ND	1.0	0.1
Naphthalene	ND	1.0	0.1
1,2,3-Trichlorobenzene	ND	1.0	0.1

Tentatively Identified Compounds

No TICs found.

Surrogate	%REC	Limits
Dibromofluoromethane	80	80-128
1,2-Dichloroethane-d4	79	75-139
Toluene-d8	105	80-120
Bromofluorobenzene	99	80-120

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275899	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160411B277	Batch#:	234239
Lab ID:	275899-007	Sampled:	04/11/16
Matrix:	Water	Received:	04/11/16
Units:	ug/L	Analyzed:	04/19/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
Freon 12	ND	1.0	0.1
Chloromethane	ND	1.0	0.3
Vinyl Chloride	ND	1.0	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.3
Trichlorofluoromethane	ND	1.0	0.2
Acetone	ND	10	3.3
Freon 113	ND	5.0	0.1
1,1-Dichloroethene	ND	1.0	0.2
Methylene Chloride	ND	10	0.2
Carbon Disulfide	ND	1.0	0.1
MTBE	ND	1.0	0.1
trans-1,2-Dichloroethene	ND	1.0	0.2
Vinyl Acetate	ND	10	1.1
1,1-Dichloroethane	ND	1.0	0.2
2-Butanone	ND	10	0.5
cis-1,2-Dichloroethene	ND	1.0	0.1
2,2-Dichloropropane	ND	1.0	0.1
Chloroform	ND	1.0	0.1
Bromochloromethane	ND	1.0	0.1
1,1,1-Trichloroethane	ND	1.0	0.1
1,1-Dichloropropene	ND	1.0	0.1
Carbon Tetrachloride	ND	1.0	0.1
1,2-Dichloroethane	ND	1.0	0.1
Benzene	ND	1.0	0.1
Trichloroethene	ND	1.0	0.1
1,2-Dichloropropane	ND	1.0	0.1
Bromodichloromethane	ND	1.0	0.1
Dibromomethane	ND	1.0	0.1
4-Methyl-2-Pentanone	ND	10	0.7
cis-1,3-Dichloropropene	ND	1.0	0.1
Toluene	ND	1.0	0.1
trans-1,3-Dichloropropene	ND	1.0	0.1
1,1,2-Trichloroethane	ND	1.0	0.2
2-Hexanone	ND	10	0.5
1,3-Dichloropropane	ND	1.0	0.1
Tetrachloroethene	ND	1.0	0.1
Dibromochloromethane	ND	1.0	0.1
1,2-Dibromoethane	ND	1.0	0.1
Chlorobenzene	ND	1.0	0.1
1,1,1,2-Tetrachloroethane	ND	1.0	0.1
Ethylbenzene	ND	1.0	0.1
m,p-Xylenes	ND	1.0	0.1
o-Xylene	ND	1.0	0.1
Styrene	ND	1.0	0.1
Bromoform	ND	1.0	0.1
Isopropylbenzene	ND	1.0	0.1
1,1,2,2-Tetrachloroethane	ND	1.0	0.1
1,2,3-Trichloropropane	ND	1.0	0.2
Propylbenzene	ND	1.0	0.1
Bromobenzene	ND	1.0	0.1
1,3,5-Trimethylbenzene	ND	1.0	0.1
2-Chlorotoluene	ND	1.0	0.1

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275899	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160411B277	Batch#:	234239
Lab ID:	275899-007	Sampled:	04/11/16
Matrix:	Water	Received:	04/11/16
Units:	ug/L	Analyzed:	04/19/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
4-Chlorotoluene	ND	1.0	0.1
tert-Butylbenzene	ND	1.0	0.1
1,2,4-Trimethylbenzene	ND	1.0	0.1
sec-Butylbenzene	ND	1.0	0.1
para-Isopropyl Toluene	ND	1.0	0.1
1,3-Dichlorobenzene	ND	1.0	0.1
1,4-Dichlorobenzene	ND	1.0	0.1
n-Butylbenzene	ND	1.0	0.1
1,2-Dichlorobenzene	ND	1.0	0.1
1,2-Dibromo-3-Chloropropane	ND	1.0	0.3
1,2,4-Trichlorobenzene	ND	1.0	0.1
Hexachlorobutadiene	ND	1.0	0.1
Naphthalene	ND	1.0	0.1
1,2,3-Trichlorobenzene	ND	1.0	0.1

Tentatively Identified Compounds

No TICs found.

Surrogate	%REC	Limits
Dibromofluoromethane	86	80-128
1,2-Dichloroethane-d4	85	75-139
Toluene-d8	98	80-120
Bromofluorobenzene	104	80-120

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275899	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160411ER	Batch#:	234239
Lab ID:	275899-008	Sampled:	04/11/16
Matrix:	Water	Received:	04/11/16
Units:	ug/L	Analyzed:	04/19/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
Freon 12	ND	1.0	0.1
Chloromethane	ND	1.0	0.3
Vinyl Chloride	ND	1.0	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.3
Trichlorofluoromethane	ND	1.0	0.2
Acetone	ND	10	3.3
Freon 113	ND	5.0	0.1
1,1-Dichloroethene	ND	1.0	0.2
Methylene Chloride	ND	10	0.2
Carbon Disulfide	ND	1.0	0.1
MTBE	ND	1.0	0.1
trans-1,2-Dichloroethene	ND	1.0	0.2
Vinyl Acetate	ND	10	1.1
1,1-Dichloroethane	ND	1.0	0.2
2-Butanone	1.3 J	10	0.5
cis-1,2-Dichloroethene	ND	1.0	0.1
2,2-Dichloropropane	ND	1.0	0.1
Chloroform	ND	1.0	0.1
Bromochloromethane	ND	1.0	0.1
1,1,1-Trichloroethane	ND	1.0	0.1
1,1-Dichloropropene	ND	1.0	0.1
Carbon Tetrachloride	ND	1.0	0.1
1,2-Dichloroethane	ND	1.0	0.1
Benzene	ND	1.0	0.1
Trichloroethene	ND	1.0	0.1
1,2-Dichloropropane	ND	1.0	0.1
Bromodichloromethane	ND	1.0	0.1
Dibromomethane	ND	1.0	0.1
4-Methyl-2-Pentanone	ND	10	0.7
cis-1,3-Dichloropropene	ND	1.0	0.1
Toluene	ND	1.0	0.1
trans-1,3-Dichloropropene	ND	1.0	0.1
1,1,2-Trichloroethane	ND	1.0	0.2
2-Hexanone	ND	10	0.5
1,3-Dichloropropane	ND	1.0	0.1
Tetrachloroethene	ND	1.0	0.1
Dibromochloromethane	ND	1.0	0.1
1,2-Dibromoethane	ND	1.0	0.1
Chlorobenzene	ND	1.0	0.1
1,1,1,2-Tetrachloroethane	ND	1.0	0.1
Ethylbenzene	ND	1.0	0.1
m,p-Xylenes	ND	1.0	0.1
o-Xylene	ND	1.0	0.1
Styrene	ND	1.0	0.1
Bromoform	ND	1.0	0.1
Isopropylbenzene	ND	1.0	0.1
1,1,2,2-Tetrachloroethane	ND	1.0	0.1
1,2,3-Trichloropropane	ND	1.0	0.2
Propylbenzene	ND	1.0	0.1
Bromobenzene	ND	1.0	0.1
1,3,5-Trimethylbenzene	ND	1.0	0.1

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275899	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160411ER	Batch#:	234239
Lab ID:	275899-008	Sampled:	04/11/16
Matrix:	Water	Received:	04/11/16
Units:	ug/L	Analyzed:	04/19/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
2-Chlorotoluene	ND	1.0	0.1
4-Chlorotoluene	ND	1.0	0.1
tert-Butylbenzene	ND	1.0	0.1
1,2,4-Trimethylbenzene	ND	1.0	0.1
sec-Butylbenzene	ND	1.0	0.1
para-Isopropyl Toluene	ND	1.0	0.1
1,3-Dichlorobenzene	ND	1.0	0.1
1,4-Dichlorobenzene	ND	1.0	0.1
n-Butylbenzene	ND	1.0	0.1
1,2-Dichlorobenzene	ND	1.0	0.1
1,2-Dibromo-3-Chloropropane	ND	1.0	0.3
1,2,4-Trichlorobenzene	ND	1.0	0.1
Hexachlorobutadiene	ND	1.0	0.1
Naphthalene	ND	1.0	0.1
1,2,3-Trichlorobenzene	ND	1.0	0.1

Tentatively Identified Compounds

No TICs found.

Surrogate	%REC	Limits
Dibromofluoromethane	82	80-128
1,2-Dichloroethane-d4	84	75-139
Toluene-d8	105	80-120
Bromofluorobenzene	106	80-120

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275899	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160411TB	Batch#:	234239
Lab ID:	275899-009	Sampled:	04/11/16
Matrix:	Water	Received:	04/11/16
Units:	ug/L	Analyzed:	04/19/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
Freon 12	ND	1.0	0.1
Chloromethane	ND	1.0	0.3
Vinyl Chloride	ND	1.0	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.3
Trichlorofluoromethane	ND	1.0	0.2
Acetone	ND	10	3.3
Freon 113	ND	5.0	0.1
1,1-Dichloroethene	ND	1.0	0.2
Methylene Chloride	ND	10	0.2
Carbon Disulfide	ND	1.0	0.1
MTBE	ND	1.0	0.1
trans-1,2-Dichloroethene	ND	1.0	0.2
Vinyl Acetate	ND	10	1.1
1,1-Dichloroethane	ND	1.0	0.2
2-Butanone	ND	10	0.5
cis-1,2-Dichloroethene	ND	1.0	0.1
2,2-Dichloropropane	ND	1.0	0.1
Chloroform	ND	1.0	0.1
Bromochloromethane	ND	1.0	0.1
1,1,1-Trichloroethane	ND	1.0	0.1
1,1-Dichloropropene	ND	1.0	0.1
Carbon Tetrachloride	ND	1.0	0.1
1,2-Dichloroethane	ND	1.0	0.1
Benzene	ND	1.0	0.1
Trichloroethene	ND	1.0	0.1
1,2-Dichloropropane	ND	1.0	0.1
Bromodichloromethane	ND	1.0	0.1
Dibromomethane	ND	1.0	0.1
4-Methyl-2-Pentanone	ND	10	0.7
cis-1,3-Dichloropropene	ND	1.0	0.1
Toluene	ND	1.0	0.1
trans-1,3-Dichloropropene	ND	1.0	0.1
1,1,2-Trichloroethane	ND	1.0	0.2
2-Hexanone	ND	10	0.5
1,3-Dichloropropane	ND	1.0	0.1
Tetrachloroethene	ND	1.0	0.1
Dibromochloromethane	ND	1.0	0.1
1,2-Dibromoethane	ND	1.0	0.1
Chlorobenzene	ND	1.0	0.1
1,1,1,2-Tetrachloroethane	ND	1.0	0.1
Ethylbenzene	ND	1.0	0.1
m,p-Xylenes	ND	1.0	0.1
o-Xylene	ND	1.0	0.1
Styrene	ND	1.0	0.1
Bromoform	ND	1.0	0.1
Isopropylbenzene	ND	1.0	0.1
1,1,2,2-Tetrachloroethane	ND	1.0	0.1
1,2,3-Trichloropropane	ND	1.0	0.2
Propylbenzene	ND	1.0	0.1
Bromobenzene	ND	1.0	0.1
1,3,5-Trimethylbenzene	ND	1.0	0.1
2-Chlorotoluene	ND	1.0	0.1

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	275899	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Field ID:	20160411TB	Batch#:	234239
Lab ID:	275899-009	Sampled:	04/11/16
Matrix:	Water	Received:	04/11/16
Units:	ug/L	Analyzed:	04/19/16
Diln Fac:	1.000		

Analyte	Result	RL	MDL
4-Chlorotoluene	ND	1.0	0.1
tert-Butylbenzene	ND	1.0	0.1
1,2,4-Trimethylbenzene	ND	1.0	0.1
sec-Butylbenzene	ND	1.0	0.1
para-Isopropyl Toluene	ND	1.0	0.1
1,3-Dichlorobenzene	ND	1.0	0.1
1,4-Dichlorobenzene	ND	1.0	0.1
n-Butylbenzene	ND	1.0	0.1
1,2-Dichlorobenzene	ND	1.0	0.1
1,2-Dibromo-3-Chloropropane	ND	1.0	0.3
1,2,4-Trichlorobenzene	ND	1.0	0.1
Hexachlorobutadiene	ND	1.0	0.1
Naphthalene	ND	1.0	0.1
1,2,3-Trichlorobenzene	ND	1.0	0.1

Tentatively Identified Compounds

No TICs found.

Surrogate	%REC	Limits
Dibromofluoromethane	90	80-128
1,2-Dichloroethane-d4	92	75-139
Toluene-d8	106	80-120
Bromofluorobenzene	107	80-120

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275899	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	234239
Units:	ug/L	Analyzed:	04/19/16
Diln Fac:	1.000		

Type: BS Lab ID: QC832157

Analyte	Spiked	Result	%REC	Limits
Freon 12	10.00	9.435	94	45-131
Chloromethane	10.00	9.727	97	48-133
Vinyl Chloride	10.00	10.68	107	63-132
Bromomethane	10.00	10.68	107	38-161
Chloroethane	10.00	10.36	104	62-131
Trichlorofluoromethane	10.00	10.65	106	64-137
Acetone	12.50	15.59	125	46-151
Freon 113	12.50	11.32	91	61-138
1,1-Dichloroethene	12.50	13.08	105	66-135
Methylene Chloride	12.50	11.59	93	74-131
Carbon Disulfide	12.50	12.97	104	63-150
MTBE	12.50	10.62	85	65-120
trans-1,2-Dichloroethene	12.50	12.53	100	72-134
Vinyl Acetate	12.50	13.14	105	60-194
1,1-Dichloroethane	12.50	12.72	102	68-127
2-Butanone	12.50	13.13	105	50-141
cis-1,2-Dichloroethene	12.50	12.98	104	73-129
2,2-Dichloropropane	12.50	16.78 b	134	72-146
Chloroform	12.50	12.12	97	73-126
Bromochloromethane	12.50	11.05	88	78-127
1,1,1-Trichloroethane	12.50	12.85	103	72-134
1,1-Dichloropropene	12.50	11.31	90	79-135
Carbon Tetrachloride	12.50	12.90	103	72-142
1,2-Dichloroethane	12.50	11.90	95	74-133
Benzene	12.50	12.93	103	80-123
Trichloroethene	12.50	12.27	98	80-123
1,2-Dichloropropane	12.50	11.94	95	74-120
Bromodichloromethane	12.50	11.84	95	79-121
Dibromomethane	12.50	11.96	96	80-120
4-Methyl-2-Pentanone	12.50	11.28	90	57-129
cis-1,3-Dichloropropene	12.50	13.25	106	80-130
Toluene	12.50	14.02	112	80-121
trans-1,3-Dichloropropene	12.50	13.16	105	76-122
1,1,2-Trichloroethane	12.50	12.63	101	80-120
2-Hexanone	12.50	14.92	119	49-136
1,3-Dichloropropane	12.50	13.40	107	80-120
Tetrachloroethene	12.50	13.51	108	78-130
Dibromochloromethane	12.50	12.03	96	80-123
1,2-Dibromoethane	12.50	12.30	98	80-120
Chlorobenzene	12.50	12.72	102	80-123
1,1,1,2-Tetrachloroethane	12.50	13.10	105	80-124
Ethylbenzene	12.50	13.99	112	80-123
m,p-Xylenes	25.00	26.84	107	80-126
o-Xylene	12.50	12.61	101	80-126
Styrene	12.50	13.17	105	80-122
Bromoform	12.50	10.97	88	72-132
Isopropylbenzene	12.50	15.02	120	79-130
1,1,2,2-Tetrachloroethane	12.50	13.99	112	72-129
1,2,3-Trichloropropane	12.50	13.04	104	72-124
Propylbenzene	12.50	14.64	117	79-128
Bromobenzene	12.50	13.41	107	80-122

b= See narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275899	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	234239
Units:	ug/L	Analyzed:	04/19/16
Diln Fac:	1.000		

Analyte	Spiked	Result	%REC	Limits
1,3,5-Trimethylbenzene	12.50	15.37	123	80-129
2-Chlorotoluene	12.50	14.95	120	80-130
4-Chlorotoluene	12.50	14.69	118	79-125
tert-Butylbenzene	12.50	13.96	112	79-130
1,2,4-Trimethylbenzene	12.50	13.77	110	78-124
sec-Butylbenzene	12.50	14.49	116	79-134
para-Isopropyl Toluene	12.50	14.76	118	74-125
1,3-Dichlorobenzene	12.50	13.23	106	80-124
1,4-Dichlorobenzene	12.50	13.39	107	80-121
n-Butylbenzene	12.50	15.42	123	69-135
1,2-Dichlorobenzene	12.50	12.48	100	80-123
1,2-Dibromo-3-Chloropropane	12.50	13.02	104	59-125
1,2,4-Trichlorobenzene	12.50	12.23	98	66-133
Hexachlorobutadiene	12.50	15.78	126	70-152
Naphthalene	12.50	11.73	94	53-139
1,2,3-Trichlorobenzene	12.50	12.21	98	64-134

Surrogate	%REC	Limits
Dibromofluoromethane	90	80-128
1,2-Dichloroethane-d4	87	75-139
Toluene-d8	106	80-120
Bromofluorobenzene	92	80-120

b= See narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275899	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	234239
Units:	ug/L	Analyzed:	04/19/16
Diln Fac:	1.000		

Type: BSD Lab ID: QC832158

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Freon 12	10.00	8.882	89	45-131	6	29
Chloromethane	10.00	9.263	93	48-133	5	25
Vinyl Chloride	10.00	9.934	99	63-132	7	23
Bromomethane	10.00	9.690	97	38-161	10	32
Chloroethane	10.00	9.696	97	62-131	7	24
Trichlorofluoromethane	10.00	10.61	106	64-137	0	23
Acetone	12.50	13.95	112	46-151	11	29
Freon 113	12.50	10.80	86	61-138	5	25
1,1-Dichloroethene	12.50	12.58	101	66-135	4	24
Methylene Chloride	12.50	11.30	90	74-131	2	21
Carbon Disulfide	12.50	12.69	101	63-150	2	25
MTBE	12.50	11.05	88	65-120	4	22
trans-1,2-Dichloroethene	12.50	11.76	94	72-134	6	22
Vinyl Acetate	12.50	13.16	105	60-194	0	25
1,1-Dichloroethane	12.50	12.02	96	68-127	6	21
2-Butanone	12.50	13.58	109	50-141	3	24
cis-1,2-Dichloroethene	12.50	13.00	104	73-129	0	20
2,2-Dichloropropane	12.50	15.83 b	127	72-146	6	24
Chloroform	12.50	12.14	97	73-126	0	20
Bromochloromethane	12.50	11.05	88	78-127	0	20
1,1,1-Trichloroethane	12.50	12.27	98	72-134	5	22
1,1-Dichloropropene	12.50	11.76	94	79-135	4	23
Carbon Tetrachloride	12.50	12.59	101	72-142	2	22
1,2-Dichloroethane	12.50	12.10	97	74-133	2	20
Benzene	12.50	12.77	102	80-123	1	20
Trichloroethene	12.50	12.29	98	80-123	0	20
1,2-Dichloropropane	12.50	11.73	94	74-120	2	20
Bromodichloromethane	12.50	12.47	100	79-121	5	20
Dibromomethane	12.50	12.15	97	80-120	2	20
4-Methyl-2-Pentanone	12.50	12.93	103	57-129	14	23
cis-1,3-Dichloropropene	12.50	13.21	106	80-130	0	20
Toluene	12.50	13.43	107	80-121	4	20
trans-1,3-Dichloropropene	12.50	13.72	110	76-122	4	20
1,1,2-Trichloroethane	12.50	14.81	118	80-120	16	20
2-Hexanone	12.50	14.80	118	49-136	1	24
1,3-Dichloropropane	12.50	14.32	115	80-120	7	20
Tetrachloroethene	12.50	13.37	107	78-130	1	21
Dibromochloromethane	12.50	12.43	99	80-123	3	20
1,2-Dibromoethane	12.50	12.93	103	80-120	5	20
Chlorobenzene	12.50	13.99	112	80-123	10	20
1,1,1,2-Tetrachloroethane	12.50	13.21	106	80-124	1	20
Ethylbenzene	12.50	14.28	114	80-123	2	21
m,p-Xylenes	25.00	26.29	105	80-126	2	21
o-Xylene	12.50	13.24	106	80-126	5	20
Styrene	12.50	13.47	108	80-122	2	20
Bromoform	12.50	12.09	97	72-132	10	20
Isopropylbenzene	12.50	13.85	111	79-130	8	21
1,1,2,2-Tetrachloroethane	12.50	14.79	118	72-129	6	20
1,2,3-Trichloropropane	12.50	13.13	105	72-124	1	22
Propylbenzene	12.50	14.17	113	79-128	3	21
Bromobenzene	12.50	13.55	108	80-122	1	20

b= See narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275899	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	234239
Units:	ug/L	Analyzed:	04/19/16
Diln Fac:	1.000		

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,3,5-Trimethylbenzene	12.50	14.66	117	80-129	5	20
2-Chlorotoluene	12.50	13.93	111	80-130	7	20
4-Chlorotoluene	12.50	15.00	120	79-125	2	20
tert-Butylbenzene	12.50	13.72	110	79-130	2	23
1,2,4-Trimethylbenzene	12.50	13.75	110	78-124	0	22
sec-Butylbenzene	12.50	14.07	113	79-134	3	23
para-Isopropyl Toluene	12.50	14.50	116	74-125	2	24
1,3-Dichlorobenzene	12.50	13.94	112	80-124	5	20
1,4-Dichlorobenzene	12.50	13.24	106	80-121	1	20
n-Butylbenzene	12.50	14.40	115	69-135	7	28
1,2-Dichlorobenzene	12.50	13.24	106	80-123	6	20
1,2-Dibromo-3-Chloropropane	12.50	13.98	112	59-125	7	23
1,2,4-Trichlorobenzene	12.50	12.25	98	66-133	0	24
Hexachlorobutadiene	12.50	14.47	116	70-152	9	26
Naphthalene	12.50	11.55	92	53-139	2	25
1,2,3-Trichlorobenzene	12.50	12.82	103	64-134	5	25

Surrogate	%REC	Limits
Dibromofluoromethane	86	80-128
1,2-Dichloroethane-d4	87	75-139
Toluene-d8	103	80-120
Bromofluorobenzene	95	80-120

b= See narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275899	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Type:	BLANK	Dil'n Fac:	1.000
Lab ID:	QC832159	Batch#:	234239
Matrix:	Water	Analyzed:	04/19/16
Units:	ug/L		

Analyte	Result	RL	MDL
Freon 12	ND	1.0	0.1
Chloromethane	ND	1.0	0.3
Vinyl Chloride	ND	1.0	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.3
Trichlorofluoromethane	ND	1.0	0.2
Acetone	ND	10	3.3
Freon 113	ND	5.0	0.1
1,1-Dichloroethene	ND	1.0	0.2
Methylene Chloride	ND	10	0.2
Carbon Disulfide	ND	1.0	0.1
MTBE	ND	1.0	0.1
trans-1,2-Dichloroethene	ND	1.0	0.2
Vinyl Acetate	ND	10	1.1
1,1-Dichloroethane	ND	1.0	0.2
2-Butanone	ND	10	0.5
cis-1,2-Dichloroethene	ND	1.0	0.1
2,2-Dichloropropane	ND	1.0	0.1
Chloroform	ND	1.0	0.1
Bromochloromethane	ND	1.0	0.1
1,1,1-Trichloroethane	ND	1.0	0.1
1,1-Dichloropropene	ND	1.0	0.1
Carbon Tetrachloride	ND	1.0	0.1
1,2-Dichloroethane	ND	1.0	0.1
Benzene	ND	1.0	0.1
Trichloroethene	ND	1.0	0.1
1,2-Dichloropropane	ND	1.0	0.1
Bromodichloromethane	ND	1.0	0.1
Dibromomethane	ND	1.0	0.1
4-Methyl-2-Pentanone	ND	10	0.7
cis-1,3-Dichloropropene	ND	1.0	0.1
Toluene	ND	1.0	0.1
trans-1,3-Dichloropropene	ND	1.0	0.1
1,1,2-Trichloroethane	ND	1.0	0.2
2-Hexanone	ND	10	0.5
1,3-Dichloropropane	ND	1.0	0.1
Tetrachloroethene	ND	1.0	0.1
Dibromochloromethane	ND	1.0	0.1
1,2-Dibromoethane	ND	1.0	0.1
Chlorobenzene	ND	1.0	0.1
1,1,1,2-Tetrachloroethane	ND	1.0	0.1
Ethylbenzene	ND	1.0	0.1
m,p-Xylenes	ND	1.0	0.1
o-Xylene	ND	1.0	0.1
Styrene	ND	1.0	0.1
Bromoform	ND	1.0	0.1
Isopropylbenzene	ND	1.0	0.1
1,1,2,2-Tetrachloroethane	ND	1.0	0.1
1,2,3-Trichloropropane	ND	1.0	0.2
Propylbenzene	ND	1.0	0.1
Bromobenzene	ND	1.0	0.1
1,3,5-Trimethylbenzene	ND	1.0	0.1
2-Chlorotoluene	ND	1.0	0.1

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275899	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC832159	Batch#:	234239
Matrix:	Water	Analyzed:	04/19/16
Units:	ug/L		

Analyte	Result	RL	MDL
4-Chlorotoluene	ND	1.0	0.1
tert-Butylbenzene	ND	1.0	0.1
1,2,4-Trimethylbenzene	ND	1.0	0.1
sec-Butylbenzene	ND	1.0	0.1
para-Isopropyl Toluene	ND	1.0	0.1
1,3-Dichlorobenzene	ND	1.0	0.1
1,4-Dichlorobenzene	ND	1.0	0.1
n-Butylbenzene	ND	1.0	0.1
1,2-Dichlorobenzene	ND	1.0	0.1
1,2-Dibromo-3-Chloropropane	ND	1.0	0.3
1,2,4-Trichlorobenzene	ND	1.0	0.1
Hexachlorobutadiene	ND	1.0	0.1
Naphthalene	ND	1.0	0.1
1,2,3-Trichlorobenzene	ND	1.0	0.1

Tentatively Identified Compounds

No TICs found.

Surrogate	%REC	Limits
Dibromofluoromethane	90	80-128
1,2-Dichloroethane-d4	90	75-139
Toluene-d8	105	80-120
Bromofluorobenzene	109	80-120

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275899	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	234286
Units:	ug/L	Analyzed:	04/20/16
Diln Fac:	1.000		

Type: BS Lab ID: QC832359

Analyte	Spiked	Result	%REC	Limits
Freon 12	10.00	9.917	99	45-131
Chloromethane	10.00	7.409 b	74	48-133
Vinyl Chloride	10.00	11.31	113	63-132
Bromomethane	10.00	19.99 b	200 *	38-161
Chloroethane	10.00	10.93	109	62-131
Trichlorofluoromethane	10.00	10.60	106	64-137
Acetone	12.50	16.94	136	46-151
Freon 113	12.50	12.11	97	61-138
1,1-Dichloroethene	12.50	13.85	111	66-135
Methylene Chloride	12.50	13.84	111	74-131
Carbon Disulfide	12.50	16.40 b	131	63-150
MTBE	12.50	13.98	112	65-120
trans-1,2-Dichloroethene	12.50	13.38	107	72-134
Vinyl Acetate	12.50	15.87 b	127	60-194
1,1-Dichloroethane	12.50	14.88	119	68-127
2-Butanone	12.50	16.36	131	50-141
cis-1,2-Dichloroethene	12.50	14.70	118	73-129
2,2-Dichloropropane	12.50	15.70	126	72-146
Chloroform	12.50	14.06	113	73-126
Bromochloromethane	12.50	14.15	113	78-127
1,1,1-Trichloroethane	12.50	13.73	110	72-134
1,1-Dichloropropene	12.50	11.55	92	79-135
Carbon Tetrachloride	12.50	11.61	93	72-142
1,2-Dichloroethane	12.50	12.50	100	74-133
Benzene	12.50	13.10	105	80-123
Trichloroethene	12.50	12.10	97	80-123
1,2-Dichloropropane	12.50	12.86	103	74-120
Bromodichloromethane	12.50	12.21	98	79-121
Dibromomethane	12.50	12.73	102	80-120
4-Methyl-2-Pentanone	12.50	13.41	107	57-129
cis-1,3-Dichloropropene	12.50	13.51	108	80-130
Toluene	12.50	12.33	99	80-121
trans-1,3-Dichloropropene	12.50	12.81	103	76-122
1,1,2-Trichloroethane	12.50	12.35	99	80-120
2-Hexanone	12.50	13.54	108	49-136
1,3-Dichloropropane	12.50	12.89	103	80-120
Tetrachloroethene	12.50	10.48	84	78-130
Dibromochloromethane	12.50	11.51	92	80-123
1,2-Dibromoethane	12.50	11.92	95	80-120
Chlorobenzene	12.50	11.97	96	80-123
1,1,1,2-Tetrachloroethane	12.50	11.42	91	80-124
Ethylbenzene	12.50	12.49	100	80-123
m,p-Xylenes	25.00	24.51	98	80-126
o-Xylene	12.50	12.03	96	80-126
Styrene	12.50	12.44	100	80-122
Bromoform	12.50	12.13	97	72-132
Isopropylbenzene	12.50	12.79	102	79-130
1,1,2,2-Tetrachloroethane	12.50	14.19	114	72-129
1,2,3-Trichloropropane	12.50	14.05	112	72-124
Propylbenzene	12.50	13.05	104	79-128

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

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275899	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	234286
Units:	ug/L	Analyzed:	04/20/16
Diln Fac:	1.000		

Analyte	Spiked	Result	%REC	Limits
Bromobenzene	12.50	11.84	95	80-122
1,3,5-Trimethylbenzene	12.50	13.33	107	80-129
2-Chlorotoluene	12.50	13.33	107	80-130
4-Chlorotoluene	12.50	13.34	107	79-125
tert-Butylbenzene	12.50	12.62	101	79-130
1,2,4-Trimethylbenzene	12.50	13.10	105	78-124
sec-Butylbenzene	12.50	13.02	104	79-134
para-Isopropyl Toluene	12.50	12.99	104	74-125
1,3-Dichlorobenzene	12.50	12.22	98	80-124
1,4-Dichlorobenzene	12.50	12.52	100	80-121
n-Butylbenzene	12.50	13.53	108	69-135
1,2-Dichlorobenzene	12.50	12.31	99	80-123
1,2-Dibromo-3-Chloropropane	12.50	14.11	113	59-125
1,2,4-Trichlorobenzene	12.50	10.17	81	66-133
Hexachlorobutadiene	12.50	10.19	82	70-152
Naphthalene	12.50	10.91	87	53-139
1,2,3-Trichlorobenzene	12.50	10.69	86	64-134

Surrogate	%REC	Limits
Dibromofluoromethane	111	80-128
1,2-Dichloroethane-d4	105	75-139
Toluene-d8	99	80-120
Bromofluorobenzene	103	80-120

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

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275899	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	234286
Units:	ug/L	Analyzed:	04/20/16
Diln Fac:	1.000		

Type: BSD Lab ID: QC832360

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Freon 12	10.00	8.552	86	45-131	15	29
Chloromethane	10.00	6.436 b	64	48-133	14	25
Vinyl Chloride	10.00	9.850	99	63-132	14	23
Bromomethane	10.00	17.30 b	173 *	38-161	14	32
Chloroethane	10.00	9.905	99	62-131	10	24
Trichlorofluoromethane	10.00	9.452	95	64-137	11	23
Acetone	12.50	17.30	138	46-151	2	29
Freon 113	12.50	10.83	87	61-138	11	25
1,1-Dichloroethene	12.50	12.56	101	66-135	10	24
Methylene Chloride	12.50	13.07	105	74-131	6	21
Carbon Disulfide	12.50	14.57 b	117	63-150	12	25
MTBE	12.50	13.02	104	65-120	7	22
trans-1,2-Dichloroethene	12.50	12.48	100	72-134	7	22
Vinyl Acetate	12.50	14.23 b	114	60-194	11	25
1,1-Dichloroethane	12.50	13.67	109	68-127	8	21
2-Butanone	12.50	15.19	122	50-141	7	24
cis-1,2-Dichloroethene	12.50	13.82	111	73-129	6	20
2,2-Dichloropropane	12.50	13.91	111	72-146	12	24
Chloroform	12.50	13.16	105	73-126	7	20
Bromochloromethane	12.50	13.89	111	78-127	2	20
1,1,1-Trichloroethane	12.50	12.82	103	72-134	7	22
1,1-Dichloropropene	12.50	10.66	85	79-135	8	23
Carbon Tetrachloride	12.50	11.13	89	72-142	4	22
1,2-Dichloroethane	12.50	11.93	95	74-133	5	20
Benzene	12.50	12.43	99	80-123	5	20
Trichloroethene	12.50	11.18	89	80-123	8	20
1,2-Dichloropropane	12.50	12.15	97	74-120	6	20
Bromodichloromethane	12.50	11.58	93	79-121	5	20
Dibromomethane	12.50	12.00	96	80-120	6	20
4-Methyl-2-Pentanone	12.50	12.06	96	57-129	11	23
cis-1,3-Dichloropropene	12.50	12.86	103	80-130	5	20
Toluene	12.50	11.82	95	80-121	4	20
trans-1,3-Dichloropropene	12.50	12.51	100	76-122	2	20
1,1,2-Trichloroethane	12.50	12.06	97	80-120	2	20
2-Hexanone	12.50	12.92	103	49-136	5	24
1,3-Dichloropropane	12.50	12.49	100	80-120	3	20
Tetrachloroethene	12.50	10.27	82	78-130	2	21
Dibromochloromethane	12.50	11.25	90	80-123	2	20
1,2-Dibromoethane	12.50	11.42	91	80-120	4	20
Chlorobenzene	12.50	11.48	92	80-123	4	20
1,1,1,2-Tetrachloroethane	12.50	10.97	88	80-124	4	20
Ethylbenzene	12.50	11.80	94	80-123	6	21
m,p-Xylenes	25.00	23.44	94	80-126	4	21
o-Xylene	12.50	11.58	93	80-126	4	20
Styrene	12.50	11.75	94	80-122	6	20
Bromoform	12.50	11.35	91	72-132	7	20
Isopropylbenzene	12.50	12.08	97	79-130	6	21
1,1,2,2-Tetrachloroethane	12.50	13.41	107	72-129	6	20
1,2,3-Trichloropropane	12.50	13.48	108	72-124	4	22
Propylbenzene	12.50	12.29	98	79-128	6	21

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

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275899	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	234286
Units:	ug/L	Analyzed:	04/20/16
Diln Fac:	1.000		

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Bromobenzene	12.50	11.58	93	80-122	2	20
1,3,5-Trimethylbenzene	12.50	12.86	103	80-129	4	20
2-Chlorotoluene	12.50	12.57	101	80-130	6	20
4-Chlorotoluene	12.50	12.73	102	79-125	5	20
tert-Butylbenzene	12.50	11.82	95	79-130	7	23
1,2,4-Trimethylbenzene	12.50	12.31	98	78-124	6	22
sec-Butylbenzene	12.50	12.35	99	79-134	5	23
para-Isopropyl Toluene	12.50	12.10	97	74-125	7	24
1,3-Dichlorobenzene	12.50	11.82	95	80-124	3	20
1,4-Dichlorobenzene	12.50	12.06	96	80-121	4	20
n-Butylbenzene	12.50	12.72	102	69-135	6	28
1,2-Dichlorobenzene	12.50	11.86	95	80-123	4	20
1,2-Dibromo-3-Chloropropane	12.50	12.87	103	59-125	9	23
1,2,4-Trichlorobenzene	12.50	9.821	79	66-133	3	24
Hexachlorobutadiene	12.50	9.889	79	70-152	3	26
Naphthalene	12.50	9.700	78	53-139	12	25
1,2,3-Trichlorobenzene	12.50	9.677	77	64-134	10	25

Surrogate	%REC	Limits
Dibromofluoromethane	110	80-128
1,2-Dichloroethane-d4	103	75-139
Toluene-d8	101	80-120
Bromofluorobenzene	104	80-120

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

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275899	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Type:	BLANK	Dil'n Fac:	1.000
Lab ID:	QC832361	Batch#:	234286
Matrix:	Water	Analyzed:	04/20/16
Units:	ug/L		

Analyte	Result	RL	MDL
Freon 12	ND	1.0	0.1
Chloromethane	ND	1.0	0.1
Vinyl Chloride	ND	1.0	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.1
Trichlorofluoromethane	ND	1.0	0.1
Acetone	ND	10	3.3
Freon 113	ND	5.0	0.1
1,1-Dichloroethene	ND	1.0	0.1
Methylene Chloride	ND	10	0.1
Carbon Disulfide	ND	1.0	0.1
MTBE	ND	1.0	0.1
trans-1,2-Dichloroethene	ND	1.0	0.1
Vinyl Acetate	ND	10	0.3
1,1-Dichloroethane	ND	1.0	0.1
2-Butanone	ND	10	0.3
cis-1,2-Dichloroethene	ND	1.0	0.1
2,2-Dichloropropane	ND	1.0	0.1
Chloroform	ND	1.0	0.1
Bromochloromethane	ND	1.0	0.2
1,1,1-Trichloroethane	ND	1.0	0.1
1,1-Dichloropropene	ND	1.0	0.1
Carbon Tetrachloride	ND	1.0	0.1
1,2-Dichloroethane	ND	1.0	0.1
Benzene	ND	1.0	0.1
Trichloroethene	ND	1.0	0.1
1,2-Dichloropropane	ND	1.0	0.1
Bromodichloromethane	ND	1.0	0.1
Dibromomethane	ND	1.0	0.1
4-Methyl-2-Pentanone	ND	10	0.2
cis-1,3-Dichloropropene	ND	1.0	0.1
Toluene	ND	1.0	0.1
trans-1,3-Dichloropropene	ND	1.0	0.1
1,1,2-Trichloroethane	ND	1.0	0.1
2-Hexanone	ND	10	0.2
1,3-Dichloropropane	ND	1.0	0.1
Tetrachloroethene	ND	1.0	0.1
Dibromochloromethane	ND	1.0	0.1
1,2-Dibromoethane	ND	1.0	0.1
Chlorobenzene	ND	1.0	0.1
1,1,1,2-Tetrachloroethane	ND	1.0	0.1
Ethylbenzene	ND	1.0	0.1
m,p-Xylenes	ND	1.0	0.1
o-Xylene	ND	1.0	0.1
Styrene	ND	1.0	0.2
Bromoform	ND	1.0	0.1
Isopropylbenzene	ND	1.0	0.1
1,1,2,2-Tetrachloroethane	ND	1.0	0.1
1,2,3-Trichloropropane	ND	1.0	0.1
Propylbenzene	ND	1.0	0.1
Bromobenzene	ND	1.0	0.1
1,3,5-Trimethylbenzene	ND	1.0	0.1
2-Chlorotoluene	ND	1.0	0.1

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	275899	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	1035225323.06	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC832361	Batch#:	234286
Matrix:	Water	Analyzed:	04/20/16
Units:	ug/L		

Analyte	Result	RL	MDL
4-Chlorotoluene	ND	1.0	0.1
tert-Butylbenzene	ND	1.0	0.1
1,2,4-Trimethylbenzene	ND	1.0	0.1
sec-Butylbenzene	ND	1.0	0.1
para-Isopropyl Toluene	ND	1.0	0.1
1,3-Dichlorobenzene	ND	1.0	0.1
1,4-Dichlorobenzene	ND	1.0	0.1
n-Butylbenzene	ND	1.0	0.1
1,2-Dichlorobenzene	ND	1.0	0.1
1,2-Dibromo-3-Chloropropane	ND	1.0	0.3
1,2,4-Trichlorobenzene	ND	1.0	0.1
Hexachlorobutadiene	ND	1.0	0.2
Naphthalene	ND	1.0	0.3
1,2,3-Trichlorobenzene	ND	1.0	0.1

Tentatively Identified Compounds

No TICs found.

Surrogate	%REC	Limits
Dibromofluoromethane	115	80-128
1,2-Dichloroethane-d4	104	75-139
Toluene-d8	101	80-120
Bromofluorobenzene	107	80-120

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

CURTIS & TOMPKINS BFB TUNE FOR 275899 MSVOA Water
EPA 8260B

Inst : MSVOA08 Run Name : BFB IDF : 1.0
Seqnum : 476138895001 File : hd501 Time : 05-APR-2016 10:55

Standards: S29058

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
50	15% - 40% of mass 95	6620	22.99	
75	30% - 60% of mass 95	13286	46.14	
95		28792	100.00	
96	5% - 9% of mass 95	1802	6.26	
173	< 2% of mass 174	0	0.00	
174	> 50% and < 100% of mass 95	23522	81.70	
175	5% - 9% of mass 174	1845	7.84	
176	> 95% and < 101% of mass 174	23157	98.45	
177	5% - 9% of mass 176	1806	7.80	

Analyst: DAR Date: 04/07/16 Reviewer: LW Date: 04/07/16

CURTIS & TOMPKINS BFB TUNE FOR 275899 MSVOA Water
EPA 8260B

Inst : MSVOA08 Run Name : BFB IDF : 1.0
Seqnum : 476140541004 File : hd604 Time : 06-APR-2016 17:03

Standards: S29058

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
50	15% - 40% of mass 95	6450	24.27	
75	30% - 60% of mass 95	13487	50.74	
95		26581	100.00	
96	5% - 9% of mass 95	1789	6.73	
173	< 2% of mass 174	0	0.00	
174	> 50% and < 100% of mass 95	22722	85.48	
175	5% - 9% of mass 174	1624	7.15	
176	> 95% and < 101% of mass 174	22306	98.17	
177	5% - 9% of mass 176	1519	6.81	

Analyst: DAR Date: 04/07/16 Reviewer: LW Date: 04/07/16

CURTIS & TOMPKINS BFB TUNE FOR 275899 MSVOA Water
EPA 8260B

Inst : MSVOA08 Run Name : BFB IDF : 1.0
Seqnum : 476159062003 File : hdj03 Time : 19-APR-2016 12:04

Standards: S29058

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
50	15% - 40% of mass 95	8260	27.45	
75	30% - 60% of mass 95	14405	47.87	
95		30093	100.00	
96	5% - 9% of mass 95	1915	6.36	
173	< 2% of mass 174	0	0.00	
174	> 50% and < 100% of mass 95	23810	79.12	
175	5% - 9% of mass 174	1700	7.14	
176	> 95% and < 101% of mass 174	22838	95.92	
177	5% - 9% of mass 176	1666	7.29	

Analyst: DAR Date: 04/19/16 Reviewer: LW Date: 04/19/16

CURTIS & TOMPKINS BFB TUNE FOR 275899 MSVOA Water
EPA 8260B

Inst : MSVOA11 Run Name : BFB IDF : 1.0
Seqnum : 836098562007 File : kc807 Time : 08-MAR-2016 18:13

Standards: S29058

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
50	15% - 40% of mass 95	3959	22.07	
75	30% - 60% of mass 95	9246	51.54	
95		17940	100.00	
96	5% - 9% of mass 95	1105	6.16	
173	< 2% of mass 174	118	0.88	
174	> 50% and < 100% of mass 95	13373	74.54	
175	5% - 9% of mass 174	1112	8.32	
176	> 95% and < 101% of mass 174	13346	99.80	
177	5% - 9% of mass 176	897	6.72	

Analyst: DAR Date: 03/10/16 Reviewer: LW Date: 03/14/16

CURTIS & TOMPKINS BFB TUNE FOR 275899 MSVOA Water
EPA 8260B

Inst : MSVOA11 Run Name : BFB IDF : 1.0
Seqnum : 836100345004 File : kc904 Time : 09-MAR-2016 17:49

Standards: S29058

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
50	15% - 40% of mass 95	4702	20.26	
75	30% - 60% of mass 95	12094	52.12	
95		23203	100.00	
96	5% - 9% of mass 95	1729	7.45	
173	< 2% of mass 174	87	0.46	
174	> 50% and < 100% of mass 95	18989	81.84	
175	5% - 9% of mass 174	1420	7.48	
176	> 95% and < 101% of mass 174	19107	100.62	
177	5% - 9% of mass 176	1264	6.62	

Analyst: DAR Date: 03/10/16 Reviewer: LW Date: 03/14/16

CURTIS & TOMPKINS BFB TUNE FOR 275899 MSVOA Water
EPA 8260B

Inst : MSVOA11 Run Name : BFB IDF : 1.0
Seqnum : 836160607003 File : kdk03 Time : 20-APR-2016 13:39

Standards: S29058

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
50	15% - 40% of mass 95	5129	24.36	
75	30% - 60% of mass 95	11715	55.63	
95		21059	100.00	
96	5% - 9% of mass 95	1515	7.19	
173	< 2% of mass 174	107	0.76	
174	> 50% and < 100% of mass 95	14058	66.76	
175	5% - 9% of mass 174	1022	7.27	
176	> 95% and < 101% of mass 174	13360	95.03	
177	5% - 9% of mass 176	1001	7.49	

Analyst: DAR Date: 04/20/16 Reviewer: LW Date: 04/21/16

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 275899 MSVOA Water: EPA 8260B

Inst : MSVOA08 Name : 826GOX8
Calnum : 476138895001 Date : 05-APR-2016 17:23 Type : WATER
Units : ug/L X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	hd507	476138895007	.25/.5	05-APR-2016 17:23	S28620 (2000000X), S29427 (2000000X), S29559 (2000000X), S28142 (1000000X), S29486 (5000X)
L2	hd508	476138895008	.5/1	05-APR-2016 17:57	S28620 (1000000X), S29427 (1000000X), S29559 (1000000X), S28142 (500000X), S29486 (5000X)
L3	hd509	476138895009	2PPB	05-APR-2016 18:31	S28620 (500000X), S29427 (250000X), S29559 (250000X), S28142 (250000X), S29486 (5000X)
L4	hd510	476138895010	5PPB	05-APR-2016 19:06	S29486 (5000X), S28620 (200000X), S29427 (100000X), S29559 (100000X), S28142 (100000X)
L5	hd511	476138895011	10PPB	05-APR-2016 19:40	S29486 (5000X), S28620 (100000X), S29427 (50000X), S29559 (50000X), S28142 (50000X)
L6	hd512	476138895012	20PPB	05-APR-2016 20:14	S29486 (5000X), S28620 (50000X), S29427 (25000X), S29559 (25000X), S28142 (25000X)
L7	hd513	476138895013	50PPB	05-APR-2016 20:48	S29486 (5000X), S28620 (20000X), S29427 (10000X), S29559 (10000X), S28142 (10000X)
L8	hd514	476138895014	75PPB	05-APR-2016 21:23	S29486 (5000X), S28620 (13330X), S29427 (6667X), S29559 (6667X), S28142 (6667X)
L9	hd515	476138895015	100PPB	05-APR-2016 21:57	S29486 (5000X), S28620 (10000X), S29427 (5000X), S29559 (5000X), S28142 (5000X)

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Freon 12		0.9836	0.9520	1.0724	1.0542	1.0013	1.0174	0.9778	0.9803	AVRG		0.99515		1.0049	4	15	0.05	0.99	
Chloromethane	1.1188	1.1825	1.1202	1.0441	1.0633	1.0727	1.0608	1.1220	1.0829	AVRG		0.91211		1.0964	4	15	0.10	0.99	
Vinyl Chloride	0.8257	0.8258	0.8399	0.8697	0.8287	0.8650	0.8810	0.8811	0.8692	AVRG		1.17097		0.8540	3	15	0.05	0.99	
Bromomethane		0.3926	0.4629	0.4752	0.5036	0.5417	0.5446	0.5593	0.5911	AVRG		1.96512		0.5089	13	15	0.05	0.99	
Chloroethane		0.4697	0.4462	0.4350	0.4782	0.4649	0.4830	0.4603	0.5000	AVRG		2.14062		0.4672	4	15	0.05	0.99	
Trichlorofluoromethane		0.9725	0.9628	0.9558	0.9605	0.9734	0.9540	0.9500	0.9423	AVRG		1.04285		0.9589	1	15	0.05	0.99	
Acetone			0.1611	0.1595	0.1874	0.1790	0.1771	0.1685	0.1646	AVRG		5.84662		0.1710	6	15	0.05	0.99	
Freon 113		0.4499	0.4821	0.4738	0.4764	0.4330	0.4324	0.4456	0.4534	AVRG		2.19388		0.4558	4	15	0.05	0.99	
1,1-Dichloroethene		0.3759	0.4113	0.4092	0.4280	0.4137	0.4030	0.4050	0.4179	AVRG		2.45096		0.4080	4	15	0.05	0.99	
Methylene Chloride		0.5052	0.5584	0.5213	0.5374	0.5254	0.5060	0.5205	0.5123	AVRG		1.91085		0.5233	3	15	0.05	0.99	
Carbon Disulfide		1.8757	1.7577	1.6224	1.7848	1.7623	1.7138	1.8179	1.8679	AVRG		0.56328		1.7753	5	15	0.05	0.99	
MTBE		1.1567	1.2947	1.2848	1.3382	1.2874	1.1724	1.2249	1.1897	AVRG		0.80411		1.2436	5	15	0.05	0.99	
trans-1,2-Dichloroethene		0.5124	0.4596	0.4306	0.4671	0.4575	0.4595	0.4610	0.4855	AVRG		2.14292		0.4667	5	15	0.05	0.99	
Vinyl Acetate			1.0990	1.1090	1.1562	1.0756	1.0691	0.9557	1.0937	AVRG		0.92615		1.0797	6	15	0.05	0.99	
1,1-Dichloroethane		1.0557	1.0285	0.9557	1.0006	0.9922	0.9664	0.9913	0.9986	AVRG		1.00136		0.9986	3	15	0.10	0.99	
2-Butanone			0.2168	0.2358	0.2433	0.2203	0.2155	0.2076	0.2117	AVRG		4.51310		0.2216	6	15	0.05	0.99	
2,2-Dichloropropane		0.7030	0.6504	0.6488	0.6428	0.6099	0.5793	0.5871	0.5788	AVRG		1.59999		0.6250	7	15	0.05	0.99	
cis-1,2-Dichloroethene		0.5262	0.5217	0.5224	0.5295	0.5215	0.5158	0.5083	0.5389	AVRG		1.91193		0.5230	2	15	0.05	0.99	
Chloroform		1.0556	0.9586	0.9315	0.9675	0.9883	0.9216	0.9017	0.9487	AVRG		1.04253		0.9592	5	15	0.05	0.99	
Bromochloromethane		0.2870	0.2460	0.2682	0.2720	0.2589	0.2621	0.2654	0.2655	AVRG		3.76446		0.2656	4	15	0.05	0.99	
1,1,1-Trichloroethane		0.7362	0.8425	0.7988	0.7866	0.7861	0.7544	0.7494	0.7468	AVRG		1.29017		0.7751	5	15	0.05	0.99	
1,1-Dichloropropene		0.5662	0.5473	0.5664	0.5266	0.5376	0.5136	0.5069	0.4905	AVRG		1.88012		0.5319	5	15	0.05	0.99	
Carbon Tetrachloride		0.5110	0.5658	0.5659	0.5459	0.5295	0.5117	0.5017	0.4880	AVRG		1.89591		0.5275	6	15	0.05	0.99	
1,2-Dichloroethane		0.6299	0.5803	0.5297	0.5289	0.5350	0.5214	0.4971	0.4882	AVRG		1.85588		0.5388	9	15	0.05	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Benzene		1.4199	1.3984	1.2868	1.3414	1.2724	1.2642	1.2073	1.2744	AVRG		0.76447		1.3081	6	15	0.05	0.99	
Trichloroethene		0.4250	0.4271	0.4099	0.3957	0.3946	0.3705	0.3899	0.3516	AVRG		2.52815		0.3955	7	15	0.05	0.99	
1,2-Dichloropropane		0.4013	0.4229	0.4210	0.4119	0.3982	0.3772	0.4033	0.3607	AVRG		2.50279		0.3996	5	15	0.05	0.99	
Bromodichloromethane		0.4800	0.5114	0.5033	0.5300	0.5326	0.4931	0.4763	0.4848	AVRG		1.99430		0.5014	4	15	0.05	0.99	
Dibromomethane		0.2286	0.2462	0.2200	0.2303	0.2334	0.2198	0.2133	0.2132	AVRG		4.43245		0.2256	5	15	0.05	0.99	
4-Methyl-2-Pentanone			0.3505	0.3732	0.3672	0.3676	0.3647	0.3538	0.3493	AVRG		2.77078		0.3609	3	15	0.05	0.99	
cis-1,3-Dichloropropene		0.5841	0.5986	0.5681	0.5578	0.5626	0.5424	0.5518	0.5265	AVRG		1.78095		0.5615	4	15	0.05	0.99	
Toluene		0.9588	1.0793	1.0132	1.0299	0.9784	1.0254	0.9919	0.9287	AVRG		0.99930		1.0007	5	15	0.05	0.99	
trans-1,3-Dichloropropene		0.5958	0.6353	0.6027	0.5926	0.5745	0.5780	0.5910	0.5766	AVRG		1.68545		0.5933	3	15	0.05	0.99	
1,1,2-Trichloroethane		0.1346	0.1787	0.1920	0.1930	0.1826	0.1859	0.1851	0.1775	AVRG		5.59661		0.1787	10	15	0.05	0.99	
2-Hexanone			0.2948	0.3271	0.3277	0.3014	0.3219	0.3152	0.2823	AVRG		3.22541		0.3100	6	15	0.05	0.99	
1,3-Dichloropropane		0.5838	0.6097	0.6103	0.5885	0.5674	0.5947	0.5822	0.5261	AVRG		1.71574		0.5828	5	15	0.05	0.99	
Tetrachloroethene		0.4434	0.4726	0.4860	0.4742	0.4358	0.4639	0.4766	0.4465	AVRG		2.16276		0.4624	4	15	0.05	0.99	
Dibromochloromethane		0.5110	0.5176	0.5216	0.5177	0.4928	0.4863	0.4761	0.4876	AVRG		1.99469		0.5013	4	15	0.05	0.99	
1,2-Dibromoethane		0.3400	0.3868	0.3998	0.4013	0.3900	0.3837	0.3793	0.3757	AVRG		2.61735		0.3821	5	15	0.05	0.99	
Chlorobenzene		1.1775	1.2475	1.1669	1.1436	1.1863	1.1159	1.1706	1.1189	AVRG		0.85771		1.1659	4	15	0.30	0.99	
1,1,1,2-Tetrachloroethane		0.4603	0.4393	0.4671	0.4608	0.4354	0.4456	0.4468	0.4410	AVRG		2.22452		0.4495	3	15	0.05	0.99	
Ethylbenzene		2.0339	2.0640	2.1171	2.1000	1.9901	1.9644	1.9687	1.9204	AVRG		0.49509		2.0198	3	15	0.05	0.99	
m,p-Xylenes	0.8157	0.7809	0.8159	0.7876	0.8065	0.7175	0.7475	0.7433	0.7090	AVRG		1.29986		0.7693	5	15	0.05	0.99	
o-Xylene		0.7091	0.8488	0.7762	0.8025	0.7435	0.8154	0.7495	0.7357	AVRG		1.29436		0.7726	6	15	0.05	0.99	
Styrene		1.1067	1.2717	1.2992	1.3181	1.2994	1.2714	1.2699	1.2596	AVRG		0.79239		1.2620	5	15	0.05	0.99	
Bromoform		0.2795	0.3485	0.3343	0.3521	0.3298	0.3435	0.3361	0.3232	AVRG		3.02232		0.3309	7	15	0.10	0.99	
Isopropylbenzene		3.5587	3.8652	3.7463	3.6660	3.4895	3.5764	3.4592	3.4574	AVRG		0.27760		3.6023	4	15	0.05	0.99	
1,1,2,2-Tetrachloroethane		0.6964	0.7981	0.7692	0.7975	0.7262	0.7551	0.7406	0.7561	AVRG		1.32470		0.7549	5	15	0.30	0.99	
1,2,3-Trichloropropane		0.2540	0.2217	0.2180	0.2213	0.1896	0.2062	0.1917	0.1972	AVRG		4.70675		0.2125	10	15	0.05	0.99	
Propylbenzene		4.6001	4.7016	4.3930	4.4605	4.1420	4.2517	4.1918	3.9524	AVRG		0.23059		4.3366	6	15	0.05	0.99	
Bromobenzene		0.9984	0.9523	0.9478	0.9415	0.9034	0.9266	0.9248	0.8987	AVRG		1.06759		0.9367	3	15	0.05	0.99	
1,3,5-Trimethylbenzene		2.8982	3.2245	3.1979	3.0621	2.9552	2.8140	2.9668	2.9610	AVRG		0.33223		3.0100	5	15	0.05	0.99	
2-Chlorotoluene		3.1321	3.0615	3.0354	2.8355	2.7118	2.6900	2.7783	2.7844	AVRG		0.34739		2.8786	6	15	0.05	0.99	
4-Chlorotoluene		2.6537	2.6897	2.7765	2.8466	2.5561	2.6625	2.4877	2.5915	AVRG		0.37622		2.6580	4	15	0.05	0.99	
tert-Butylbenzene		2.8671	2.8006	2.7986	2.8848	2.7219	2.6214	2.6111	2.6933	AVRG		0.36366		2.7499	4	15	0.05	0.99	
1,2,4-Trimethylbenzene		3.1869	3.2621	3.2673	3.3623	3.1171	3.0753	3.1388	3.0188	AVRG		0.31461		3.1786	4	15	0.05	0.99	
sec-Butylbenzene		3.9849	4.2108	4.2490	4.2039	3.9334	3.9149	3.8524	3.7645	AVRG		0.24912		4.0142	5	15	0.05	0.99	
para-Isopropyl Toluene		3.3506	3.2535	3.5267	3.3617	3.2574	3.2992	3.1083	3.0230	AVRG		0.30557		3.2726	5	15	0.05	0.99	
1,3-Dichlorobenzene		1.8067	1.8070	1.7952	1.8331	1.7805	1.7710	1.7245	1.7237	AVRG		0.56173		1.7802	2	15	0.05	0.99	
1,4-Dichlorobenzene		1.8274	1.8789	1.8371	1.8796	1.7746	1.7419	1.6679	1.7529	AVRG		0.55709		1.7950	4	15	0.05	0.99	
n-Butylbenzene	2.7736	2.6823	3.0263	2.9871	2.9703	2.7424	2.7481	2.6460	2.6642	AVRG		0.35657		2.8045	5	15	0.05	0.99	
1,2-Dichlorobenzene		1.5988	1.8193	1.7781	1.7314	1.6587	1.6741	1.6805	1.6276	AVRG		0.58961		1.6960	4	15	0.05	0.99	
1,2-Dibromo-3-Chloropropane		0.1474	0.1460	0.1500	0.1428	0.1387	0.1370	0.1410	0.1376	AVRG		7.01480		0.1426	3	15	0.05	0.99	
1,2,4-Trichlorobenzene		1.0347	1.0808	1.1035	1.1315	1.0525	1.0984	1.0726	1.1007	AVRG		0.92222		1.0843	3	15	0.05	0.99	
Hexachlorobutadiene		0.5102	0.5567	0.5869	0.5692	0.5175	0.5311	0.5270	0.5274	AVRG		1.84932		0.5407	5	15	0.05	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Naphthalene		2.0888	2.0690	2.1968	2.3497	2.2831	2.2497	2.2902	2.3612	AVRG		0.44722		2.2361	5	15	0.05	0.99	
1,2,3-Trichlorobenzene		0.9374	0.9743	1.0165	1.0886	1.0062	1.0217	1.0700	1.0402	AVRG		0.98101		1.0194	5	15	0.05	0.99	
Dibromofluoromethane	0.4724	0.4702	0.4502	0.4507	0.4607	0.5006	0.4591	0.4761	0.4671	AVRG		2.13927		0.4674	3	15	0.05	0.99	
1,2-Dichloroethane-d4	0.3601	0.3651	0.3576	0.3395	0.3515	0.3710	0.3446	0.3243	0.3221	AVRG		2.87022		0.3484	5	15	0.05	0.99	
Toluene-d8	1.2301	1.3108	1.3021	1.2930	1.2696	1.2987	1.3162	1.3005	1.2806	AVRG		0.77576		1.2891	2	15	0.05	0.99	
Bromofluorobenzene	0.9575	0.9554	0.9113	0.9122	0.9656	0.9182	0.9402	0.9409	0.9595	AVRG		1.06373		0.9401	2	15	0.05	0.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
Freon 12			1.0000	-2	2.0000	-5	5.0000	7	10.000	5	20.000	0	50.000	1	75.000	-3	100.00	-2
Chloromethane	0.5000	2	1.0000	8	2.0000	2	5.0000	-5	10.000	-3	20.000	-2	50.000	-3	75.000	2	100.00	-1
Vinyl Chloride	0.5000	-3	1.0000	-3	2.0000	-2	5.0000	2	10.000	-3	20.000	1	50.000	3	75.000	3	100.00	2
Bromomethane			1.0000	**-23**	2.0000	-9	5.0000	-7	10.000	-1	20.000	6	50.000	7	75.000	10	100.00	16
Chloroethane			1.0000	1	2.0000	-4	5.0000	-7	10.000	2	20.000	0	50.000	3	75.000	-1	100.00	7
Trichlorofluoromethane			1.0000	1	2.0000	0	5.0000	0	10.000	0	20.000	2	50.000	-1	75.000	-1	100.00	-2
Acetone					2.0000	-6	5.0000	-7	10.000	10	20.000	5	50.000	4	75.000	-1	100.00	-4
Freon 113			0.5000	-1	2.0000	6	5.0000	4	10.000	5	20.000	-5	50.000	-5	75.000	-2	100.00	-1
1,1-Dichloroethene			0.5000	-8	2.0000	1	5.0000	0	10.000	5	20.000	1	50.000	-1	75.000	-1	100.00	2
Methylene Chloride			0.5000	-3	2.0000	7	5.0000	0	10.000	3	20.000	0	50.000	-3	75.000	-1	100.00	-2
Carbon Disulfide			0.5000	6	2.0000	-1	5.0000	-9	10.000	1	20.000	-1	50.000	-3	75.000	2	100.00	5
MTBE			0.5000	-7	2.0000	4	5.0000	3	10.000	8	20.000	4	50.000	-6	75.000	-2	100.00	-4
trans-1,2-Dichloroethene			0.5000	10	2.0000	-2	5.0000	-8	10.000	0	20.000	-2	50.000	-2	75.000	-1	100.00	4
Vinyl Acetate					2.0000	2	5.0000	3	10.000	7	20.000	0	50.000	-1	75.000	-11	100.00	1
1,1-Dichloroethane			0.5000	6	2.0000	3	5.0000	-4	10.000	0	20.000	-1	50.000	-3	75.000	-1	100.00	0
2-Butanone					2.0000	-2	5.0000	6	10.000	10	20.000	-1	50.000	-3	75.000	-6	100.00	-4
2,2-Dichloropropane			0.5000	12	2.0000	4	5.0000	4	10.000	3	20.000	-2	50.000	-7	75.000	-6	100.00	-7
cis-1,2-Dichloroethene			0.5000	1	2.0000	0	5.0000	0	10.000	1	20.000	0	50.000	-1	75.000	-3	100.00	3
Chloroform			0.5000	10	2.0000	0	5.0000	-3	10.000	1	20.000	3	50.000	-4	75.000	-6	100.00	-1
Bromochloromethane			0.5000	8	2.0000	-7	5.0000	1	10.000	2	20.000	-3	50.000	-1	75.000	0	100.00	0
1,1,1-Trichloroethane			0.5000	-5	2.0000	9	5.0000	3	10.000	1	20.000	1	50.000	-3	75.000	-3	100.00	-4
1,1-Dichloropropene			0.5000	6	2.0000	3	5.0000	6	10.000	-1	20.000	1	50.000	-3	75.000	-5	100.00	-8
Carbon Tetrachloride			0.5000	-3	2.0000	7	5.0000	7	10.000	4	20.000	0	50.000	-3	75.000	-5	100.00	-7
1,2-Dichloroethane			0.5000	17	2.0000	8	5.0000	-2	10.000	-2	20.000	-1	50.000	-3	75.000	-8	100.00	-9
Benzene			0.5000	9	2.0000	7	5.0000	-2	10.000	3	20.000	-3	50.000	-3	75.000	-8	100.00	-3
Trichloroethene			0.5000	7	2.0000	8	5.0000	4	10.000	0	20.000	0	50.000	-6	75.000	-1	100.00	-11
1,2-Dichloropropane			0.5000	0	2.0000	6	5.0000	5	10.000	3	20.000	0	50.000	-6	75.000	1	100.00	-10
Bromodichloromethane			0.5000	-4	2.0000	2	5.0000	0	10.000	6	20.000	6	50.000	-2	75.000	-5	100.00	-3
Dibromomethane			0.5000	1	2.0000	9	5.0000	-2	10.000	2	20.000	3	50.000	-3	75.000	-5	100.00	-5
4-Methyl-2-Pentanone					2.0000	-3	5.0000	3	10.000	2	20.000	2	50.000	1	75.000	-2	100.00	-3
cis-1,3-Dichloropropene			0.5000	4	2.0000	7	5.0000	1	10.000	-1	20.000	0	50.000	-3	75.000	-2	100.00	-6
Toluene			0.5000	-4	2.0000	8	5.0000	1	10.000	3	20.000	-2	50.000	2	75.000	-1	100.00	-7
trans-1,3-Dichloropropene			0.5000	0	2.0000	7	5.0000	2	10.000	0	20.000	-3	50.000	-3	75.000	0	100.00	-3
1,1,2-Trichloroethane			0.5000	**-25**	2.0000	0	5.0000	7	10.000	8	20.000	2	50.000	4	75.000	4	100.00	-1
2-Hexanone					2.0000	-5	5.0000	5	10.000	6	20.000	-3	50.000	4	75.000	2	100.00	-9
1,3-Dichloropropane			0.5000	0	2.0000	5	5.0000	5	10.000	1	20.000	-3	50.000	2	75.000	0	100.00	-10
Tetrachloroethene			0.5000	-4	2.0000	2	5.0000	5	10.000	3	20.000	-6	50.000	0	75.000	3	100.00	-3
Dibromochloromethane			0.5000	2	2.0000	3	5.0000	4	10.000	3	20.000	-2	50.000	-3	75.000	-5	100.00	-3
1,2-Dibromoethane			0.5000	-11	2.0000	1	5.0000	5	10.000	5	20.000	2	50.000	0	75.000	-1	100.00	-2
Chlorobenzene			0.5000	1	2.0000	7	5.0000	0	10.000	-2	20.000	2	50.000	-4	75.000	0	100.00	-4
1,1,1,2-Tetrachloroethane			0.5000	2	2.0000	-2	5.0000	4	10.000	3	20.000	-3	50.000	-1	75.000	-1	100.00	-2
Ethylbenzene			0.5000	1	2.0000	2	5.0000	5	10.000	4	20.000	-1	50.000	-3	75.000	-3	100.00	-5

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
m,p-Xylenes	0.5000	6	1.0000	2	4.0000	6	10.000	2	20.000	5	40.000	-7	100.00	-3	150.00	-3	200.00	-8
o-Xylene			0.5000	-8	2.0000	10	5.0000	0	10.000	4	20.000	-4	50.000	6	75.000	-3	100.00	-5
Styrene			0.5000	-12	2.0000	1	5.0000	3	10.000	4	20.000	3	50.000	1	75.000	1	100.00	0
Bromoform			0.5000	-16	2.0000	5	5.0000	1	10.000	6	20.000	0	50.000	4	75.000	2	100.00	-2
Isopropylbenzene			0.5000	-1	2.0000	7	5.0000	4	10.000	2	20.000	-3	50.000	-1	75.000	-4	100.00	-4
1,1,2,2-Tetrachloroethane			0.5000	-8	2.0000	6	5.0000	2	10.000	6	20.000	-4	50.000	0	75.000	-2	100.00	0
1,2,3-Trichloropropane			0.5000	20	2.0000	4	5.0000	3	10.000	4	20.000	-11	50.000	-3	75.000	-10	100.00	-7
Propylbenzene			0.5000	6	2.0000	8	5.0000	1	10.000	3	20.000	-4	50.000	-2	75.000	-3	100.00	-9
Bromobenzene			0.5000	7	2.0000	2	5.0000	1	10.000	1	20.000	-4	50.000	-1	75.000	-1	100.00	-4
1,3,5-Trimethylbenzene			0.5000	-4	2.0000	7	5.0000	6	10.000	2	20.000	-2	50.000	-7	75.000	-1	100.00	-2
2-Chlorotoluene			0.5000	9	2.0000	6	5.0000	5	10.000	-1	20.000	-6	50.000	-7	75.000	-3	100.00	-3
4-Chlorotoluene			0.5000	0	2.0000	1	5.0000	4	10.000	7	20.000	-4	50.000	0	75.000	-6	100.00	-3
tert-Butylbenzene			0.5000	4	2.0000	2	5.0000	2	10.000	5	20.000	-1	50.000	-5	75.000	-5	100.00	-2
1,2,4-Trimethylbenzene			0.5000	0	2.0000	3	5.0000	3	10.000	6	20.000	-2	50.000	-3	75.000	-1	100.00	-5
sec-Butylbenzene			0.5000	-1	2.0000	5	5.0000	6	10.000	5	20.000	-2	50.000	-2	75.000	-4	100.00	-6
para-Isopropyl Toluene			0.5000	2	2.0000	-1	5.0000	8	10.000	3	20.000	0	50.000	1	75.000	-5	100.00	-8
1,3-Dichlorobenzene			0.5000	1	2.0000	2	5.0000	1	10.000	3	20.000	0	50.000	-1	75.000	-3	100.00	-3
1,4-Dichlorobenzene			0.5000	2	2.0000	5	5.0000	2	10.000	5	20.000	-1	50.000	-3	75.000	-7	100.00	-2
n-Butylbenzene	0.2500	-1	0.5000	-4	2.0000	8	5.0000	7	10.000	6	20.000	-2	50.000	-2	75.000	-6	100.00	-5
1,2-Dichlorobenzene			0.5000	-6	2.0000	7	5.0000	5	10.000	2	20.000	-2	50.000	-1	75.000	-1	100.00	-4
1,2-Dibromo-3-Chloropropane			0.5000	3	2.0000	2	5.0000	5	10.000	0	20.000	-3	50.000	-4	75.000	-1	100.00	-3
1,2,4-Trichlorobenzene			0.5000	-5	2.0000	0	5.0000	2	10.000	4	20.000	-3	50.000	1	75.000	-1	100.00	2
Hexachlorobutadiene			0.5000	-6	2.0000	3	5.0000	9	10.000	5	20.000	-4	50.000	-2	75.000	-3	100.00	-2
Naphthalene			0.5000	-7	2.0000	-7	5.0000	-2	10.000	5	20.000	2	50.000	1	75.000	2	100.00	6
1,2,3-Trichlorobenzene			0.5000	-8	2.0000	-4	5.0000	0	10.000	7	20.000	-1	50.000	0	75.000	5	100.00	2
Dibromofluoromethane	50.000	1	50.000	1	50.000	-4	50.000	-4	50.000	-1	50.000	7	50.000	-2	50.000	2	50.000	0
1,2-Dichloroethane-d4	50.000	3	50.000	5	50.000	3	50.000	-3	50.000	1	50.000	6	50.000	-1	50.000	-7	50.000	-8
Toluene-d8	50.000	-5	50.000	2	50.000	1	50.000	0	50.000	-2	50.000	1	50.000	2	50.000	1	50.000	-1
Bromofluorobenzene	50.000	2	50.000	2	50.000	-3	50.000	-3	50.000	3	50.000	-2	50.000	0	50.000	0	50.000	2

DAR 04/07/16 : used third source ICV for Ketones and IODO ICV rerun

Analyst: DAR Date: 04/07/16 Reviewer: LW Date: 04/07/16

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

476138895001

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 275899 MSVOA Water
EPA 8260B

Inst : MSVOA08 Name : 826GOX8
Calnum : 476138895001 Cal Date : 05-APR-2016 Type : WATER

ICV 476138895016 (hd516 05-APR-2016) stds: S29486 (5000X), S28625 (10000X)
ICV 476140541005 (hd605 06-APR-2016) stds: S29448 (10000X), S29207 (10000X), S29290 (10000X), S29486 (5000X)
ICV 476140541006 (hd606 06-APR-2016) stds: S29486 (5000X), S26946 (50000X)

Analyte	ICV Seqnum	Date	Spiked	Quant	Units	%D	Max	Flags
Freon 12	476138895016	05-APR-2016	20.00	14.63	ug/L	**-27**	30	!v-
Chloromethane	476138895016	05-APR-2016	20.00	17.05	ug/L	-15	30	
Vinyl Chloride	476138895016	05-APR-2016	20.00	19.66	ug/L	-2	20	
Bromomethane	476138895016	05-APR-2016	20.00	16.56	ug/L	-17	30	
Chloroethane	476138895016	05-APR-2016	20.00	19.85	ug/L	-1	30	
Trichlorofluoromethane	476138895016	05-APR-2016	20.00	18.10	ug/L	-9	30	
Acetone	476140541006	06-APR-2016	40.00	30.52	ug/L	**-24**	40	!v-
Freon 113	476140541005	06-APR-2016	25.00	20.73	ug/L	-17	30	
1,1-Dichloroethene	476140541005	06-APR-2016	25.00	23.93	ug/L	-4	20	
Methylene Chloride	476140541005	06-APR-2016	25.00	24.84	ug/L	-1	30	
Carbon Disulfide	476140541005	06-APR-2016	25.00	24.04	ug/L	-4	30	
MTBE	476140541005	06-APR-2016	25.00	25.60	ug/L	2	30	
trans-1,2-Dichloroethene	476140541005	06-APR-2016	25.00	22.88	ug/L	-8	30	
Vinyl Acetate	476140541005	06-APR-2016	25.00	30.06	ug/L	20	40	
1,1-Dichloroethane	476140541005	06-APR-2016	25.00	24.44	ug/L	-2	30	
2-Butanone	476140541006	06-APR-2016	40.00	36.19	ug/L	-10	40	
2,2-Dichloropropane	476140541005	06-APR-2016	25.00	31.09	ug/L	**24**	30	!v+
cis-1,2-Dichloroethene	476140541005	06-APR-2016	25.00	24.92	ug/L	0	30	
Chloroform	476140541005	06-APR-2016	25.00	24.21	ug/L	-3	20	
Bromochloromethane	476140541005	06-APR-2016	25.00	24.32	ug/L	-3	30	
1,1,1-Trichloroethane	476140541005	06-APR-2016	25.00	25.23	ug/L	1	30	
1,1-Dichloropropene	476140541005	06-APR-2016	25.00	21.46	ug/L	-14	30	
Carbon Tetrachloride	476140541005	06-APR-2016	25.00	24.16	ug/L	-3	30	
1,2-Dichloroethane	476140541005	06-APR-2016	25.00	23.76	ug/L	-5	30	
Benzene	476140541005	06-APR-2016	25.00	24.01	ug/L	-4	30	
Trichloroethene	476140541005	06-APR-2016	25.00	22.47	ug/L	-10	30	
1,2-Dichloropropane	476140541005	06-APR-2016	25.00	21.92	ug/L	-12	20	
Bromodichloromethane	476140541005	06-APR-2016	25.00	24.02	ug/L	-4	30	
Dibromomethane	476140541005	06-APR-2016	25.00	23.83	ug/L	-5	30	
4-Methyl-2-Pentanone	476140541006	06-APR-2016	40.00	38.23	ug/L	-4	40	
cis-1,3-Dichloropropene	476140541005	06-APR-2016	25.00	26.04	ug/L	4	30	
Toluene	476140541005	06-APR-2016	25.00	23.72	ug/L	-5	20	
trans-1,3-Dichloropropene	476140541005	06-APR-2016	25.00	24.62	ug/L	-2	30	
1,1,2-Trichloroethane	476140541005	06-APR-2016	25.00	24.44	ug/L	-2	30	
2-Hexanone	476140541006	06-APR-2016	40.00	39.30	ug/L	-2	40	
1,3-Dichloropropane	476140541005	06-APR-2016	25.00	25.28	ug/L	1	30	
Tetrachloroethene	476140541005	06-APR-2016	25.00	23.07	ug/L	-8	30	
Dibromochloromethane	476140541005	06-APR-2016	25.00	23.88	ug/L	-4	30	
1,2-Dibromoethane	476140541005	06-APR-2016	25.00	23.93	ug/L	-4	30	
Chlorobenzene	476140541005	06-APR-2016	25.00	24.35	ug/L	-3	30	
1,1,1,2-Tetrachloroethane	476140541005	06-APR-2016	25.00	24.99	ug/L	0	30	
Ethylbenzene	476140541005	06-APR-2016	25.00	23.93	ug/L	-4	20	
m,p-Xylenes	476140541005	06-APR-2016	50.00	45.77	ug/L	-8	30	
o-Xylene	476140541005	06-APR-2016	25.00	22.88	ug/L	-8	30	
Styrene	476140541005	06-APR-2016	25.00	24.39	ug/L	-2	30	
Bromoform	476140541005	06-APR-2016	25.00	26.38	ug/L	6	30	

Analyte	ICV Seqnum	Date	Spiked	Quant	Units	%D	Max	Flags
Isopropylbenzene	476140541005	06-APR-2016	25.00	22.81	ug/L	-9	30	
1,1,2,2-Tetrachloroethane	476140541005	06-APR-2016	25.00	24.64	ug/L	-1	30	
1,2,3-Trichloropropane	476140541005	06-APR-2016	25.00	24.35	ug/L	-3	30	
Propylbenzene	476140541005	06-APR-2016	25.00	22.79	ug/L	-9	30	
Bromobenzene	476140541005	06-APR-2016	25.00	24.14	ug/L	-3	30	
1,3,5-Trimethylbenzene	476140541005	06-APR-2016	25.00	24.75	ug/L	-1	30	
2-Chlorotoluene	476140541005	06-APR-2016	25.00	23.35	ug/L	-7	30	
4-Chlorotoluene	476140541005	06-APR-2016	25.00	24.68	ug/L	-1	30	
tert-Butylbenzene	476140541005	06-APR-2016	25.00	22.88	ug/L	-8	30	
1,2,4-Trimethylbenzene	476140541005	06-APR-2016	25.00	24.08	ug/L	-4	30	
sec-Butylbenzene	476140541005	06-APR-2016	25.00	23.82	ug/L	-5	30	
para-Isopropyl Toluene	476140541005	06-APR-2016	25.00	24.55	ug/L	-2	30	
1,3-Dichlorobenzene	476140541005	06-APR-2016	25.00	23.78	ug/L	-5	30	
1,4-Dichlorobenzene	476140541005	06-APR-2016	25.00	24.65	ug/L	-1	30	
n-Butylbenzene	476140541005	06-APR-2016	25.00	23.98	ug/L	-4	30	
1,2-Dichlorobenzene	476140541005	06-APR-2016	25.00	24.62	ug/L	-2	30	
1,2-Dibromo-3-Chloropropane	476140541005	06-APR-2016	25.00	24.07	ug/L	-4	30	
1,2,4-Trichlorobenzene	476140541005	06-APR-2016	25.00	24.49	ug/L	-2	30	
Hexachlorobutadiene	476140541005	06-APR-2016	25.00	24.06	ug/L	-4	30	
Naphthalene	476140541005	06-APR-2016	25.00	23.53	ug/L	-6	30	
1,2,3-Trichlorobenzene	476140541005	06-APR-2016	25.00	24.96	ug/L	0	30	

476138895016: Analyst: DAR Date: 04/07/16 Reviewer: LW Date: 04/07/16
476140541005: Analyst: DAR Date: 04/07/16 Reviewer: LW Date: 04/07/16
476140541006: Analyst: DAR Date: 04/07/16 Reviewer: LW Date: 04/07/16

!=warning +=high bias -=low bias v=ICV

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 275899 MSVOA Water: EPA 8260B

Inst : MSVOA11 Name : 8260 hexraised
Calnum : 836098562001 Date : 08-MAR-2016 21:28 Type : WATER
Units : ug/L X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	kc814	836098562014	.25PPB	08-MAR-2016 21:28	S28620 (2000000X), S29042 (2000000X), S29228 (2000000X), S27830 (1000000X), S29284 (2500X)
L2	kc815	836098562015	.5PPB	08-MAR-2016 21:56	S29284 (2500X), S28620 (1000000X), S29042 (1000000X), S29228 (1000000X), S27830 (500000X)
L3	kc816	836098562016	2PPB	08-MAR-2016 22:25	S28620 (500000X), S29042 (250000X), S29228 (250000X), S27830 (250000X), S29284 (2500X)
L4	kc817	836098562017	5PPB	08-MAR-2016 22:53	S29284 (2500X), S28620 (200000X), S29042 (100000X), S29228 (100000X), S27830 (100000X)
L5	kc818	836098562018	10PPB	08-MAR-2016 23:21	S29284 (2500X), S28620 (100000X), S29042 (50000X), S29228 (50000X), S27830 (50000X)
L6	kc819	836098562019	20PPB	08-MAR-2016 23:50	S29284 (2500X), S28620 (50000X), S29042 (25000X), S29228 (25000X), S27830 (25000X)
L7	kc820	836098562020	50PPB	09-MAR-2016 00:18	S29284 (2500X), S28620 (20000X), S29042 (10000X), S29228 (10000X), S27830 (10000X)
L8	kc821	836098562021	75PPB	09-MAR-2016 00:46	S29284 (2500X), S28620 (13330X), S29042 (6667X), S29228 (6667X), S27830 (6667X)
L9	kc822	836098562022	100PPB	09-MAR-2016 01:14	S29284 (2500X), S28620 (10000X), S29042 (5000X), S29228 (5000X), S27830 (5000X)

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Freon 12		1.0114m	0.9959m	0.9848m	0.9347	0.8563	0.9420	0.9177	0.9095	AVRG		1.05928		0.9440	5	15	0.05	0.99	
Chloromethane	1.4383m	1.4910	1.3909m	1.3584	1.3560m	1.3198m	1.2750	1.1904	1.1692	AVRG		0.75069		1.3321	8	15	0.10	0.99	
Vinyl Chloride	0.9128	0.9460	0.9153	0.9259	0.9045	0.9040	0.8972	0.8718	0.8538	AVRG		1.10682		0.9035	3	15	0.05	0.99	
Bromomethane		0.2363	0.2778	0.2736	0.2910	0.2703	0.2903	0.2964m	0.3176m	AVRG		3.55045		0.2817	8	15	0.05	0.99	
Chloroethane	0.4547	0.5019	0.5082	0.5204	0.5099	0.5129	0.5074	0.4920	0.4885	AVRG		2.00180		0.4996	4	15	0.05	0.99	
Trichlorofluoromethane		1.0472	1.0088	1.0024	0.9669	0.9290	0.9761	0.9446	0.9381	AVRG		1.02393		0.9766	4	15	0.05	0.99	
Acetone			0.2536	0.2324	0.2334	0.2775	0.2304	0.2326	0.2334	AVRG		4.13408		0.2419	7	15	0.05	0.99	
Freon 113		0.5580	0.4884	0.5495	0.5257	0.5423	0.5035	0.5122	0.5161	AVRG		1.90676		0.5245	5	15	0.05	0.99	
1,1-Dichloroethene		0.5176	0.4861	0.5105	0.5006	0.5152	0.4896	0.4966	0.4929	AVRG		1.99546		0.5011	2	15	0.05	0.99	
Methylene Chloride		0.6506	0.6551	0.6420	0.6881	0.6781	0.6477	0.6436	0.6361	AVRG		1.52635		0.6552	3	15	0.05	0.99	
Carbon Disulfide		1.8918	1.7716	1.8712	1.8899	1.9251	1.8096	1.8165	1.8040	AVRG		0.54128		1.8475	3	15	0.05	0.99	
MTBE		1.9467	1.7681	1.7732	1.9200	1.9321	1.8812	1.9067	1.9261	AVRG		0.53142		1.8818	4	15	0.05	0.99	
trans-1,2-Dichloroethene		0.6152	0.5658	0.5830	0.6072	0.5990	0.5743	0.5794	0.5734	AVRG		1.70313		0.5872	3	15	0.05	0.99	
Vinyl Acetate			1.2568	1.1703	1.4012	1.2040	1.2432	1.4124	1.3005	AVRG		0.77877		1.2841	7	15	0.05	0.99	
1,1-Dichloroethane		1.2071	1.1288	1.1719	1.2124	1.1966	1.1494	1.1577	1.1564	AVRG		0.85286		1.1725	3	15	0.10	0.99	
2-Butanone			0.3201	0.3012	0.3564	0.3728	0.3304	0.3478	0.3490	AVRG		2.94404		0.3397	7	15	0.05	0.99	
2,2-Dichloropropane		0.8920	0.8488	0.8582	0.8714	0.8815	0.8428	0.8512	0.8296	AVRG		1.16355		0.8594	2	15	0.05	0.99	
cis-1,2-Dichloroethene		0.6910	0.6830	0.6744	0.6904	0.6852	0.6735	0.6759	0.6718	AVRG		1.46922		0.6806	1	15	0.05	0.99	
Chloroform		1.2451	1.1304	1.1360	1.1734	1.1556	1.1113	1.1123	1.1165	AVRG		0.87141		1.1476	4	15	0.05	0.99	
Bromochloromethane		0.2714	0.2874	0.2982	0.3005	0.2802	0.2829	0.2755	0.2769	AVRG		3.51951		0.2841	4	15	0.05	0.99	
1,1,1-Trichloroethane		1.0418	0.9104	0.9078	0.9351	0.9403	0.8896	0.9001	0.8997	AVRG		1.07748		0.9281	5	15	0.05	0.99	
1,1-Dichloropropene		0.5240	0.5167	0.5428	0.5403	0.5543	0.5253	0.5394	0.5346	AVRG		1.87028		0.5347	2	15	0.05	0.99	
Carbon Tetrachloride		0.4758	0.4272	0.4489	0.4433	0.4539	0.4297	0.4474	0.4462	AVRG		2.23939		0.4465	3	15	0.05	0.99	
1,2-Dichloroethane		0.5820	0.5390	0.5487	0.5620	0.5569	0.5403	0.5406	0.5361	AVRG		1.81588		0.5507	3	15	0.05	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Benzene		1.7005	1.5927	1.6260	1.6603	1.6292	1.5601	1.5712	1.5523	AVRG		0.62052		1.6115	3	15	0.05	0.99	
Trichloroethene		0.4111	0.4023	0.3949	0.3945	0.4032	0.3901	0.3918	0.3912	AVRG		2.51641		0.3974	2	15	0.05	0.99	
1,2-Dichloropropane		0.4361	0.4187	0.4180	0.4255	0.4276	0.4186	0.4209	0.4169	AVRG		2.36515		0.4228	2	15	0.05	0.99	
Bromodichloromethane		0.5289	0.5080	0.5168	0.5236	0.5236	0.5136	0.5201	0.5191	AVRG		1.92595		0.5192	1	15	0.05	0.99	
Dibromomethane		0.2279	0.2450	0.2398	0.2496	0.2502	0.2394	0.2424	0.2401	AVRG		4.13568		0.2418	3	15	0.05	0.99	
4-Methyl-2-Pentanone			0.3791	0.3697	0.4310	0.4475	0.4053	0.4312	0.4246	AVRG		2.42347		0.4126	7	15	0.05	0.99	
cis-1,3-Dichloropropene		0.6129	0.5931	0.6275	0.6495	0.6589	0.6543	0.6580	0.6520	AVRG		1.56673		0.6383	4	15	0.05	0.99	
Toluene		2.1404	2.0141	1.9775	1.9899	1.9837	1.8573	1.8724	1.8700	AVRG		0.50938		1.9632	5	15	0.05	0.99	
trans-1,3-Dichloropropene		0.6036	0.5951	0.6315	0.6641	0.6701	0.6631	0.6717	0.6709	AVRG		1.54739		0.6463	5	15	0.05	0.99	
1,1,2-Trichloroethane		0.2270	0.2260	0.2316	0.2360	0.2332	0.2240	0.2242	0.2259	AVRG		4.37672		0.2285	2	15	0.05	0.99	
2-Hexanone			0.3004	0.2913	0.3359	0.3610	0.3281	0.3411	0.3483	AVRG		3.03530		0.3295	8	15	0.05	0.99	
1,3-Dichloropropane		0.7541	0.7056	0.7136	0.7443	0.7387	0.6984	0.7019	0.7037	AVRG		1.38880		0.7200	3	15	0.05	0.99	
Tetrachloroethene		0.4116	0.4178	0.4195	0.4119	0.4174	0.3963	0.4045	0.4068	AVRG		2.43485		0.4107	2	15	0.05	0.99	
Dibromochloromethane		0.3881	0.3723	0.3838	0.4059	0.4118	0.4044	0.4130	0.4185	AVRG		2.50173		0.3997	4	15	0.05	0.99	
1,2-Dibromoethane		0.3970	0.3910	0.3886	0.4154	0.4151	0.3912	0.3975	0.3978	AVRG		2.50499		0.3992	3	15	0.05	0.99	
Chlorobenzene		1.2965	1.2385	1.2177	1.2141	1.2140	1.1594	1.1790	1.1820	AVRG		0.82464		1.2126	4	15	0.30	0.99	
1,1,1,2-Tetrachloroethane		0.4334	0.3761	0.3794	0.4007	0.3952	0.3838	0.3914	0.3913	AVRG		2.53859		0.3939	5	15	0.05	0.99	
Ethylbenzene		2.2745	2.2640	2.2223	2.2190	2.2085	2.1001	2.1261	2.1519	AVRG		0.45541		2.1958	3	15	0.05	0.99	
m,p-Xylenes	0.8275	0.7878	0.8020	0.8051	0.8058	0.8080	0.7768	0.7905	0.8105	AVRG		1.24756		0.8016	2	15	0.05	0.99	
o-Xylene		0.7770	0.7709	0.7607	0.7812	0.7874	0.7598	0.7765	0.7894	AVRG		1.28972		0.7754	1	15	0.05	0.99	
Styrene		1.1993	1.2491	1.2781	1.3298	1.3378	1.2931	1.3302	1.3445	AVRG		0.77207		1.2952	4	15	0.05	0.99	
Bromoform		0.2475	0.2309	0.2365	0.2641	0.2749	0.2679	0.2839	0.2928	AVRG		3.81239		0.2623	8	15	0.10	0.99	
Isopropylbenzene		3.9386	3.9369	3.9986	4.0152	4.1169	3.9081	4.0362	4.0721	AVRG		0.24982		4.0028	2	15	0.05	0.99	
1,1,2,2-Tetrachloroethane		1.1094	1.1624	1.0412	1.1423	1.1212	1.0181	1.0885	1.0713	AVRG		0.91385		1.0943	5	15	0.30	0.99	
1,2,3-Trichloropropane		0.9328m	0.9153m	0.8459m	0.8967m	0.9261m	0.8204m	0.8550m	0.8494m	AVRG		1.13610		0.8802	5	15	0.05	0.99	
Propylbenzene		5.3681	5.1324	5.0930	5.1035	5.1442	4.9002	5.0358	5.0121	AVRG		0.19613		5.0987	3	15	0.05	0.99	
Bromobenzene		1.0832	1.0453	1.0046	1.0014	0.9956	0.9410	0.9566	0.9514	AVRG		1.00264		0.9974	5	15	0.05	0.99	
1,3,5-Trimethylbenzene		3.1830	3.3705	3.3250	3.3769	3.3953	3.2500	3.3375	3.3526	AVRG		0.30086		3.3239	2	15	0.05	0.99	
2-Chlorotoluene		3.4770	3.3098	3.3047	3.2555	3.2528	3.1123	3.1758	3.1691	AVRG		0.30702		3.2571	3	15	0.05	0.99	
4-Chlorotoluene		3.0076	3.0042	2.9573	3.0068	3.0221	2.8492	2.9302	2.9038	AVRG		0.33782		2.9601	2	15	0.05	0.99	
tert-Butylbenzene		2.7037	2.7739	2.8650	2.8679	2.8878	2.8023	2.8781	2.8969	AVRG		0.35280		2.8344	2	15	0.05	0.99	
1,2,4-Trimethylbenzene		3.1823	3.4327	3.3587	3.4904	3.4922	3.3218	3.4079	3.4112	AVRG		0.29523		3.3872	3	15	0.05	0.99	
sec-Butylbenzene		4.4491	4.1664	4.4408	4.4376	4.4705	4.2943	4.4086	4.3876	AVRG		0.22821		4.3819	2	15	0.05	0.99	
para-Isopropyl Toluene		3.2297	3.3900	3.5055	3.5153	3.5799	3.4693	3.5511	3.5518	AVRG		0.28785		3.4741	3	15	0.05	0.99	
1,3-Dichlorobenzene		1.9591	1.8579	1.8216	1.8494	1.8276	1.7280	1.7542	1.7482	AVRG		0.54998		1.8182	4	15	0.05	0.99	
1,4-Dichlorobenzene		2.0075	1.9514	1.8616	1.8783	1.8674	1.7488	1.7803	1.7725	AVRG		0.53808		1.8585	5	15	0.05	0.99	
n-Butylbenzene		3.4674	3.3205	3.4080	3.4828	3.4524	3.3450	3.3885	3.3537	AVRG		0.29392		3.4023	2	15	0.05	0.99	
1,2-Dichlorobenzene		1.6881	1.7817	1.6932	1.7236	1.7156	1.6308	1.6644	1.6412	AVRG		0.59090		1.6923	3	15	0.05	0.99	
1,2-Dibromo-3-Chloropropane		0.1818	0.1889	0.1659	0.1868	0.1959	0.1767	0.1896	0.1880	AVRG		5.42884		0.1842	5	15	0.05	0.99	
1,2,4-Trichlorobenzene		1.0294	0.9856	0.9679	1.0035	1.0116	0.9659	1.0091	0.9901	AVRG		1.00465		0.9954	2	15	0.05	0.99	
Hexachlorobutadiene		0.5306	0.5054	0.5172	0.5180	0.5229	0.4992	0.5173	0.5103	AVRG		1.94132		0.5151	2	15	0.05	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Naphthalene		1.9919	2.0817	1.9879	2.4206	2.5649	2.3268	2.5318	2.4217	AVRG		0.43650		2.2909	10	15	0.05	0.99	
1,2,3-Trichlorobenzene		0.6976	0.7919	0.7428	0.8191	0.8189	0.7480	0.8104	0.7598	AVRG		1.29270		0.7736	6	15	0.05	0.99	
Dibromofluoromethane	0.5006	0.5030	0.4904	0.4860	0.4927	0.4934	0.4965	0.4976	0.4984	AVRG		2.01854		0.4954	1	15	0.05	0.99	
1,2-Dichloroethane-d4	0.3840	0.3815	0.3887	0.3825	0.3870	0.3890	0.3895	0.3958	0.3937	AVRG		2.57763		0.3880	1	15	0.05	0.99	
Toluene-d8	1.3894	1.3861	1.4042	1.3917	1.3848	1.3876	1.3815	1.3718	1.3761	AVRG		0.72154		1.3859	1	15	0.05	0.99	
Bromofluorobenzene	1.0091	1.0095	1.0152	1.0092	0.9937	1.0018	0.9970	1.0003	1.0056	AVRG		0.99543		1.0046	1	15	0.05	0.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
Freon 12			1.0000	7	2.0000	5	5.0000	4	10.000	-1	20.000	-9	50.000	0	75.000	-3	100.00	-4
Chloromethane	0.5000	8	1.0000	12	2.0000	4	5.0000	2	10.000	2	20.000	-1	50.000	-4	75.000	-11	100.00	-12
Vinyl Chloride	0.5000	1	1.0000	5	2.0000	1	5.0000	2	10.000	0	20.000	0	50.000	-1	75.000	-4	100.00	-5
Bromomethane			1.0000	-16	2.0000	-1	5.0000	-3	10.000	3	20.000	-4	50.000	3	75.000	5	100.00	13
Chloroethane	0.5000	-9	1.0000	0	2.0000	2	5.0000	4	10.000	2	20.000	3	50.000	2	75.000	-2	100.00	-2
Trichlorofluoromethane			1.0000	7	2.0000	3	5.0000	3	10.000	-1	20.000	-5	50.000	0	75.000	-3	100.00	-4
Acetone					2.0000	5	5.0000	-4	10.000	-4	20.000	15	50.000	-5	75.000	-4	100.00	-4
Freon 113			0.5000	6	2.0000	-7	5.0000	5	10.000	0	20.000	3	50.000	-4	75.000	-2	100.00	-2
1,1-Dichloroethene			0.5000	3	2.0000	-3	5.0000	2	10.000	0	20.000	3	50.000	-2	75.000	-1	100.00	-2
Methylene Chloride			0.5000	-1	2.0000	0	5.0000	-2	10.000	5	20.000	3	50.000	-1	75.000	-2	100.00	-3
Carbon Disulfide			0.5000	2	2.0000	-4	5.0000	1	10.000	2	20.000	4	50.000	-2	75.000	-2	100.00	-2
MTBE			0.5000	3	2.0000	-6	5.0000	-6	10.000	2	20.000	3	50.000	0	75.000	1	100.00	2
trans-1,2-Dichloroethene			0.5000	5	2.0000	-4	5.0000	-1	10.000	3	20.000	2	50.000	-2	75.000	-1	100.00	-2
Vinyl Acetate					2.0000	-2	5.0000	-9	10.000	9	20.000	-6	50.000	-3	75.000	10	100.00	1
1,1-Dichloroethane			0.5000	3	2.0000	-4	5.0000	0	10.000	3	20.000	2	50.000	-2	75.000	-1	100.00	-1
2-Butanone					2.0000	-6	5.0000	-11	10.000	5	20.000	10	50.000	-3	75.000	2	100.00	3
2,2-Dichloropropane			0.5000	4	2.0000	-1	5.0000	0	10.000	1	20.000	3	50.000	-2	75.000	-1	100.00	-3
cis-1,2-Dichloroethene			0.5000	2	2.0000	0	5.0000	-1	10.000	1	20.000	1	50.000	-1	75.000	-1	100.00	-1
Chloroform			0.5000	8	2.0000	-1	5.0000	-1	10.000	2	20.000	1	50.000	-3	75.000	-3	100.00	-3
Bromochloromethane			0.5000	-4	2.0000	1	5.0000	5	10.000	6	20.000	-1	50.000	0	75.000	-3	100.00	-3
1,1,1-Trichloroethane			0.5000	12	2.0000	-2	5.0000	-2	10.000	1	20.000	1	50.000	-4	75.000	-3	100.00	-3
1,1-Dichloropropene			0.5000	-2	2.0000	-3	5.0000	2	10.000	1	20.000	4	50.000	-2	75.000	1	100.00	0
Carbon Tetrachloride			0.5000	7	2.0000	-4	5.0000	1	10.000	-1	20.000	2	50.000	-4	75.000	0	100.00	0
1,2-Dichloroethane			0.5000	6	2.0000	-2	5.0000	0	10.000	2	20.000	1	50.000	-2	75.000	-2	100.00	-3
Benzene			0.5000	6	2.0000	-1	5.0000	1	10.000	3	20.000	1	50.000	-3	75.000	-3	100.00	-4
Trichloroethene			0.5000	3	2.0000	1	5.0000	-1	10.000	-1	20.000	1	50.000	-2	75.000	-1	100.00	-2
1,2-Dichloropropane			0.5000	3	2.0000	-1	5.0000	-1	10.000	1	20.000	1	50.000	-1	75.000	0	100.00	-1
Bromodichloromethane			0.5000	2	2.0000	-2	5.0000	0	10.000	1	20.000	1	50.000	-1	75.000	0	100.00	0
Dibromomethane			0.5000	-6	2.0000	1	5.0000	-1	10.000	3	20.000	3	50.000	-1	75.000	0	100.00	-1
4-Methyl-2-Pentanone					2.0000	-8	5.0000	-10	10.000	4	20.000	8	50.000	-2	75.000	4	100.00	3
cis-1,3-Dichloropropene			0.5000	-4	2.0000	-7	5.0000	-2	10.000	2	20.000	3	50.000	3	75.000	3	100.00	2
Toluene			0.5000	9	2.0000	3	5.0000	1	10.000	1	20.000	1	50.000	-5	75.000	-5	100.00	-5
trans-1,3-Dichloropropene			0.5000	-7	2.0000	-8	5.0000	-2	10.000	3	20.000	4	50.000	3	75.000	4	100.00	4
1,1,2-Trichloroethane			0.5000	-1	2.0000	-1	5.0000	1	10.000	3	20.000	2	50.000	-2	75.000	-2	100.00	-1
2-Hexanone					2.0000	-9	5.0000	-12	10.000	2	20.000	10	50.000	0	75.000	4	100.00	6
1,3-Dichloropropane			0.5000	5	2.0000	-2	5.0000	-1	10.000	3	20.000	3	50.000	-3	75.000	-3	100.00	-2
Tetrachloroethene			0.5000	0	2.0000	2	5.0000	2	10.000	0	20.000	2	50.000	-4	75.000	-2	100.00	-1
Dibromochloromethane			0.5000	-3	2.0000	-7	5.0000	-4	10.000	2	20.000	3	50.000	1	75.000	3	100.00	5
1,2-Dibromoethane			0.5000	-1	2.0000	-2	5.0000	-3	10.000	4	20.000	4	50.000	-2	75.000	0	100.00	0
Chlorobenzene			0.5000	7	2.0000	2	5.0000	0	10.000	0	20.000	0	50.000	-4	75.000	-3	100.00	-3
1,1,1,2-Tetrachloroethane			0.5000	10	2.0000	-5	5.0000	-4	10.000	2	20.000	0	50.000	-3	75.000	-1	100.00	-1
Ethylbenzene			0.5000	4	2.0000	3	5.0000	1	10.000	1	20.000	1	50.000	-4	75.000	-3	100.00	-2

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
m,p-Xylenes	0.5000	3	1.0000	-2	4.0000	0	10.000	0	20.000	1	40.000	1	100.00	-3	150.00	-1	200.00	1
o-Xylene			0.5000	0	2.0000	-1	5.0000	-2	10.000	1	20.000	2	50.000	-2	75.000	0	100.00	2
Styrene			0.5000	-7	2.0000	-4	5.0000	-1	10.000	3	20.000	3	50.000	0	75.000	3	100.00	4
Bromoform			0.5000	-6	2.0000	-12	5.0000	-10	10.000	1	20.000	5	50.000	2	75.000	8	100.00	12
Isopropylbenzene			0.5000	-2	2.0000	-2	5.0000	0	10.000	0	20.000	3	50.000	-2	75.000	1	100.00	2
1,1,2,2-Tetrachloroethane			0.5000	1	2.0000	6	5.0000	-5	10.000	4	20.000	2	50.000	-7	75.000	-1	100.00	-2
1,2,3-Trichloropropane			0.5000	6	2.0000	4	5.0000	-4	10.000	2	20.000	5	50.000	-7	75.000	-3	100.00	-4
Propylbenzene			0.5000	5	2.0000	1	5.0000	0	10.000	0	20.000	1	50.000	-4	75.000	-1	100.00	-2
Bromobenzene			0.5000	9	2.0000	5	5.0000	1	10.000	0	20.000	0	50.000	-6	75.000	-4	100.00	-5
1,3,5-Trimethylbenzene			0.5000	-4	2.0000	1	5.0000	0	10.000	2	20.000	2	50.000	-2	75.000	0	100.00	1
2-Chlorotoluene			0.5000	7	2.0000	2	5.0000	1	10.000	0	20.000	0	50.000	-4	75.000	-2	100.00	-3
4-Chlorotoluene			0.5000	2	2.0000	1	5.0000	0	10.000	2	20.000	2	50.000	-4	75.000	-1	100.00	-2
tert-Butylbenzene			0.5000	-5	2.0000	-2	5.0000	1	10.000	1	20.000	2	50.000	-1	75.000	2	100.00	2
1,2,4-Trimethylbenzene			0.5000	-6	2.0000	1	5.0000	-1	10.000	3	20.000	3	50.000	-2	75.000	1	100.00	1
sec-Butylbenzene			0.5000	2	2.0000	-5	5.0000	1	10.000	1	20.000	2	50.000	-2	75.000	1	100.00	0
para-Isopropyl Toluene			0.5000	-7	2.0000	-2	5.0000	1	10.000	1	20.000	3	50.000	0	75.000	2	100.00	2
1,3-Dichlorobenzene			0.5000	8	2.0000	2	5.0000	0	10.000	2	20.000	1	50.000	-5	75.000	-4	100.00	-4
1,4-Dichlorobenzene			0.5000	8	2.0000	5	5.0000	0	10.000	1	20.000	0	50.000	-6	75.000	-4	100.00	-5
n-Butylbenzene			0.5000	2	2.0000	-2	5.0000	0	10.000	2	20.000	1	50.000	-2	75.000	0	100.00	-1
1,2-Dichlorobenzene			0.5000	0	2.0000	5	5.0000	0	10.000	2	20.000	1	50.000	-4	75.000	-2	100.00	-3
1,2-Dibromo-3-Chloropropane			0.5000	-1	2.0000	3	5.0000	-10	10.000	1	20.000	6	50.000	-4	75.000	3	100.00	2
1,2,4-Trichlorobenzene			0.5000	3	2.0000	-1	5.0000	-3	10.000	1	20.000	2	50.000	-3	75.000	1	100.00	-1
Hexachlorobutadiene			0.5000	3	2.0000	-2	5.0000	0	10.000	1	20.000	2	50.000	-3	75.000	0	100.00	-1
Naphthalene			0.5000	-13	2.0000	-9	5.0000	-13	10.000	6	20.000	12	50.000	2	75.000	11	100.00	6
1,2,3-Trichlorobenzene			0.5000	-10	2.0000	2	5.0000	-4	10.000	6	20.000	6	50.000	-3	75.000	5	100.00	-2
Dibromofluoromethane	50.000	1	50.000	2	50.000	-1	50.000	-2	50.000	-1	50.000	0	50.000	0	50.000	0	50.000	1
1,2-Dichloroethane-d4	50.000	-1	50.000	-2	50.000	0	50.000	-1	50.000	0	50.000	0	50.000	0	50.000	2	50.000	1
Toluene-d8	50.000	0	50.000	0	50.000	1	50.000	0	50.000	0	50.000	0	50.000	0	50.000	-1	50.000	-1
Bromofluorobenzene	50.000	0	50.000	0	50.000	1	50.000	0	50.000	-1	50.000	0	50.000	-1	50.000	0	50.000	0

DAR 03/10/16 [Freon 12]: Combined split peak in multiple levels.

DAR 03/10/16 [Chloromethane]: Combined split peak in multiple levels.

DAR 03/10/16 [Bromomethane]: Combined split peak in multiple levels.

DAR 03/10/16 [1,2,3-Trichloropropane]: Separated from coeluting peak in multiple levels.

DAR 03/10/16 [Iodomethane]: Combined split peak in multiple levels.

Analyst: DAR Date: 03/10/16 Reviewer: LW Date: 03/14/16

m=manual integration

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

836098562001

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 275899 MSVOA Water
EPA 8260B

Inst : MSVOA11 Name : 8260 hexraised
Calnum : 836098562001 Cal Date : 08-MAR-2016 Type : WATER

ICV 836098562023 (kc823 09-MAR-2016) stds: S29123 (10000X), S29284 (2500X)
ICV 836098562024 (kc824 09-MAR-2016) stds: S29207 (10000X), S29290 (10000X), S29230 (10000X), S29284 (2500X)
ICV 836100345005 (kc905 09-MAR-2016) stds: S26946 (50000X), S29284 (2500X)

Analyte	ICV Seqnum	Spiked	Quant	Units	%D	Max	Flags
Freon 12	836098562023	20.00	14.35	ug/L	**-28**	30	!v-
Chloromethane	836098562023	20.00	15.01	ug/L	**-25**	30	!v-
Vinyl Chloride	836098562023	20.00	19.41	ug/L	-3	20	
Bromomethane	836098562023	20.00	18.29	ug/L	-9	30	m
Chloroethane	836098562023	20.00	19.36	ug/L	-3	30	
Trichlorofluoromethane	836098562023	20.00	19.73	ug/L	-1	30	
Acetone	836100345005	40.00	27.70	ug/L	**-31**	40	!v-
Freon 113	836098562024	25.00	20.62	ug/L	-18	30	
1,1-Dichloroethene	836098562024	25.00	23.61	ug/L	-6	20	
Methylene Chloride	836098562024	25.00	24.62	ug/L	-2	30	
Carbon Disulfide	836098562024	25.00	21.71	ug/L	-13	30	
MTBE	836098562024	25.00	24.92	ug/L	0	30	
trans-1,2-Dichloroethene	836098562024	25.00	22.82	ug/L	-9	30	
Vinyl Acetate	836098562024	25.00	25.77	ug/L	3	40	
1,1-Dichloroethane	836098562024	25.00	24.51	ug/L	-2	30	
2-Butanone	836100345005	40.00	31.17	ug/L	**-22**	40	!v-
2,2-Dichloropropane	836098562024	25.00	23.27	ug/L	-7	30	
cis-1,2-Dichloroethene	836098562024	25.00	25.94	ug/L	4	30	
Chloroform	836098562024	25.00	24.29	ug/L	-3	20	
Bromochloromethane	836098562024	25.00	25.18	ug/L	1	30	
1,1,1-Trichloroethane	836098562024	25.00	24.54	ug/L	-2	30	
1,1-Dichloropropene	836098562024	25.00	22.05	ug/L	-12	30	
Carbon Tetrachloride	836098562024	25.00	25.34	ug/L	1	30	
1,2-Dichloroethane	836098562024	25.00	24.57	ug/L	-2	30	
Benzene	836098562024	25.00	24.76	ug/L	-1	30	
Trichloroethene	836098562024	25.00	24.80	ug/L	-1	30	
1,2-Dichloropropane	836098562024	25.00	25.12	ug/L	0	20	
Bromodichloromethane	836098562024	25.00	24.49	ug/L	-2	30	
Dibromomethane	836098562024	25.00	25.18	ug/L	1	30	
4-Methyl-2-Pentanone	836100345005	40.00	33.80	ug/L	-16	40	
cis-1,3-Dichloropropene	836098562024	25.00	26.28	ug/L	5	30	
Toluene	836098562024	25.00	24.81	ug/L	-1	20	
trans-1,3-Dichloropropene	836098562024	25.00	25.51	ug/L	2	30	
1,1,2-Trichloroethane	836098562024	25.00	25.00	ug/L	0	30	
2-Hexanone	836100345005	40.00	34.67	ug/L	-13	40	
1,3-Dichloropropane	836098562024	25.00	26.03	ug/L	4	30	
Tetrachloroethene	836098562024	25.00	25.39	ug/L	2	30	
Dibromochloromethane	836098562024	25.00	25.67	ug/L	3	30	
1,2-Dibromoethane	836098562024	25.00	25.63	ug/L	3	30	
Chlorobenzene	836098562024	25.00	25.05	ug/L	0	30	
1,1,1,2-Tetrachloroethane	836098562024	25.00	25.36	ug/L	1	30	
Ethylbenzene	836098562024	25.00	24.77	ug/L	-1	20	
m,p-Xylenes	836098562024	50.00	50.43	ug/L	1	30	
o-Xylene	836098562024	25.00	25.13	ug/L	1	30	
Styrene	836098562024	25.00	26.38	ug/L	6	30	
Bromoform	836098562024	25.00	26.46	ug/L	6	30	

Analyte	ICV Seqnum	Spiked	Quant	Units	%D	Max	Flags
Isopropylbenzene	836098562024	25.00	25.82	ug/L	3	30	
1,1,2,2-Tetrachloroethane	836098562024	25.00	26.12	ug/L	4	30	
1,2,3-Trichloropropane	836098562024	25.00	25.94	ug/L	4	30	m
Propylbenzene	836098562024	25.00	24.75	ug/L	-1	30	
Bromobenzene	836098562024	25.00	25.29	ug/L	1	30	
1,3,5-Trimethylbenzene	836098562024	25.00	26.69	ug/L	7	30	
2-Chlorotoluene	836098562024	25.00	25.30	ug/L	1	30	
4-Chlorotoluene	836098562024	25.00	25.84	ug/L	3	30	
tert-Butylbenzene	836098562024	25.00	26.10	ug/L	4	30	
1,2,4-Trimethylbenzene	836098562024	25.00	25.58	ug/L	2	30	
sec-Butylbenzene	836098562024	25.00	25.57	ug/L	2	30	
para-Isopropyl Toluene	836098562024	25.00	26.27	ug/L	5	30	
1,3-Dichlorobenzene	836098562024	25.00	25.23	ug/L	1	30	
1,4-Dichlorobenzene	836098562024	25.00	25.39	ug/L	2	30	
n-Butylbenzene	836098562024	25.00	25.52	ug/L	2	30	
1,2-Dichlorobenzene	836098562024	25.00	25.79	ug/L	3	30	
1,2-Dibromo-3-Chloropropane	836098562024	25.00	26.49	ug/L	6	30	
1,2,4-Trichlorobenzene	836098562024	25.00	26.28	ug/L	5	30	
Hexachlorobutadiene	836098562024	25.00	26.63	ug/L	7	30	
Naphthalene	836098562024	25.00	26.73	ug/L	7	30	
1,2,3-Trichlorobenzene	836098562024	25.00	28.38	ug/L	14	30	

836098562023: Analyst: DAR Date: 03/10/16 Reviewer: LW Date: 03/14/16
836098562024: Analyst: DAR Date: 03/10/16 Reviewer: LW Date: 03/14/16
836100345005: Analyst: DAR Date: 03/10/16 Reviewer: LW Date: 03/14/16

!=warning -=low bias m=manual integration v=ICV

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275899 MSVOA Water
EPA 8260B

Inst : MSVOA08 IDF : 1.0
Seqnum : 476159062004 File : hdj04 Time : 19-APR-2016 12:40
Cal : 476138895001 Caldate : 05-APR-2016 Caltype : WATER
Standards: S29048 (20000X), S29427 (20000X), S29559 (20000X), S28142 (20000X), S29654 (5000X)

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Freon 12	1.0049	0.8589	25.00	21.37	ug/L	-15	30	0.0500	!v-
Chloromethane	1.0964	1.0874	25.00	24.80	ug/L	-1	30	0.1000	
Vinyl Chloride	0.8540	0.8354	25.00	24.45	ug/L	-2	20	0.0500	
Bromomethane	0.5089	0.5798	25.00	28.49	ug/L	14	30	0.0500	
Chloroethane	0.4672	0.4744	25.00	25.39	ug/L	2	30	0.0500	
Trichlorofluoromethane	0.9589	0.8882	25.00	23.16	ug/L	-7	30	0.0500	
Acetone	0.1710	0.1911	25.00	27.93	ug/L	12	40	0.0500	!v-
Freon 113	0.4558	0.4379	25.00	24.02	ug/L	-4	30	0.0500	
1,1-Dichloroethene	0.4080	0.4032	25.00	24.70	ug/L	-1	20	0.0500	
Methylene Chloride	0.5233	0.5590	25.00	26.70	ug/L	7	30	0.0500	
Carbon Disulfide	1.7753	1.7558	25.00	24.73	ug/L	-1	30	0.0500	
MTBE	1.2436	1.3312	25.00	26.76	ug/L	7	30	0.0500	
trans-1,2-Dichloroethene	0.4667	0.4633	25.00	24.82	ug/L	-1	30	0.0500	
Vinyl Acetate	1.0797	1.3979	25.00	32.37	ug/L	**29**	40	0.0500	!c+
1,1-Dichloroethane	0.9986	1.0410	25.00	26.06	ug/L	4	30	0.1000	
2-Butanone	0.2216	0.2456	25.00	27.71	ug/L	11	40	0.0500	
2,2-Dichloropropane	0.6250	0.8285	25.00	33.14	ug/L	**33**	30	0.0500	!v+ c+ ***
cis-1,2-Dichloroethene	0.5230	0.5122	25.00	24.48	ug/L	-2	30	0.0500	
Chloroform	0.9592	1.0072	25.00	26.25	ug/L	5	20	0.0500	
Bromochloromethane	0.2656	0.2731	25.00	25.70	ug/L	3	30	0.0500	
1,1,1-Trichloroethane	0.7751	0.7578	25.00	24.44	ug/L	-2	30	0.0500	
1,1-Dichloropropene	0.5319	0.4971	25.00	23.37	ug/L	-7	30	0.0500	
Carbon Tetrachloride	0.5275	0.4749	25.00	22.51	ug/L	-10	30	0.0500	
1,2-Dichloroethane	0.5388	0.5535	25.00	25.68	ug/L	3	30	0.0500	
Benzene	1.3081	1.2475	25.00	23.84	ug/L	-5	30	0.0500	
Trichloroethene	0.3955	0.3506	25.00	22.16	ug/L	-11	30	0.0500	
1,2-Dichloropropane	0.3996	0.4064	25.00	25.43	ug/L	2	20	0.0500	
Bromodichloromethane	0.5014	0.5225	25.00	26.05	ug/L	4	30	0.0500	
Dibromomethane	0.2256	0.2228	25.00	24.69	ug/L	-1	30	0.0500	
4-Methyl-2-Pentanone	0.3609	0.3559	25.00	24.65	ug/L	-1	40	0.0500	
cis-1,3-Dichloropropene	0.5615	0.6103	25.00	27.17	ug/L	9	30	0.0500	
Toluene	1.0007	0.9024	25.00	22.54	ug/L	-10	20	0.0500	
trans-1,3-Dichloropropene	0.5933	0.6047	25.00	25.48	ug/L	2	30	0.0500	
1,1,2-Trichloroethane	0.1787	0.1746	25.00	24.43	ug/L	-2	30	0.0500	
2-Hexanone	0.3100	0.2963	25.00	23.89	ug/L	-4	40	0.0500	
1,3-Dichloropropane	0.5828	0.5576	25.00	23.92	ug/L	-4	30	0.0500	
Tetrachloroethene	0.4624	0.3846	25.00	20.80	ug/L	-17	30	0.0500	
Dibromochloromethane	0.5013	0.4588	25.00	22.88	ug/L	-8	30	0.0500	
1,2-Dibromoethane	0.3821	0.3606	25.00	23.59	ug/L	-6	30	0.0500	
Chlorobenzene	1.1659	1.0727	25.00	23.00	ug/L	-8	30	0.3000	
1,1,1,2-Tetrachloroethane	0.4495	0.4160	25.00	23.13	ug/L	-7	30	0.0500	
Ethylbenzene	2.0198	1.8765	25.00	23.23	ug/L	-7	20	0.0500	
m,p-Xylenes	0.7693	0.6866	50.00	44.62	ug/L	-11	30	0.0500	
o-Xylene	0.7726	0.6874	25.00	22.24	ug/L	-11	30	0.0500	
Styrene	1.2620	1.2230	25.00	24.23	ug/L	-3	30	0.0500	
Bromoform	0.3309	0.2790	25.00	21.08	ug/L	-16	30	0.1000	
Isopropylbenzene	3.6023	3.3496	25.00	23.25	ug/L	-7	30	0.0500	

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
1,1,2,2-Tetrachloroethane	0.7549	0.7471	25.00	24.74	ug/L	-1	30	0.3000	
1,2,3-Trichloropropane	0.2125	0.1864	25.00	21.94	ug/L	-12	30	0.0500	
Propylbenzene	4.3366	4.0374	25.00	23.27	ug/L	-7	30	0.0500	
Bromobenzene	0.9367	0.8360	25.00	22.31	ug/L	-11	30	0.0500	
1,3,5-Trimethylbenzene	3.0100	3.0757	25.00	25.55	ug/L	2	30	0.0500	
2-Chlorotoluene	2.8786	2.8742	25.00	24.96	ug/L	0	30	0.0500	
4-Chlorotoluene	2.6580	2.6658	25.00	25.07	ug/L	0	30	0.0500	
tert-Butylbenzene	2.7499	2.4800	25.00	22.55	ug/L	-10	30	0.0500	
1,2,4-Trimethylbenzene	3.1786	3.0288	25.00	23.82	ug/L	-5	30	0.0500	
sec-Butylbenzene	4.0142	3.8494	25.00	23.97	ug/L	-4	30	0.0500	
para-Isopropyl Toluene	3.2726	3.2549	25.00	24.86	ug/L	-1	30	0.0500	
1,3-Dichlorobenzene	1.7802	1.6787	25.00	23.57	ug/L	-6	30	0.0500	
1,4-Dichlorobenzene	1.7950	1.7172	25.00	23.92	ug/L	-4	30	0.0500	
n-Butylbenzene	2.8045	2.7409	25.00	24.43	ug/L	-2	30	0.0500	
1,2-Dichlorobenzene	1.6960	1.6146	25.00	23.80	ug/L	-5	30	0.0500	
1,2-Dibromo-3-Chloropropane	0.1426	0.1400	25.00	24.55	ug/L	-2	30	0.0500	
1,2,4-Trichlorobenzene	1.0843	0.9717	25.00	22.40	ug/L	-10	30	0.0500	
Hexachlorobutadiene	0.5407	0.5051	25.00	23.35	ug/L	-7	30	0.0500	
Naphthalene	2.2361	2.0643	25.00	23.08	ug/L	-8	30	0.0500	
1,2,3-Trichlorobenzene	1.0194	0.9078	25.00	22.26	ug/L	-11	30	0.0500	
Dibromofluoromethane	0.4674	0.4722	50.00	50.51	ug/L	1	30	0.0500	
1,2-Dichloroethane-d4	0.3484	0.3691	50.00	52.97	ug/L	6	30	0.0500	
Toluene-d8	1.2891	1.2632	50.00	49.00	ug/L	-2	30	0.0500	
Bromofluorobenzene	0.9401	0.9327	50.00	49.61	ug/L	-1	30	0.0500	

ISTD (ICAL hd513)	ICAL Area	Area	%Drift	ICAL RT	RT	Drift
Pentafluorobenzene	581578	740787	27.38	10.05	10.06	0.02
1,4-Difluorobenzene	813297	1075620	32.25	11.25	11.26	0.01
Chlorobenzene-d5	655806	939730	43.29	15.74	15.75	0.01
1,4-Dichlorobenzene-d4	375808	514106	36.80	18.59	18.60	0.01

Analyst: DAR Date: 04/19/16 Reviewer: LW Date: 04/19/16

!=warning +=high bias -=low bias c=CCV v=ICV

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275899 MSVOA Water
EPA 8260B

Inst : MSVOA11 IDF : 1.0
Seqnum : 836160607004 File : kdk04 Time : 20-APR-2016 14:03
Cal : 836098562001 Caldate : 08-MAR-2016 Caltype : WATER
Standards: S29048 (20000X), S29427 (20000X), S29559 (20000X), S28142 (20000X), S29653 (2500X)

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Freon 12	0.9440	0.6902	25.00	18.28	ug/L	**-27**	30	0.0500	!c- !v-
Chloromethane	1.3321	0.8524	25.00	16.00	ug/L	**-36**	30	0.1000	!v- c- ***
Vinyl Chloride	0.9035	0.8389	25.00	23.21	ug/L	-7	20	0.0500	
Bromomethane	0.2817	0.4985	25.00	44.25	ug/L	**77**	30	0.0500	c+ ***
Chloroethane	0.4996	0.5218	25.00	26.11	ug/L	4	30	0.0500	
Trichlorofluoromethane	0.9766	0.9405	25.00	24.08	ug/L	-4	30	0.0500	
Acetone	0.2419	0.2963	25.00	30.62	ug/L	**22**	40	0.0500	!c+ !v-
Freon 113	0.5245	0.5950	25.00	28.36	ug/L	13	30	0.0500	
1,1-Dichloroethene	0.5011	0.5667	25.00	28.27	ug/L	13	20	0.0500	
Methylene Chloride	0.6552	0.7550	25.00	28.81	ug/L	15	30	0.0500	
Carbon Disulfide	1.8475	2.4336	25.00	32.93	ug/L	**32**	30	0.0500	c+ ***
MTBE	1.8818	2.1792	25.00	28.95	ug/L	16	30	0.0500	
trans-1,2-Dichloroethene	0.5872	0.6886	25.00	29.32	ug/L	17	30	0.0500	
Vinyl Acetate	1.2841	1.8827	25.00	36.65	ug/L	**47**	40	0.0500	c+ ***
1,1-Dichloroethane	1.1725	1.4526	25.00	30.97	ug/L	**24**	30	0.1000	!c+
2-Butanone	0.3397	0.4468	25.00	32.88	ug/L	**32**	40	0.0500	!c+ !v-
2,2-Dichloropropane	0.8594	1.1190	25.00	32.55	ug/L	**30**	30	0.0500	!c+
cis-1,2-Dichloroethene	0.6806	0.7900	25.00	29.02	ug/L	16	30	0.0500	
Chloroform	1.1476	1.3474	25.00	29.35	ug/L	17	20	0.0500	
Bromochloromethane	0.2841	0.3376	25.00	29.70	ug/L	19	30	0.0500	
1,1,1-Trichloroethane	0.9281	1.0309	25.00	27.77	ug/L	11	30	0.0500	
1,1-Dichloropropene	0.5347	0.5584	25.00	26.11	ug/L	4	30	0.0500	
Carbon Tetrachloride	0.4465	0.4365	25.00	24.44	ug/L	-2	30	0.0500	
1,2-Dichloroethane	0.5507	0.5761	25.00	26.15	ug/L	5	30	0.0500	
Benzene	1.6115	1.7396	25.00	26.99	ug/L	8	30	0.0500	
Trichloroethene	0.3974	0.3970	25.00	24.98	ug/L	0	30	0.0500	
1,2-Dichloropropane	0.4228	0.4569	25.00	27.01	ug/L	8	20	0.0500	
Bromodichloromethane	0.5192	0.5505	25.00	26.51	ug/L	6	30	0.0500	
Dibromomethane	0.2418	0.2571	25.00	26.58	ug/L	6	30	0.0500	
4-Methyl-2-Pentanone	0.4126	0.4660	25.00	28.24	ug/L	13	40	0.0500	
cis-1,3-Dichloropropene	0.6383	0.7220	25.00	28.28	ug/L	13	30	0.0500	
Toluene	1.9632	1.9467	25.00	24.79	ug/L	-1	20	0.0500	
trans-1,3-Dichloropropene	0.6463	0.7033	25.00	27.21	ug/L	9	30	0.0500	
1,1,2-Trichloroethane	0.2285	0.2317	25.00	25.36	ug/L	1	30	0.0500	
2-Hexanone	0.3295	0.3565	25.00	27.05	ug/L	8	40	0.0500	
1,3-Dichloropropane	0.7200	0.7438	25.00	25.83	ug/L	3	30	0.0500	
Tetrachloroethene	0.4107	0.3549	25.00	21.60	ug/L	-14	30	0.0500	
Dibromochloromethane	0.3997	0.3913	25.00	24.47	ug/L	-2	30	0.0500	
1,2-Dibromoethane	0.3992	0.3931	25.00	24.62	ug/L	-2	30	0.0500	
Chlorobenzene	1.2126	1.1894	25.00	24.52	ug/L	-2	30	0.3000	
1,1,1,2-Tetrachloroethane	0.3939	0.3759	25.00	23.85	ug/L	-5	30	0.0500	
Ethylbenzene	2.1958	2.2215	25.00	25.29	ug/L	1	20	0.0500	
m,p-Xylenes	0.8016	0.8148	50.00	50.82	ug/L	2	30	0.0500	
o-Xylene	0.7754	0.7831	25.00	25.25	ug/L	1	30	0.0500	
Styrene	1.2952	1.3660	25.00	26.37	ug/L	5	30	0.0500	
Bromoform	0.2623	0.2649	25.00	25.25	ug/L	1	30	0.1000	
Isopropylbenzene	4.0028	4.1834	25.00	26.13	ug/L	5	30	0.0500	

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
1,1,2,2-Tetrachloroethane	1.0943	1.2370	25.00	28.26	ug/L	13	30	0.3000	
1,2,3-Trichloropropane	0.8802	0.9818	25.00	27.89	ug/L	12	30	0.0500	m
Propylbenzene	5.0987	5.4557	25.00	26.75	ug/L	7	30	0.0500	
Bromobenzene	0.9974	0.9448	25.00	23.68	ug/L	-5	30	0.0500	
1,3,5-Trimethylbenzene	3.3239	3.5027	25.00	26.35	ug/L	5	30	0.0500	
2-Chlorotoluene	3.2571	3.4998	25.00	26.86	ug/L	7	30	0.0500	
4-Chlorotoluene	2.9601	3.1934	25.00	26.97	ug/L	8	30	0.0500	
tert-Butylbenzene	2.8344	2.8548	25.00	25.18	ug/L	1	30	0.0500	
1,2,4-Trimethylbenzene	3.3872	3.6629	25.00	27.04	ug/L	8	30	0.0500	
sec-Butylbenzene	4.3819	4.6371	25.00	26.46	ug/L	6	30	0.0500	
para-Isopropyl Toluene	3.4741	3.6419	25.00	26.21	ug/L	5	30	0.0500	
1,3-Dichlorobenzene	1.8182	1.8210	25.00	25.04	ug/L	0	30	0.0500	
1,4-Dichlorobenzene	1.8585	1.8210	25.00	24.50	ug/L	-2	30	0.0500	
n-Butylbenzene	3.4023	3.7957	25.00	27.89	ug/L	12	30	0.0500	
1,2-Dichlorobenzene	1.6923	1.6987	25.00	25.09	ug/L	0	30	0.0500	
1,2-Dibromo-3-Chloropropane	0.1842	0.2064	25.00	28.02	ug/L	12	30	0.0500	
1,2,4-Trichlorobenzene	0.9954	0.8848	25.00	22.22	ug/L	-11	30	0.0500	
Hexachlorobutadiene	0.5151	0.4256	25.00	20.66	ug/L	-17	30	0.0500	
Naphthalene	2.2909	2.1080	25.00	23.00	ug/L	-8	30	0.0500	
1,2,3-Trichlorobenzene	0.7736	0.6943	25.00	22.44	ug/L	-10	30	0.0500	
Dibromofluoromethane	0.4954	0.5451	50.00	55.01	ug/L	10	30	0.0500	
1,2-Dichloroethane-d4	0.3880	0.4104	50.00	52.90	ug/L	6	30	0.0500	
Toluene-d8	1.3859	1.3784	50.00	49.73	ug/L	-1	30	0.0500	
Bromofluorobenzene	1.0046	1.0386	50.00	51.69	ug/L	3	30	0.0500	

ISTD (ICAL kc820)	ICAL Area	Area	%Drift	ICAL RT	RT	Drift
Pentafluorobenzene	395404	298708	-24.45	10.58	10.58	0.00
1,4-Difluorobenzene	660265	570781	-13.55	11.51	11.51	0.00
Chlorobenzene-d5	595282	542263	-8.91	14.62	14.62	0.00
1,4-Dichlorobenzene-d4	299473	260394	-13.05	16.88	16.87	-0.01

CAR 04/20/16 [1,2,3-Trichloropropane]: Separated from coeluting peak.

Analyst: DAR Date: 04/20/16 Reviewer: LW Date: 04/21/16

!=warning +=high bias -=low bias c=CCV m=manual integration v=ICV

836160607004

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 476159062

Date : 04/19/16 Reference : hd513
Sequence : MSVOA08 hdj Analyzed : 04/05/16 20:48

#	Type	Sample ID	PFLBZ	RT	14DFB	RT	CLBZD5	RT	DCBZ14D4	RT
		ICAL STD	581578	10.05	813297	11.25	655806	15.74	375808	18.59
		LOWER LIMIT	290789	9.55	406649	10.75	327903	15.24	187904	18.09
		UPPER LIMIT	1163156	10.55	1626594	11.75	1311612	16.24	751616	19.09
002	IB		833157	10.05	1147520	11.25	916640	15.75	449887	18.60
004	CCV		740787	10.06	1075620	11.26	939730	15.75	514106	18.60
005	BS	QC832157	819722	10.05	1123814	11.26	856017	15.75	455968	18.60
006	BSD	QC832158	839050	10.06	1105716	11.25	840973	15.75	455542	18.60
007	IB	A/A	857237	10.06	1170308	11.25	892698	15.76	486658	18.61
008	IB	A/A	840621	10.05	1185478	11.26	874443	15.75	450347	18.60
009	BLANK	QC832159	788335	10.05	1097954	11.26	822750	15.75	412686	18.60
010	SAMPLE	275899-009	803164	10.06	1071709	11.25	808250	15.76	420001	18.61
011	SAMPLE	276099-002	710426	10.06	1011087	11.26	838680	15.76	471658	18.61
012	SAMPLE	275899-001	922752	10.06	1189926	11.25	891334	15.76	477634	18.61
013	SAMPLE	275899-002	876556	10.06	1185920	11.26	876955	15.75	468657	18.60
014	SAMPLE	275899-003	929451	10.06	1195278	11.26	918656	15.75	484878	18.60
015	SAMPLE	275899-004	859284	10.05	1117310	11.26	812737	15.75	433299	18.60
016	SAMPLE	275899-007	826666	10.06	1109018	11.26	822898	15.75	418144	18.60
017	SAMPLE	275899-008	811034	10.05	1037552	11.26	771010	15.75	387872	18.61
018	SAMPLE	276044-001	730043	10.05	971315	11.26	721598	15.75	383119	18.60
019	SAMPLE	276044-002	720827	10.06	925385	11.26	704464	15.75	386463	18.60
020	SAMPLE	276044-003	727033	10.06	1026645	11.26	788817	15.75	408728	18.60
021	SAMPLE	276044-004	692835	10.05	963447	11.26	736598	15.75	381097	18.60
022	SAMPLE	276044-005	705890	10.05	963296	11.25	721247	15.76	371689	18.61
023	SAMPLE	276044-006	684640	10.05	872555	11.25	656342	15.75	348791	18.61
024	IB		555287	10.05	856632	11.26	753580	15.75	436933	18.60
025	IB		797996	10.05	1188247	11.26	939045	15.75	454344	18.60
026	SAMPLE	276087-001	670626	10.06	900836	11.25	686203	15.76	364930	18.61
027	SAMPLE	275854-001	672653	10.05	895239	11.25	682549	15.76	364912	18.61
028	SAMPLE	275854-002	657199	10.05	901120	11.26	699640	15.75	361904	18.60

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 836160607

Date : 04/20/16 Reference : kc820
Sequence : MSVOA11 kdk Analyzed : 03/09/16 00:18

#	Type	Sample ID	PFLBZ	RT	14DFB	RT	CLBZD5	RT	DCBZ14D4	RT
		ICAL STD	395404	10.58	660265	11.51	595282	14.62	299473	16.88
		LOWER LIMIT	197702	10.08	330133	11.01	297641	14.12	149737	16.38
		UPPER LIMIT	790808	11.08	1320530	12.01	1190564	15.12	598946	17.38
001	IB	HIGHGAS	292244	10.57	575423	11.51	518944	14.62	233606	16.87
002	IB		279875	10.58	559149	11.51	504969	14.62	220705	16.87
004	CCV		298708	10.58	570781	11.51	542263	14.62	260394	16.87
005	BS	QC832359	303773	10.58	585170	11.51	545016	14.62	262044	16.87
006	BSD	QC832360	324851	10.57	612789	11.51	549388	14.62	261371	16.87
007	IB		300192	10.58	588148	11.51	533322	14.62	235368	16.87
008	BLANK	QC832361	294888	10.58	584947	11.51	526759	14.62	233090	16.87
009	SAMPLE	275981-003	291280	10.58	562410	11.51	513927	14.62	232997	16.87
010	SAMPLE	275981-002	278339	10.58	554729	11.51	504540	14.62	226971	16.87
011	SAMPLE	275981-001	284032	10.58	559796	11.51	509466	14.62	229495	16.87
012	SAMPLE	275933-003	288946	10.58	581382	11.51	526899	14.62	231345	16.87
013	SAMPLE	276106-001	290535	10.58	570349	11.51	515085	14.62	230064	16.87
014	SAMPLE	276106-002	284651	10.58	570239	11.51	510968	14.62	227017	16.87
015	SAMPLE	276106-003	286225	10.57	555606	11.51	500582	14.62	223330	16.87
016	SAMPLE	276013-001	285685	10.58	550720	11.51	503509	14.62	223452	16.87
017	SAMPLE	276013-002	288664	10.58	559255	11.51	503959	14.62	225133	16.87
018	SAMPLE	276013-003	281370	10.58	566243	11.51	512008	14.62	231716	16.87
019	SAMPLE	276013-004	271225	10.58	537283	11.51	485753	14.62	217923	16.87
020	SAMPLE	276013-005	275719	10.58	545221	11.51	490709	14.62	217475	16.87
021	SAMPLE	276013-008	277309	10.58	551829	11.51	498809	14.62	225910	16.87
022	SAMPLE	275899-001	262780	10.58	533143	11.51	495025	14.62	209397	16.87
023	SAMPLE	275899-002	264551	10.58	527798	11.51	482781	14.62	215641	16.87
024	SAMPLE	276013-006	286612	10.58	555747	11.51	496504	14.62	219857	16.87
025	SAMPLE	276155-001	272573	10.58	529768	11.51	490958	14.62	250778	16.87
026	SAMPLE	276013-007	299474	10.58	596344	11.51	535988	14.62	239433	16.87
027	IB		320408	10.58	615084	11.51	541289	14.62	243538	16.87
028	IB		288331	10.58	565334	11.51	496697	14.62	209556	16.87
029	IB	HIGHGAS	273777	10.58	509789	11.51	518903	14.62	222012	16.87

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 476138895

Instrument : MSVOA08 Begun : 04/05/16 10:55
Method : EPA 8260B SOP Version : TVH_8260B_rv1

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	hd501	TUN	BFB			04/05/16 10:55	1.0	1	
002	hd502	IB				04/05/16 12:17	1.0	2	
003	hd503	X	LOWPT			04/05/16 12:51	1.0	2	
004	hd504	X	IB			04/05/16 13:25	1.0	2	
005	hd505	X	IB			04/05/16 16:15	1.0	2	
006	hd506	IB	CALIB			04/05/16 16:49	1.0	2	
007	hd507	ICAL	.25/.5			04/05/16 17:23	1.0	3 4 5 6 2	
008	hd508	ICAL	.5/1			04/05/16 17:57	1.0	3 4 5 6 2	
009	hd509	ICAL	2PPB			04/05/16 18:31	1.0	3 4 5 6 2	
010	hd510	ICAL	5PPB			04/05/16 19:06	1.0	2 3 4 5 6	
011	hd511	ICAL	10PPB			04/05/16 19:40	1.0	2 3 4 5 6	
012	hd512	ICAL	20PPB			04/05/16 20:14	1.0	2 3 4 5 6	
013	hd513	ICAL	50PPB			04/05/16 20:48	1.0	2 3 4 5 6	
014	hd514	ICAL	75PPB			04/05/16 21:23	1.0	2 3 4 5 6	
015	hd515	ICAL	100PPB			04/05/16 21:57	1.0	2 3 4 5 6	
016	hd516	ICV	GAS			04/05/16 22:31	1.0	2 7	
017	hd517	X	MIX			04/05/16 23:05	1.0	2 8 9 10	<<t
019	hd519	IB				04/06/16 00:13	1.0	2	<<t
020	hd520	IB				04/06/16 00:47	1.0	2	<<t

DAR 04/06/16 : file 18, an IB, cannot be brought into LIMS due to a chemstation bug

DAR 04/06/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 20.

DAR 04/07/16 : file 17 ICV mix out of clock, Xed out so it wouldn't be used

Analyst: DAR Date: 04/06/16 Reviewer: LW Date: 04/07/16

Standards used: 1=S29058 2=S29486 3=S28620 4=S29427 5=S29559 6=S28142 7=S28625 8=S29448 9=S29207 10=S29290

Flags used: <<t=out of clock

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 476140541

Instrument : MSVOA08 Begun : 04/06/16 14:21
Method : EPA 8260B SOP Version : TVH_8260B_rv1

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	hd601	IB				04/06/16 14:21	1.0	1	?t
002	hd602	IB				04/06/16 14:56	1.0	1	?t
003	hd603	TUN	BFB			04/06/16 16:51	1.0	2	t
004	hd604	TUN	BFB			04/06/16 17:03	1.0	2	
005	hd605	ICV				04/06/16 17:28	1.0	3 4 5 1	
006	hd606	ICV	KET			04/06/16 20:01	1.0	1 6	
007	hd607	ICV	IODO			04/06/16 20:36	1.0	1 7	

DAR 04/07/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 7.

Analyst: DAR Date: 04/07/16 Reviewer: LW Date: 04/07/16

Standards used: 1=S29486 2=S29058 3=S29448 4=S29207 5=S29290 6=S26946 7=S28619

Flags used: ?t=missing tune t=tune failure

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 476159062

Instrument : MSVOA08 Begun : 04/19/16 11:02
Method : EPA 8260B SOP Version : TVH_8260B_rv1

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	hdj01	X	HG			04/19/16 11:02	1.0	1	
002	hdj02	IB				04/19/16 11:36	1.0	1	?t
003	hdj03	TUN	BFB			04/19/16 12:04	1.0	2	
004	hdj04	CCV				04/19/16 12:40	1.0	3 4 5 6 1	
005	hdj05	BS	QC832157	Water	234239	04/19/16 13:14	1.0	7 8 9 10 1	
006	hdj06	BSD	QC832158	Water	234239	04/19/16 13:48	1.0	7 8 9 10 1	
007	hdj07	IB	A/A			04/19/16 14:22	1.0	1	
008	hdj08	IB	A/A			04/19/16 14:56	1.0	1	
009	hdj09	BLANK	QC832159	Water	234239	04/19/16 15:30	1.0	1	
010	hdj10	SAMPLE	275899-009	Water	234239	04/19/16 16:04	1.0	1	headspace <= 1 mL
011	hdj11	SAMPLE	276099-002	Water	234239	04/19/16 16:38	2.0	1	
012	hdj12	SAMPLE	275899-001	Water	234239	04/19/16 17:12	1.0	1	
013	hdj13	SAMPLE	275899-002	Water	234239	04/19/16 17:46	1.0	1	
014	hdj14	SAMPLE	275899-003	Water	234239	04/19/16 18:20	1.0	1	
015	hdj15	SAMPLE	275899-004	Water	234239	04/19/16 18:54	1.0	1	
016	hdj16	SAMPLE	275899-007	Water	234239	04/19/16 19:28	1.0	1	
017	hdj17	SAMPLE	275899-008	Water	234239	04/19/16 20:02	1.0	1	
018	hdj18	SAMPLE	276044-001	Water	234239	04/19/16 20:36	10.0	1	foamer
019	hdj19	SAMPLE	276044-002	Water	234239	04/19/16 21:10	5.0	1	foamer, headspace <= 1 mL
020	hdj20	SAMPLE	276044-003	Water	234239	04/19/16 21:44	2.500	1	foamer
021	hdj21	SAMPLE	276044-004	Water	234239	04/19/16 22:18	2.500	1	foamer, headspace <= 1 mL, pH > 2
022	hdj22	SAMPLE	276044-005	Water	234239	04/19/16 22:52	3.333	1	foamer, headspace <= 1 mL
023	hdj23	SAMPLE	276044-006	Water	234239	04/19/16 23:26	4.0	1	foamer, headspace <= 1 mL
024	hdj24	IB				04/20/16 00:00	1.0	1	
025	hdj25	IB				04/20/16 00:34	1.0	1	<<t
026	hdj26	SAMPLE	276087-001	Water	234239	04/20/16 01:07	1.0	1	<<t , pH > 2
027	hdj27	SAMPLE	275854-001	Water	234239	04/20/16 01:41	1.0	1	<<t , pH > 2
028	hdj28	SAMPLE	275854-002	Water	234239	04/20/16 02:15	1.0	1	<<t , pH > 2
029	hdj29	X	HIGHGAS			04/20/16 02:49	1.0	1	

DAR 04/20/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 29.

DAR 04/20/16 : Matrix spikes were not performed for this analysis in batch 234239 due to insufficient sample amount.

Analyst: DAR Date: 04/19/16 Reviewer: LW Date: 04/20/16

Standards used: 1=S29654 2=S29058 3=S29048 4=S29427 5=S29559 6=S28142 7=S29448 8=S29564 9=S29290 10=S29299

Flags used: <<t=out of clock ?t=missing tune

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 836098562

Instrument : MSVOA11 Begun : 03/08/16 10:42
Method : EPA 8260B SOP Version : TVH_8260B_rv1

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	kc801	IB				03/08/16 10:42	1.0	1	?t
002	kc802	IB				03/08/16 11:10	1.0	1	?t
003	kc803	IB				03/08/16 11:38	1.0	1	?t
004	kc804	IB				03/08/16 16:04	1.0	1	?t
005	kc805	IB				03/08/16 16:33	1.0	1	?t
006	kc806	IB				03/08/16 17:01	1.0	1	?t
007	kc807	TUN	BFB			03/08/16 18:13	1.0	2	
008	kc808	IB				03/08/16 18:39	1.0	1	
009	kc809	IB				03/08/16 19:07	1.0	1	
010	kc810	IB				03/08/16 19:36	1.0	1	
011	kc811	IB				03/08/16 20:04	1.0	1	
012	kc812	IB				03/08/16 20:32	1.0	1	
013	kc813	IB	CALIB			03/08/16 21:00	1.0	1	
014	kc814	ICAL	.25PPB			03/08/16 21:28	1.0	3 4 5 6 1	
015	kc815	ICAL	.5PPB			03/08/16 21:56	1.0	1 3 4 5 6	
016	kc816	ICAL	2PPB			03/08/16 22:25	1.0	3 4 5 6 1	
017	kc817	ICAL	5PPB			03/08/16 22:53	1.0	1 3 4 5 6	
018	kc818	ICAL	10PPB			03/08/16 23:21	1.0	1 3 4 5 6	
019	kc819	ICAL	20PPB			03/08/16 23:50	1.0	1 3 4 5 6	
020	kc820	ICAL	50PPB			03/09/16 00:18	1.0	1 3 4 5 6	
021	kc821	ICAL	75PPB			03/09/16 00:46	1.0	1 3 4 5 6	
022	kc822	ICAL	100PPB			03/09/16 01:14	1.0	1 3 4 5 6	
023	kc823	ICV	GAS			03/09/16 01:43	1.0	7 1	
024	kc824	ICV				03/09/16 02:11	1.0	8 9 10 1	
025	kc825	IB				03/09/16 02:39	1.0	1	

DAR 03/10/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 25.

Analyst: DAR Date: 03/10/16 Reviewer: LW Date: 03/14/16

Standards used: 1=S29284 2=S29058 3=S28620 4=S29042 5=S29228 6=S27830 7=S29123 8=S29207 9=S29290 10=S29230

Flags used: ?t=missing tune

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 836100345

Instrument : MSVOA11 Begun : 03/09/16 16:25
Method : EPA 8260B SOP Version : TVH_8260B_rv1

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	kc901	IB				03/09/16 16:25	1.0	1	?t
002	kc902	TUN	BFB			03/09/16 16:48	1.0	2	t
003	kc903	TUN	BFB			03/09/16 16:59	1.0	2	t
004	kc904	TUN	BFB			03/09/16 17:49	1.0	2	
005	kc905	ICV				03/09/16 18:14	1.0	3 1	

DAR 03/10/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 5.

DAR 03/10/16 : injector maintenance after file 3

Analyst: DAR Date: 03/10/16 Reviewer: LW Date: 03/14/16

Standards used: 1=S29284 2=S29058 3=S26946

Flags used: ?t=missing tune t=tune failure

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 836160607

Instrument : MSVOA11 Begun : 04/20/16 12:47
Method : EPA 8260B SOP Version : TVH_8260B_rv1

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	kdk01	IB	HIGHGAS			04/20/16 12:47	1.0	1	?t , 2:BRME=110
002	kdk02	IB				04/20/16 13:16	1.0	1	?t
003	kdk03	TUN	BFB			04/20/16 13:39	1.0	2	
004	kdk04	CCV				04/20/16 14:03	1.0	3 4 5 6 1	
005	kdk05	BS	QC832359	Water	234286	04/20/16 14:31	1.0	7 8 9 10 1	
006	kdk06	BSD	QC832360	Water	234286	04/20/16 15:15	1.0	7 8 9 10 1	
007	kdk07	IB				04/20/16 15:43	1.0	1	
008	kdk08	BLANK	QC832361	Water	234286	04/20/16 16:11	1.0	1	
009	kdk09	SAMPLE	275981-003	Water	234286	04/20/16 16:39	2.0	1	high NT, 1:NAPH=110
010	kdk10	SAMPLE	275981-002	Water	234286	04/20/16 17:08	4.0	1	high NT, 1:NAPH=120
011	kdk11	SAMPLE	275981-001	Water	234286	04/20/16 17:36	25.0	1	high NT, 1:NAPH=100
012	kdk12	SAMPLE	275933-003	Water	234286	04/20/16 18:04	16.67	1	
013	kdk13	SAMPLE	276106-001	Water	234286	04/20/16 18:32	1.0	1	
014	kdk14	SAMPLE	276106-002	Water	234286	04/20/16 19:01	1.0	1	
015	kdk15	SAMPLE	276106-003	Water	234286	04/20/16 19:29	1.0	1	headspace <= 1 mL
016	kdk16	SAMPLE	276013-001	Water	234286	04/20/16 19:57	1.0	1	
017	kdk17	SAMPLE	276013-002	Water	234286	04/20/16 20:26	1.0	1	
018	kdk18	SAMPLE	276013-003	Water	234286	04/20/16 20:54	1.0	1	
019	kdk19	SAMPLE	276013-004	Water	234286	04/20/16 21:22	1.0	1	
020	kdk20	SAMPLE	276013-005	Water	234286	04/20/16 21:51	1.0	1	
021	kdk21	SAMPLE	276013-008	Water	234286	04/20/16 22:19	1.0	1	
022	kdk22	SAMPLE	275899-001	Water	234286	04/20/16 22:47	1.0	1	
023	kdk23	SAMPLE	275899-002	Water	234286	04/20/16 23:15	1.0	1	
024	kdk24	SAMPLE	276013-006	Water	234286	04/20/16 23:44	2.500	1	
025	kdk25	SAMPLE	276155-001	Water	234286	04/21/16 00:12	3.333	1	foamer, 1:TBA=1200
026	kdk26	SAMPLE	276013-007	Water	234286	04/21/16 00:40	10.0	1	
027	kdk27	IB				04/21/16 01:09	1.0	1	
028	kdk28	IB				04/21/16 01:37	1.0	1	
029	kdk29	IB	HIGHGAS			04/21/16 02:05	1.0	1	<<t , 5:BRME=450

DAR 04/21/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 29.

DAR 04/21/16 : Matrix spikes were not performed for this analysis in batch 234286 due to insufficient sample amount.

Analyst: DAR Date: 04/21/16 Reviewer: LW Date: 04/21/16

Standards used: 1=S29653 2=S29058 3=S29048 4=S29427 5=S29559 6=S28142 7=S29448 8=S29564 9=S29290 10=S29299

Flags used: <<t=out of clock ?t=missing tune

MSVOA WATER Prepsheet

Dilutions prepared & pH of dilutions checked (initials/date): IN 4/19
For Undiluted samples, pH checked (initials/date): ~~ZA 4/20/16~~

Batch #: 234239
Prep Date: 4/19
Instrument: 8

	Sample ID	Vial	pH <2	pH if >2	HS?	Dil'n flask ID	RR #	DF	Comments	20% ccv?	hold	due	$Rush
8 1	275944-1	B	✓					1x	II				
2	2		✓										
3	3		✓										
4	4		✓										
5	7		✓										
6	8		✓						FR				
7	9	A	✓		Kl4	1			TB				
8 8	276044-1	B	✓			3			FOAMers! 10x II				
9	2		✓		Kl4	4			5x				
10	3		✓			7			2.5x				
11	4			4	Kl4	6			2.9x				
12	5		✓		Kl4	9			3.13x				
13	6		✓		Kl4	11			4x				
14	7				Kl4				Pulled off				
15	276044-2	F	✓			5		2x					
16													
17													
18													
19													
9 20	276087-1	A		6					↑				
21	275894-1	B		6					CTQC				
9 9 22	2	B		6					↓				

MSVOA WATER Prepsheet

Dilutions prepared & pH of dilutions checked (initials/date): CAR 4/20

For Undiluted samples, pH checked (initials/date): ZiR 4-21-16

Batch #: 234286

Prep Date: ~~3/~~ 4/20/16

Instrument: ~~MS3~~ MS11 ~~2B~~ 4/21

	Sample ID	Vial	pH <2	pH if >2	HS?	Dil'n flask ID	RR #	DF	Comments	20% ccv?	hold	due	$Rush
1	275933-3	C	✓			11	1	16.67	TCE high surr.			4/19	
2	275981-3		✓			6	1	2x	Priority, OD, will have 100ppb Naphth.	high	NT	↓	
3	↓ -2		✓			8	1	4x	↓				
4	↓ -1		✓			9	1	25x	↓				
5	~~276004-4~~	B					1	1x	OOC Pulled off b/c Chloromethane (C⁻)		4/25	4/19	
6	276106-1	A	✓					1a	TCE only			4/25	X
7	↓ -2	↓	✓					↓	↓			↓	↓
8	↓ -3		✓		<1			↓	↓			↓	↓
9	276013-1	B	✓					1x				4/19	
10	↓ -2	↓	✓					1x				↓	
11	-3		✓					1x					
12	-4		✓					1x					
13	-5		✓					1x					
14	-6		✓			2		2.5x					
15	-7		✓			5		10x					
16	-8		✓					1x				↓	
17	~~9~~		✓			3		50x	Pulled for Rush; in VOA fridge				
18	275899-1	C	✓				1	1x	naphthalene CO ; 124 TMB				
19	↓ -2	C	✓				1	1x	↓ ↓				
20	275155-1	C	✓			10	1	3.33x	hits w/ high surr. (42MP & Benzene) form in 4/21				X
21													
22													

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

Laboratory Job Number 275899
ANALYTICAL REPORT
Metals
Matrix: Water

Tetra Tech EMI	Project : 1035225323.06
1999 Harrison Street	Location : RFS 2016 Groundwater
Oakland, CA 94612	Level : IV

Sample ID	Lab ID
20160411EERC	275899-005
20160411B474	275899-006

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: 05/10/2016

Mike Dahlquist
Project Manager
mike.dahlquist@ctberk.com

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE
METALS (EPA 6010B AND EPA 7470A)
WATER

Laboratory number:	**275899**
Client:	**Tetra Tech EMI**
Project:	**1035225323.06**
Location:	**RFS 2016 Groundwater**
Request Date:	**04/11/16**
Samples Received:	**04/11/16**

This data package contains sample and QC results for two water samples, requested for the above referenced project on 04/11/16. See attached cooler receipt form for any sample receipt problems or discrepancies.

Metals (EPA 6010B and EPA 7470A) Water:

High response was observed for arsenic in the CCV analyzed 05/09/16 12:17.

Low recovery was observed for thallium in the post digest spike of 20160411EERC (lab # 275899-005); the BS/BSD were within limits.

Copper and vanadium were detected between the MDL and the RL in the method blank for batch 234229.

No other analytical problems were encountered.

Chain of Custody

275899

Chain of Custody Record No. 7113

Page 1 of 1

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

Project name: 2016 RFS GW	**Lab PO#:** 160AK35	**Lab:** CT	
Project (CTO) number: 103522532306	**TtEMI technical contact:** Sara Woolley	**Field samplers:** Cynthia Breed & Mark Duffy	
	TtEMI project manager: Jason Brodersen	**Field samplers' signatures:**	

Preservative Added: HCl; HNO3

	Sample ID	Sample Location (Pt. ID)	Date	Time	Matrix	MS / MSD	No./Container Types: 40 ml VOA	1 liter Amber	500 ml Poly	Sleeve	Glass Jar	Analysis Required: VOA	SVOA	Pest/PCBs	Metals	TPH Purgeables	TPH Extractables
1	20160411GEO		4/11/16	0920	Water		3					X					
2	20160411B280A			0955			3					X					
3	20160411CTP			1025			3		1			X			X		
4	20160411B195			1127			3		1			X			X		
5	20160411EERC			1300					1						X*		
6	20160411B474			1410 ~~1355~~					1						X*		
7	20160411B277			1450			3					X					
8	20160411ER			1530			3		1			X			X		
9	20160411TB			0900			~~2~~ 3					X					

	Name (print)	Company Name	Date	Time
Relinquished by:	Mark Duffy	Tetra Tech CT	4-11-16	1600
Received by:	Mikelle Cheng		4/11/16	1600
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				

Turnaround time/remarks:
* Metals filtered in field

Fed Ex #: NA

4 of 305

WHITE-Laboratory Copy YELLOW-Sample Tracker PINK-File Copy

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 275899 Date Received 4/11/16 Number of coolers 1
Client TetraTech EM Inc. Project 2016 RFS GW

Date Opened 4/11 By (print) CJN (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) ____

CJN
☒ 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) ____

   ☐ Temperature blank(s) included? ☐ Thermometer# ____ ☐ 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? (pH strip lot# HC 285444) (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
20. 1/2 VOAs Received w/ bubble 7 6mm for sample 9

Rev 12, 12/01/15

Curtis & Tompkins Sample Preservation for 275899

Sample	pH: <2	>9	>12	Other
-003a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[X]	[ ]	[ ]	_____
-004a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[X]	[ ]	[ ]	_____
-005a	[X]	[ ]	[ ]	_____
-006a	[X]	[ ]	[ ]	_____
-008a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[X]	[ ]	[ ]	_____

Analyst: CJN
Date: 4/11/16

Results & QC Summary

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	275899	Project#:	1035225323.06
Client:	Tetra Tech EMI	Location:	RFS 2016 Groundwater
Field ID:	20160411EERC	Diln Fac:	1.000
Lab ID:	275899-005	Sampled:	04/11/16
Matrix:	Water	Received:	04/11/16
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	11	10	2.0	234229	04/19/16	05/09/16	EPA 3010A	EPA 6010B
Arsenic	6.0	5.0	1.5	234229	04/19/16	05/09/16	EPA 3010A	EPA 6010B
Barium	31	5.0	1.0	234229	04/19/16	05/06/16	EPA 3010A	EPA 6010B
Beryllium	ND	2.0	0.40	234229	04/19/16	05/06/16	EPA 3010A	EPA 6010B
Cadmium	ND	5.0	1.0	234229	04/19/16	05/06/16	EPA 3010A	EPA 6010B
Chromium	ND	5.0	1.0	234229	04/19/16	05/06/16	EPA 3010A	EPA 6010B
Cobalt	ND	5.0	1.0	234229	04/19/16	05/06/16	EPA 3010A	EPA 6010B
Copper	4.3 J	5.0	1.5	234229	04/19/16	05/06/16	EPA 3010A	EPA 6010B
Lead	ND	5.0	1.2	234229	04/19/16	05/06/16	EPA 3010A	EPA 6010B
Mercury	ND	0.20	0.040	234349	04/22/16	04/22/16	METHOD	EPA 7470A
Molybdenum	2.5 J	5.0	1.0	234229	04/19/16	05/06/16	EPA 3010A	EPA 6010B
Nickel	1.9 J	5.0	0.67	234229	04/19/16	05/06/16	EPA 3010A	EPA 6010B
Selenium	ND	10	3.1	234229	04/19/16	05/06/16	EPA 3010A	EPA 6010B
Silver	6.6	5.0	1.0	234229	04/19/16	05/09/16	EPA 3010A	EPA 6010B
Thallium	7.0 J	10	2.0	234229	04/19/16	05/09/16	EPA 3010A	EPA 6010B
Vanadium	7.2	5.0	1.0	234229	04/19/16	05/06/16	EPA 3010A	EPA 6010B
Zinc	5.7 J	20	4.0	234229	04/19/16	05/06/16	EPA 3010A	EPA 6010B

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	275899	Project#:	1035225323.06
Client:	Tetra Tech EMI	Location:	RFS 2016 Groundwater
Field ID:	20160411B474	Diln Fac:	1.000
Lab ID:	275899-006	Sampled:	04/11/16
Matrix:	Water	Received:	04/11/16
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	10	2.0	234229	04/19/16	05/09/16	EPA 3010A	EPA 6010B
Arsenic	ND	5.0	1.5	234229	04/19/16	05/09/16	EPA 3010A	EPA 6010B
Barium	55	5.0	1.0	234229	04/19/16	05/06/16	EPA 3010A	EPA 6010B
Beryllium	ND	2.0	0.40	234229	04/19/16	05/06/16	EPA 3010A	EPA 6010B
Cadmium	ND	5.0	1.0	234229	04/19/16	05/06/16	EPA 3010A	EPA 6010B
Chromium	ND	5.0	1.0	234229	04/19/16	05/06/16	EPA 3010A	EPA 6010B
Cobalt	ND	5.0	1.0	234229	04/19/16	05/06/16	EPA 3010A	EPA 6010B
Copper	18	5.0	1.5	234229	04/19/16	05/06/16	EPA 3010A	EPA 6010B
Lead	ND	5.0	1.2	234229	04/19/16	05/06/16	EPA 3010A	EPA 6010B
Mercury	ND	0.20	0.040	234349	04/22/16	04/22/16	METHOD	EPA 7470A
Molybdenum	15	5.0	1.0	234229	04/19/16	05/06/16	EPA 3010A	EPA 6010B
Nickel	ND	5.0	0.67	234229	04/19/16	05/06/16	EPA 3010A	EPA 6010B
Selenium	4.0 J	10	3.1	234229	04/19/16	05/06/16	EPA 3010A	EPA 6010B
Silver	4.6 J	5.0	1.0	234229	04/19/16	05/09/16	EPA 3010A	EPA 6010B
Thallium	ND	10	2.0	234229	04/19/16	05/09/16	EPA 3010A	EPA 6010B
Vanadium	5.8	5.0	1.0	234229	04/19/16	05/06/16	EPA 3010A	EPA 6010B
Zinc	ND	20	4.0	234229	04/19/16	05/06/16	EPA 3010A	EPA 6010B

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	275899	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 3010A
Project#:	1035225323.06	Analysis:	EPA 6010B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC832119	Batch#:	234229
Matrix:	Water	Prepared:	04/19/16
Units:	ug/L		

Analyte	Result	RL	MDL	Analyzed
Antimony	ND	10	2.0	05/09/16
Arsenic	ND	5.0	1.5	05/09/16
Barium	ND	5.0	1.0	05/06/16
Beryllium	ND	2.0	0.40	05/06/16
Cadmium	ND	5.0	1.0	05/06/16
Chromium	ND	5.0	1.0	05/06/16
Cobalt	ND	5.0	1.0	05/06/16
Copper	3.7 J	5.0	1.5	05/06/16
Lead	ND	5.0	1.2	05/06/16
Molybdenum	ND	5.0	1.0	05/06/16
Nickel	ND	5.0	0.67	05/06/16
Selenium	ND	10	3.1	05/06/16
Silver	ND	5.0	1.0	05/09/16
Thallium	ND	10	2.0	05/09/16
Vanadium	2.6 J	5.0	1.0	05/06/16
Zinc	ND	20	4.0	05/06/16

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	275899	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 3010A
Project#:	1035225323.06	Analysis:	EPA 6010B
Matrix:	Water	Batch#:	234229
Units:	ug/L	Prepared:	04/19/16
Diln Fac:	1.000		

Type: BS Lab ID: QC832120

Analyte	Spiked	Result	%REC	Limits	Analyzed
Antimony	100.0	104.2	104	79-120	05/09/16
Arsenic	100.0	99.95	100	80-120	05/09/16
Barium	100.0	104.2	104	80-120	05/06/16
Beryllium	100.0	101.8	102	80-120	05/06/16
Cadmium	100.0	107.4	107	80-120	05/06/16
Chromium	100.0	95.39	95	80-120	05/06/16
Cobalt	100.0	99.60	100	80-120	05/06/16
Copper	100.0	105.6	106	80-120	05/06/16
Lead	100.0	91.68	92	80-120	05/06/16
Molybdenum	100.0	103.7	104	80-120	05/06/16
Nickel	100.0	100.3	100	80-120	05/06/16
Selenium	100.0	95.10	95	80-120	05/06/16
Silver	100.0	109.3	109	77-120	05/09/16
Thallium	50.00	50.45	101	80-121	05/09/16
Vanadium	100.0	109.2	109	80-120	05/06/16
Zinc	100.0	104.2	104	80-120	05/06/16

Type: BSD Lab ID: QC832121

Analyte	Spiked	Result	%REC	Limits	RPD	Lim	Analyzed
Antimony	100.0	109.1	109	79-120	5	20	05/09/16
Arsenic	100.0	105.5	106	80-120	5	20	05/09/16
Barium	100.0	101.2	101	80-120	3	20	05/06/16
Beryllium	100.0	99.08	99	80-120	3	20	05/06/16
Cadmium	100.0	105.2	105	80-120	2	20	05/06/16
Chromium	100.0	94.34	94	80-120	1	20	05/06/16
Cobalt	100.0	97.23	97	80-120	2	20	05/06/16
Copper	100.0	102.8	103	80-120	3	20	05/06/16
Lead	100.0	88.72	89	80-120	3	20	05/06/16
Molybdenum	100.0	101.6	102	80-120	2	20	05/06/16
Nickel	100.0	97.04	97	80-120	3	20	05/06/16
Selenium	100.0	105.7	106	80-120	11	20	05/06/16
Silver	100.0	111.7	112	77-120	2	20	05/09/16
Thallium	50.00	54.08	108	80-121	7	20	05/09/16
Vanadium	100.0	106.1	106	80-120	3	20	05/06/16
Zinc	100.0	102.3	102	80-120	2	20	05/06/16

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	275899	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 3010A
Project#:	1035225323.06	Analysis:	EPA 6010B
Field ID:	20160411EERC	Batch#:	234229
MSS Lab ID:	275899-005	Sampled:	04/11/16
Matrix:	Water	Received:	04/11/16
Units:	ug/L	Prepared:	04/19/16
Diln Fac:	1.000		

Type: MS Lab ID: QC832122

Analyte	MSS Result	Spiked	Result	%REC	Limits	Analyzed
Antimony	11.09	100.0	108.5	97	74-120	05/09/16
Arsenic	5.956	100.0	129.5	124	80-127	05/09/16
Barium	30.89	100.0	131.3	100	80-120	05/06/16
Beryllium	<0.4000	100.0	103.1	103	80-120	05/06/16
Cadmium	<1.000	100.0	106.4	106	80-120	05/06/16
Chromium	<1.000	100.0	98.69	99	80-120	05/06/16
Cobalt	<1.000	100.0	99.91	100	80-120	05/06/16
Copper	4.344	100.0	102.6	98	80-120	05/06/16
Lead	<1.190	100.0	107.7	108	67-120	05/09/16
Molybdenum	2.518	100.0	107.8	105	80-120	05/06/16
Nickel	1.867	100.0	104.8	103	80-120	05/06/16
Selenium	<3.146	100.0	123.0	123	73-132	05/06/16
Silver	6.557	100.0	115.0	108	67-120	05/09/16
Thallium	6.975	50.00	57.59	101	76-121	05/09/16
Vanadium	7.204	100.0	110.1	103	80-120	05/06/16
Zinc	5.679	100.0	114.5	109	80-122	05/06/16

Type: MSD Lab ID: QC832123

Analyte	Spiked	Result	%REC	Limits	RPD	Lim	Analyzed
Antimony	100.0	96.26	85	74-120	12	24	05/09/16
Arsenic	100.0	122.6	117	80-127	5	25	05/09/16
Barium	100.0	125.4	95	80-120	5	20	05/06/16
Beryllium	100.0	97.15	97	80-120	6	20	05/06/16
Cadmium	100.0	99.90	100	80-120	6	20	05/06/16
Chromium	100.0	92.27	92	80-120	7	20	05/06/16
Cobalt	100.0	92.91	93	80-120	7	20	05/06/16
Copper	100.0	96.71	92	80-120	6	20	05/06/16
Lead	100.0	99.47	99	67-120	8	23	05/09/16
Molybdenum	100.0	99.03	97	80-120	8	20	05/06/16
Nickel	100.0	99.42	98	80-120	5	20	05/06/16
Selenium	100.0	119.0	119	73-132	3	30	05/06/16
Silver	100.0	106.7	100	67-120	8	22	05/09/16
Thallium	50.00	48.36	83	76-121	17	20	05/09/16
Vanadium	100.0	104.6	97	80-120	5	20	05/06/16
Zinc	100.0	108.0	102	80-122	6	20	05/06/16

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	275899	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 3010A
Project#:	1035225323.06	Analysis:	EPA 6010B
Field ID:	20160411EERC	Units:	ug/L
Type:	Serial Dilution	Diln Fac:	5.000
MSS Lab ID:	275899-005	Batch#:	234229
Lab ID:	QC832124	Sampled:	04/11/16
Matrix:	Water	Received:	04/11/16

Analyte	MSS Result	MSS RL	Result	RL	% Diff	Lim	Analyzed
Antimony	11.09	10.00	17.36 J	50.00	NC	10	05/09/16
Arsenic	5.956	5.000	ND	25.00	NC	10	05/09/16
Barium	30.89	5.000	29.86	25.00	NC	10	05/06/16
Beryllium	ND	2.000	ND	10.00	NC	10	05/06/16
Cadmium	ND	5.000	ND	25.00	NC	10	05/06/16
Chromium	ND	5.000	ND	25.00	NC	10	05/06/16
Cobalt	ND	5.000	ND	25.00	NC	10	05/06/16
Copper	4.344	5.000	11.52 J	25.00	NC	10	05/06/16
Lead	ND	5.000	ND	25.00	NC	10	05/06/16
Molybdenum	2.518	5.000	9.616 J	25.00	NC	10	05/06/16
Nickel	1.867	5.000	ND	25.00	NC	10	05/06/16
Selenium	ND	10.00	47.79 J	50.00	NC	10	05/06/16
Silver	6.557	5.000	38.06	25.00	NC	10	05/09/16
Thallium	6.975	10.00	34.49 J	50.00	NC	10	05/09/16
Vanadium	7.204	5.000	21.07 J	25.00	NC	10	05/06/16
Zinc	5.679	20.00	ND	100.0	NC	10	05/06/16

J= Estimated value
NC= Not Calculated
ND= Not Detected at or above MDL
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	275899	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	EPA 3010A
Project#:	1035225323.06	Analysis:	EPA 6010B
Field ID:	20160411EERC	Diln Fac:	1.000
Type:	Post Digest Spike	Batch#:	234229
MSS Lab ID:	275899-005	Sampled:	04/11/16
Lab ID:	QC832125	Received:	04/11/16
Matrix:	Water	Analyzed:	05/09/16
Units:	ug/L		

Analyte	MSS Result	Spiked	Result	%REC	Limits
Antimony	11.09	100.0	88.03	77	75-125
Arsenic	5.956	100.0	94.84	89	75-125
Barium	30.89	100.0	119.3	88	75-125
Beryllium	<0.4000	100.0	94.53	95	75-125
Cadmium	<1.000	100.0	85.93	86	75-125
Chromium	<1.000	100.0	92.44	92	75-125
Cobalt	<1.000	100.0	85.69	86	75-125
Copper	4.344	100.0	93.73	89	75-125
Lead	<1.190	100.0	85.62	86	75-125
Molybdenum	2.518	100.0	92.34	90	75-125
Nickel	1.867	100.0	88.71	87	75-125
Selenium	<3.146	100.0	88.19	88	75-125
Silver	6.557	100.0	91.96	85	75-125
Thallium	6.975	50.00	43.98	74 *	75-125
Vanadium	7.204	100.0	97.22	90	75-125
Zinc	5.679	100.0	94.55	89	75-125

*= Value outside of QC limits; see narrative

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	275899	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225323.06	Analysis:	EPA 7470A
Analyte:	Mercury	Diln Fac:	1.000
Type:	BLANK	Batch#:	234349
Lab ID:	QC832617	Prepared:	04/22/16
Matrix:	Filtrate	Analyzed:	04/22/16
Units:	ug/L		

Result	RL	MDL
ND	0.20	0.040

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	275899	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225323.06	Analysis:	EPA 7470A
Analyte:	Mercury	Batch#:	234349
Matrix:	Filtrate	Prepared:	04/22/16
Units:	ug/L	Analyzed:	04/22/16
Diln Fac:	1.000		

Type	Lab ID	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC832618	2.500	2.683	107	80-120		
BSD	QC832619	2.500	2.735	109	80-120	2	24

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	275899	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225323.06	Analysis:	EPA 7470A
Analyte:	Mercury	Batch#:	234349
Field ID:	20160407B450	Sampled:	04/07/16
MSS Lab ID:	275865-011	Received:	04/08/16
Matrix:	Filtrate	Prepared:	04/22/16
Units:	ug/L	Analyzed:	04/22/16
Diln Fac:	1.000		

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
MS	QC832620	<0.04000	2.500	2.735	109	60-130		
MSD	QC832621		2.500	2.735	109	60-130	0	34

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	275899	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225323.06	Analysis:	EPA 7470A
Analyte:	Mercury	Units:	ug/L
Field ID:	20160407B450	Diln Fac:	5.000
Type:	Serial Dilution	Batch#:	234349
MSS Lab ID:	275865-011	Sampled:	04/07/16
Lab ID:	QC832622	Received:	04/08/16
Matrix:	Filtrate	Analyzed:	04/22/16

MSS Result	MSS RL	Result	RL	% Diff	Lim
ND	0.2000	ND	1.000	NC	10

NC= Not Calculated
ND= Not Detected at or above MDL
RL= Reporting Limit

REPORTING SUMMARY FOR 275899 METALS Water
Curtis & Tompkins Laboratories

Lab ID	Inst ID	Analyzed	IDF	SB	AS	BA	BE	CD	CR	CO	CU	PB	HG	MO	NI	SE	AG	TL	V	ZN
275899-005	MET54	04/22/16 13:22	1.0										+							
275899-005	MET08	05/06/16 18:56	1.0			+	+	+	+	+	+	+		+	+	+			+	+
275899-005	MET08	05/09/16 12:52	1.0	+	+												+	+		
275899-006	MET54	04/22/16 13:23	1.0										+							
275899-006	MET08	05/06/16 19:11	1.0			+	+	+	+	+	+	+		+	+	+			+	+
275899-006	MET08	05/09/16 12:54	1.0	+	+												+	+		
QC832119	MET08	05/06/16 18:51	1.0			+	+	+	+	+	+	+		+	+	+			+	+
QC832119	MET08	05/09/16 12:41	1.0	+	+												+	+		
QC832120	MET08	05/06/16 18:53	1.0			+	+	+	+	+	+	+		+	+	+			+	+
QC832120	MET08	05/09/16 12:49	1.0	+	+												+	+		
QC832121	MET08	05/06/16 18:55	1.0			+	+	+	+	+	+	+		+	+	+			+	+
QC832121	MET08	05/09/16 12:51	1.0	+	+												+	+		
QC832122	MET08	05/06/16 19:05	1.0			+	+	+	+	+	+			+	+	+			+	+
QC832122	MET08	05/09/16 12:57	1.0	+	+							+					+	+		
QC832123	MET08	05/06/16 19:06	1.0			+	+	+	+	+	+			+	+	+			+	+
QC832123	MET08	05/09/16 12:59	1.0	+	+							+					+	+		
QC832124	MET08	05/06/16 19:08	5.0			+	+	+	+	+	+	+		+	+	+			+	+
QC832124	MET08	05/09/16 13:01	5.0	+	+												+	+		
QC832125	MET08	05/06/16 19:10	1.0																	
QC832125	MET08	05/09/16 15:39	1.0	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC832617	MET54	04/22/16 13:03	1.0										+							
QC832618	MET54	04/22/16 13:04	1.0										+							
QC832619	MET54	04/22/16 13:06	1.0										+							
QC832620	MET54	04/22/16 13:08	1.0										+							
QC832621	MET54	04/22/16 13:09	1.0										+							
QC832622	MET54	04/22/16 13:11	5.0										+							
QC832623	MET54	04/22/16 13:33	1.0										+							

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 86183522

Instrument : MET08 Begun : 05/06/16 10:42
Method : EPA 6010B SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met08_sn_6010	ICALBLK				05/06/16 10:42	1.0		
002	met08_sn_6010	ICAL	L1			05/06/16 10:45	1.0	1	
003	met08_sn_6010	ICAL	L2			05/06/16 10:49	1.0	2	
004	met08_sn_6010	ICAL	L3			05/06/16 10:51	1.0	3	
005	met08_sn_6010	ICAL	L4			05/06/16 10:52	1.0	4	
006	met08_sn_6010	ICAL	L5			05/06/16 10:54	1.0	5	
007	met08_sn_6010	ICV				05/06/16 10:56	1.0	6	
008	met08_sn_6010	XCRI				05/06/16 11:08	1.0	1	
009	met08_sn_6010	CRI				05/06/16 11:12	1.0	1	
010	met08_sn_6010	ICB				05/06/16 11:16	1.0		
011	met08_sn_6010	ICSA				05/06/16 11:19	1.0	7	10:AL=510000
012	met08_sn_6010	ICSAB				05/06/16 11:29	1.0	8	5:AL=510000
013	met08_sn_6010	MSS	275719-002	Water	234045	05/06/16 11:55	1.0		4:CA=300000
014	met08_sn_6010	SAMPLE	275719-003	Water	234045	05/06/16 11:56	1.0		3:NA=290000
015	met08_sn_6010	SAMPLE	275719-004	Water	234045	05/06/16 11:58	1.0		3:NA=290000
016	met08_sn_6010	SAMPLE	275719-007	Water	234045	05/06/16 11:59	1.0		2:NA=280000
017	met08_sn_6010	SAMPLE	275719-008	Water	234045	05/06/16 12:01	1.0		3:NA=250000
018	met08_sn_6010	SAMPLE	275719-009	Water	234045	05/06/16 12:02	1.0		1:NA=330000
019	met08_sn_6010	SAMPLE	275719-010	Water	234045	05/06/16 12:05	1.0		3:CA=500000
020	met08_sn_6010	SAMPLE	275719-011	Water	234045	05/06/16 12:06	1.0		4:CA=560000
021	met08_sn_6010	SAMPLE	275719-013	Water	234045	05/06/16 12:07	1.0		
022	met08_sn_6010	SAMPLE	275878-002	Water	234045	05/06/16 12:11	1.0		3:CA=1300000
023	met08_sn_6010	CCV				05/06/16 12:13	1.0	9	
024	met08_sn_6010	CCB				05/06/16 12:15	1.0		
025	met08_sn_6010	SAMPLE	275878-003	Water	234045	05/06/16 12:18	1.0		3:CA=360000
026	met08_sn_6010	BLANK	QC832888	Soil	234420	05/06/16 12:21	1.0		
027	met08_sn_6010	SAMPLE	276221-002	Soil	234420	05/06/16 12:24	1.0		4:FE=490000
028	met08_sn_6010	SAMPLE	276250-001	Soil	234420	05/06/16 12:26	1.0		1:FE=130000
029	met08_sn_6010	SAMPLE	276250-002	Soil	234420	05/06/16 12:28	1.0		1:FE=150000
030	met08_sn_6010	SAMPLE	276250-004	Soil	234420	05/06/16 12:30	1.0		3:FE=350000
031	met08_sn_6010	SAMPLE	276250-005	Soil	234420	05/06/16 12:32	1.0		4:FE=590000
032	met08_sn_6010	SAMPLE	276250-006	Soil	234420	05/06/16 12:34	1.0		6:FE=580000
033	met08_sn_6010	SAMPLE	276250-007	Soil	234420	05/06/16 12:36	1.0		2:FE=340000
034	met08_sn_6010	BLANK	QC832325	Soil	234278	05/06/16 12:38	1.0		
035	met08_sn_6010	CCV				05/06/16 12:42	1.0	9	
036	met08_sn_6010	XCCB				05/06/16 12:44	1.0		
037	met08_sn_6010	CCB				05/06/16 12:47	1.0		
038	met08_sn_6010	SAMPLE	276114-001	Miscell.	234278	05/06/16 12:50	1.0		4:FE=680000
039	met08_sn_6010	SAMPLE	276114-002	Miscell.	234278	05/06/16 12:52	1.0		3:AL=460000
040	met08_sn_6010	SAMPLE	276086-001	Water	234318	05/06/16 12:54	1.0		2:SR=66000
041	met08_sn_6010	SAMPLE	276149-004	Water	234318	05/06/16 12:57	1.0		1:NA=110000
042	met08_sn_6010	SAMPLE	276264-013	Soil	234466	05/06/16 12:59	1.0		1:FE=190000
043	met08_sn_6010	SAMPLE	276130-001	Filtrate	234434	05/06/16 13:01	1.0		
044	met08_sn_6010	SAMPLE	276130-003	Filtrate	234434	05/06/16 13:04	1.0		
045	met08_sn_6010	SAMPLE	276130-004	Filtrate	234434	05/06/16 13:07	1.0		
046	met08_sn_6010	SAMPLE	276130-005	Filtrate	234434	05/06/16 13:11	1.0		
047	met08_sn_6010	SAMPLE	276130-006	Filtrate	234434	05/06/16 13:12	1.0		
048	met08_sn_6010	CCV				05/06/16 13:14	1.0	9	
049	met08_sn_6010	CCB				05/06/16 13:16	1.0		
050	met08_sn_6010	SAMPLE	276130-007	Filtrate	234434	05/06/16 13:19	1.0		1:MN=11000
051	met08_sn_6010	SAMPLE	276130-008	Filtrate	234434	05/06/16 13:20	1.0		1:MN=13000
052	met08_sn_6010	SAMPLE	276130-009	Filtrate	234434	05/06/16 13:22	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 86183522

Instrument : MET08 Begun : 05/06/16 10:42
Method : EPA 6010B SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met08_sn_6010	SAMPLE	276131-001	Filtrate	234434	05/06/16 13:24	1.0		
054	met08_sn_6010	SAMPLE	276131-002	Filtrate	234434	05/06/16 13:26	1.0		
055	met08_sn_6010	SAMPLE	275842-001	Water	233992	05/06/16 13:27	1.0		4:FE=1700000
056	met08_sn_6010	SAMPLE	275842-002	Water	233992	05/06/16 13:29	1.0		3:CA=420000
057	met08_sn_6010	SAMPLE	275841-001	Water	233992	05/06/16 13:32	1.0		4:CA=670000
058	met08_sn_6010	SAMPLE	275841-002	Water	233992	05/06/16 13:35	1.0		3:NA=870000
059	met08_sn_6010	SAMPLE	275841-003	Water	233992	05/06/16 13:37	1.0		3:NA=890000
060	met08_sn_6010	CCV				05/06/16 13:39	1.0	9	
061	met08_sn_6010	CCB				05/06/16 13:41	1.0		
062	met08_sn_6010	CCB				05/06/16 13:44	1.0		
063	met08_sn_6010	SAMPLE	275841-004	Water	233992	05/06/16 13:47	1.0		3:CA=620000
064	met08_sn_6010	SAMPLE	275841-006	Water	233992	05/06/16 13:51	1.0		3:NA=680000
065	met08_sn_6010	SAMPLE	276013-003	Water	234217	05/06/16 13:53	1.0		2:CA=1200000
066	met08_sn_6010	SAMPLE	276013-005	Water	234217	05/06/16 13:55	1.0		3:CA=630000
067	met08_sn_6010	SAMPLE	276013-006	Water	234217	05/06/16 13:58	1.0		2:CA=510000
068	met08_sn_6010	SAMPLE	276013-007	Water	234217	05/06/16 14:00	1.0		3:NA=1100000
069	met08_sn_6010	SAMPLE	276013-008	Water	234217	05/06/16 14:02	1.0		3:NA=1500000
070	met08_sn_6010	SAMPLE	276013-009	Water	234217	05/06/16 14:04	1.0		4:CA=540000
071	met08_sn_6010	SAMPLE	276013-010	Water	234217	05/06/16 14:06	1.0		2:NA=1200000
072	met08_sn_6010	MS	QC832139	Water	234233	05/06/16 14:08	5.0		
073	met08_sn_6010	CCV				05/06/16 14:09	1.0	9	
074	met08_sn_6010	XCCB				05/06/16 14:11	1.0		
075	met08_sn_6010	CCB				05/06/16 14:14	1.0		
076	met08_sn_6010	MSD	QC832140	Water	234233	05/06/16 14:18	5.0		
077	met08_sn_6010	SER	QC832141	Water	234233	05/06/16 14:19	25.0		
078	met08_sn_6010	PDS	QC832142	Water	234233	05/06/16 14:22	5.0	10 11 12	
079	met08_sn_6010	SAMPLE	276066-001	Water	234233	05/06/16 14:24	1.0		2:NA=670000
080	met08_sn_6010	SAMPLE	276066-002	Water	234233	05/06/16 14:26	1.0		2:CA=350000
081	met08_sn_6010	SAMPLE	276066-003	Water	234233	05/06/16 14:28	1.0		3:NA=1700000
082	met08_sn_6010	SAMPLE	276066-004	Water	234233	05/06/16 14:30	1.0		3:NA=1600000
083	met08_sn_6010	SAMPLE	276066-005	Water	234233	05/06/16 14:33	1.0		4:NA=1000000
084	met08_sn_6010	SAMPLE	276066-007	Water	234233	05/06/16 14:35	1.0		
085	met08_sn_6010	SAMPLE	276066-008	Water	234233	05/06/16 14:37	1.0		
086	met08_sn_6010	CCV				05/06/16 14:39	1.0	9	
087	met08_sn_6010	XCCB				05/06/16 14:41	1.0		
088	met08_sn_6010	CCB				05/06/16 14:44	1.0		
089	met08_sn_6010	SAMPLE	276073-001	Water	234233	05/06/16 14:48	1.0		1:NA=110000
090	met08_sn_6010	SAMPLE	276073-002	Water	234233	05/06/16 14:49	1.0		
091	met08_sn_6010	SAMPLE	276073-003	Water	234233	05/06/16 14:50	1.0		
092	met08_sn_6010	SAMPLE	276073-004	Water	234233	05/06/16 14:52	1.0		
093	met08_sn_6010	SAMPLE	276073-005	Water	234233	05/06/16 14:53	1.0		
094	met08_sn_6010	SAMPLE	276073-007	Water	234233	05/06/16 14:55	1.0		
095	met08_sn_6010	SER	QC832320	Water	234276	05/06/16 14:57	5.0		
096	met08_sn_6010	PDS	QC832321	Water	234276	05/06/16 14:59	1.0	10 11 12	1:NA=120000
097	met08_sn_6010	SAMPLE	276095-001	Water	234276	05/06/16 15:00	1.0		
098	met08_sn_6010	SAMPLE	276095-002	Water	234276	05/06/16 15:02	1.0		
099	met08_sn_6010	CCV				05/06/16 15:05	1.0	9	
100	met08_sn_6010	XCCB				05/06/16 15:07	1.0		
101	met08_sn_6010	CCB				05/06/16 15:09	1.0		
102	met08_sn_6010	SAMPLE	276114-003	Water	234276	05/06/16 15:11	1.0		
103	met08_sn_6010	SAMPLE	276114-004	Water	234276	05/06/16 15:12	1.0		
104	met08_sn_6010	SAMPLE	276119-005	Water	234276	05/06/16 15:14	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 86183522

Instrument : MET08 Begun : 05/06/16 10:42
Method : EPA 6010B SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
105	met08_sn_6010	SAMPLE	276119-006	Water	234276	05/06/16 15:16	1.0		
106	met08_sn_6010	SAMPLE	276119-007	Water	234276	05/06/16 15:19	1.0		
107	met08_sn_6010	SAMPLE	276119-008	Water	234276	05/06/16 15:21	1.0		
108	met08_sn_6010	SAMPLE	276119-009	Water	234276	05/06/16 15:23	1.0		
109	met08_sn_6010	SAMPLE	276119-010	Water	234276	05/06/16 15:26	1.0		
110	met08_sn_6010	BS	QC832427	WET Leachate	234301	05/06/16 15:28	1.0		
111	met08_sn_6010	BSD	QC832428	WET Leachate	234301	05/06/16 15:29	1.0		
112	met08_sn_6010	CCV				05/06/16 15:31	1.0	9	
113	met08_sn_6010	XCCB				05/06/16 15:33	1.0		
114	met08_sn_6010	CCB				05/06/16 15:36	1.0		
115	met08_sn_6010	SAMPLE	276114-001	WET Leachate	234301	05/06/16 15:38	10.0		1:NA=140000
116	met08_sn_6010	MSS	276114-002	WET Leachate	234301	05/06/16 15:39	10.0		1:NA=160000
117	met08_sn_6010	BLANK	QC832998	Water	234451	05/06/16 15:41	1.0		
118	met08_sn_6010	BS	QC832999	Water	234451	05/06/16 15:43	1.0		
119	met08_sn_6010	BSD	QC833000	Water	234451	05/06/16 15:44	1.0		
120	met08_sn_6010	MSS	276189-029	Water	234451	05/06/16 15:46	1.0		
121	met08_sn_6010	MS	QC833001	Water	234451	05/06/16 15:48	1.0		
122	met08_sn_6010	MSD	QC833002	Water	234451	05/06/16 15:49	1.0		
123	met08_sn_6010	SAMPLE	276281-002	Water	234451	05/06/16 15:51	1.0		
124	met08_sn_6010	X	RINSE			05/06/16 15:53	1.0		
125	met08_sn_6010	CCV				05/06/16 15:56	1.0	9	
126	met08_sn_6010	XCCB				05/06/16 15:58	1.0		
127	met08_sn_6010	CCB				05/06/16 16:01	1.0		
128	met08_sn_6010	SAMPLE	276281-004	Water	234451	05/06/16 16:04	1.0		
129	met08_sn_6010	SER	QC833267	Soil	234516	05/06/16 16:07	5.0		
130	met08_sn_6010	SAMPLE	276264-021	Soil	234518	05/06/16 16:09	1.0		3:FE=460000
131	met08_sn_6010	SAMPLE	276278-001	Soil	234518	05/06/16 16:11	1.0		11:CA=2100000
132	met08_sn_6010	SAMPLE	276278-002	Soil	234518	05/06/16 16:13	1.0		6:CA=450000
133	met08_sn_6010	SAMPLE	276284-001	Soil	234518	05/06/16 16:15	1.0		5:FE=400000
134	met08_sn_6010	SAMPLE	276284-002	Soil	234518	05/06/16 16:17	1.0		5:FE=470000
135	met08_sn_6010	SAMPLE	276284-003	Soil	234518	05/06/16 16:19	1.0		5:FE=370000
136	met08_sn_6010	MSS	276284-004	Soil	234518	05/06/16 16:21	1.0		3:FE=280000
137	met08_sn_6010	SAMPLE	276284-005	Soil	234518	05/06/16 16:23	1.0		5:FE=470000
138	met08_sn_6010	CCV				05/06/16 16:25	1.0	9	
139	met08_sn_6010	XCCB				05/06/16 16:27	1.0		
140	met08_sn_6010	CCB				05/06/16 16:30	1.0		
141	met08_sn_6010	SAMPLE	276284-006	Soil	234518	05/06/16 16:33	1.0		3:FE=260000
142	met08_sn_6010	SAMPLE	276284-007	Soil	234518	05/06/16 16:35	1.0		4:FE=460000
143	met08_sn_6010	MSS	276284-008	Soil	234518	05/06/16 16:37	1.0		3:FE=310000
144	met08_sn_6010	SAMPLE	276284-009	Soil	234518	05/06/16 16:39	1.0		4:FE=350000
145	met08_sn_6010	SAMPLE	276253-001	Filtrate	234555	05/06/16 16:41	1.0		
146	met08_sn_6010	SAMPLE	276253-002	Filtrate	234555	05/06/16 16:42	1.0		1:CA=130000
147	met08_sn_6010	SAMPLE	276294-032	Soil	234679	05/06/16 16:44	1.0		3:FE=420000
148	met08_sn_6010	BLANK	QC834111	Air	234738	05/06/16 16:46	1.0		
149	met08_sn_6010	BS	QC834112	Air	234738	05/06/16 16:49	1.0		
150	met08_sn_6010	BSD	QC834113	Air	234738	05/06/16 16:50	1.0		
151	met08_sn_6010	CCV				05/06/16 16:52	1.0	9	
152	met08_sn_6010	XCCB				05/06/16 16:54	1.0		
153	met08_sn_6010	CCB				05/06/16 16:56	1.0		
154	met08_sn_6010	MSS	276063-001	Air	234738	05/06/16 16:58	1.0		
155	met08_sn_6010	MS	QC834114	Air	234738	05/06/16 16:59	1.0		
156	met08_sn_6010	MSD	QC834115	Air	234738	05/06/16 17:01	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 86183522

Instrument : MET08 Begun : 05/06/16 10:42
Method : EPA 6010B SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
157	met08_sn_6010	SER	QC834116	Air	234738	05/06/16 17:02	5.0		
158	met08_sn_6010	PDS	QC834117	Air	234738	05/06/16 17:04	1.0	10 11 12	
159	met08_sn_6010	SAMPLE	276063-002	Air	234738	05/06/16 17:06	1.0		
160	met08_sn_6010	SAMPLE	276063-003	Air	234738	05/06/16 17:07	1.0		
161	met08_sn_6010	SAMPLE	276063-004	Air	234738	05/06/16 17:09	1.0		
162	met08_sn_6010	SAMPLE	276063-005	Air	234738	05/06/16 17:10	1.0		
163	met08_sn_6010	SAMPLE	276063-006	Air	234738	05/06/16 17:11	1.0		
164	met08_sn_6010	CCV				05/06/16 17:13	1.0	9	
165	met08_sn_6010	XCCB				05/06/16 17:15	1.0		
166	met08_sn_6010	CCB				05/06/16 17:17	1.0		
167	met08_sn_6010	SAMPLE	276063-007	Air	234738	05/06/16 17:20	1.0		
168	met08_sn_6010	SAMPLE	276063-008	Air	234738	05/06/16 17:22	1.0		
169	met08_sn_6010	SAMPLE	276063-009	Air	234738	05/06/16 17:23	1.0		
170	met08_sn_6010	SAMPLE	276063-010	Air	234738	05/06/16 17:24	1.0		
171	met08_sn_6010	SAMPLE	276063-012	Air	234738	05/06/16 17:27	1.0		
172	met08_sn_6010	SAMPLE	276063-014	Air	234738	05/06/16 17:29	1.0		
173	met08_sn_6010	SAMPLE	276063-018	Air	234738	05/06/16 17:31	1.0		
174	met08_sn_6010	BS	QC832326	Soil	234278	05/06/16 17:34	1.0		1:SR=10000
175	met08_sn_6010	BSD	QC832327	Soil	234278	05/06/16 17:35	1.0		1:SR=10000
176	met08_sn_6010	SAMPLE	276013-007	Water	234217	05/06/16 17:36	1.0		3:NA=1200000
177	met08_sn_6010	CCV				05/06/16 17:38	1.0	9	
178	met08_sn_6010	XCCB				05/06/16 17:41	1.0		
179	met08_sn_6010	CCB				05/06/16 17:43	1.0		
180	met08_sn_6010	BLANK	QC834593	Soil	234867	05/06/16 17:45	1.0		
181	met08_sn_6010	BS	QC834594	Soil	234867	05/06/16 17:48	1.0		
182	met08_sn_6010	BSD	QC834595	Soil	234867	05/06/16 17:50	1.0		1:SR=10000
183	met08_sn_6010	MSS	276404-006	Soil	234867	05/06/16 17:51	1.0		5:FE=310000
184	met08_sn_6010	MS	QC834596	Soil	234867	05/06/16 17:53	1.0		1:FE=290000
185	met08_sn_6010	MSD	QC834597	Soil	234867	05/06/16 17:55	1.0		1:FE=350000
186	met08_sn_6010	SER	QC834598	Soil	234867	05/06/16 17:57	5.0		
187	met08_sn_6010	PDS	QC834599	Soil	234867	05/06/16 17:59	1.0	11 10 12	5:FE=290000
188	met08_sn_6010	SAMPLE	276404-001	Soil	234867	05/06/16 18:01	1.0		3:FE=280000
189	met08_sn_6010	SAMPLE	276404-002	Soil	234867	05/06/16 18:03	1.0		4:FE=320000
190	met08_sn_6010	CCV				05/06/16 18:05	1.0	9	
191	met08_sn_6010	XCCB				05/06/16 18:08	1.0		
192	met08_sn_6010	CCB				05/06/16 18:10	1.0		
193	met08_sn_6010	SAMPLE	276404-003	Soil	234867	05/06/16 18:12	1.0		5:FE=290000
194	met08_sn_6010	SAMPLE	276404-004	Soil	234867	05/06/16 18:14	1.0		5:FE=290000
195	met08_sn_6010	SAMPLE	276404-005	Soil	234867	05/06/16 18:16	1.0		5:FE=300000
196	met08_sn_6010	SAMPLE	276422-025	Soil	234867	05/06/16 18:18	1.0		2:FE=460000
197	met08_sn_6010	SAMPLE	276422-026	Soil	234867	05/06/16 18:20	1.0		4:FE=510000
198	met08_sn_6010	SAMPLE	276422-027	Soil	234867	05/06/16 18:22	1.0		3:FE=480000
199	met08_sn_6010	SAMPLE	276422-028	Soil	234867	05/06/16 18:24	1.0		3:FE=460000
200	met08_sn_6010	SAMPLE	276422-029	Soil	234867	05/06/16 18:26	1.0		3:FE=590000
201	met08_sn_6010	SAMPLE	276422-030	Soil	234867	05/06/16 18:29	1.0		4:FE=490000
202	met08_sn_6010	SAMPLE	276442-001	Soil	234867	05/06/16 18:31	1.0		2:FE=290000
203	met08_sn_6010	CCV				05/06/16 18:33	1.0	9	
204	met08_sn_6010	XCCB				05/06/16 18:35	1.0		
205	met08_sn_6010	CCB				05/06/16 18:37	1.0		
206	met08_sn_6010	SAMPLE	276444-001	Soil	234867	05/06/16 18:39	1.0		5:FE=480000
207	met08_sn_6010	SAMPLE	276468-024	Miscell.	234867	05/06/16 18:41	1.0		1:CA=670000
208	met08_sn_6010	SAMPLE	276620-001	Soil	234867	05/06/16 18:43	1.0		2:FE=300000

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 86183522

Instrument : MET08 Begun : 05/06/16 10:42
Method : EPA 6010B SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
209	met08_sn_6010	SAMPLE	276620-002	Soil	234867	05/06/16 18:45	1.0		4:FE=270000
210	met08_sn_6010	SAMPLE	276620-003	Soil	234867	05/06/16 18:47	1.0		5:CA=470000
211	met08_sn_6010	SAMPLE	276620-004	Soil	234867	05/06/16 18:49	1.0		3:FE=270000
212	met08_sn_6010	BLANK	QC832119	Water	234229	05/06/16 18:51	1.0		
213	met08_sn_6010	BS	QC832120	Water	234229	05/06/16 18:53	1.0		
214	met08_sn_6010	BSD	QC832121	Water	234229	05/06/16 18:55	1.0		
215	met08_sn_6010	MSS	275899-005	Water	234229	05/06/16 18:56	1.0		3:NA=470000
216	met08_sn_6010	CCV				05/06/16 18:59	1.0	9	
217	met08_sn_6010	XCCB				05/06/16 19:01	1.0		
218	met08_sn_6010	CCB				05/06/16 19:03	1.0		
219	met08_sn_6010	MS	QC832122	Water	234229	05/06/16 19:05	1.0		
220	met08_sn_6010	MSD	QC832123	Water	234229	05/06/16 19:06	1.0		
221	met08_sn_6010	SER	QC832124	Water	234229	05/06/16 19:08	5.0		
222	met08_sn_6010	PDS	QC832125	Water	234229	05/06/16 19:10	1.0	11 10 12	3:NA=440000
223	met08_sn_6010	SAMPLE	275899-006	Water	234229	05/06/16 19:11	1.0		
224	met08_sn_6010	SAMPLE	276031-002	Water	234229	05/06/16 19:14	1.0		
225	met08_sn_6010	SAMPLE	276035-001	Water	234229	05/06/16 19:16	1.0		3:CA=470000
226	met08_sn_6010	SAMPLE	276035-002	Water	234229	05/06/16 19:18	1.0		1:NA=380000
227	met08_sn_6010	SAMPLE	276035-003	Water	234229	05/06/16 19:20	1.0		3:NA=1300000
228	met08_sn_6010	SAMPLE	276035-004	Water	234229	05/06/16 19:22	1.0		3:NA=1500000
229	met08_sn_6010	CCV				05/06/16 19:24	1.0	9	
230	met08_sn_6010	XCCB				05/06/16 19:27	1.0		
231	met08_sn_6010	CCB				05/06/16 19:29	1.0		
232	met08_sn_6010	SAMPLE	276035-005	Water	234229	05/06/16 19:31	1.0		3:NA=1400000
233	met08_sn_6010	SAMPLE	276035-006	Water	234229	05/06/16 19:33	1.0		4:NA=1200000
234	met08_sn_6010	SAMPLE	276035-007	Water	234229	05/06/16 19:35	1.0		3:NA=1400000
235	met08_sn_6010	SAMPLE	276035-008	Water	234229	05/06/16 19:37	1.0		3:CA=450000
236	met08_sn_6010	SAMPLE	276035-009	Water	234229	05/06/16 19:40	1.0		2:NA=520000
237	met08_sn_6010	SAMPLE	276046-001	Water	234229	05/06/16 19:42	1.0		3:CA=860000

KER 05/06/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 71.

Standards used: 1=S29301 2=S29393 3=S29394 4=S29395 5=S29761 6=S29396 7=S29660 8=S29661 9=S29397 10=S28385 11=S28386 12=S29742

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 86183522

Date : 05/06/16 Reference : met08_sn_6010
Sequence : MET08 05/06/16 Analyzed : 05/06/16 10:45

#	Type	Sample ID	Y A
		ICAL STD	11400596
		LOWER LIMIT	3420179
		UPPER LIMIT	22801193
010	ICB		11802651
011	ICSA		11192216
012	ICSAB		10974063
013	MSS	275719-002	11358815
014	SAMPLE	275719-003	11515997
015	SAMPLE	275719-004	11371351
016	SAMPLE	275719-007	11366140
017	SAMPLE	275719-008	11475196
018	SAMPLE	275719-009	11552234
019	SAMPLE	275719-010	11313696
020	SAMPLE	275719-011	11103994
021	SAMPLE	275719-013	11877393
022	SAMPLE	275878-002	10929979
023	CCV		11590222
024	CCB		11569445
025	SAMPLE	275878-003	11351753
026	BLANK	QC832888	11930671
027	SAMPLE	276221-002	11592339
028	SAMPLE	276250-001	11844985
029	SAMPLE	276250-002	11822917
030	SAMPLE	276250-004	11449568
031	SAMPLE	276250-005	11765502
032	SAMPLE	276250-006	11215910
033	SAMPLE	276250-007	11691645
034	BLANK	QC832325	11780510
035	CCV		11614756
037	CCB		11281001
038	SAMPLE	276114-001	11597329
039	SAMPLE	276114-002	11431274
040	SAMPLE	276086-001	11621351
041	SAMPLE	276149-004	12131549
042	SAMPLE	276264-013	11730884
043	SAMPLE	276130-001	11591980
044	SAMPLE	276130-003	11960926
045	SAMPLE	276130-004	11603621
046	SAMPLE	276130-005	11845085
047	SAMPLE	276130-006	11654626
048	CCV		11437207
049	CCB		11515783
050	SAMPLE	276130-007	12244517
051	SAMPLE	276130-008	11785307
052	SAMPLE	276130-009	11394055
053	SAMPLE	276131-001	11805071
054	SAMPLE	276131-002	11895288
055	SAMPLE	275842-001	11201348
056	SAMPLE	275842-002	11372921
057	SAMPLE	275841-001	10927133
058	SAMPLE	275841-002	11294294

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 86183522

Date : 05/06/16 Reference : met08_sn_6010
Sequence : MET08 05/06/16 Analyzed : 05/06/16 10:45

#	Type	Sample ID	Y A
059	SAMPLE	275841-003	11365058
060	CCV		11553900
061	CCB		11476820
062	CCB		11461078
063	SAMPLE	275841-004	11258326
064	SAMPLE	275841-006	11462512
065	SAMPLE	276013-003	10699788
066	SAMPLE	276013-005	10477165
067	SAMPLE	276013-006	11018942
068	SAMPLE	276013-007	11115947
069	SAMPLE	276013-008	10810327
070	SAMPLE	276013-009	10944043
071	SAMPLE	276013-010	11043386
072	MS	QC832139	11821997
073	CCV		11546615
075	CCB		11389828
076	MSD	QC832140	11673999
077	SER	QC832141	11958332
078	PDS	QC832142	11757265
079	SAMPLE	276066-001	11347677
080	SAMPLE	276066-002	11111425
081	SAMPLE	276066-003	10698225
082	SAMPLE	276066-004	10803200
083	SAMPLE	276066-005	10627633
084	SAMPLE	276066-007	11394836
085	SAMPLE	276066-008	11089399
086	CCV		11225696
088	CCB		11650340
089	SAMPLE	276073-001	11232597
090	SAMPLE	276073-002	11481112
091	SAMPLE	276073-003	11478619
092	SAMPLE	276073-004	11454543
093	SAMPLE	276073-005	11062458
094	SAMPLE	276073-007	11682765
095	SER	QC832320	11708714
096	PDS	QC832321	11127363
097	SAMPLE	276095-001	11764027
098	SAMPLE	276095-002	11177138
099	CCV		11417567
101	CCB		11300381
102	SAMPLE	276114-003	11379271
103	SAMPLE	276114-004	11211852
104	SAMPLE	276119-005	11477535
105	SAMPLE	276119-006	11531387
106	SAMPLE	276119-007	11376798
107	SAMPLE	276119-008	11423432
108	SAMPLE	276119-009	11272000
109	SAMPLE	276119-010	11414654
110	BS	QC832427	11305119
111	BSD	QC832428	11551353
112	CCV		11160227
114	CCB		11469114

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 86183522

Date : 05/06/16 Reference : met08_sn_6010
Sequence : MET08 05/06/16 Analyzed : 05/06/16 10:45

#	Type	Sample ID	Y A
115	SAMPLE	276114-001	11280153
116	MSS	276114-002	11568137
117	BLANK	QC832998	11385478
118	BS	QC832999	11518473
119	BSD	QC833000	11766264
121	MS	QC833001	11461528
122	MSD	QC833002	11655767
123	SAMPLE	276281-002	11498031
125	CCV		11283565
127	CCB		11275217
128	SAMPLE	276281-004	11615022
129	SER	QC833267	11364140
130	SAMPLE	276264-021	11629724
131	SAMPLE	276278-001	10760877
132	SAMPLE	276278-002	11317565
133	SAMPLE	276284-001	11415055
134	SAMPLE	276284-002	11058286
135	SAMPLE	276284-003	11102208
136	MSS	276284-004	11158737
137	SAMPLE	276284-005	11239611
138	CCV		11387445
140	CCB		11456494
141	SAMPLE	276284-006	11203915
142	SAMPLE	276284-007	11094264
143	MSS	276284-008	11166850
144	SAMPLE	276284-009	11338522
145	SAMPLE	276253-001	11713462
146	SAMPLE	276253-002	11445275
147	SAMPLE	276294-032	11361531
148	BLANK	QC834111	11296088
149	BS	QC834112	11333699
150	BSD	QC834113	11233205
151	CCV		11317448
153	CCB		11252465
154	MSS	276063-001	11651197
155	MS	QC834114	11551403
156	MSD	QC834115	11604276
157	SER	QC834116	11246733
158	PDS	QC834117	11693697
159	SAMPLE	276063-002	11769111
160	SAMPLE	276063-003	11616124
161	SAMPLE	276063-004	11514867
162	SAMPLE	276063-005	12042114
163	SAMPLE	276063-006	11896657
164	CCV		11183510
166	CCB		11408090
167	SAMPLE	276063-007	12029386
168	SAMPLE	276063-008	11752919
169	SAMPLE	276063-009	11553784
170	SAMPLE	276063-010	11571114
171	SAMPLE	276063-012	11374772
172	SAMPLE	276063-014	11208862

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 86183522

Date : 05/06/16 Reference : met08_sn_6010
Sequence : MET08 05/06/16 Analyzed : 05/06/16 10:45

#	Type	Sample ID	Y A
173	SAMPLE	276063-018	11233759
174	BS	QC832326	11082214
175	BSD	QC832327	11229047
176	SAMPLE	276013-007	11006488
177	CCV		11195076
179	CCB		11095525
180	BLANK	QC834593	11527860
181	BS	QC834594	11397897
182	BSD	QC834595	11735211
183	MSS	276404-006	11607821
184	MS	QC834596	11352679
185	MSD	QC834597	11296022
186	SER	QC834598	11654465
187	PDS	QC834599	11577464
188	SAMPLE	276404-001	11158582
189	SAMPLE	276404-002	11439952
190	CCV		10996214
192	CCB		11087381
193	SAMPLE	276404-003	11314072
194	SAMPLE	276404-004	11078470
195	SAMPLE	276404-005	11442366
196	SAMPLE	276422-025	11579719
197	SAMPLE	276422-026	11640489
198	SAMPLE	276422-027	11166318
199	SAMPLE	276422-028	11330411
200	SAMPLE	276422-029	11193045
201	SAMPLE	276422-030	11488093
202	SAMPLE	276442-001	11278427
203	CCV		11195964
205	CCB		11513991
206	SAMPLE	276444-001	11389284
207	SAMPLE	276468-024	11103931
208	SAMPLE	276620-001	11152164
209	SAMPLE	276620-002	11292401
210	SAMPLE	276620-003	11224929
211	SAMPLE	276620-004	11277456
212	BLANK	QC832119	11081496
213	BS	QC832120	10993626
214	BSD	QC832121	11230590
215	MSS	275899-005	10241918
216	CCV		10915320
218	CCB		11084931
219	MS	QC832122	10850624
220	MSD	QC832123	10854803
221	SER	QC832124	10950765
222	PDS	QC832125	10414634
223	SAMPLE	275899-006	11154375
225	SAMPLE	276035-001	10454831
226	SAMPLE	276035-002	10858669
227	SAMPLE	276035-003	10700574
228	SAMPLE	276035-004	10445109
229	CCV		11006312

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 86183522

Date : 05/06/16 Reference : met08_sn_6010
Sequence : MET08 05/06/16 Analyzed : 05/06/16 10:45

#	Type	Sample ID	Y A
231	CCB		10707418
232	SAMPLE	276035-005	10657877
233	SAMPLE	276035-006	10646349
234	SAMPLE	276035-007	10300126
235	SAMPLE	276035-008	10595910
236	SAMPLE	276035-009	11069753
237	SAMPLE	276046-001	10477722

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 275899 METALS Water: EPA 6010B

Inst : MET08
Calnum : 86183522001
Units : ug/L

Date : 06-MAY-2016 10:42
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met08_sn_6010	86183522002	L1	06-MAY-2016 10:45	S29301
L2	met08_sn_6010	86183522003	L2	06-MAY-2016 10:49	S29393
L3	met08_sn_6010	86183522004	L3	06-MAY-2016 10:51	S29394
L4	met08_sn_6010	86183522005	L4	06-MAY-2016 10:52	S29395
L5	met08_sn_6010	86183522006	L5	06-MAY-2016 10:54	S29761

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Antimony	A	29.410	18.278	18.898	18.835		LOR0	0.00000	0.05309		21.355	1.000	0.995	
Arsenic	A	26.160	17.349	17.560	17.400		LOR0	0.00000	0.05747		19.617	1.000	0.995	
Barium	A	339.02	331.14	317.73	317.79		LOR0	0.00000	0.00315		326.42	1.000	0.995	
Beryllium	A	3615.8	3618.8	3521.9			LOR0	0.00000	2.84E-4		3585.5	1.000	0.995	
Cadmium	A	193.96	194.45	186.83	185.75		LOR0	0.00000	0.00538		190.25	1.000	0.995	
Chromium	A	159.80	109.70	104.80	105.61		LOR0	0.00000	0.00947		119.98	1.000	0.995	
Cobalt	A	128.70	122.08	116.95	118.80		LOR0	0.00000	0.00842		121.63	1.000	0.995	
Copper	A	563.28	332.49	307.73	311.06		LOR0	0.00000	0.00322		378.64	1.000	0.995	
Lead	A	39.500	39.758	40.051	39.637		LOR0	0.00000	0.02523		39.736	1.000	0.995	
Molybdenum	A	24.780	26.690	26.850	26.177		LOR0	0.00000	0.03819		26.124	1.000	0.995	
Nickel	A	49.180	39.898	39.235	39.839		LOR0	0.00000	0.02510		42.038	1.000	0.995	
Selenium	A	38.380	31.263	33.000	32.743		LOR0	0.00000	0.03054		33.846	1.000	0.995	
Silver	A	1819.7	1750.2	1535.6	1536.3		LOR0	0.00000	6.51E-4		1660.5	1.000	0.995	
Thallium	A	14.720	15.699	15.964	15.703		LOR0	0.00000	0.06367		15.521	1.000	0.995	
Vanadium	A	99.540	98.877	97.502	98.407		LOR0	0.00000	0.01016		98.581	1.000	0.995	
Zinc	A	103.95	87.601	81.474	83.169		LOR0	0.00000	0.01203		89.048	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Antimony	A	10.000	**56**	100.00	-3	1000.0	0	10000	0		
Arsenic	A	5.0000	**50**	100.00	0	1000.0	1	10000	0		
Barium	A	5.0000	7	100.00	4	1000.0	0	10000	0		
Beryllium	A	2.0000	3	100.00	3	1000.0	0				
Cadmium	A	5.0000	4	100.00	5	1000.0	1	10000	0		
Chromium	A	5.0000	**51**	100.00	4	1000.0	-1	10000	0		
Cobalt	A	5.0000	8	100.00	3	1000.0	-2	10000	0		
Copper	A	5.0000	**81**	100.00	7	1000.0	-1	10000	0		
Lead	A	5.0000	0	100.00	0	1000.0	1	10000	0		
Molybdenum	A	5.0000	-5	100.00	2	1000.0	3	10000	0		
Nickel	A	5.0000	**23**	100.00	0	1000.0	-2	10000	0		
Selenium	A	10.000	17	100.00	-5	1000.0	1	10000	0		
Silver	A	5.0000	18	20.000	14	200.00	0	2000.0	0		
Thallium	A	10.000	-6	100.00	0	1000.0	2	10000	0		
Vanadium	A	5.0000	1	100.00	0	1000.0	-1	10000	0		
Zinc	A	20.000	**25**	100.00	5	1000.0	-2	10000	0		

Instrument amount = a0 + response * a1 + response^2 * a2; LOR0=Linear regression forced thru origin, including 0,0 point

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 275899 METALS Water
EPA 6010B

Inst : MET08
Calnum : 86183522001 Cal Date : 06-MAY-2016

ICV 86183522007 (06-MAY-2016) stds: S29396

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	5000	5070	ug/L	1	10	
Arsenic	A	5000	5195	ug/L	4	10	
Barium	A	5000	5061	ug/L	1	10	
Beryllium	A	500.0	518.6	ug/L	4	10	
Cadmium	A	5000	5140	ug/L	3	10	
Chromium	A	5000	5133	ug/L	3	10	
Cobalt	A	5000	4957	ug/L	-1	10	
Copper	A	5000	4908	ug/L	-2	10	
Lead	A	5000	5111	ug/L	2	10	
Molybdenum	A	5000	4987	ug/L	0	10	
Nickel	A	5000	5088	ug/L	2	10	
Selenium	A	5000	5119	ug/L	2	10	
Silver	A	1000	1020	ug/L	2	10	
Thallium	A	5000	5011	ug/L	0	10	
Vanadium	A	5000	5130	ug/L	3	10	
Zinc	A	5000	5076	ug/L	2	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275899 METALS Water
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86183522010 File : met08_sn_6010 Time : 06-MAY-2016 11:16
Cal : 86183522001 Caldate : 06-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	8.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	4.000	ug/L	
Beryllium	A	ND	2.000	1.600	ug/L	
Cadmium	A	ND	5.000	4.000	ug/L	
Chromium	A	ND	5.000	4.000	ug/L	
Cobalt	A	ND	5.000	4.000	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	4.000	ug/L	
Molybdenum	A	ND	5.000	4.000	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	8.000	ug/L	
Vanadium	A	ND	5.000	4.000	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	11400596	11802651	3.53

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 275899 METALS Water
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86183522011 File : met08_sn_6010 Time : 06-MAY-2016 11:19
Cal : 86183522001 Caldate : 06-MAY-2016
Standards: S29660

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	[4.948]	10.00	ug/L	
Arsenic	A	[-1.618]	5.000	ug/L	
Barium	A	[-2.521]	5.000	ug/L	
Beryllium	A	[0.2101]	2.000	ug/L	
Cadmium	A	[-0.7584]	5.000	ug/L	
Cobalt	A	[3.432]	5.000	ug/L	
Lead	A	[-4.997]	5.000	ug/L	
Molybdenum	A	[-1.158]	5.000	ug/L	
Selenium	A	[-3.236]	10.00	ug/L	
Silver	A	[2.123]	5.000	ug/L	
Thallium	A	[-3.326]	10.00	ug/L	
Zinc	A	[15.97]	20.00	ug/L	

Interferent	Ch	Spiked	Quant	Units	%Rec	Flags
Chromium	A	20000	19690	ug/L	98	
Copper	A	20000	20040	ug/L	100	
Manganese	A	20000	19200	ug/L	96	
Nickel	A	20000	19320	ug/L	97	
Vanadium	A	20000	19920	ug/L	100	
Aluminum	R	500000	514600	ug/L	103	
Calcium	R	500000	513900	ug/L	103	
Iron	R	200000	203300	ug/L	102	
Magnesium	R	500000	496900	ug/L	99	
Titanium	R	20000	20870	ug/L	104	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	11400596	11192216	-1.83

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 275899 METALS Water
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86183522012 File : met08_sn_6010 Time : 06-MAY-2016 11:29
Cal : 86183522001 Caldate : 06-MAY-2016
Standards: S29661

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	580.7	ug/L	16	20	
Arsenic	A	500.0	568.9	ug/L	14	20	
Barium	A	500.0	526.3	ug/L	5	20	
Beryllium	A	500.0	541.6	ug/L	8	20	
Cadmium	A	1000	1051	ug/L	5	20	
Chromium	A	500.0	511.6	ug/L	2	20	
Cobalt	A	500.0	503.0	ug/L	1	20	
Copper	A	500.0	516.6	ug/L	3	20	
Lead	A	1000	1060	ug/L	6	20	
Molybdenum	A	500.0	507.7	ug/L	2	20	
Nickel	A	1000	1042	ug/L	4	20	
Selenium	A	500.0	515.4	ug/L	3	20	
Silver	A	1000	1075	ug/L	8	20	
Thallium	A	500.0	525.4	ug/L	5	20	
Vanadium	A	500.0	566.6	ug/L	13	20	
Zinc	A	1000	1035	ug/L	3	20	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	11400596	10974063	-3.74

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275899 METALS Water
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86183522203 File : met08_sn_6010 Time : 06-MAY-2016 18:33
Cal : 86183522001 Caldate : 06-MAY-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	21.355	19.244	5000	5108	ug/L	2	10	
Arsenic	A	19.617	18.491	5000	5313	ug/L	6	10	
Barium	A	326.42	325.43	5000	5120	ug/L	2	10	
Beryllium	A	3585.5	3599.4	500.0	510.9	ug/L	2	10	
Cadmium	A	190.25	199.64	5000	5374	ug/L	7	10	
Chromium	A	119.98	106.01	5000	5019	ug/L	0	10	
Cobalt	A	121.63	118.67	5000	4987	ug/L	0	10	
Copper	A	378.64	308.90	5000	4966	ug/L	-1	10	
Lead	A	39.736	41.560	5000	5242	ug/L	5	10	
Molybdenum	A	26.124	25.325	5000	4836	ug/L	-3	10	
Nickel	A	42.038	41.494	5000	5209	ug/L	4	10	
Selenium	A	33.846	34.261	5000	5232	ug/L	5	10	
Silver	A	1660.5	1582.6	1000	1030	ug/L	3	10	
Thallium	A	15.521	15.475	5000	4927	ug/L	-1	10	
Vanadium	A	98.581	101.29	5000	5147	ug/L	3	10	
Zinc	A	89.048	87.455	5000	5259	ug/L	5	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	11400596	11195964	-1.79

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275899 METALS Water
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86183522205 File : met08_sn_6010 Time : 06-MAY-2016 18:37
Cal : 86183522001 Caldate : 06-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	[8.711]	10.00	8.000	ug/L	!CCB
Arsenic	A	17.60	5.000	4.000	ug/L	CCB ***
Barium	A	ND	5.000	4.000	ug/L	
Beryllium	A	ND	2.000	1.600	ug/L	
Cadmium	A	ND	5.000	4.000	ug/L	
Chromium	A	ND	5.000	4.000	ug/L	
Cobalt	A	ND	5.000	4.000	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	4.000	ug/L	
Molybdenum	A	ND	5.000	4.000	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	7.282	5.000	4.000	ug/L	CCB ***
Thallium	A	ND	10.00	8.000	ug/L	
Vanadium	A	ND	5.000	4.000	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	11400596	11513991	0.99

!=warning CCB=instrument blank

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275899 METALS Water
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86183522216 File : met08_sn_6010 Time : 06-MAY-2016 18:59
Cal : 86183522001 Caldate : 06-MAY-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	21.355	19.204	5000	5098	ug/L	2	10	
Arsenic	A	19.617	18.359	5000	5275	ug/L	6	10	
Barium	A	326.42	320.31	5000	5040	ug/L	1	10	
Beryllium	A	3585.5	3524.6	500.0	500.2	ug/L	0	10	
Cadmium	A	190.25	193.21	5000	5201	ug/L	4	10	
Chromium	A	119.98	106.16	5000	5026	ug/L	1	10	
Cobalt	A	121.63	116.59	5000	4899	ug/L	-2	10	
Copper	A	378.64	304.50	5000	4895	ug/L	-2	10	
Lead	A	39.736	41.028	5000	5175	ug/L	3	10	
Molybdenum	A	26.124	25.415	5000	4853	ug/L	-3	10	
Nickel	A	42.038	40.530	5000	5087	ug/L	2	10	
Selenium	A	33.846	34.004	5000	5192	ug/L	4	10	
Silver	A	1660.5	1571.5	1000	1023	ug/L	2	10	
Thallium	A	15.521	13.407	5000	4268	ug/L	**-15**	10	c- ***
Vanadium	A	98.581	100.69	5000	5116	ug/L	2	10	
Zinc	A	89.048	86.891	5000	5225	ug/L	4	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	11400596	10915320	-4.26

-=low bias c=CCV

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275899 METALS Water
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86183522218 File : met08_sn_6010 Time : 06-MAY-2016 19:03
Cal : 86183522001 Caldate : 06-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	29.38	10.00	8.000	ug/L	CCB ***
Arsenic	A	13.67	5.000	4.000	ug/L	CCB ***
Barium	A	ND	5.000	4.000	ug/L	
Beryllium	A	ND	2.000	1.600	ug/L	
Cadmium	A	ND	5.000	4.000	ug/L	
Chromium	A	ND	5.000	4.000	ug/L	
Cobalt	A	ND	5.000	4.000	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	4.000	ug/L	
Molybdenum	A	ND	5.000	4.000	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	10.14	5.000	4.000	ug/L	CCB ***
Thallium	A	ND	10.00	8.000	ug/L	
Vanadium	A	ND	5.000	4.000	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	11400596	11084931	-2.77

CCB=instrument blank

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275899 METALS Water
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86183522229 File : met08_sn_6010 Time : 06-MAY-2016 19:24
Cal : 86183522001 Caldate : 06-MAY-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	21.355	18.737	5000	4974	ug/L	-1	10	
Arsenic	A	19.617	17.920	5000	5149	ug/L	3	10	
Barium	A	326.42	318.65	5000	5014	ug/L	0	10	
Beryllium	A	3585.5	3513.2	500.0	498.6	ug/L	0	10	
Cadmium	A	190.25	193.64	5000	5212	ug/L	4	10	
Chromium	A	119.98	105.61	5000	5000	ug/L	0	10	
Cobalt	A	121.63	116.15	5000	4880	ug/L	-2	10	
Copper	A	378.64	301.78	5000	4851	ug/L	-3	10	
Lead	A	39.736	39.672	5000	5004	ug/L	0	10	
Molybdenum	A	26.124	24.689	5000	4715	ug/L	-6	10	
Nickel	A	42.038	40.480	5000	5081	ug/L	2	10	
Selenium	A	33.846	32.965	5000	5034	ug/L	1	10	
Silver	A	1660.5	1564.4	1000	1018	ug/L	2	10	
Thallium	A	15.521	12.858	5000	4093	ug/L	**-18**	10	c- ***
Vanadium	A	98.581	100.07	5000	5085	ug/L	2	10	
Zinc	A	89.048	87.501	5000	5261	ug/L	5	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	11400596	11006312	-3.46

-=low bias c=CCV

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275899 METALS Water
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86183522231 File : met08_sn_6010 Time : 06-MAY-2016 19:29
Cal : 86183522001 Caldate : 06-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	15.91	10.00	8.000	ug/L	CCB ***
Arsenic	A	13.03	5.000	4.000	ug/L	CCB ***
Barium	A	ND	5.000	4.000	ug/L	
Beryllium	A	ND	2.000	1.600	ug/L	
Cadmium	A	ND	5.000	4.000	ug/L	
Chromium	A	ND	5.000	4.000	ug/L	
Cobalt	A	ND	5.000	4.000	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	4.000	ug/L	
Molybdenum	A	ND	5.000	4.000	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	10.67	5.000	4.000	ug/L	CCB ***
Thallium	A	ND	10.00	8.000	ug/L	
Vanadium	A	ND	5.000	4.000	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	11400596	10707418	-6.08

CCB=instrument blank

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 86187774

Instrument : MET08 Begun : 05/09/16 09:34
Method : EPA 6010B SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met08_sn_6010	ICALBLK				05/09/16 09:34	1.0		
002	met08_sn_6010	ICAL	L1			05/09/16 09:37	1.0	1	
003	met08_sn_6010	ICAL	L2			05/09/16 09:40	1.0	2	
004	met08_sn_6010	ICAL	L3			05/09/16 09:42	1.0	3	
005	met08_sn_6010	ICAL	L4			05/09/16 09:44	1.0	4	
006	met08_sn_6010	ICAL	L5			05/09/16 09:46	1.0	5	
007	met08_sn_6010	ICV				05/09/16 09:48	1.0	6	
008	met08_sn_6010	XCRI				05/09/16 09:49	1.0	1	
009	met08_sn_6010	XCRI				05/09/16 09:54	1.0	1	
010	met08_sn_6010	CRI				05/09/16 09:58	1.0	1	
011	met08_sn_6010	ICB				05/09/16 10:01	1.0		
012	met08_sn_6010	ICSA				05/09/16 10:05	1.0	7	10:AL=540000
013	met08_sn_6010	ICSAB				05/09/16 10:27	1.0	8	5:AL=510000
014	met08_sn_6010	BS	QC834584	Soil	234864	05/09/16 10:36	1.0		3:MG=140000
015	met08_sn_6010	BSD	QC834585	Soil	234864	05/09/16 10:40	1.0		1:SR=11000
016	met08_sn_6010	MSS	276627-002	Soil	234864	05/09/16 10:41	1.0		2:FE=270000
017	met08_sn_6010	MS	QC834586	Soil	234864	05/09/16 10:43	1.0		1:FE=290000
018	met08_sn_6010	MSD	QC834587	Soil	234864	05/09/16 10:45	1.0		1:FE=270000
019	met08_sn_6010	SAMPLE	276645-001	Soil	234864	05/09/16 10:47	1.0		4:CA=340000
020	met08_sn_6010	SAMPLE	276646-001	Soil	234864	05/09/16 10:49	1.0		5:FE=700000
021	met08_sn_6010	SAMPLE	276646-003	Soil	234864	05/09/16 10:51	1.0		4:FE=670000
022	met08_sn_6010	SAMPLE	276646-005	Soil	234864	05/09/16 10:53	1.0		4:FE=730000
023	met08_sn_6010	SAMPLE	276646-007	Soil	234864	05/09/16 10:56	1.0		4:FE=570000
024	met08_sn_6010	CCV				05/09/16 10:58	1.0	9	
025	met08_sn_6010	CCB				05/09/16 11:00	1.0		
026	met08_sn_6010	SAMPLE	276646-009	Soil	234864	05/09/16 11:02	1.0		4:FE=680000
027	met08_sn_6010	SAMPLE	276646-011	Soil	234864	05/09/16 11:05	1.0		4:FE=690000
028	met08_sn_6010	SAMPLE	276646-013	Soil	234864	05/09/16 11:07	1.0		4:FE=710000
029	met08_sn_6010	SAMPLE	276646-015	Soil	234864	05/09/16 11:09	1.0		4:FE=710000
030	met08_sn_6010	SAMPLE	276646-017	Soil	234864	05/09/16 11:11	1.0		4:FE=660000
031	met08_sn_6010	SAMPLE	276646-019	Soil	234864	05/09/16 11:14	1.0		4:FE=680000
032	met08_sn_6010	SAMPLE	276646-021	Soil	234864	05/09/16 11:16	1.0		4:FE=760000
033	met08_sn_6010	SAMPLE	276646-023	Soil	234864	05/09/16 11:18	1.0		4:FE=620000
034	met08_sn_6010	SAMPLE	276647-023	Soil	234864	05/09/16 11:20	1.0		4:CA=570000
035	met08_sn_6010	SAMPLE	276647-024	Soil	234864	05/09/16 11:22	1.0		4:CA=840000
036	met08_sn_6010	CCV				05/09/16 11:24	1.0	9	
037	met08_sn_6010	CCB				05/09/16 11:26	1.0		
038	met08_sn_6010	SAMPLE	276647-025	Soil	234864	05/09/16 11:29	1.0		4:CA=550000
039	met08_sn_6010	SAMPLE	276647-026	Soil	234864	05/09/16 11:32	1.0		4:CA=680000
040	met08_sn_6010	SAMPLE	276647-027	Soil	234864	05/09/16 11:34	1.0		4:CA=1100000
041	met08_sn_6010	SAMPLE	276647-028	Soil	234864	05/09/16 11:36	1.0		4:MG=740000
042	met08_sn_6010	BLANK	QC834593	Soil	234867	05/09/16 11:38	1.0		
043	met08_sn_6010	BS	QC834594	Soil	234867	05/09/16 11:41	1.0		1:SR=11000
044	met08_sn_6010	BSD	QC834595	Soil	234867	05/09/16 11:43	1.0		1:SR=11000
045	met08_sn_6010	SAMPLE	276620-001	Soil	234867	05/09/16 11:44	1.0		2:FE=300000
046	met08_sn_6010	SAMPLE	276620-002	Soil	234867	05/09/16 11:46	1.0		4:FE=280000
047	met08_sn_6010	SAMPLE	276620-003	Soil	234867	05/09/16 11:48	1.0		5:CA=490000
048	met08_sn_6010	CCV				05/09/16 11:50	1.0	9	
049	met08_sn_6010	CCB				05/09/16 11:52	1.0		
050	met08_sn_6010	SAMPLE	276620-004	Soil	234867	05/09/16 11:55	1.0		2:FE=250000
051	met08_sn_6010	SAMPLE	276404-001	Soil	234867	05/09/16 11:57	1.0		3:FE=270000
052	met08_sn_6010	SAMPLE	276404-002	Soil	234867	05/09/16 12:00	1.0		4:FE=300000

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 86187774

Instrument : MET08 Begun : 05/09/16 09:34
Method : EPA 6010B SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met08_sn_6010	SAMPLE	276404-003	Soil	234867	05/09/16 12:02	1.0		5:FE=310000
054	met08_sn_6010	SAMPLE	276404-004	Soil	234867	05/09/16 12:04	1.0		5:FE=300000
055	met08_sn_6010	SAMPLE	276404-005	Soil	234867	05/09/16 12:06	1.0		4:FE=290000
056	met08_sn_6010	MSS	276404-006	Soil	234867	05/09/16 12:08	1.0		5:FE=310000
057	met08_sn_6010	MS	QC834596	Soil	234867	05/09/16 12:10	1.0		1:FE=320000
058	met08_sn_6010	MSD	QC834597	Soil	234867	05/09/16 12:14	1.0		1:FE=370000
059	met08_sn_6010	SER	QC834598	Soil	234867	05/09/16 12:16	5.0		
060	met08_sn_6010	CCV				05/09/16 12:17	1.0	9	
061	met08_sn_6010	CCB				05/09/16 12:18	1.0		
062	met08_sn_6010	SAMPLE	276422-025	Soil	234867	05/09/16 12:23	1.0		2:FE=460000
063	met08_sn_6010	SAMPLE	276422-026	Soil	234867	05/09/16 12:25	1.0		4:FE=500000
064	met08_sn_6010	SAMPLE	276422-027	Soil	234867	05/09/16 12:27	1.0		3:FE=470000
065	met08_sn_6010	SAMPLE	276422-028	Soil	234867	05/09/16 12:29	1.0		4:FE=480000
066	met08_sn_6010	SAMPLE	276422-029	Soil	234867	05/09/16 12:31	1.0		3:FE=580000
067	met08_sn_6010	SAMPLE	276422-030	Soil	234867	05/09/16 12:33	1.0		4:FE=520000
068	met08_sn_6010	SAMPLE	276442-001	Soil	234867	05/09/16 12:36	1.0		2:FE=300000
069	met08_sn_6010	SAMPLE	276444-001	Soil	234867	05/09/16 12:38	1.0		5:FE=490000
070	met08_sn_6010	SAMPLE	276468-024	Miscell.	234867	05/09/16 12:40	1.0		1:CA=730000
071	met08_sn_6010	BLANK	QC832119	Water	234229	05/09/16 12:41	1.0		
072	met08_sn_6010	CCV				05/09/16 12:45	1.0	9	
073	met08_sn_6010	CCB				05/09/16 12:47	1.0		
074	met08_sn_6010	BS	QC832120	Water	234229	05/09/16 12:49	1.0		
075	met08_sn_6010	BSD	QC832121	Water	234229	05/09/16 12:51	1.0		
076	met08_sn_6010	MSS	275899-005	Water	234229	05/09/16 12:52	1.0		3:NA=490000
077	met08_sn_6010	SAMPLE	275899-006	Water	234229	05/09/16 12:54	1.0		
078	met08_sn_6010	MS	QC832122	Water	234229	05/09/16 12:57	1.0		
079	met08_sn_6010	MSD	QC832123	Water	234229	05/09/16 12:59	1.0		
080	met08_sn_6010	SER	QC832124	Water	234229	05/09/16 13:01	5.0		
081	met08_sn_6010	SAMPLE	276035-001	Water	234229	05/09/16 13:04	1.0		3:CA=500000
082	met08_sn_6010	SAMPLE	276035-002	Water	234229	05/09/16 13:06	1.0		1:NA=410000
083	met08_sn_6010	SAMPLE	276645-001	Soil	234864	05/09/16 13:15	1.0		1:MN=11000
084	met08_sn_6010	CCV				05/09/16 13:18	1.0	9	
085	met08_sn_6010	CCB				05/09/16 13:20	1.0		
086	met08_sn_6010	BLANK	QC834664	TCLP Leachate	234885	05/09/16 13:22	10.0		1:NA=180000
087	met08_sn_6010	BS	QC834665	TCLP Leachate	234885	05/09/16 13:26	1.0		
088	met08_sn_6010	BSD	QC834666	TCLP Leachate	234885	05/09/16 13:27	1.0		
089	met08_sn_6010	MSS	276647-023	TCLP Leachate	234885	05/09/16 13:28	10.0		1:NA=170000
090	met08_sn_6010	SAMPLE	276647-024	TCLP Leachate	234885	05/09/16 13:31	10.0		1:NA=160000
091	met08_sn_6010	SAMPLE	276647-025	TCLP Leachate	234885	05/09/16 13:33	10.0		1:NA=170000
092	met08_sn_6010	SAMPLE	276647-026	TCLP Leachate	234885	05/09/16 13:35	10.0		1:NA=160000
093	met08_sn_6010	SAMPLE	276647-027	TCLP Leachate	234885	05/09/16 13:41	10.0		1:NA=170000
094	met08_sn_6010	SAMPLE	276647-028	TCLP Leachate	234885	05/09/16 13:44	10.0		1:NA=170000
095	met08_sn_6010	MS	QC834667	TCLP Leachate	234885	05/09/16 13:46	10.0		
096	met08_sn_6010	CCV				05/09/16 13:48	1.0	9	
097	met08_sn_6010	CCB				05/09/16 13:50	1.0		
098	met08_sn_6010	CCB				05/09/16 13:52	1.0		
099	met08_sn_6010	MSD	QC834668	TCLP Leachate	234885	05/09/16 13:54	10.0		
100	met08_sn_6010	BLANK	QC834704	WET Leachate	234895	05/09/16 13:55	10.0		1:NA=180000
101	met08_sn_6010	BS	QC834705	WET Leachate	234895	05/09/16 13:58	1.0		
102	met08_sn_6010	BSD	QC834706	WET Leachate	234895	05/09/16 13:59	1.0		
103	met08_sn_6010	SAMPLE	276626-001	WET Leachate	234895	05/09/16 14:01	10.0		1:NA=190000
104	met08_sn_6010	MSS	276647-023	WET Leachate	234895	05/09/16 14:02	10.0		1:NA=160000

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 86187774

Instrument : MET08 Begun : 05/09/16 09:34
Method : EPA 6010B SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
105	met08_sn_6010	SAMPLE	276647-024	WET Leachate	234895	05/09/16 14:10	10.0		
106	met08_sn_6010	SAMPLE	276647-025	WET Leachate	234895	05/09/16 14:13	10.0		1:NA=200000
107	met08_sn_6010	SAMPLE	276647-026	WET Leachate	234895	05/09/16 14:15	10.0		1:NA=190000
108	met08_sn_6010	SAMPLE	276647-027	WET Leachate	234895	05/09/16 14:16	10.0		1:NA=200000
109	met08_sn_6010	CCV				05/09/16 14:17	1.0	9	
110	met08_sn_6010	CCB				05/09/16 14:20	1.0		
111	met08_sn_6010	SAMPLE	276647-028	WET Leachate	234895	05/09/16 14:23	10.0		1:NA=200000
112	met08_sn_6010	MS	QC834707	WET Leachate	234895	05/09/16 14:24	10.0		
113	met08_sn_6010	MSD	QC834708	WET Leachate	234895	05/09/16 14:26	10.0		
114	met08_sn_6010	BLANK	QC834231	Soil	234771	05/09/16 14:27	1.0		
115	met08_sn_6010	BS	QC834232	Soil	234771	05/09/16 14:29	1.0		1:SR=10000
116	met08_sn_6010	BSD	QC834233	Soil	234771	05/09/16 14:31	1.0		1:SR=11000

KER 05/09/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 116.

Standards used: 1=S29301 2=S29393 3=S29394 4=S29395 5=S29761 6=S29396 7=S29660 8=S29661 9=S29397

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 86187774

Date : 05/09/16 Reference : met08_sn_6010
Sequence : MET08 05/09/16 Analyzed : 05/09/16 09:37

#	Type	Sample ID	Y A
		ICAL STD	11108894
		LOWER LIMIT	3332668
		UPPER LIMIT	22217787
011	ICB		11276793
012	ICSA		10465376
013	ICSAB		10597779
014	BS	QC834584	11796576
015	BSD	QC834585	11340022
016	MSS	276627-002	11721314
017	MS	QC834586	11262230
018	MSD	QC834587	11362357
019	SAMPLE	276645-001	11297964
020	SAMPLE	276646-001	11310435
021	SAMPLE	276646-003	11653241
022	SAMPLE	276646-005	11405689
023	SAMPLE	276646-007	10983348
024	CCV		11166380
025	CCB		11613461
026	SAMPLE	276646-009	11531710
027	SAMPLE	276646-011	11344343
028	SAMPLE	276646-013	11512077
029	SAMPLE	276646-015	11421244
030	SAMPLE	276646-017	11367989
031	SAMPLE	276646-019	11105837
032	SAMPLE	276646-021	11394819
033	SAMPLE	276646-023	11438030
034	SAMPLE	276647-023	11242330
035	SAMPLE	276647-024	11269483
036	CCV		10994977
037	CCB		10966673
038	SAMPLE	276647-025	11376458
039	SAMPLE	276647-026	11258922
040	SAMPLE	276647-027	10896877
041	SAMPLE	276647-028	10690444
042	BLANK	QC834593	11302894
043	BS	QC834594	11206909
044	BSD	QC834595	11760628
045	SAMPLE	276620-001	11457115
046	SAMPLE	276620-002	11517705
047	SAMPLE	276620-003	11289144
048	CCV		11191402
049	CCB		11180915
050	SAMPLE	276620-004	11006888
051	SAMPLE	276404-001	11343374
052	SAMPLE	276404-002	11522033
053	SAMPLE	276404-003	11423307
054	SAMPLE	276404-004	11103935
055	SAMPLE	276404-005	11556526
056	MSS	276404-006	11192581
057	MS	QC834596	11263960
058	MSD	QC834597	11256289

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 86187774

Date : 05/09/16 Reference : met08_sn_6010
Sequence : MET08 05/09/16 Analyzed : 05/09/16 09:37

#	Type	Sample ID	Y A
059	SER	QC834598	11501252
060	CCV		11084017
061	CCB		11034739
062	SAMPLE	276422-025	11318330
063	SAMPLE	276422-026	11541309
064	SAMPLE	276422-027	11406624
065	SAMPLE	276422-028	11256560
066	SAMPLE	276422-029	11055620
067	SAMPLE	276422-030	11164506
068	SAMPLE	276442-001	11342210
069	SAMPLE	276444-001	11150617
070	SAMPLE	276468-024	11240406
071	BLANK	QC832119	20962119
072	CCV		11524702
073	CCB		11188126
074	BS	QC832120	11389033
075	BSD	QC832121	11168938
076	MSS	275899-005	10501936
077	SAMPLE	275899-006	11312629
078	MS	QC832122	10374362
079	MSD	QC832123	10702239
080	SER	QC832124	11052641
081	SAMPLE	276035-001	10385199
082	SAMPLE	276035-002	10763518
083	SAMPLE	276645-001	11317820
084	CCV		11210763
085	CCB		10985725
086	BLANK	QC834664	10927060
087	BS	QC834665	11460065
088	BSD	QC834666	11508852
089	MSS	276647-023	10510022
090	SAMPLE	276647-024	10315895
091	SAMPLE	276647-025	10398145
092	SAMPLE	276647-026	10730767
093	SAMPLE	276647-027	11189706
094	SAMPLE	276647-028	11074640
095	MS	QC834667	10988639
096	CCV		11019608
097	CCB		10855643
098	CCB		10983604
099	MSD	QC834668	11085144
100	BLANK	QC834704	10768916
101	BS	QC834705	11191424
102	BSD	QC834706	11221491
103	SAMPLE	276626-001	10690269
104	MSS	276647-023	10631436
105	SAMPLE	276647-024	16045053
106	SAMPLE	276647-025	11526359
107	SAMPLE	276647-026	11385946
108	SAMPLE	276647-027	11266188
109	CCV		11273396
110	CCB		10944375

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 86187774

Date : 05/09/16 Reference : met08_sn_6010
Sequence : MET08 05/09/16 Analyzed : 05/09/16 09:37

#	Type	Sample ID	Y A
111	SAMPLE	276647-028	10947362
112	MS	QC834707	11244275
113	MSD	QC834708	11084730
114	BLANK	QC834231	11525510
115	BS	QC834232	11418228
116	BSD	QC834233	11365316

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 275899 METALS Water: EPA 6010B

Inst : MET08
Calnum : 86187774001
Units : ug/L

Date : 09-MAY-2016 09:34
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met08_sn_6010	86187774002	L1	09-MAY-2016 09:37	S29301
L2	met08_sn_6010	86187774003	L2	09-MAY-2016 09:40	S29393
L3	met08_sn_6010	86187774004	L3	09-MAY-2016 09:42	S29394
L4	met08_sn_6010	86187774005	L4	09-MAY-2016 09:44	S29395
L5	met08_sn_6010	86187774006	L5	09-MAY-2016 09:46	S29761

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Antimony	A	15.050	18.116	18.250	19.030		LOR0	0.00000	0.05257		17.611	1.000	0.995	
Arsenic	A	7.0800	14.331	15.725	16.323		LOR0	0.00000	0.06129		13.365	1.000	0.995	
Barium	A	317.94	322.00	316.69	316.31		LOR0	0.00000	0.00316		318.24	1.000	0.995	
Beryllium	A	3603.0	3504.9	3461.3			LOR0	0.00000	2.89E-4		3523.1	1.000	0.995	
Cadmium	A	188.46	188.69	185.12	184.59		LOR0	0.00000	0.00542		186.72	1.000	0.995	
Chromium	A	121.38	102.97	99.203	99.981		LOR0	0.00000	0.01000		105.88	1.000	0.995	
Cobalt	A	119.88	118.85	116.29	118.69		LOR0	0.00000	0.00843		118.43	1.000	0.995	
Copper	A	548.32	323.44	306.05	308.83		LOR0	0.00000	0.00324		371.66	1.000	0.995	
Lead	A	54.900	48.960	49.092	50.236		LOR0	0.00000	0.01991		50.797	1.000	0.995	
Molybdenum	A	24.040	25.158	24.567	24.905		LOR0	0.00000	0.04016		24.667	1.000	0.995	
Nickel	A	44.860	38.933	38.837	39.555		LOR0	0.00000	0.02529		40.546	1.000	0.995	
Selenium	A	38.960	33.501	32.169	33.737		LOR0	0.00000	0.02965		34.592	1.000	0.995	
Silver	A	1240.2	1418.2	1472.4	1507.3		LOR0	0.00000	6.64E-4		1409.5	1.000	0.995	
Thallium	A	12.980	15.580	15.199	15.213		LOR0	0.00000	0.06573		14.743	1.000	0.995	
Vanadium	A	83.640	90.505	93.169	94.861		LOR0	0.00000	0.01054		90.544	1.000	0.995	
Zinc	A	96.285	82.924	80.013	82.311		LOR0	0.00000	0.01215		85.383	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Antimony	A	10.000	**-21**	100.00	-5	1000.0	-4	10000	0		
Arsenic	A	5.0000	**-57**	100.00	-12	1000.0	-4	10000	0		
Barium	A	5.0000	1	100.00	2	1000.0	0	10000	0		
Beryllium	A	2.0000	4	100.00	1	1000.0	0				
Cadmium	A	5.0000	2	100.00	2	1000.0	0	10000	0		
Chromium	A	5.0000	**21**	100.00	3	1000.0	-1	10000	0		
Cobalt	A	5.0000	1	100.00	0	1000.0	-2	10000	0		
Copper	A	5.0000	**78**	100.00	5	1000.0	-1	10000	0		
Lead	A	5.0000	9	100.00	-3	1000.0	-2	10000	0		
Molybdenum	A	5.0000	-3	100.00	1	1000.0	-1	10000	0		
Nickel	A	5.0000	13	100.00	-2	1000.0	-2	10000	0		
Selenium	A	10.000	16	100.00	-1	1000.0	-5	10000	0		
Silver	A	5.0000	-18	20.000	-6	200.00	-2	2000.0	0		
Thallium	A	10.000	-15	100.00	2	1000.0	0	10000	0		
Vanadium	A	5.0000	-12	100.00	-5	1000.0	-2	10000	0		
Zinc	A	20.000	17	100.00	1	1000.0	-3	10000	0		

Instrument amount = a0 + response * a1 + response^2 * a2; LOR0=Linear regression forced thru origin, including 0,0 point

86187774001

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 275899 METALS Water
EPA 6010B

Inst : MET08
Calnum : 86187774001 Cal Date : 09-MAY-2016

ICV 86187774007 (09-MAY-2016) stds: S29396

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	5000	5017	ug/L	0	10	
Arsenic	A	5000	5205	ug/L	4	10	
Barium	A	5000	4988	ug/L	0	10	
Beryllium	A	500.0	516.2	ug/L	3	10	
Cadmium	A	5000	5083	ug/L	2	10	
Chromium	A	5000	5029	ug/L	1	10	
Cobalt	A	5000	4891	ug/L	-2	10	
Copper	A	5000	4845	ug/L	-3	10	
Lead	A	5000	5048	ug/L	1	10	
Molybdenum	A	5000	4950	ug/L	-1	10	
Nickel	A	5000	4994	ug/L	0	10	
Selenium	A	5000	5122	ug/L	2	10	
Silver	A	1000	997.8	ug/L	0	10	
Thallium	A	5000	5039	ug/L	1	10	
Vanadium	A	5000	5012	ug/L	0	10	
Zinc	A	5000	5036	ug/L	1	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275899 METALS Water
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86187774011 File : met08_sn_6010 Time : 09-MAY-2016 10:01
Cal : 86187774001 Caldate : 09-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	8.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	4.000	ug/L	
Beryllium	A	ND	2.000	1.600	ug/L	
Cadmium	A	ND	5.000	4.000	ug/L	
Chromium	A	ND	5.000	4.000	ug/L	
Cobalt	A	ND	5.000	4.000	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	4.000	ug/L	
Molybdenum	A	ND	5.000	4.000	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	8.000	ug/L	
Vanadium	A	ND	5.000	4.000	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	11108894	11276793	1.51

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 275899 METALS Water
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86187774012 File : met08_sn_6010 Time : 09-MAY-2016 10:05
Cal : 86187774001 Caldate : 09-MAY-2016
Standards: S29660

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	[0.07161]	10.00	ug/L	
Arsenic	A	[0.7918]	5.000	ug/L	
Barium	A	[-2.300]	5.000	ug/L	
Beryllium	A	[0.0001229]	2.000	ug/L	
Cadmium	A	[-1.485]	5.000	ug/L	
Cobalt	A	[2.271]	5.000	ug/L	
Lead	A	[4.970]	5.000	ug/L	
Molybdenum	A	[-3.845]	5.000	ug/L	
Selenium	A	[8.061]	10.00	ug/L	
Silver	A	[1.776]	5.000	ug/L	
Thallium	A	[-2.972]	10.00	ug/L	
Zinc	A	[9.159]	20.00	ug/L	

Interferent	Ch	Spiked	Quant	Units	%Rec	Flags
Chromium	A	20000	19620	ug/L	98	
Copper	A	20000	20110	ug/L	101	
Manganese	A	20000	19260	ug/L	96	
Nickel	A	20000	19280	ug/L	96	
Vanadium	A	20000	19840	ug/L	99	
Aluminum	R	500000	538100	ug/L	108	
Calcium	R	500000	519700	ug/L	104	
Iron	R	200000	206900	ug/L	103	
Magnesium	R	500000	517900	ug/L	104	
Titanium	R	20000	21510	ug/L	108	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	11108894	10465376	-5.79

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 275899 METALS Water
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86187774013 File : met08_sn_6010 Time : 09-MAY-2016 10:27
Cal : 86187774001 Caldate : 09-MAY-2016
Standards: S29661

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	569.4	ug/L	14	20	
Arsenic	A	500.0	547.3	ug/L	9	20	
Barium	A	500.0	517.6	ug/L	4	20	
Beryllium	A	500.0	538.6	ug/L	8	20	
Cadmium	A	1000	1042	ug/L	4	20	
Chromium	A	500.0	504.7	ug/L	1	20	
Cobalt	A	500.0	497.1	ug/L	-1	20	
Copper	A	500.0	507.1	ug/L	1	20	
Lead	A	1000	1029	ug/L	3	20	
Molybdenum	A	500.0	505.8	ug/L	1	20	
Nickel	A	1000	1028	ug/L	3	20	
Selenium	A	500.0	497.8	ug/L	0	20	
Silver	A	1000	1072	ug/L	7	20	
Thallium	A	500.0	520.0	ug/L	4	20	
Vanadium	A	500.0	552.3	ug/L	10	20	
Zinc	A	1000	1019	ug/L	2	20	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	11108894	10597779	-4.60

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275899 METALS Water
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86187774060 File : met08_sn_6010 Time : 09-MAY-2016 12:17
Cal : 86187774001 Caldate : 09-MAY-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	17.611	20.344	5000	5347	ug/L	7	10	
Arsenic	A	13.365	18.111	5000	5550	ug/L	**11**	10	c+ ***
Barium	A	318.24	335.92	5000	5310	ug/L	6	10	
Beryllium	A	3523.1	3773.2	500.0	545.0	ug/L	9	10	
Cadmium	A	186.72	202.83	5000	5494	ug/L	10	10	
Chromium	A	105.88	103.83	5000	5193	ug/L	4	10	
Cobalt	A	118.43	122.16	5000	5138	ug/L	3	10	
Copper	A	371.66	320.55	5000	5190	ug/L	4	10	
Lead	A	50.797	52.962	5000	5273	ug/L	5	10	
Molybdenum	A	24.667	25.226	5000	5065	ug/L	1	10	
Nickel	A	40.546	42.665	5000	5394	ug/L	8	10	
Selenium	A	34.592	35.637	5000	5284	ug/L	6	10	
Silver	A	1409.5	1613.6	1000	1071	ug/L	7	10	
Thallium	A	14.743	15.413	5000	5066	ug/L	1	10	
Vanadium	A	90.544	102.89	5000	5424	ug/L	8	10	
Zinc	A	85.383	86.764	5000	5272	ug/L	5	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	11108894	11084017	-0.22

+=high bias c=CCV

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275899 METALS Water
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86187774061 File : met08_sn_6010 Time : 09-MAY-2016 12:18
Cal : 86187774001 Caldate : 09-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	8.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	4.000	ug/L	
Beryllium	A	ND	2.000	1.600	ug/L	
Cadmium	A	ND	5.000	4.000	ug/L	
Chromium	A	ND	5.000	4.000	ug/L	
Cobalt	A	ND	5.000	4.000	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	4.000	ug/L	
Molybdenum	A	ND	5.000	4.000	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	[4.563]	5.000	4.000	ug/L	!CCB
Thallium	A	ND	10.00	8.000	ug/L	
Vanadium	A	ND	5.000	4.000	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	11108894	11034739	-0.67

!=warning CCB=instrument blank

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275899 METALS Water
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86187774072 File : met08_sn_6010 Time : 09-MAY-2016 12:45
Cal : 86187774001 Caldate : 09-MAY-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	17.611	20.036	5000	5266	ug/L	5	10	
Arsenic	A	13.365	17.796	5000	5453	ug/L	9	10	
Barium	A	318.24	332.46	5000	5255	ug/L	5	10	
Beryllium	A	3523.1	3695.0	500.0	533.7	ug/L	7	10	
Cadmium	A	186.72	200.37	5000	5427	ug/L	9	10	
Chromium	A	105.88	103.17	5000	5160	ug/L	3	10	
Cobalt	A	118.43	119.80	5000	5039	ug/L	1	10	
Copper	A	371.66	315.46	5000	5108	ug/L	2	10	
Lead	A	50.797	52.404	5000	5217	ug/L	4	10	
Molybdenum	A	24.667	25.187	5000	5057	ug/L	1	10	
Nickel	A	40.546	42.288	5000	5346	ug/L	7	10	
Selenium	A	34.592	34.604	5000	5131	ug/L	3	10	
Silver	A	1409.5	1608.1	1000	1067	ug/L	7	10	
Thallium	A	14.743	15.494	5000	5092	ug/L	2	10	
Vanadium	A	90.544	103.33	5000	5448	ug/L	9	10	
Zinc	A	85.383	84.829	5000	5154	ug/L	3	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	11108894	11524702	3.74

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275899 METALS Water
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86187774073 File : met08_sn_6010 Time : 09-MAY-2016 12:47
Cal : 86187774001 Caldate : 09-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	8.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	4.000	ug/L	
Beryllium	A	ND	2.000	1.600	ug/L	
Cadmium	A	ND	5.000	4.000	ug/L	
Chromium	A	ND	5.000	4.000	ug/L	
Cobalt	A	ND	5.000	4.000	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	4.000	ug/L	
Molybdenum	A	ND	5.000	4.000	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	8.000	ug/L	
Vanadium	A	ND	5.000	4.000	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	11108894	11188126	0.71

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275899 METALS Water
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86187774084 File : met08_sn_6010 Time : 09-MAY-2016 13:18
Cal : 86187774001 Caldate : 09-MAY-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	17.611	20.212	5000	5313	ug/L	6	10	
Arsenic	A	13.365	17.994	5000	5514	ug/L	10	10	
Barium	A	318.24	338.06	5000	5344	ug/L	7	10	
Beryllium	A	3523.1	3784.6	500.0	546.6	ug/L	9	10	
Cadmium	A	186.72	202.94	5000	5497	ug/L	10	10	
Chromium	A	105.88	105.12	5000	5257	ug/L	5	10	
Cobalt	A	118.43	122.59	5000	5155	ug/L	3	10	
Copper	A	371.66	320.85	5000	5195	ug/L	4	10	
Lead	A	50.797	52.855	5000	5262	ug/L	5	10	
Molybdenum	A	24.667	25.333	5000	5087	ug/L	2	10	
Nickel	A	40.546	42.853	5000	5418	ug/L	8	10	
Selenium	A	34.592	35.248	5000	5226	ug/L	5	10	
Silver	A	1409.5	1623.4	1000	1077	ug/L	8	10	
Thallium	A	14.743	15.628	5000	5136	ug/L	3	10	
Vanadium	A	90.544	104.06	5000	5486	ug/L	10	10	
Zinc	A	85.383	86.883	5000	5279	ug/L	6	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	11108894	11210763	0.92

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275899 METALS Water
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86187774085 File : met08_sn_6010 Time : 09-MAY-2016 13:20
Cal : 86187774001 Caldate : 09-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	8.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	4.000	ug/L	
Beryllium	A	ND	2.000	1.600	ug/L	
Cadmium	A	ND	5.000	4.000	ug/L	
Chromium	A	ND	5.000	4.000	ug/L	
Cobalt	A	ND	5.000	4.000	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	4.000	ug/L	
Molybdenum	A	ND	5.000	4.000	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	8.000	ug/L	
Vanadium	A	ND	5.000	4.000	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	11108894	10985725	-1.11

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 86188079

Instrument : MET08 Begun : 05/09/16 14:39
Method : EPA 6010B SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met08_sn_6010	ICALBLK				05/09/16 14:39	1.0		
002	met08_sn_6010	ICAL	L1			05/09/16 14:43	1.0	1	
003	met08_sn_6010	ICAL	L2			05/09/16 14:46	1.0	2	
004	met08_sn_6010	ICAL	L3			05/09/16 14:48	1.0	3	
005	met08_sn_6010	ICAL	L4			05/09/16 14:52	1.0	4	
006	met08_sn_6010	ICAL	L5			05/09/16 14:54	1.0	5	
007	met08_sn_6010	ICV				05/09/16 14:56	1.0	6	
008	met08_sn_6010	XCRI				05/09/16 14:58	1.0	1	
009	met08_sn_6010	CRI				05/09/16 15:06	1.0	1	
010	met08_sn_6010	ICB				05/09/16 15:09	1.0		
011	met08_sn_6010	ICSA				05/09/16 15:13	1.0	7	10:AL=550000
012	met08_sn_6010	ICSAB				05/09/16 15:21	1.0	8	4:AL=260000
013	met08_sn_6010	SAMPLE	276646-009	Soil	234864	05/09/16 15:24	1.0		4:FE=710000
014	met08_sn_6010	SAMPLE	276646-011	Soil	234864	05/09/16 15:26	1.0		4:FE=610000
015	met08_sn_6010	SAMPLE	276646-013	Soil	234864	05/09/16 15:28	1.0		4:FE=710000
016	met08_sn_6010	SAMPLE	276646-017	Soil	234864	05/09/16 15:30	1.0		4:FE=650000
017	met08_sn_6010	SAMPLE	276646-019	Soil	234864	05/09/16 15:33	1.0		4:FE=660000
018	met08_sn_6010	SAMPLE	276646-021	Soil	234864	05/09/16 15:35	1.0		4:FE=670000
019	met08_sn_6010	SAMPLE	276646-023	Soil	234864	05/09/16 15:37	1.0		4:FE=630000
020	met08_sn_6010	PDS	QC832125	Water	234229	05/09/16 15:39	1.0	9 10 11	3:NA=450000
021	met08_sn_6010	PDS	QC834599	Soil	234867	05/09/16 15:41	1.0	9 10 11	3:FE=230000
022	met08_sn_6010	BLANK	QC834593	Soil	234867	05/09/16 15:43	1.0		
023	met08_sn_6010	XCCV				05/09/16 15:47	1.0	12	
024	met08_sn_6010	XCCV				05/09/16 15:51	1.0	12	
025	met08_sn_6010	CCV				05/09/16 15:57	1.0	12	
026	met08_sn_6010	CCB				05/09/16 15:59	1.0		
027	met08_sn_6010	BS	QC834594	Soil	234867	05/09/16 16:02	1.0		1:SR=10000
028	met08_sn_6010	BSD	QC834595	Soil	234867	05/09/16 16:05	1.0		1:SR=11000
029	met08_sn_6010	SAMPLE	276620-001	Soil	234867	05/09/16 16:07	1.0		2:FE=300000
030	met08_sn_6010	SAMPLE	276620-002	Soil	234867	05/09/16 16:09	1.0		4:FE=270000
031	met08_sn_6010	SAMPLE	276620-003	Soil	234867	05/09/16 16:11	1.0		5:CA=460000
032	met08_sn_6010	SAMPLE	276620-004	Soil	234867	05/09/16 16:13	1.0		2:FE=260000
033	met08_sn_6010	SAMPLE	276626-001	WET Leachate	234895	05/09/16 16:15	10.0		1:NA=180000
034	met08_sn_6010	SAMPLE	276647-024	WET Leachate	234895	05/09/16 16:18	10.0		1:NA=170000
035	met08_sn_6010	SAMPLE	276647-028	WET Leachate	234895	05/09/16 16:20	10.0		1:NA=160000
036	met08_sn_6010	MS	QC834707	WET Leachate	234895	05/09/16 16:25	10.0		
037	met08_sn_6010	CCV				05/09/16 16:28	1.0	12	
038	met08_sn_6010	CCB				05/09/16 16:30	1.0		
039	met08_sn_6010	SAMPLE	276620-002	Soil	234867	05/09/16 16:33	1.0		4:FE=280000
040	met08_sn_6010	MSD	QC834708	WET Leachate	234895	05/09/16 16:35	10.0		
041	met08_sn_6010	BLANK	QC834231	Soil	234771	05/09/16 16:37	1.0		
042	met08_sn_6010	BS	QC834232	Soil	234771	05/09/16 16:41	1.0		1:SR=11000
043	met08_sn_6010	BSD	QC834233	Soil	234771	05/09/16 16:43	1.0		1:SR=11000
044	met08_sn_6010	SAMPLE	276342-004	Soil	234771	05/09/16 16:45	1.0		7:CA=2100000
045	met08_sn_6010	SAMPLE	275878-003	Water	234045	05/09/16 16:48	1.0		3:CA=390000
046	met08_sn_6010	BS	QC832326	Soil	234278	05/09/16 16:51	1.0		1:SR=11000
047	met08_sn_6010	BSD	QC832327	Soil	234278	05/09/16 16:53	1.0		1:SR=11000
048	met08_sn_6010	MS	QC834502	TCLP Leachate	234840	05/09/16 16:56	10.0		
049	met08_sn_6010	CCV				05/09/16 16:58	1.0	12	
050	met08_sn_6010	CCB				05/09/16 17:00	1.0		
051	met08_sn_6010	MSD	QC834503	TCLP Leachate	234840	05/09/16 17:03	10.0		
052	met08_sn_6010	SAMPLE	276130-005	Filtrate	234434	05/09/16 17:06	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 86188079

Instrument : MET08 Begun : 05/09/16 14:39
Method : EPA 6010B SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met08_sn_6010	SAMPLE	276130-006	Filtrate	234434	05/09/16 17:08	1.0		
054	met08_sn_6010	SAMPLE	276130-009	Filtrate	234434	05/09/16 17:11	1.0		
055	met08_sn_6010	SAMPLE	276131-002	Filtrate	234434	05/09/16 17:14	1.0		
056	met08_sn_6010	SAMPLE	276063-004	Air	234738	05/09/16 17:16	1.0		
057	met08_sn_6010	SAMPLE	276063-005	Air	234738	05/09/16 17:18	1.0		
058	met08_sn_6010	SAMPLE	276063-006	Air	234738	05/09/16 17:21	1.0		
059	met08_sn_6010	SAMPLE	276063-008	Air	234738	05/09/16 17:23	1.0		
060	met08_sn_6010	SAMPLE	276063-009	Air	234738	05/09/16 17:25	1.0		
061	met08_sn_6010	CCV				05/09/16 17:28	1.0	12	
062	met08_sn_6010	CCB				05/09/16 17:30	1.0		
063	met08_sn_6010	SAMPLE	276063-010	Air	234738	05/09/16 17:33	1.0		
064	met08_sn_6010	SAMPLE	276138-021	Air	234738	05/09/16 17:36	1.0		3:BA=35000
065	met08_sn_6010	SAMPLE	276138-022	Air	234738	05/09/16 17:39	1.0		4:NA=100000
066	met08_sn_6010	SAMPLE	276189-020	Soil	234771	05/09/16 17:43	1.0		4:FE=450000
067	met08_sn_6010	SAMPLE	276189-021	Soil	234771	05/09/16 17:45	1.0		5:FE=640000
068	met08_sn_6010	SAMPLE	276189-022	Soil	234771	05/09/16 17:47	1.0		5:FE=620000
069	met08_sn_6010	SAMPLE	276189-023	Soil	234771	05/09/16 17:49	1.0		4:FE=540000
070	met08_sn_6010	SAMPLE	276189-024	Soil	234771	05/09/16 17:51	1.0		5:FE=650000
071	met08_sn_6010	SAMPLE	276189-027	Soil	234771	05/09/16 17:53	1.0		5:FE=590000
072	met08_sn_6010	SAMPLE	276189-028	Soil	234771	05/09/16 17:55	1.0		5:FE=580000
073	met08_sn_6010	CCV				05/09/16 17:57	1.0	12	
074	met08_sn_6010	XCCB				05/09/16 17:59	1.0		
075	met08_sn_6010	CCB				05/09/16 18:02	1.0		
076	met08_sn_6010	SAMPLE	276189-030	Soil	234771	05/09/16 18:05	1.0		5:FE=650000
077	met08_sn_6010	SAMPLE	276189-031	Soil	234771	05/09/16 18:07	1.0		4:FE=360000
078	met08_sn_6010	SAMPLE	276189-032	Soil	234771	05/09/16 18:09	1.0		5:FE=580000
079	met08_sn_6010	SAMPLE	276189-033	Soil	234771	05/09/16 18:12	1.0		5:FE=590000
080	met08_sn_6010	MSS	276189-034	Soil	234771	05/09/16 18:14	1.0		4:FE=530000
081	met08_sn_6010	SAMPLE	276189-035	Soil	234771	05/09/16 18:16	1.0		5:FE=670000
082	met08_sn_6010	SAMPLE	276189-036	Soil	234771	05/09/16 18:18	1.0		4:FE=550000
083	met08_sn_6010	SAMPLE	276301-030	Soil	234771	05/09/16 18:20	1.0		5:FE=510000
084	met08_sn_6010	SAMPLE	276301-031	Soil	234771	05/09/16 18:22	1.0		1:FE=160000
085	met08_sn_6010	SAMPLE	276301-032	Soil	234771	05/09/16 18:25	1.0		1:FE=170000
086	met08_sn_6010	CCV				05/09/16 18:28	1.0	12	
087	met08_sn_6010	CCB				05/09/16 18:30	1.0		
088	met08_sn_6010	MS	QC834234	Soil	234771	05/09/16 18:33	1.0		1:FE=560000
089	met08_sn_6010	MSD	QC834235	Soil	234771	05/09/16 18:35	1.0		1:FE=500000
090	met08_sn_6010	SER	QC834236	Soil	234771	05/09/16 18:38	5.0		
091	met08_sn_6010	SAMPLE	276066-001	Water	234233	05/09/16 18:41	1.0		2:NA=630000
092	met08_sn_6010	SAMPLE	276066-007	Water	234233	05/09/16 18:44	1.0		
093	met08_sn_6010	SAMPLE	276073-001	Water	234233	05/09/16 18:47	1.0		1:NA=110000
094	met08_sn_6010	SAMPLE	276073-002	Water	234233	05/09/16 18:49	1.0		
095	met08_sn_6010	SAMPLE	276073-003	Water	234233	05/09/16 18:52	1.0		
096	met08_sn_6010	SAMPLE	276073-004	Water	234233	05/09/16 18:54	1.0		
097	met08_sn_6010	SAMPLE	276073-005	Water	234233	05/09/16 18:56	1.0		1:NA=120000
098	met08_sn_6010	CCV				05/09/16 18:59	1.0	12	
099	met08_sn_6010	CCB				05/09/16 19:01	1.0		
100	met08_sn_6010	XSAMPLE	276073-007	Water	234233	05/09/16 19:04	1.0		
101	met08_sn_6010	XBLANK	QC832315	Water	234276	05/09/16 19:07	1.0		
102	met08_sn_6010	SAMPLE	276073-007	Water	234233	05/09/16 19:12	1.0		
103	met08_sn_6010	XBLANK	QC832315	Water	234276	05/09/16 19:15	1.0		
104	met08_sn_6010	XBS	QC832316	Water	234276	05/09/16 19:19	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 86188079

Instrument : MET08 Begun : 05/09/16 14:39
Method : EPA 6010B SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
105	met08_sn_6010	BSD	QC832317	Water	234276	05/09/16 19:22	1.0		
106	met08_sn_6010	SAMPLE	276114-003	Water	234276	05/09/16 19:24	1.0		
107	met08_sn_6010	SAMPLE	276114-004	Water	234276	05/09/16 19:26	1.0		
108	met08_sn_6010	SAMPLE	276119-005	Water	234276	05/09/16 19:29	1.0		
109	met08_sn_6010	CCV				05/09/16 19:32	1.0	12	
110	met08_sn_6010	CCB				05/09/16 19:34	1.0		
111	met08_sn_6010	SAMPLE	276119-007	Water	234276	05/09/16 19:37	1.0		
112	met08_sn_6010	SAMPLE	276119-010	Water	234276	05/09/16 19:41	1.0		
113	met08_sn_6010	SAMPLE	276278-001	Soil	234518	05/09/16 19:44	5.0		3:CA=410000
114	met08_sn_6010	SAMPLE	276278-001	Soil	234518	05/09/16 19:47	1.0		11:CA=2000000
115	met08_sn_6010	X	RINSE			05/09/16 19:49	1.0		
116	met08_sn_6010	SAMPLE	276278-002	Soil	234518	05/09/16 19:53	5.0		
117	met08_sn_6010	SAMPLE	276278-002	Soil	234518	05/09/16 19:56	1.0		6:CA=430000
118	met08_sn_6010	X	RINSE			05/09/16 19:58	1.0		
119	met08_sn_6010	SAMPLE	276284-001	Soil	234518	05/09/16 20:01	1.0		5:FE=410000
120	met08_sn_6010	SAMPLE	276284-002	Soil	234518	05/09/16 20:03	1.0		5:FE=490000
121	met08_sn_6010	CCV				05/09/16 20:05	1.0	12	
122	met08_sn_6010	CCB				05/09/16 20:07	1.0		
123	met08_sn_6010	SAMPLE	276284-003	Soil	234518	05/09/16 20:11	1.0		
124	met08_sn_6010	MSS	276284-004	Soil	234518	05/09/16 20:14	1.0		
125	met08_sn_6010	SAMPLE	276284-005	Soil	234518	05/09/16 20:17	1.0		5:FE=470000
126	met08_sn_6010	SAMPLE	276284-006	Soil	234518	05/09/16 20:19	1.0		3:FE=260000
127	met08_sn_6010	SAMPLE	276284-007	Soil	234518	05/09/16 20:21	1.0		5:FE=470000
128	met08_sn_6010	MSS	276284-008	Soil	234518	05/09/16 20:23	1.0		3:FE=320000
129	met08_sn_6010	SAMPLE	276284-009	Soil	234518	05/09/16 20:25	1.0		4:FE=360000
130	met08_sn_6010	BLANK	QC833848	Water	234658	05/09/16 20:27	1.0		
131	met08_sn_6010	BS	QC833849	Water	234658	05/09/16 20:31	1.0		
132	met08_sn_6010	BSD	QC833850	Water	234658	05/09/16 20:34	1.0		
133	met08_sn_6010	CCV				05/09/16 20:36	1.0	12	
134	met08_sn_6010	CCB				05/09/16 20:38	1.0		
135	met08_sn_6010	MSS	276400-009	Water	234658	05/09/16 20:42	1.0		3:MG=370000
136	met08_sn_6010	MS	QC833851	Water	234658	05/09/16 20:46	1.0		
137	met08_sn_6010	MSD	QC833852	Water	234658	05/09/16 20:49	1.0		
138	met08_sn_6010	SAMPLE	276405-001	Water	234658	05/09/16 20:52	1.0		
139	met08_sn_6010	SAMPLE	276405-002	Water	234658	05/09/16 20:55	1.0		
140	met08_sn_6010	SAMPLE	276405-003	Water	234658	05/09/16 20:59	1.0		
141	met08_sn_6010	SAMPLE	276405-004	Water	234658	05/09/16 21:02	1.0		
142	met08_sn_6010	SAMPLE	276405-005	Water	234658	05/09/16 21:04	1.0		
143	met08_sn_6010	SAMPLE	276405-006	Water	234658	05/09/16 21:08	1.0		
144	met08_sn_6010	SAMPLE	276405-007	Water	234658	05/09/16 21:10	1.0		
145	met08_sn_6010	CCV				05/09/16 21:13	1.0	12	
146	met08_sn_6010	CCB				05/09/16 21:15	1.0		
147	met08_sn_6010	SAMPLE	276405-008	Water	234658	05/09/16 21:19	1.0		
148	met08_sn_6010	SAMPLE	276405-009	Water	234658	05/09/16 21:22	1.0		
149	met08_sn_6010	SAMPLE	276405-010	Water	234658	05/09/16 21:24	1.0		
150	met08_sn_6010	SAMPLE	276405-011	Water	234658	05/09/16 21:26	1.0		
151	met08_sn_6010	SAMPLE	276405-012	Water	234658	05/09/16 21:30	1.0		
152	met08_sn_6010	SAMPLE	276405-013	Water	234658	05/09/16 21:33	1.0		

KER 05/09/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 26.

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 86188079

Instrument : MET08 Begun : 05/09/16 14:39
Method : EPA 6010B SOP Version : icp metals_rv17

Standards used: 1=S29301 2=S29393 3=S29394 4=S29395 5=S29761 6=S29396 7=S29660 8=S29661 9=S28385 10=S28386 11=S29742 12=S29397

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 86188079

Date : 05/09/16 Reference : met08_sn_6010
Sequence : MET08 05/09/16 Analyzed : 05/09/16 14:43

#	Type	Sample ID	Y A
		ICAL STD	12848286
		LOWER LIMIT	3854486
		UPPER LIMIT	25696573
010	ICB		11991127
011	ICSA		11378629
012	ICSAB		12155491
013	SAMPLE	276646-009	12092992
014	SAMPLE	276646-011	12376070
015	SAMPLE	276646-013	12678771
016	SAMPLE	276646-017	12183262
017	SAMPLE	276646-019	12694605
018	SAMPLE	276646-021	12934811
019	SAMPLE	276646-023	12694867
020	PDS	QC832125	12698515
021	PDS	QC834599	14669916
022	BLANK	QC834593	14480529
025	CCV		12693090
026	CCB		13015165
027	BS	QC834594	12906976
028	BSD	QC834595	12872137
029	SAMPLE	276620-001	11783561
030	SAMPLE	276620-002	12283168
031	SAMPLE	276620-003	12735135
032	SAMPLE	276620-004	12445068
033	SAMPLE	276626-001	12452096
034	SAMPLE	276647-024	12932705
035	SAMPLE	276647-028	13185911
036	MS	QC834707	12991712
037	CCV		13014781
038	CCB		13259465
039	SAMPLE	276620-002	13014393
040	MSD	QC834708	13199164
041	BLANK	QC834231	13562660
042	BS	QC834232	12942894
043	BSD	QC834233	13324676
044	SAMPLE	276342-004	11898792
045	SAMPLE	275878-003	12191451
046	BS	QC832326	13305612
047	BSD	QC832327	13223542
048	MS	QC834502	12978951
049	CCV		12997838
050	CCB		13160687
051	MSD	QC834503	12829515
052	SAMPLE	276130-005	13020274
053	SAMPLE	276130-006	13412115
054	SAMPLE	276130-009	13150583
055	SAMPLE	276131-002	13557472
056	SAMPLE	276063-004	13678574
057	SAMPLE	276063-005	13729898
058	SAMPLE	276063-006	13644912
059	SAMPLE	276063-008	13526626

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 86188079

Date : 05/09/16 Reference : met08_sn_6010
Sequence : MET08 05/09/16 Analyzed : 05/09/16 14:43

#	Type	Sample ID	Y	A
060	SAMPLE	276063-009	13742763	
061	CCV		12744332	
062	CCB		13297020	
063	SAMPLE	276063-010	13510517	
064	SAMPLE	276138-021	13817501	
065	SAMPLE	276138-022	13063165	
073	CCV		13041534	
075	CCB		13482474	
083	SAMPLE	276301-030	12900019	
084	SAMPLE	276301-031	13161990	
085	SAMPLE	276301-032	12824864	
086	CCV		13124086	
087	CCB		12943107	
088	MS	QC834234	12353433	
089	MSD	QC834235	12126151	
090	SER	QC834236	13172254	
091	SAMPLE	276066-001	12267851	
092	SAMPLE	276066-007	13126116	
093	SAMPLE	276073-001	12520905	
094	SAMPLE	276073-002	13182836	
095	SAMPLE	276073-003	13039242	
096	SAMPLE	276073-004	12683888	
097	SAMPLE	276073-005	13070503	
098	CCV		13261563	
099	CCB		13557297	
102	SAMPLE	276073-007	14132193	
105	BSD	QC832317	13650756	
106	SAMPLE	276114-003	13443203	
107	SAMPLE	276114-004	13353741	
108	SAMPLE	276119-005	13102791	
109	CCV		13182499	
110	CCB		13145670	
111	SAMPLE	276119-007	13836252	
112	SAMPLE	276119-010	13521386	
113	SAMPLE	276278-001	12593398	
114	SAMPLE	276278-001	11444000	
116	SAMPLE	276278-002	12793181	
117	SAMPLE	276278-002	12547637	
119	SAMPLE	276284-001	12758600	
120	SAMPLE	276284-002	12513764	
121	CCV		13096963	
122	CCB		12917042	
123	SAMPLE	276284-003	29207018	*
124	MSS	276284-004	28239499	*
125	SAMPLE	276284-005	12883465	
126	SAMPLE	276284-006	13058740	
127	SAMPLE	276284-007	12874747	
128	MSS	276284-008	12974367	
129	SAMPLE	276284-009	12605985	
130	BLANK	QC833848	14207547	
131	BS	QC833849	19886979	
132	BSD	QC833850	13847579	

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 86188079

Date : 05/09/16 Reference : met08_sn_6010
Sequence : MET08 05/09/16 Analyzed : 05/09/16 14:43

#	Type	Sample ID	Y	A
133	CCV		13250125	
134	CCB		12772025	
135	MSS	276400-009	11457889	
136	MS	QC833851	22486511	
137	MSD	QC833852	28613238	*
138	SAMPLE	276405-001	13684563	
139	SAMPLE	276405-002	13529470	
140	SAMPLE	276405-003	13728244	
141	SAMPLE	276405-004	14481012	
142	SAMPLE	276405-005	13782156	
143	SAMPLE	276405-006	14166617	
144	SAMPLE	276405-007	14265222	
145	CCV		12587807	
146	CCB		13525009	
147	SAMPLE	276405-008	13660157	
148	SAMPLE	276405-009	14304272	
149	SAMPLE	276405-010	13789514	
150	SAMPLE	276405-011	14218099	
151	SAMPLE	276405-012	13656059	
152	SAMPLE	276405-013	14212378	

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 275899 METALS Water: EPA 6010B

Inst : MET08
Calnum : 86188079001
Units : ug/L

Date : 09-MAY-2016 14:39
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met08_sn_6010	86188079002	L1	09-MAY-2016 14:43	S29301
L2	met08_sn_6010	86188079003	L2	09-MAY-2016 14:46	S29393
L3	met08_sn_6010	86188079004	L3	09-MAY-2016 14:48	S29394
L4	met08_sn_6010	86188079005	L4	09-MAY-2016 14:52	S29395
L5	met08_sn_6010	86188079006	L5	09-MAY-2016 14:54	S29761

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Antimony	A	16.370	18.090	17.110	17.642		LOR0	0.00000	0.05670		17.303	1.000	0.995	
Arsenic	A	15.520	13.619	12.851	13.437		LOR0	0.00000	0.07445		13.857	1.000	0.995	
Barium	A	329.80	335.68	324.46	319.12		LOR0	0.00000	0.00313		327.26	1.000	0.995	
Beryllium	A	3829.8	3803.4	3661.7			LOR0	0.00000	2.73E-4		3765.0	1.000	0.995	
Cadmium	A	135.32	149.02	143.76	144.03		LOR0	0.00000	0.00694		143.03	1.000	0.995	
Chromium	A	131.26	100.44	99.213	98.228		LOR0	0.00000	0.01018		107.29	1.000	0.995	
Cobalt	A	106.96	109.09	106.44	108.08		LOR0	0.00000	0.00925		107.64	1.000	0.995	
Copper	A	567.12	351.37	322.18	332.13		LOR0	0.00000	0.00301		393.20	1.000	0.995	
Lead	A	41.780	42.117	39.919	40.135		LOR0	0.00000	0.02492		40.988	1.000	0.995	
Molybdenum	A	21.520	24.985	24.060	24.172		LOR0	0.00000	0.04137		23.684	1.000	0.995	
Nickel	A	36.700	35.941	35.019	35.928		LOR0	0.00000	0.02784		35.897	1.000	0.995	
Selenium	A	15.660	24.315	22.874	23.837		LOR0	0.00000	0.04197		21.672	1.000	0.995	
Silver	A	784.44	1625.1	1539.3	1612.3		LOR0	0.00000	6.21E-4		1390.3	1.000	0.995	
Thallium	A	10.600	12.767	12.454	12.828		LOR0	0.00000	0.07798		12.162	1.000	0.995	
Vanadium	A	89.280	103.41	99.650	101.56		LOR0	0.00000	0.00985		98.474	1.000	0.995	
Zinc	A	69.545	60.951	58.107	58.940		LOR0	0.00000	0.01697		61.886	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Antimony	A	10.000	-7	100.00	3	1000.0	-3	10000	0		
Arsenic	A	5.0000	16	100.00	1	1000.0	-4	10000	0		
Barium	A	5.0000	3	100.00	5	1000.0	2	10000	0		
Beryllium	A	2.0000	5	100.00	4	1000.0	0				
Cadmium	A	5.0000	-6	100.00	3	1000.0	0	10000	0		
Chromium	A	5.0000	**34**	100.00	2	1000.0	1	10000	0		
Cobalt	A	5.0000	-1	100.00	1	1000.0	-2	10000	0		
Copper	A	5.0000	**71**	100.00	6	1000.0	-3	10000	0		
Lead	A	5.0000	4	100.00	5	1000.0	-1	10000	0		
Molybdenum	A	5.0000	-11	100.00	3	1000.0	0	10000	0		
Nickel	A	5.0000	2	100.00	0	1000.0	-3	10000	0		
Selenium	A	10.000	**-34**	100.00	2	1000.0	-4	10000	0		
Silver	A	5.0000	**-51**	20.000	1	200.00	-4	2000.0	0		
Thallium	A	10.000	-17	100.00	0	1000.0	-3	10000	0		
Vanadium	A	5.0000	-12	100.00	2	1000.0	-2	10000	0		
Zinc	A	20.000	18	100.00	3	1000.0	-1	10000	0		

Instrument amount = a0 + response * a1 + response^2 * a2; LOR0=Linear regression forced thru origin, including 0,0 point

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 275899 METALS Water
EPA 6010B

Inst : MET08
Calnum : 86188079001 Cal Date : 09-MAY-2016

ICV 86188079007 (09-MAY-2016) stds: S29396

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	5000	4973	ug/L	-1	10	
Arsenic	A	5000	5066	ug/L	1	10	
Barium	A	5000	5078	ug/L	2	10	
Beryllium	A	500.0	522.6	ug/L	5	10	
Cadmium	A	5000	5101	ug/L	2	10	
Chromium	A	5000	5118	ug/L	2	10	
Cobalt	A	5000	4938	ug/L	-1	10	
Copper	A	5000	4918	ug/L	-2	10	
Lead	A	5000	4971	ug/L	-1	10	
Molybdenum	A	5000	4900	ug/L	-2	10	
Nickel	A	5000	5036	ug/L	1	10	
Selenium	A	5000	5021	ug/L	0	10	
Silver	A	1000	1005	ug/L	1	10	
Thallium	A	5000	4824	ug/L	-4	10	
Vanadium	A	5000	5139	ug/L	3	10	
Zinc	A	5000	5094	ug/L	2	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275899 METALS Water
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86188079010 File : met08_sn_6010 Time : 09-MAY-2016 15:09
Cal : 86188079001 Caldate : 09-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	8.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	4.000	ug/L	
Beryllium	A	ND	2.000	1.600	ug/L	
Cadmium	A	ND	5.000	4.000	ug/L	
Chromium	A	ND	5.000	4.000	ug/L	
Cobalt	A	ND	5.000	4.000	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	4.000	ug/L	
Molybdenum	A	ND	5.000	4.000	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	8.000	ug/L	
Vanadium	A	ND	5.000	4.000	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	12848286	11991127	-6.67

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 275899 METALS Water
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86188079011 File : met08_sn_6010 Time : 09-MAY-2016 15:13
Cal : 86188079001 Caldate : 09-MAY-2016
Standards: S29660

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	[-9.997]	10.00	ug/L	
Arsenic	A	[-1.299]	5.000	ug/L	
Barium	A	[-2.080]	5.000	ug/L	
Beryllium	A	[-0.1312]	2.000	ug/L	
Cadmium	A	[-2.893]	5.000	ug/L	
Cobalt	A	[-0.003906]	5.000	ug/L	
Lead	A	[4.551]	5.000	ug/L	
Molybdenum	A	[-2.060]	5.000	ug/L	
Selenium	A	[-3.274]	10.00	ug/L	
Silver	A	[1.794]	5.000	ug/L	
Thallium	A	[2.800]	10.00	ug/L	
Zinc	A	[5.237]	20.00	ug/L	

Interferent	Ch	Spiked	Quant	Units	%Rec	Flags
Chromium	A	20000	19670	ug/L	98	
Copper	A	20000	20600	ug/L	103	
Manganese	A	20000	18700	ug/L	94	
Nickel	A	20000	18460	ug/L	92	
Vanadium	A	20000	20130	ug/L	101	
Aluminum	R	500000	549200	ug/L	110	
Calcium	R	500000	535300	ug/L	107	
Iron	R	200000	210400	ug/L	105	
Magnesium	R	500000	532800	ug/L	107	
Titanium	R	20000	22310	ug/L	112	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	12848286	11378629	-11.44

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 275899 METALS Water
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86188079012 File : met08_sn_6010 Time : 09-MAY-2016 15:21
Cal : 86188079001 Caldate : 09-MAY-2016
Standards: S29661

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	516.7	ug/L	3	20	
Arsenic	A	500.0	503.7	ug/L	1	20	
Barium	A	500.0	471.5	ug/L	-6	20	
Beryllium	A	500.0	478.6	ug/L	-4	20	
Cadmium	A	1000	905.3	ug/L	-9	20	
Chromium	A	500.0	468.1	ug/L	-6	20	
Cobalt	A	500.0	455.9	ug/L	-9	20	
Copper	A	500.0	469.1	ug/L	-6	20	
Lead	A	1000	924.6	ug/L	-8	20	
Molybdenum	A	500.0	465.1	ug/L	-7	20	
Nickel	A	1000	893.2	ug/L	-11	20	
Selenium	A	500.0	465.5	ug/L	-7	20	
Silver	A	1000	965.1	ug/L	-3	20	
Thallium	A	500.0	462.7	ug/L	-7	20	
Vanadium	A	500.0	501.9	ug/L	0	20	
Zinc	A	1000	924.3	ug/L	-8	20	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	12848286	12155491	-5.39

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275899 METALS Water
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86188079025 File : met08_sn_6010 Time : 09-MAY-2016 15:57
Cal : 86188079001 Caldate : 09-MAY-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	17.303	17.770	5000	5038	ug/L	1	10	
Arsenic	A	13.857	13.969	5000	5200	ug/L	4	10	
Barium	A	327.26	331.54	5000	5194	ug/L	4	10	
Beryllium	A	3765.0	3878.5	500.0	529.4	ug/L	6	10	
Cadmium	A	143.03	149.94	5000	5206	ug/L	4	10	
Chromium	A	107.29	102.02	5000	5193	ug/L	4	10	
Cobalt	A	107.64	108.62	5000	5016	ug/L	0	10	
Copper	A	393.20	330.48	5000	4977	ug/L	0	10	
Lead	A	40.988	40.924	5000	5099	ug/L	2	10	
Molybdenum	A	23.684	24.006	5000	4966	ug/L	-1	10	
Nickel	A	35.897	36.900	5000	5137	ug/L	3	10	
Selenium	A	21.672	24.289	5000	5097	ug/L	2	10	
Silver	A	1390.3	1633.6	1000	1014	ug/L	1	10	
Thallium	A	12.162	12.692	5000	4949	ug/L	-1	10	
Vanadium	A	98.474	105.87	5000	5213	ug/L	4	10	
Zinc	A	61.886	60.857	5000	5163	ug/L	3	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	12848286	12693090	-1.21

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275899 METALS Water
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86188079026 File : met08_sn_6010 Time : 09-MAY-2016 15:59
Cal : 86188079001 Caldate : 09-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	8.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	4.000	ug/L	
Beryllium	A	ND	2.000	1.600	ug/L	
Cadmium	A	ND	5.000	4.000	ug/L	
Chromium	A	ND	5.000	4.000	ug/L	
Cobalt	A	ND	5.000	4.000	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	4.000	ug/L	
Molybdenum	A	ND	5.000	4.000	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	8.000	ug/L	
Vanadium	A	ND	5.000	4.000	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	12848286	13015165	1.30

SAMPLE PREPARATION SUMMARY

Batch # : 234229 Analysis : ICP
Started By : RLG Prep Date : 19-APR-2016 11:05 Finished By : RLG
Method : 3010A Units : mL
Spike #1 ID : S29076 Spike #2 ID : S29077 Spike #3 ID : S28732

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
275899-005		Water	50	50	1	1.0						6010	
275899-006		Water	50	50	1	1.0						6010	
276031-002		Water	50	50	1	1.0						HARDNESS	
276035-001		Water	50	50	1	1.0						6010	
276035-002		Water	50	50	1	1.0						6010	
276035-003		Water	50	50	1	1.0						6010	
276035-004		Water	50	50	1	1.0						6010	
276035-005		Water	50	50	1	1.0						6010	
276035-006		Water	50	50	1	1.0						6010	
276035-007		Water	50	50	1	1.0						6010	
276035-008		Water	50	50	1	1.0						6010	
276035-009		Water	50	50	1	1.0						6010	
276046-001		Water	50	50	1	1.0						6010	
276046-002		Water	50	50	1	1.0						6010	
276046-003		Water	50	50	1	1.0						6010	
276046-005		Water	50	50	1	1.0						6010	
276046-006		Water	50	50	1	1.0						6010	
QC832119	BLANK	Water	50	50	1	1.0							
QC832120	BS	Water	50	50	1	1.0		.5	.5	.5			
QC832121	BSD	Water	50	50	1	1.0		.5	.5	.5			
QC832122	MS	Water	50	50	1	1.0		.5	.5	.5			
QC832123	MSD	Water	50	50	1	1.0		.5	.5	.5			
QC832124	SER	Water	50	50	1	1.0							
QC832125	PDS	Water	50	50	1	1.0							

Analyst: KER Date: 05/09/16 Reviewer: PRW Date: 05/09/16

Water Digestion for ICP

Curtis & Tompkins, Ltd.

LIMS Batch #: 234229
Digested by: RLG
Date Digested: 4/19/16

Digestion Method
☒ EPA 3010a for ICP
☐ EPA 200.7
☐ _____

BK 3879
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Lvl.	Sample #	Container ID	Volume Sample(mL)	Final Volume (mL)	Filtered? (y/n)	ID ✓	Comments
	BLANK		☒ 50 ☐	☒ 50 ☐	N	✓	QC832119
	BS		☒ 50 ☐	☒ 50 ☐		✓	20
	BSD		☒ 50 ☐	☒ 50 ☐		✓	21
	MS		☒ 50 ☐	☒ 50 ☐		✓	22
5	MSD		☒ 50 ☐	☒ 50 ☐		✓	23
IV	275899-005	A	☒ 50 ☐	☒ 50 ☐		✓	MSS
↓	↓ -006	↓	☒ 50 ☐	☒ 50 ☐		✓	
III	276031-002	H	☒ 50 ☐	☒ 50 ☐		✓	
II	276035-001	G	☒ 50 ☐	☒ 50 ☐		✓	
10	-002		☒ 50 ☐	☒ 50 ☐		✓	
	-003		☒ 50 ☐	☒ 50 ☐		✓	
	-004		☒ 50 ☐	☒ 50 ☐		✓	
	-005		☒ 50 ☐	☒ 50 ☐		✓	
	-006		☒ 50 ☐	☒ 50 ☐		✓	
15	-007		☒ 50 ☐	☒ 50 ☐		✓	
	-008		☒ 50 ☐	☒ 50 ☐		✓	
↓	↓ -009		☒ 50 ☐	☒ 50 ☐		✓	
II	276046-001		☒ 50 ☐	☒ 50 ☐		✓	
	-002		☒ 50 ☐	☒ 50 ☐		✓	
20	-003		☒ 50 ☐	☒ 50 ☐		✓	
	-005		☒ 50 ☐	☒ 50 ☐		✓	
↓	↓ -006	↓	☒ 50 ☐	☒ 50 ☐	↓	✓	
			☐ 50 ☐	☐ 50 ☐			
			☐ 50 ☐	☐ 50 ☐			
			☐ 50 ☐	☐ 50 ☐			

	Reagent ID or LIMS #		Initials / Date
Digestion tubes/ Watch glasses, lot #	EK160110		RLG 4/19/16
.5 mL of spike solution (Std1) was added to all spikes	529076		
.5 mL of spike solution (Std2) was added to all spikes	529077		
.5 mL of spike solution (Std3) was added to all spikes	528732		
Digestion Block ID/ Probe Location	ARCHES	28	
Thermometer ID, Temperature (°C)	SNA6H812	93°	
Digestion begun at (time)	11:05		
☒ Conc. HNO3 lot#, or ☐ 1:1 HNO3 reagent ID	JTB 133393		
☐ Conc. HCl lot#, or ☒ 1:1 HCl reagent ID	FS 4115100		
digestion ended at (time)	18:40		
☐ filtered thru' Whatman # 541, lot#	—		
Relinquished to ICP group	ICP		

Pipettes

Vol.(mL)	ID
.5	N271500
5	2016708

Prep Chemist / Date 4/19/16

Continued from page Ø.
Continued on page _____.

Reviewed Online / See LIMS
Version 12, Dec.2015

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 1076163493

Instrument : MET54
Method : EPA 7470A

Begun : 04/22/16 12:53
SOP Version : hg_water_rv16

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met54	ICALBLK				04/22/16 12:53	1.0		
002	met54	ICAL	ICAL1			04/22/16 12:55	1.0	1	
003	met54	ICAL	ICAL2			04/22/16 12:56	1.0	1	
004	met54	ICAL	ICAL3			04/22/16 12:57	1.0	1	
005	met54	ICAL	ICAL4			04/22/16 12:58	1.0	1	
006	met54	ICAL	ICAL5			04/22/16 12:59	1.0	1	
007	met54	ICV				04/22/16 13:01	1.0	2	
008	met54	ICB				04/22/16 13:02	1.0		
009	met54	BLANK	QC832617	Filtrate	234349	04/22/16 13:03	1.0		
010	met54	BS	QC832618	Filtrate	234349	04/22/16 13:04	1.0		
011	met54	BSD	QC832619	Filtrate	234349	04/22/16 13:06	1.0		
012	met54	MSS	275865-011	Filtrate	234349	04/22/16 13:07	1.0		
013	met54	MS	QC832620	Filtrate	234349	04/22/16 13:08	1.0		
014	met54	MSD	QC832621	Filtrate	234349	04/22/16 13:09	1.0		
015	met54	SER	QC832622	Filtrate	234349	04/22/16 13:11	5.0		
016	met54	SAMPLE	275865-004	Filtrate	234349	04/22/16 13:12	1.0		
017	met54	SAMPLE	275865-005	Filtrate	234349	04/22/16 13:13	1.0		
018	met54	SAMPLE	275865-006	Filtrate	234349	04/22/16 13:14	1.0		
019	met54	CCV				04/22/16 13:16	1.0	3	
020	met54	CCB				04/22/16 13:17	1.0		
021	met54	SAMPLE	275865-008	Filtrate	234349	04/22/16 13:18	1.0		
022	met54	SAMPLE	275865-012	Filtrate	234349	04/22/16 13:19	1.0		
023	met54	SAMPLE	275865-013	Filtrate	234349	04/22/16 13:20	1.0		
024	met54	SAMPLE	275899-005	Water	234349	04/22/16 13:22	1.0		
025	met54	SAMPLE	275899-006	Water	234349	04/22/16 13:23	1.0		
026	met54	SAMPLE	276046-001	Water	234349	04/22/16 13:24	1.0		
027	met54	SAMPLE	276046-002	Water	234349	04/22/16 13:25	1.0		
028	met54	SAMPLE	276046-003	Water	234349	04/22/16 13:27	1.0		
029	met54	SAMPLE	276046-005	Water	234349	04/22/16 13:28	1.0		
030	met54	SAMPLE	276046-006	Water	234349	04/22/16 13:29	1.0		
031	met54	CCV				04/22/16 13:30	1.0	3	
032	met54	CCB				04/22/16 13:32	1.0		
033	met54	BLANK	QC832623	TCLP Leachate	234349	04/22/16 13:33	1.0		
034	met54	SAMPLE	275187-001	TCLP Leachate	234349	04/22/16 13:34	1.0		
035	met54	SAMPLE	275187-002	TCLP Leachate	234349	04/22/16 13:35	1.0		
036	met54	SAMPLE	275187-003	TCLP Leachate	234349	04/22/16 13:37	1.0		
037	met54	CCV				04/22/16 13:38	1.0	3	
038	met54	CCB				04/22/16 13:39	1.0		

LCS 04/22/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 38.

Standards used: 1=S29706 2=S29708 3=S29709

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 275899 METALS Water: EPA 7470A

Inst : MET54
Calnum : 1076163493001
Units : ug/L

Date : 22-APR-2016 12:53
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met54	1076163493002	ICAL1	22-APR-2016 12:55	S29706 (500X)
L2	met54	1076163493003	ICAL2	22-APR-2016 12:56	S29706 (200X)
L3	met54	1076163493004	ICAL3	22-APR-2016 12:57	S29706 (50X)
L4	met54	1076163493005	ICAL4	22-APR-2016 12:58	S29706 (20X)
L5	met54	1076163493006	ICAL5	22-APR-2016 12:59	S29706 (10X)

Analyte	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Mercury	0.0465	0.0512	0.0511	0.0521	0.0499	LIN0	-0.0282	19.9388		0.0501	1.000	.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Mercury	0.2000	**-21**	0.5000	-4	2.0000	0	5.0000	3	10.000	-1

Instrument amount = a0 + response * a1 + response^2 * a2; LIN0=Linear regression including 0,0 point

1076163493001

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 275899 METALS Water EPA 7470A

Inst : MET54
Calnum : 1076163493001 Cal Date : 22-APR-2016

ICV 1076163493007 (22-APR-2016) stds: S29708

Analyte	Spiked	Quant	Units	%D	Max	Flags
Mercury	5.000	5.018	ug/L	0	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275899 METALS Water
EPA 7470A

Inst : MET54 IDF : 1.0
Seqnum : 1076163493008 File : met54 Time : 22-APR-2016 13:02
Cal : 1076163493001 Caldate : 22-APR-2016

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275899 METALS Water
EPA 7470A

Inst : MET54 IDF : 1.0
Seqnum : 1076163493019 File : met54 Time : 22-APR-2016 13:16
Cal : 1076163493001 Caldate : 22-APR-2016
Standards: S29709

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0501	0.0523	5.000	5.184	ug/L	4	20	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275899 METALS Water
EPA 7470A

Inst : MET54 IDF : 1.0
Seqnum : 1076163493020 File : met54 Time : 22-APR-2016 13:17
Cal : 1076163493001 Caldate : 22-APR-2016

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275899 METALS Water
EPA 7470A

Inst : MET54 IDF : 1.0
Seqnum : 1076163493031 File : met54 Time : 22-APR-2016 13:30
Cal : 1076163493001 Caldate : 22-APR-2016
Standards: S29709

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0501	0.0523	5.000	5.188	ug/L	4	20	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275899 METALS Water
EPA 7470A

Inst : MET54 IDF : 1.0
Seqnum : 1076163493032 File : met54 Time : 22-APR-2016 13:32
Cal : 1076163493001 Caldate : 22-APR-2016

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

SAMPLE PREPARATION SUMMARY

Batch # : 234349
Started By : LCS
Method : METHOD
Spike #1 ID : S29706

Prep Date : 22-APR-2016 09:00

Analysis : HG
Finished By : LCS
Units : mL

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
275187-001		TCLP Leachate	10	50	1	5.0						7470-HG	
275187-002		TCLP Leachate	10	50	1	5.0						7470-HG	
275187-003		TCLP Leachate	10	50	1	5.0						7470-HG	
275865-004		Filtrate	50	50	1	1.0						T22/HG	
275865-005		Filtrate	50	50	1	1.0						T22/HG	
275865-006		Filtrate	50	50	1	1.0						T22/HG	
275865-008		Filtrate	50	50	1	1.0						T22/HG	
275865-011		Filtrate	50	50	1	1.0						T22/HG	
275865-012		Filtrate	50	50	1	1.0						T22/HG	
275865-013		Filtrate	50	50	1	1.0						T22/HG	
275899-005		Water	50	50	1	1.0						T22/HG	
275899-006		Water	50	50	1	1.0						T22/HG	
276046-001		Water	50	50	1	1.0						T22/HG	
276046-002		Water	50	50	1	1.0						T22/HG	
276046-003		Water	50	50	1	1.0						T22/HG	
276046-005		Water	50	50	1	1.0						T22/HG	
276046-006		Water	50	50	1	1.0						T22/HG	
QC832617	BLANK	Filtrate	50	50	1	1.0							
QC832618	BS	Filtrate	50	50	1	1.0		1.25					
QC832619	BSD	Filtrate	50	50	1	1.0		1.25					
QC832620	MS	Filtrate	50	50	1	1.0		1.25					
QC832621	MSD	Filtrate	50	50	1	1.0		1.25					
QC832622	SER	Filtrate	50	50	1	1.0							
QC832623	BLANK	TCLP Leachate	10	50	1	5.0							

Analyst: LCS Date: 04/22/16 Reviewer: PRW Date: 04/22/16

Water Digestion for Mercury — Curtis & Tompkins, Ltd. — Wate

LIMS Batch #: 234349 — Digestion Method: ☒ EPA 7470A/ EPA 245.1 — BK3846 — LIM
Date Digested: 4/22/16 — ☐ _____ — Page 34 — Dat

	Sample #	container ID	Volume Sample (mL)	Final Volume (mL)	Filtered? (y/n)	Comments
	MB		☒50 ☐	☒50 ☐	n	
	BS		☒50 ☐	☒50 ☐		
	BSD		☒50 ☐	☒50 ☐		
	MS		☒50 ☐	☒50 ☐		
5	MSD		☒50 ☐	☒50 ☐		
	275187-001		☐50 ☒10	☒50 ☐		
	-002		☐50 ☒10	☒50 ☐		
	-003		☐50 ☒10	☒50 ☐		
	275865-004		☒50 ☐	☒50 ☐		
10	-005		☒50 ☐	☒50 ☐		
	-006		☒50 ☐	☒50 ☐		
	-008		☒50 ☐	☒50 ☐		
	-011		☒50 ☐	☒50 ☐		MSS
	-012		☒50 ☐	☒50 ☐		
15	-013		☒50 ☐	☒50 ☐		
	275899-005		☒50 ☐	☒50 ☐		
	-006		☒50 ☐	☒50 ☐		
	276046-001		☒50 ☐	☒50 ☐		
	-002		☒50 ☐	☒50 ☐		
20	-003		☒50 ☐	☒50 ☐		
	LJ 4/22 ~~004~~		☐50 ☐	☒50 ☐		
	-005		☒50 ☐	☒50 ☐		
	-006		☒50 ☐	☒50 ☐		
	QC 832623		☐50 ☒10	☒50 ☐		TCLP Leachate Blank
			☐50 ☐	☐50 ☐		

	Reagent ID/ LIMS# / Time	Initials / Date
Digestion Tube Lot #	EK 16028	LJ 4/2
1.25 mL of spike solution was added to all spikes	S29706	
Using pipette #	L3040780	
☐ **CAL digested with this batch? ICAL Std S#**	S29707 LJ 4/22	
ICV / CCV LIMS S#	S29708 / S29709	
Digestion Temperature (°C), Block and Probe Location	~~4/22~~ 191 2	
Digestion Block ID: Denali Thermometer #	L91303	
Digestion Started at (time)	9:52	
concentrated H_2SO_4	FS 157449	
concentrated HNO_3	JTB 133393	
5% $KMnO_4$ Reagent ID	4.18.16	
5% $K_2S_2O_8$ Reagent ID	4.19.16	
NaCl.hydroxylamine hydrochloride Reagent ID	4.21.16	
Stannous Chloride Reagent ID	4.19.16	
Digestion Completed at (time)	11:55	
☐ filtered thru' 0.45 um syringe filter (lot #)		

Pipettes

Vol.(mL)	ID
.1	J28153D
.25-1	G15693E
1.25-4	L3678D
5-10	R29101

4/22/16
Prep Chemist / Date

Continued from page _____
Continued on page _____

Reviewed Online / See LIMS
Version 5, Dec.2015

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

Laboratory Job Number 275899
ANALYTICAL REPORT
Metals
Matrix: Filtrate

Tetra Tech EMI	Project : 1035225323.06
1999 Harrison Street	Location : RFS 2016 Groundwater
Oakland, CA 94612	Level : IV

Sample ID	Lab ID
20160411CTP	275899-003
20160411B195	275899-004
20160411ER	275899-008

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: 05/10/2016

Mike Dahlquist
Project Manager
mike.dahlquist@ctberk.com

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE
METALS (EPA 6010B AND EPA 7470A)
FILTRATE

Laboratory number:	**275899**
Client:	**Tetra Tech EMI**
Project:	**1035225323.06**
Location:	**RFS 2016 Groundwater**
Request Date:	**04/11/16**
Samples Received:	**04/11/16**

This data package contains sample and QC results for three water samples, requested for the above referenced project on 04/11/16. See attached cooler receipt form for any sample receipt problems or discrepancies.

Metals (EPA 6010B and EPA 7470A) Filtrate:

High responses were observed for arsenic and lead in the CCV analyzed 05/03/16 14:39; these analytes were not detected at or above the RL in the associated samples.

High response was observed for lead in the CCV analyzed 05/03/16 13:59; this analyte was not detected at or above the RL in the associated samples.

High responses were observed for silver and cobalt in the CCV analyzed 04/19/16 13:09.

High recovery was observed for antimony in the BSD for batch 234182; the associated RPD was within limits, and this analyte was not detected at or above the RL in the associated samples.

Silver, copper, and lead were detected between the MDL and the RL in the method blank for batch 234182; these analytes were not detected in samples at or above the RL.

No other analytical problems were encountered.

Chain of Custody

275899

Chain of Custody Record No. 7113

Page 1 of 1

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

Lab PO#: 160AK35	**Lab:** CT		
Project name: 2016 RFS GW	**TtEMI technical contact:** Sara Woolley	**Field samplers:** Cynthia Breed & Mark Duffy	
Project (CTO) number: 103522532306	**TtEMI project manager:** Jason Brodersen	**Field samplers' signatures:**	

Preservative Added: HCl; HNO3

No./Container Types: 40 ml VOA; 1 liter Amber; 500 ml Poly; Sleeve; Glass Jar

Analysis Required: VOA; SVOA; Pest/PCBs; Metals; TPH Purgeables; TPH Extractables

	Sample ID	Sample Location (Pt. ID)	Date	Time	Matrix	MS / MSD	40 ml VOA	1 liter Amber	500 ml Poly	Sleeve	Glass Jar	VOA	SVOA	Pest/PCBs	Metals	TPH Purgeables	TPH Extractables
1	20160411GED		4/11/16	0920	Water		3					X					
2	20160411B280A			0955			3					X					
3	20160411CTB			1025			3		1			X			X		
4	20160411B195			1127			3		1			X			X		
5	20160411EERC			1300					1						X*		
6	20160411B474			1410 ~~1355~~					1						X*		
7	20160411B277			1450			3					X					
8	20160411ER			1530			3		1			X			X		
9	20160411TB			0900			~~2~~ 3					X					

	Name (print)	Company Name	Date	Time
Relinquished by:	Mark Duffy	Tetra Tech CT	4-11-16	1600
Received by:	Mikelle Chong		4/11/16	1600
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				

Turnaround time/remarks:
* Metals filtered in field

Fed Ex #: NA

WHITE-Laboratory Copy YELLOW-Sample Tracker PINK-File Copy

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 275899 Date Received 4/11/16 Number of coolers 1
Client TetraTech EM Inc. Project 2016 RFS GW

Date Opened 4/11 By (print) CJN (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) ____
   CJN
   ☒ 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) ____
   ☐ Temperature blank(s) included? ☐ Thermometer# ____ ☐ 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? (pH strip lot# HC 285444) (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
20. 1/2 VOAs Received w/ bubble 7 6mm for sample 9

Rev 12, 12/01/15

Curtis & Tompkins Sample Preservation for 275899

Sample	pH: <2	>9	>12	Other
-003a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[X]	[ ]	[ ]	_____
-004a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[X]	[ ]	[ ]	_____
-005a	[X]	[ ]	[ ]	_____
-006a	[X]	[ ]	[ ]	_____
-008a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[X]	[ ]	[ ]	_____

Analyst: CJN
Date: 4/11/16

Results & QC Summary

Curtis & Tompkins, Ltd.

Dissolved California Title 22 Metals

Lab #:	275899	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225323.06		
Field ID:	20160411CTP	Diln Fac:	1.000
Lab ID:	275899-003	Sampled:	04/11/16
Matrix:	Filtrate	Received:	04/11/16
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Prepared	Analyzed	Analysis
Antimony	ND	10	2.0	234182	04/18/16	05/03/16	EPA 6010B
Arsenic	ND	5.0	1.5	234182	04/18/16	05/03/16	EPA 6010B
Barium	77	5.0	1.0	234182	04/18/16	05/03/16	EPA 6010B
Beryllium	ND	2.0	0.40	234182	04/18/16	05/03/16	EPA 6010B
Cadmium	1.5 J	5.0	1.0	234182	04/18/16	05/03/16	EPA 6010B
Chromium	1.0 J	5.0	1.0	234182	04/18/16	05/03/16	EPA 6010B
Cobalt	ND	5.0	1.0	234182	04/18/16	05/03/16	EPA 6010B
Copper	ND	5.0	1.5	234182	04/18/16	05/03/16	EPA 6010B
Lead	ND	5.0	1.2	234182	04/18/16	05/03/16	EPA 6010B
Mercury	ND	0.20	0.040	234428	04/25/16	04/25/16	EPA 7470A
Molybdenum	2.6 J	5.0	1.0	234182	04/18/16	05/03/16	EPA 6010B
Nickel	2.6 J	5.0	0.67	234182	04/18/16	05/03/16	EPA 6010B
Selenium	5.3 J	10	3.1	234182	04/18/16	05/03/16	EPA 6010B
Silver	ND	5.0	1.0	234182	04/18/16	05/03/16	EPA 6010B
Thallium	5.9 J	10	2.0	234182	04/18/16	05/03/16	EPA 6010B
Vanadium	3.3 J	5.0	1.0	234182	04/18/16	05/03/16	EPA 6010B
Zinc	34	20	4.0	234182	04/18/16	05/03/16	EPA 6010B

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Dissolved California Title 22 Metals

Lab #:	275899	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225323.06		
Field ID:	20160411B195	Diln Fac:	1.000
Lab ID:	275899-004	Sampled:	04/11/16
Matrix:	Filtrate	Received:	04/11/16
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Prepared	Analyzed	Analysis
Antimony	ND	10	2.0	234182	04/18/16	05/03/16	EPA 6010B
Arsenic	4.9 J	5.0	1.5	234182	04/18/16	05/03/16	EPA 6010B
Barium	15	5.0	1.0	234182	04/18/16	05/03/16	EPA 6010B
Beryllium	ND	2.0	0.40	234182	04/18/16	05/03/16	EPA 6010B
Cadmium	ND	5.0	1.0	234182	04/18/16	05/03/16	EPA 6010B
Chromium	ND	5.0	1.0	234182	04/18/16	05/03/16	EPA 6010B
Cobalt	ND	5.0	1.0	234182	04/18/16	05/03/16	EPA 6010B
Copper	ND	5.0	1.5	234182	04/18/16	05/03/16	EPA 6010B
Lead	ND	5.0	1.2	234182	04/18/16	05/03/16	EPA 6010B
Mercury	2.1	0.20	0.040	234428	04/25/16	04/25/16	EPA 7470A
Molybdenum	1.9 J	5.0	1.0	234182	04/18/16	05/03/16	EPA 6010B
Nickel	1.9 J	5.0	0.67	234182	04/18/16	05/03/16	EPA 6010B
Selenium	ND	10	3.1	234182	04/18/16	05/03/16	EPA 6010B
Silver	ND	5.0	1.0	234182	04/18/16	05/03/16	EPA 6010B
Thallium	2.0 J	10	2.0	234182	04/18/16	05/03/16	EPA 6010B
Vanadium	4.8 J	5.0	1.0	234182	04/18/16	05/03/16	EPA 6010B
Zinc	ND	20	4.0	234182	04/18/16	05/03/16	EPA 6010B

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Dissolved California Title 22 Metals

Lab #:	275899	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225323.06		
Field ID:	20160411ER	Diln Fac:	1.000
Lab ID:	275899-008	Sampled:	04/11/16
Matrix:	Filtrate	Received:	04/11/16
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Prepared	Analyzed	Analysis
Antimony	ND	10	2.0	234182	04/18/16	05/03/16	EPA 6010B
Arsenic	ND	5.0	1.5	234182	04/18/16	05/03/16	EPA 6010B
Barium	ND	5.0	1.0	234182	04/18/16	05/03/16	EPA 6010B
Beryllium	ND	2.0	0.40	234182	04/18/16	05/03/16	EPA 6010B
Cadmium	ND	5.0	1.0	234182	04/18/16	05/03/16	EPA 6010B
Chromium	ND	5.0	1.0	234182	04/18/16	05/03/16	EPA 6010B
Cobalt	ND	5.0	1.0	234182	04/18/16	05/03/16	EPA 6010B
Copper	ND	5.0	1.5	234182	04/18/16	05/03/16	EPA 6010B
Lead	ND	5.0	1.2	234182	04/18/16	05/03/16	EPA 6010B
Mercury	ND	0.20	0.040	234428	04/25/16	04/25/16	EPA 7470A
Molybdenum	ND	5.0	1.0	234182	04/18/16	05/03/16	EPA 6010B
Nickel	2.1 J	5.0	0.67	234182	04/18/16	05/03/16	EPA 6010B
Selenium	ND	10	3.1	234182	04/18/16	05/03/16	EPA 6010B
Silver	ND	5.0	1.0	234182	04/18/16	05/03/16	EPA 6010B
Thallium	4.9 J	10	2.0	234182	04/18/16	05/03/16	EPA 6010B
Vanadium	1.0 J	5.0	1.0	234182	04/18/16	05/03/16	EPA 6010B
Zinc	ND	20	4.0	234182	04/18/16	05/03/16	EPA 6010B

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	275899	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225323.06	Analysis:	EPA 6010B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC831916	Batch#:	234182
Matrix:	Filtrate	Prepared:	04/18/16
Units:	ug/L	Analyzed:	04/19/16

Analyte	Result	RL	MDL
Antimony	ND	10	2.0
Arsenic	ND	5.0	1.7
Barium	ND	5.0	1.0
Beryllium	ND	2.0	0.40
Cadmium	ND	5.0	1.0
Chromium	ND	5.0	1.0
Cobalt	ND	5.0	1.0
Copper	1.4 J	5.0	1.2
Lead	1.1 J	5.0	1.0
Molybdenum	ND	5.0	1.0
Nickel	ND	5.0	1.0
Selenium	ND	10	2.0
Silver	1.5 J	5.0	1.0
Thallium	ND	10	2.0
Vanadium	ND	5.0	1.0
Zinc	ND	20	4.0

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	275899	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225323.06	Analysis:	EPA 6010B
Matrix:	Filtrate	Batch#:	234182
Units:	ug/L	Prepared:	04/18/16
Diln Fac:	1.000	Analyzed:	04/19/16

Type: BS Lab ID: QC831917

Analyte	Spiked	Result	%REC	Limits
Antimony	100.0	118.0	118	79-120
Arsenic	100.0	106.4	106	80-120
Barium	100.0	97.45	97	80-120
Beryllium	100.0	97.97	98	80-120
Cadmium	100.0	107.3	107	80-120
Chromium	100.0	100.5	101	80-120
Cobalt	100.0	94.94	95	80-120
Copper	100.0	96.28	96	80-120
Lead	100.0	97.93	98	80-120
Molybdenum	100.0	99.48	99	80-120
Nickel	100.0	95.54	96	80-120
Selenium	100.0	112.3	112	80-120
Silver	100.0	97.77	98	77-120
Thallium	50.00	53.16	106	80-121
Vanadium	100.0	101.4	101	80-120
Zinc	100.0	101.9	102	80-120

Type: BSD Lab ID: QC831918

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Antimony	100.0	120.7	121 *	79-120	2	20
Arsenic	100.0	106.8	107	80-120	0	20
Barium	100.0	98.66	99	80-120	1	20
Beryllium	100.0	98.35	98	80-120	0	20
Cadmium	100.0	108.9	109	80-120	2	20
Chromium	100.0	102.3	102	80-120	2	20
Cobalt	100.0	94.62	95	80-120	0	20
Copper	100.0	98.16	98	80-120	2	20
Lead	100.0	98.74	99	80-120	1	20
Molybdenum	100.0	100.6	101	80-120	1	20
Nickel	100.0	96.43	96	80-120	1	20
Selenium	100.0	111.5	112	80-120	1	20
Silver	100.0	94.85	95	77-120	3	20
Thallium	50.00	54.39	109	80-121	2	20
Vanadium	100.0	103.0	103	80-120	2	20
Zinc	100.0	102.9	103	80-120	1	20

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

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	275899	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225323.06	Analysis:	EPA 6010B
Field ID:	20160411CTP	Batch#:	234182
MSS Lab ID:	275899-003	Sampled:	04/11/16
Matrix:	Filtrate	Received:	04/11/16
Units:	ug/L	Prepared:	04/18/16
Diln Fac:	1.000		

Type: MS Lab ID: QC831919

Analyte	MSS Result	Spiked	Result	%REC	Limits	Analyzed
Antimony	<2.000	100.0	107.7	108	74-120	05/03/16
Arsenic	<1.538	100.0	108.9	109	80-127	05/04/16
Barium	77.19	100.0	180.7	103	80-120	05/03/16
Beryllium	<0.4000	100.0	105.5	106	80-120	05/03/16
Cadmium	1.501	100.0	110.9	109	80-120	05/03/16
Chromium	1.047	100.0	101.8	101	80-120	05/03/16
Cobalt	<1.000	100.0	102.0	102	80-120	05/03/16
Copper	<1.452	100.0	100.8	101	80-120	05/03/16
Lead	<1.190	100.0	100.1	100	67-120	05/04/16
Molybdenum	2.584	100.0	106.1	104	80-120	05/03/16
Nickel	2.593	100.0	107.9	105	80-120	05/03/16
Selenium	5.339	100.0	103.4	98	73-132	05/03/16
Silver	<1.000	100.0	109.9	110	67-120	05/04/16
Thallium	5.902	50.00	53.93	96	76-121	05/03/16
Vanadium	3.314	100.0	112.1	109	80-120	05/03/16
Zinc	34.22	100.0	138.6	104	80-122	05/03/16

Type: MSD Lab ID: QC831920

Analyte	Spiked	Result	%REC	Limits	RPD	Lim	Analyzed
Antimony	100.0	101.1	101	74-120	6	24	05/03/16
Arsenic	100.0	106.8	107	80-127	2	25	05/04/16
Barium	100.0	179.4	102	80-120	1	20	05/03/16
Beryllium	100.0	104.5	104	80-120	1	20	05/03/16
Cadmium	100.0	110.6	109	80-120	0	20	05/03/16
Chromium	100.0	101.2	100	80-120	1	20	05/03/16
Cobalt	100.0	100.4	100	80-120	2	20	05/03/16
Copper	100.0	99.93	100	80-120	1	20	05/03/16
Lead	100.0	97.65	98	67-120	2	23	05/04/16
Molybdenum	100.0	104.5	102	80-120	2	20	05/03/16
Nickel	100.0	106.3	104	80-120	2	20	05/03/16
Selenium	100.0	104.4	99	73-132	1	30	05/03/16
Silver	100.0	106.3	106	67-120	3	22	05/04/16
Thallium	50.00	54.01	96	76-121	0	20	05/03/16
Vanadium	100.0	110.4	107	80-120	2	20	05/03/16
Zinc	100.0	136.6	102	80-122	2	20	05/03/16

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	275899	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225323.06	Analysis:	EPA 6010B
Field ID:	20160411CTP	Diln Fac:	5.000
Type:	Serial Dilution	Batch#:	234182
MSS Lab ID:	275899-003	Sampled:	04/11/16
Lab ID:	QC831921	Received:	04/11/16
Matrix:	Filtrate	Analyzed:	05/03/16
Units:	ug/L		

Analyte	MSS Result	MSS RL	Result	RL	% Diff	Lim
Antimony	ND	10.00	ND	50.00	NC	10
Arsenic	ND	5.000	ND	25.00	NC	10
Barium	77.19	5.000	76.59	25.00	1	10
Beryllium	ND	2.000	ND	10.00	NC	10
Cadmium	1.501	5.000	ND	25.00	NC	10
Chromium	1.047	5.000	ND	25.00	NC	10
Cobalt	ND	5.000	ND	25.00	NC	10
Copper	ND	5.000	ND	25.00	NC	10
Lead	ND	5.000	ND	25.00	NC	10
Molybdenum	2.584	5.000	ND	25.00	NC	10
Nickel	2.593	5.000	ND	25.00	NC	10
Selenium	5.339	10.00	36.27 J	50.00	NC	10
Silver	ND	5.000	ND	25.00	NC	10
Thallium	5.902	10.00	13.30 J	50.00	NC	10
Vanadium	3.314	5.000	6.337 J	25.00	NC	10
Zinc	34.22	20.00	38.57 J	100.0	NC	10

J= Estimated value
NC= Not Calculated
ND= Not Detected at or above MDL
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	275899	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225323.06	Analysis:	EPA 6010B
Field ID:	20160411CTP	Diln Fac:	1.000
Type:	Post Digest Spike	Batch#:	234182
MSS Lab ID:	275899-003	Sampled:	04/11/16
Lab ID:	QC831922	Received:	04/11/16
Matrix:	Filtrate	Analyzed:	05/03/16
Units:	ug/L		

Analyte	MSS Result	Spiked	Result	%REC	Limits
Antimony	<2.000	100.0	97.32	97	75-125
Arsenic	<1.538	100.0	105.4	105	75-125
Barium	77.19	100.0	173.0	96	75-125
Beryllium	<0.4000	100.0	103.0	103	75-125
Cadmium	1.501	100.0	102.9	101	75-125
Chromium	1.047	100.0	101.9	101	75-125
Cobalt	<1.000	100.0	100.5	101	75-125
Copper	<1.452	100.0	97.37	97	75-125
Lead	<1.190	100.0	98.29	98	75-125
Molybdenum	2.584	100.0	101.4	99	75-125
Nickel	2.593	100.0	100.3	98	75-125
Selenium	5.339	100.0	108.8	103	75-125
Silver	<1.000	100.0	99.87	100	75-125
Thallium	5.902	50.00	55.35	99	75-125
Vanadium	3.314	100.0	103.6	100	75-125
Zinc	34.22	100.0	141.3	107	75-125

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	275899	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225323.06	Analysis:	EPA 7470A
Analyte:	Mercury	Batch#:	234428
Units:	ug/L	Prepared:	04/25/16
Diln Fac:	1.000	Analyzed:	04/25/16

Type	Lab ID	Matrix	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC832921	Water	2.500	2.665	107	80-120		
BSD	QC832922	Filtrate	2.500	2.895	116	80-120	8	24

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	275899	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225323.06	Analysis:	EPA 7470A
Analyte:	Mercury	Batch#:	234428
Field ID:	20160408PZ11	Sampled:	04/08/16
MSS Lab ID:	275865-015	Received:	04/08/16
Matrix:	Filtrate	Prepared:	04/25/16
Units:	ug/L	Analyzed:	04/25/16
Diln Fac:	1.000		

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
MS	QC832923	<0.04000	2.500	2.750	110	60-130		
MSD	QC832924		2.500	2.676	107	60-130	3	34

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	275899	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225323.06	Analysis:	EPA 7470A
Analyte:	Mercury	Units:	ug/L
Field ID:	20160408PZ11	Diln Fac:	5.000
Type:	Serial Dilution	Batch#:	234428
MSS Lab ID:	275865-015	Sampled:	04/08/16
Lab ID:	QC832925	Received:	04/08/16
Matrix:	Filtrate	Analyzed:	04/25/16

MSS Result	MSS RL	Result	RL	% Diff	Lim
ND	0.2000	ND	1.000	NC	10

NC= Not Calculated
ND= Not Detected at or above MDL
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	275899	Location:	RFS 2016 Groundwater
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225323.06	Analysis:	EPA 7470A
Analyte:	Mercury	Diln Fac:	1.000
Type:	BLANK	Batch#:	234428
Lab ID:	QC832943	Prepared:	04/25/16
Matrix:	Filtrate	Analyzed:	04/25/16
Units:	ug/L		

Result	RL	MDL
ND	0.20	0.040

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

REPORTING SUMMARY FOR 275899 METALS Filtrate
Curtis & Tompkins Laboratories

Lab ID	Inst ID	Analyzed	IDF	SB	AS	BA	BE	CD	CR	CO	CU	PB	HG	MO	NI	SE	AG	TL	V	ZN
275899-003	MET54	04/25/16 18:45	1.0										+							
275899-003	MET08	05/03/16 14:20	1.0	+	+	+	+	+	+	+	+	+		+	+	+		+	+	+
275899-003	MET08	05/03/16 19:11	1.0														+			
275899-004	MET54	04/25/16 18:46	1.0										+							
275899-004	MET08	05/03/16 14:23	1.0	+	+	+	+	+	+	+	+	+		+	+	+		+	+	+
275899-004	MET08	05/03/16 19:14	1.0														+			
275899-008	MET54	04/25/16 18:48	1.0										+							
275899-008	MET08	05/03/16 14:26	1.0	+	+	+	+	+	+	+	+	+		+	+	+		+	+	+
275899-008	MET08	05/03/16 19:17	1.0														+			
QC831916	MET09	04/18/16 19:55	1.0																	
QC831916	MET09	04/19/16 12:17	1.0																	
QC831916	MET09	04/19/16 12:44	1.0	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC831917	MET09	04/18/16 20:11	1.0																	
QC831917	MET09	04/19/16 12:23	1.0	+	+	+	+	+	+		+	+		+	+	+		+	+	+
QC831917	MET08	04/19/16 15:13	1.0							+										
QC831917	MET09	04/19/16 18:31	1.0														+			
QC831917	MET08	05/03/16 14:15	1.0																	
QC831918	MET09	04/18/16 20:15	1.0																	
QC831918	MET09	04/19/16 12:27	1.0	+	+	+	+	+	+		+	+		+	+	+		+	+	+
QC831918	MET08	04/19/16 15:15	1.0							+										
QC831918	MET09	04/19/16 18:36	1.0														+			
QC831918	MET08	05/03/16 14:17	1.0																	
QC831919	MET08	05/03/16 15:09	1.0	+		+	+	+	+	+	+			+	+	+		+	+	+
QC831919	MET09	05/04/16 16:23	1.0		+							+					+			
QC831920	MET08	05/03/16 15:12	1.0	+		+	+	+	+	+	+			+	+	+		+	+	+
QC831920	MET09	05/04/16 16:27	1.0		+							+					+			
QC831921	MET08	05/03/16 19:39	5.0	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC831922	MET08	05/03/16 19:50	1.0	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC832920	MET54	04/25/16 18:25	1.0										+							
QC832921	MET54	04/25/16 18:27	1.0										+							
QC832922	MET54	04/25/16 18:28	1.0										+							
QC832923	MET54	04/25/16 18:30	1.0										+							
QC832924	MET54	04/25/16 18:32	1.0										+							
QC832925	MET54	04/25/16 18:33	5.0										+							
QC832943	MET54	04/25/16 18:34	1.0										+							

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 86158956

Instrument : MET08
Method : EPA 6010B
Begun : 04/19/16 09:16
SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met08_sn_6010	ICALBLK				04/19/16 09:16	1.0		
002	met08_sn_6010	ICAL	L1			04/19/16 09:19	1.0	1	
003	met08_sn_6010	ICAL	L2			04/19/16 09:22	1.0	2	
004	met08_sn_6010	ICAL	L3			04/19/16 09:25	1.0	3	
005	met08_sn_6010	ICAL	L4			04/19/16 09:27	1.0	4	
006	met08_sn_6010	ICAL	L5			04/19/16 09:29	1.0	5	
007	met08_sn_6010	ICV				04/19/16 09:31	1.0	6	
008	met08_sn_6010	XCRI				04/19/16 09:37	1.0	1	
009	met08_sn_6010	CRI				04/19/16 09:41	1.0	1	
010	met08_sn_6010	XICB				04/19/16 09:44	1.0		
011	met08_sn_6010	ICB				04/19/16 09:48	1.0		
012	met08_sn_6010	ICSA				04/19/16 09:51	1.0	7	10:AL=530000
013	met08_sn_6010	XICSAB				04/19/16 10:15	1.0	8	
014	met08_sn_6010	ICSAB				04/19/16 10:20	1.0	8	5:CA=500000
015	met08_sn_6010	SAMPLE	276055-001	Water	234135	04/19/16 10:54	1.0		
016	met08_sn_6010	SAMPLE	276057-001	Water	234135	04/19/16 10:57	1.0		
017	met08_sn_6010	SAMPLE	276057-003	Water	234135	04/19/16 10:59	1.0		
018	met08_sn_6010	SAMPLE	275707-001	Filtrate	233867	04/19/16 11:02	50.0		
019	met08_sn_6010	SAMPLE	275568-010	Miscell.	233658	04/19/16 11:06	50.0		
020	met08_sn_6010	SAMPLE	275568-012	Miscell.	233658	04/19/16 11:08	1.0		4:CA=1300000
021	met08_sn_6010	SAMPLE	275568-013	Miscell.	233658	04/19/16 11:10	10.0		1:CA=150000
022	met08_sn_6010	SAMPLE	275568-018	Miscell.	233658	04/19/16 11:12	1.0		6:CA=1600000
023	met08_sn_6010	SAMPLE	275568-019	Miscell.	233658	04/19/16 11:14	100.0		
024	met08_sn_6010	SAMPLE	275568-020	Miscell.	233690	04/19/16 11:17	50.0		
025	met08_sn_6010	CCV				04/19/16 11:19	1.0	9	
026	met08_sn_6010	XCCB				04/19/16 11:21	1.0		
027	met08_sn_6010	CCB				04/19/16 11:24	1.0		
028	met08_sn_6010	SAMPLE	275568-021	Miscell.	233690	04/19/16 11:27	10.0		1:CA=180000
029	met08_sn_6010	SAMPLE	275568-022	Miscell.	233690	04/19/16 11:30	1.0		5:CA=2000000
030	met08_sn_6010	SAMPLE	275568-023	Miscell.	233690	04/19/16 11:32	50.0		
031	met08_sn_6010	SAMPLE	275568-024	Miscell.	233690	04/19/16 11:34	1.0		5:CA=1700000
032	met08_sn_6010	SAMPLE	275568-025	Miscell.	233690	04/19/16 11:36	1.0		5:CA=1800000
033	met08_sn_6010	BS	QC830666	Filtrate	233867	04/19/16 11:38	1.0		
034	met08_sn_6010	BSD	QC830667	Filtrate	233867	04/19/16 11:41	1.0		
035	met08_sn_6010	MSS	275637-001	Filtrate	233867	04/19/16 11:43	1.0		
036	met08_sn_6010	MS	QC830668	Filtrate	233867	04/19/16 11:46	1.0		
037	met08_sn_6010	MSD	QC830669	Filtrate	233867	04/19/16 11:49	1.0		
038	met08_sn_6010	CCV				04/19/16 11:51	1.0	9	
039	met08_sn_6010	XCCB				04/19/16 11:53	1.0		
040	met08_sn_6010	CCB				04/19/16 11:56	1.0		
041	met08_sn_6010	SER	QC830670	Filtrate	233867	04/19/16 11:59	5.0		
042	met08_sn_6010	PDS	QC830671	Filtrate	233867	04/19/16 12:02	1.0	10 11 12	
043	met08_sn_6010	CCV				04/19/16 12:05	1.0	9	
044	met08_sn_6010	XCCB				04/19/16 12:07	1.0		
045	met08_sn_6010	CCB				04/19/16 12:10	1.0		
046	met08_sn_6010	X	RINSE			04/19/16 12:31	1.0		
047	met08_sn_6010	X	RINSE			04/19/16 12:34	1.0		
048	met08_sn_6010	X	RINSE			04/19/16 12:38	1.0		
049	met08_sn_6010	CCV				04/19/16 12:41	1.0	9	
050	met08_sn_6010	CCB				04/19/16 12:43	1.0		
051	met08_sn_6010	CCB				04/19/16 12:46	1.0		
052	met08_sn_6010	SAMPLE	276057-001	Water	234135	04/19/16 13:16	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 86158956

Instrument : MET08 Begun : 04/19/16 09:16
Method : EPA 6010B SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met08_sn_6010	SAMPLE	276057-003	Water	234135	04/19/16 13:19	1.0		
054	met08_sn_6010	X	RINSE			04/19/16 13:21	1.0		
055	met08_sn_6010	SAMPLE	275568-002	Soil	233658	04/19/16 13:24	1.0		5:FE=680000
056	met08_sn_6010	SAMPLE	275568-003	Soil	233658	04/19/16 13:27	1.0		4:FE=770000
057	met08_sn_6010	SAMPLE	275568-004	Soil	233658	04/19/16 13:29	1.0		4:FE=590000
058	met08_sn_6010	SAMPLE	275568-013	Miscell.	233658	04/19/16 13:31	10.0		1:CA=160000
059	met08_sn_6010	SAMPLE	275568-020	Miscell.	233690	04/19/16 13:33	50.0		
060	met08_sn_6010	SAMPLE	275568-021	Miscell.	233690	04/19/16 13:35	10.0		1:CA=160000
061	met08_sn_6010	SAMPLE	275568-022	Miscell.	233690	04/19/16 13:38	1.0		5:CA=1900000
062	met08_sn_6010	CCV				04/19/16 13:40	1.0	9	
063	met08_sn_6010	XCCB				04/19/16 13:42	1.0		
064	met08_sn_6010	CCB				04/19/16 13:45	1.0		
065	met08_sn_6010	SAMPLE	275568-023	Miscell.	233690	04/19/16 13:48	50.0		
066	met08_sn_6010	SAMPLE	275568-024	Miscell.	233690	04/19/16 13:50	1.0		5:CA=1600000
067	met08_sn_6010	SAMPLE	275568-025	Miscell.	233690	04/19/16 13:52	1.0		5:CA=1900000
068	met08_sn_6010	X	RINSE			04/19/16 13:55	1.0		
069	met08_sn_6010	CCV				04/19/16 13:58	1.0	9	
070	met08_sn_6010	XCCB				04/19/16 14:00	1.0		
071	met08_sn_6010	CCB				04/19/16 14:03	1.0		
072	met08_sn_6010	CCV				04/19/16 14:28	1.0	9	
073	met08_sn_6010	CCB				04/19/16 14:31	1.0		
074	met08_sn_6010	CCB				04/19/16 14:34	1.0		
075	met08_sn_6010	X	RINSE			04/19/16 14:45	1.0		
076	met08_sn_6010	X	RINSE			04/19/16 14:49	1.0		
077	met08_sn_6010	X	RINSE			04/19/16 14:52	1.0		
078	met08_sn_6010	CCV				04/19/16 14:56	1.0	9	
079	met08_sn_6010	XCCB				04/19/16 14:58	1.0		
080	met08_sn_6010	CCB				04/19/16 15:01	1.0		
081	met08_sn_6010	SAMPLE	275998-003	Soil	234110	04/19/16 15:09	1.0		1:MN=14000
082	met08_sn_6010	SAMPLE	275568-024	Miscell.	233690	04/19/16 15:11	1.0		5:CA=1700000
083	met08_sn_6010	BS	QC831917	Filtrate	234182	04/19/16 15:13	1.0		
084	met08_sn_6010	BSD	QC831918	Filtrate	234182	04/19/16 15:15	1.0		
085	met08_sn_6010	BS	QC831874	Soil	234171	04/19/16 16:16	1.0		1:SR=11000
086	met08_sn_6010	BSD	QC831875	Soil	234171	04/19/16 16:19	1.0		1:SR=11000
087	met08_sn_6010	SAMPLE	276038-001	Soil	234171	04/19/16 16:21	1.0		3:FE=700000
088	met08_sn_6010	SAMPLE	276038-002	Soil	234171	04/19/16 16:23	1.0		1:FE=100000
089	met08_sn_6010	SAMPLE	276058-001	Soil	234171	04/19/16 16:26	1.0		5:FE=430000
090	met08_sn_6010	CCV				04/19/16 16:28	1.0	9	
091	met08_sn_6010	CCB				04/19/16 16:30	1.0		
092	met08_sn_6010	CCB				04/19/16 16:33	1.0		
093	met08_sn_6010	X	RINSE			04/19/16 16:40	1.0		
094	met08_sn_6010	X	RINSE			04/19/16 16:43	1.0		
095	met08_sn_6010	X	RINSE			04/19/16 16:47	1.0		
096	met08_sn_6010	X	RINSE			04/19/16 16:50	1.0		
097	met08_sn_6010	X	RINSE			04/19/16 16:53	1.0		
098	met08_sn_6010	CCV				04/19/16 16:57	1.0	9	
099	met08_sn_6010	CCB				04/19/16 16:59	1.0		
100	met08_sn_6010	SAMPLE	274645-001	Soil	234110	04/19/16 17:04	1.0		3:AL=180000
101	met08_sn_6010	SAMPLE	274524-004	Soil	234110	04/19/16 17:06	1.0		
102	met08_sn_6010	CCV				04/19/16 17:08	1.0	9	
103	met08_sn_6010	CCB				04/19/16 17:10	1.0		
104	met08_sn_6010	CCB				04/19/16 17:13	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 86158956

Instrument : MET08 Begun : 04/19/16 09:16
Method : EPA 6010B SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
105	met08_sn_6010	BLANK	QC830091	Filtrate	233732	04/19/16 17:30	1.0		
106	met08_sn_6010	BS	QC830092	Filtrate	233732	04/19/16 17:33	1.0		
107	met08_sn_6010	BSD	QC830093	Filtrate	233732	04/19/16 17:35	1.0		
108	met08_sn_6010	MSS	275531-002	Filtrate	233732	04/19/16 17:38	1.0		1:NA=130000
109	met08_sn_6010	SAMPLE	275531-003	Filtrate	233732	04/19/16 17:40	1.0		3:NA=790000
110	met08_sn_6010	SAMPLE	275531-004	Filtrate	233732	04/19/16 17:43	1.0		3:NA=790000
111	met08_sn_6010	SAMPLE	275531-005	Filtrate	233732	04/19/16 17:46	1.0		2:CA=140000
112	met08_sn_6010	SAMPLE	275531-006	Filtrate	233732	04/19/16 17:49	1.0		1:CA=120000
113	met08_sn_6010	SAMPLE	275531-007	Filtrate	233732	04/19/16 17:53	1.0		1:CA=410000
114	met08_sn_6010	CCV				04/19/16 17:55	1.0	9	
115	met08_sn_6010	CCB				04/19/16 17:57	1.0		
116	met08_sn_6010	CCB				04/19/16 18:00	1.0		

KER 04/19/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 116.

Standards used: 1=S29301 2=S29393 3=S29394 4=S29395 5=S29125 6=S29396 7=S29660 8=S29661 9=S29397 10=S28385 11=S28386 12=S28732

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 86158956

Date : 04/19/16 Reference : met08_sn_6010
Sequence : MET08 04/19/16 Analyzed : 04/19/16 09:19

#	Type	Sample ID	Y A
		ICAL STD	12272445
		LOWER LIMIT	3681734
		UPPER LIMIT	24544891
011	ICB		12684748
012	ICSA		11662252
014	ICSAB		11584669
015	SAMPLE	276055-001	12425818
016	SAMPLE	276057-001	12744739
017	SAMPLE	276057-003	12419339
019	SAMPLE	275568-010	12574508
020	SAMPLE	275568-012	11317272
021	SAMPLE	275568-013	12104761
022	SAMPLE	275568-018	11475402
023	SAMPLE	275568-019	12181431
024	SAMPLE	275568-020	11711522
025	CCV		12150639
027	CCB		11275078
028	SAMPLE	275568-021	12436504
029	SAMPLE	275568-022	10992963
030	SAMPLE	275568-023	11505968
031	SAMPLE	275568-024	11260038
032	SAMPLE	275568-025	11158714
033	BS	QC830666	12364990
034	BSD	QC830667	12270339
035	MSS	275637-001	13155737
036	MS	QC830668	12779336
037	MSD	QC830669	12547457
038	CCV		12222065
040	CCB		13826131
041	SER	QC830670	12560908
042	PDS	QC830671	12908137
043	CCV		12126064
045	CCB		12599335
049	CCV		12025525
050	CCB		11749227
051	CCB		12604620
052	SAMPLE	276057-001	12712338
053	SAMPLE	276057-003	12624765
055	SAMPLE	275568-002	11873622
056	SAMPLE	275568-003	11863489
057	SAMPLE	275568-004	12143880
058	SAMPLE	275568-013	12377283
059	SAMPLE	275568-020	10062529
060	SAMPLE	275568-021	11212301
061	SAMPLE	275568-022	11046290
062	CCV		12265898
064	CCB		12785675
065	SAMPLE	275568-023	11236626
066	SAMPLE	275568-024	11392083
067	SAMPLE	275568-025	11031826
069	CCV		12452117

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 86158956

Date : 04/19/16 Reference : met08_sn_6010
Sequence : MET08 04/19/16 Analyzed : 04/19/16 09:19

#	Type	Sample ID	Y A
071	CCB		12272504
072	CCV		12051171
073	CCB		10343717
074	CCB		11781273
078	CCV		12459100
080	CCB		12286820
081	SAMPLE	275998-003	11675792
082	SAMPLE	275568-024	11270693
083	BS	QC831917	12760340
084	BSD	QC831918	12606864
085	BS	QC831874	12273342
086	BSD	QC831875	12056639
087	SAMPLE	276038-001	11847725
088	SAMPLE	276038-002	12156053
089	SAMPLE	276058-001	12153067
090	CCV		12383391
091	CCB		12179678
092	CCB		12680300
098	CCV		12338998
099	CCB		12837183
100	SAMPLE	274645-001	12226712
101	SAMPLE	274524-004	13260561
102	CCV		12268511
103	CCB		13021052
104	CCB		13061139
105	BLANK	QC830091	12298116
106	BS	QC830092	12526367
107	BSD	QC830093	12202190
108	MSS	275531-002	12785351
109	SAMPLE	275531-003	11687638
110	SAMPLE	275531-004	11787653
111	SAMPLE	275531-005	11755653
112	SAMPLE	275531-006	12769084
113	SAMPLE	275531-007	12200245
114	CCV		12185985
115	CCB		11409002
116	CCB		12301089

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 275899 METALS Filtrate: EPA 6010B

Inst : MET08
Calnum : 86158956001
Units : ug/L

Date : 19-APR-2016 09:16
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met08_sn_6010	86158956002	L1	19-APR-2016 09:19	S29301
L2	met08_sn_6010	86158956003	L2	19-APR-2016 09:22	S29393
L3	met08_sn_6010	86158956004	L3	19-APR-2016 09:25	S29394
L4	met08_sn_6010	86158956005	L4	19-APR-2016 09:27	S29395
L5	met08_sn_6010	86158956006	L5	19-APR-2016 09:29	S29125

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Antimony	A	22.870	23.216	18.326	19.251		LOR0	0.00000	0.05197		20.916	1.000	0.995	
Arsenic	A	2.6400	15.796	12.997	13.936		LOR0	0.00000	0.07180		11.342	1.000	0.995	
Barium	A	315.22	376.16	300.89	296.39		LOR0	0.00000	0.00337		322.16	1.000	0.995	
Beryllium	A	3159.8	4093.0	3309.9			LOR0	0.00000	3.01E-4		3520.9	0.999	0.995	
Cadmium	A	176.00	210.61	168.84	167.04		LOR0	0.00000	0.00599		180.62	1.000	0.995	
Chromium	A	84.960	105.55	94.642	92.997		LOR0	0.00000	0.01075		94.538	1.000	0.995	
Cobalt	A	105.66	113.89	99.534	100.07		LOR0	0.00000	0.00999		104.79	1.000	0.995	
Copper	A	267.28	369.12	289.69	295.05		LOR0	0.00000	0.00339		305.28	1.000	0.995	
Lead	A	37.960	43.893	38.003	38.865		LOR0	0.00000	0.02574		39.680	1.000	0.995	
Molybdenum	A	25.300	26.282	22.476	22.819		LOR0	0.00000	0.04383		24.219	1.000	0.995	
Nickel	A	39.900	39.939	35.325	35.600		LOR0	0.00000	0.02809		37.691	1.000	0.995	
Selenium	A	32.100	26.589	24.894	26.465		LOR0	0.00000	0.03781		27.512	1.000	0.995	
Silver	A	2588.4	2851.8	1431.1	1430.8		LOR0	0.00000	6.99E-4		2075.5	1.000	0.995	
Thallium	A	16.070	12.393	11.001	11.647		LOR0	0.00000	0.08591		12.778	1.000	0.995	
Vanadium	A	60.160	109.08	89.235	89.700		LOR0	0.00000	0.01115		87.043	1.000	0.995	
Zinc	A	78.430	78.740	67.353	67.476		LOR0	0.00000	0.01482		73.000	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Antimony	A	10.000	19	100.00	**21**	1000.0	-5	10000	0		
Arsenic	A	5.0000	**-81**	100.00	13	1000.0	-7	10000	0		
Barium	A	5.0000	6	100.00	**27**	1000.0	2	10000	0		
Beryllium	A	2.0000	-5	100.00	**23**	1000.0	0				
Cadmium	A	5.0000	5	100.00	**26**	1000.0	1	10000	0		
Chromium	A	5.0000	-9	100.00	13	1000.0	2	10000	0		
Cobalt	A	5.0000	6	100.00	14	1000.0	-1	10000	0		
Copper	A	5.0000	-9	100.00	**25**	1000.0	-2	10000	0		
Lead	A	5.0000	-2	100.00	13	1000.0	-2	10000	0		
Molybdenum	A	5.0000	11	100.00	15	1000.0	-1	10000	0		
Nickel	A	5.0000	12	100.00	12	1000.0	-1	10000	0		
Selenium	A	10.000	**21**	100.00	1	1000.0	-6	10000	0		
Silver	A	5.0000	**81**	20.000	**99**	200.00	0	2000.0	0		
Thallium	A	10.000	**38**	100.00	6	1000.0	-5	10000	0		
Vanadium	A	5.0000	**-33**	100.00	**22**	1000.0	-1	10000	0		
Zinc	A	20.000	16	100.00	17	1000.0	0	10000	0		

Instrument amount = a0 + response * a1 + response^2 * a2; LOR0=Linear regression forced thru origin, including 0,0 point

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 275899 METALS Filtrate
EPA 6010B

Inst : MET08
Calnum : 86158956001 Cal Date : 19-APR-2016

ICV 86158956007 (19-APR-2016) stds: S29396

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	5000	4785	ug/L	-4	10	
Arsenic	A	5000	5030	ug/L	1	10	
Barium	A	5000	4947	ug/L	-1	10	
Beryllium	A	500.0	503.9	ug/L	1	10	
Cadmium	A	5000	5035	ug/L	1	10	
Chromium	A	5000	4940	ug/L	-1	10	
Cobalt	A	5000	4819	ug/L	-4	10	
Copper	A	5000	4807	ug/L	-4	10	
Lead	A	5000	4850	ug/L	-3	10	
Molybdenum	A	5000	4769	ug/L	-5	10	
Nickel	A	5000	4945	ug/L	-1	10	
Selenium	A	5000	4989	ug/L	0	10	
Silver	A	1000	988.5	ug/L	-1	10	
Thallium	A	5000	5112	ug/L	2	10	
Vanadium	A	5000	5006	ug/L	0	10	
Zinc	A	5000	4951	ug/L	-1	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275899 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86158956011.1 File : met08_sn_6010 Time : 19-APR-2016 09:48
Cal : 86158956001 Caldate : 19-APR-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	8.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	4.000	ug/L	
Beryllium	A	ND	2.000	1.600	ug/L	
Cadmium	A	ND	5.000	4.000	ug/L	
Chromium	A	ND	5.000	4.000	ug/L	
Cobalt	A	ND	5.000	4.000	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	4.000	ug/L	
Molybdenum	A	ND	5.000	4.000	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	8.000	ug/L	
Vanadium	A	ND	5.000	4.000	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	12272445	12684748	3.36

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 275899 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86158956012.1 File : met08_sn_6010 Time : 19-APR-2016 09:51
Cal : 86158956001 Caldate : 19-APR-2016
Standards: S29660

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	[8.765]	10.00	ug/L	
Arsenic	A	[3.152]	5.000	ug/L	
Barium	A	[-2.605]	5.000	ug/L	
Beryllium	A	[-0.3807]	2.000	ug/L	
Cadmium	A	[-1.528]	5.000	ug/L	
Cobalt	A	[-1.022]	5.000	ug/L	
Lead	A	[-4.066]	5.000	ug/L	
Molybdenum	A	[4.039]	5.000	ug/L	
Selenium	A	[-2.030]	10.00	ug/L	
Silver	A	[-2.767]	5.000	ug/L	
Thallium	A	[9.103]	10.00	ug/L	
Zinc	A	[10.45]	20.00	ug/L	

Interferent	Ch	Spiked	Quant	Units	%Rec
Chromium	A	20000	19560	ug/L	98
Copper	A	20000	20250	ug/L	101
Manganese	A	20000	19100	ug/L	95
Nickel	A	20000	19000	ug/L	95
Vanadium	A	20000	20170	ug/L	101
Aluminum	R	500000	528700	ug/L	106
Calcium	R	500000	514300	ug/L	103
Iron	R	200000	204500	ug/L	102
Magnesium	R	500000	512700	ug/L	103
Titanium	R	20000	22280	ug/L	111

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	12272445	11662252	-4.97

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 275899 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86158956014.1 File : met08_sn_6010 Time : 19-APR-2016 10:20
Cal : 86158956001 Caldate : 19-APR-2016
Standards: S29661

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	557.7	ug/L	12	20	
Arsenic	A	500.0	524.3	ug/L	5	20	
Barium	A	500.0	530.0	ug/L	6	20	
Beryllium	A	500.0	536.9	ug/L	7	20	
Cadmium	A	1000	1058	ug/L	6	20	
Chromium	A	500.0	508.6	ug/L	2	20	
Cobalt	A	500.0	484.6	ug/L	-3	20	
Copper	A	500.0	539.9	ug/L	8	20	
Lead	A	1000	989.0	ug/L	-1	20	
Molybdenum	A	500.0	513.6	ug/L	3	20	
Nickel	A	1000	1007	ug/L	1	20	
Selenium	A	500.0	528.9	ug/L	6	20	
Silver	A	1000	1134	ug/L	13	20	
Thallium	A	500.0	513.5	ug/L	3	20	
Vanadium	A	500.0	568.3	ug/L	14	20	
Zinc	A	1000	1026	ug/L	3	20	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	12272445	11584669	-5.60

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275899 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86158956078.1 File : met08_sn_6010 Time : 19-APR-2016 14:56
Cal : 86158956001 Caldate : 19-APR-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	20.916	19.397	5000	5040	ug/L	1	10	
Arsenic	A	11.342	13.868	5000	4979	ug/L	0	10	
Barium	A	322.16	294.69	5000	4971	ug/L	-1	10	
Beryllium	A	3520.9	3226.9	500.0	486.3	ug/L	-3	10	
Cadmium	A	180.62	166.42	5000	4981	ug/L	0	10	
Chromium	A	94.538	89.187	5000	4794	ug/L	-4	10	
Cobalt	A	104.79	92.788	5000	4628	ug/L	-7	10	
Copper	A	305.28	282.64	5000	4790	ug/L	-4	10	
Lead	A	39.680	37.279	5000	4797	ug/L	-4	10	
Molybdenum	A	24.219	22.028	5000	4827	ug/L	-3	10	
Nickel	A	37.691	35.094	5000	4929	ug/L	-1	10	
Selenium	A	27.512	24.479	5000	4628	ug/L	-7	10	
Silver	A	2075.5	1474.6	1000	1031	ug/L	3	10	
Thallium	A	12.778	11.176	5000	4801	ug/L	-4	10	
Vanadium	A	87.043	92.749	5000	5170	ug/L	3	10	
Zinc	A	73.000	62.225	5000	4611	ug/L	-8	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	12272445	12459100	1.52

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275899 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86158956080.1 File : met08_sn_6010 Time : 19-APR-2016 15:01
Cal : 86158956001 Caldate : 19-APR-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	8.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	4.000	ug/L	
Beryllium	A	ND	2.000	1.600	ug/L	
Cadmium	A	ND	5.000	4.000	ug/L	
Chromium	A	ND	5.000	4.000	ug/L	
Cobalt	A	ND	5.000	4.000	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	4.000	ug/L	
Molybdenum	A	ND	5.000	4.000	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	[4.059]	5.000	4.000	ug/L	!CCB
Thallium	A	ND	10.00	8.000	ug/L	
Vanadium	A	ND	5.000	4.000	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	12272445	12286820	0.12

!=warning CCB=instrument blank

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275899 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86158956090.1 File : met08_sn_6010 Time : 19-APR-2016 16:28
Cal : 86158956001 Caldate : 19-APR-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	20.916	19.177	5000	4983	ug/L	0	10	
Arsenic	A	11.342	13.677	5000	4911	ug/L	-2	10	
Barium	A	322.16	300.05	5000	5061	ug/L	1	10	
Beryllium	A	3520.9	3295.1	500.0	496.6	ug/L	-1	10	
Cadmium	A	180.62	168.62	5000	5047	ug/L	1	10	
Chromium	A	94.538	92.099	5000	4951	ug/L	-1	10	
Cobalt	A	104.79	95.500	5000	4763	ug/L	-5	10	
Copper	A	305.28	287.15	5000	4867	ug/L	-3	10	
Lead	A	39.680	37.006	5000	4762	ug/L	-5	10	
Molybdenum	A	24.219	22.435	5000	4916	ug/L	-2	10	
Nickel	A	37.691	35.624	5000	5004	ug/L	0	10	
Selenium	A	27.512	24.512	5000	4634	ug/L	-7	10	
Silver	A	2075.5	1486.6	1000	1039	ug/L	4	10	
Thallium	A	12.778	11.127	5000	4779	ug/L	-4	10	
Vanadium	A	87.043	93.503	5000	5212	ug/L	4	10	
Zinc	A	73.000	64.381	5000	4771	ug/L	-5	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	12272445	12383391	0.90

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275899 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86158956091.1 File : met08_sn_6010 Time : 19-APR-2016 16:30
Cal : 86158956001 Caldate : 19-APR-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	8.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	4.000	ug/L	
Beryllium	A	ND	2.000	1.600	ug/L	
Cadmium	A	ND	5.000	4.000	ug/L	
Chromium	A	ND	5.000	4.000	ug/L	
Cobalt	A	ND	5.000	4.000	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	4.000	ug/L	
Molybdenum	A	ND	5.000	4.000	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	5.161	5.000	4.000	ug/L	CCB ***
Thallium	A	ND	10.00	8.000	ug/L	
Vanadium	A	ND	5.000	4.000	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	12272445	12179678	-0.76

CCB=instrument blank

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 96158956

Instrument : MET09 Begun : 04/19/16 09:16
Method : EPA 6010B SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met09_sn_2016	ICALBLK				04/19/16 09:16	1.0		
002	met09_sn_2016	ICAL	L1			04/19/16 09:21	1.0	1	
003	met09_sn_2016	ICAL	L2			04/19/16 09:26	1.0	2	
004	met09_sn_2016	ICAL	L3			04/19/16 09:30	1.0	3	
005	met09_sn_2016	ICAL	L4			04/19/16 09:35	1.0	4	
006	met09_sn_2016	ICAL	L5			04/19/16 09:42	1.0	5	
007	met09_sn_2016	ICV				04/19/16 09:48	1.0	6	
008	met09_sn_2016	XCRI				04/19/16 09:51	1.0	7	
009	met09_sn_2016	CRI				04/19/16 09:57	1.0	7	
010	met09_sn_2016	ICB				04/19/16 10:02	1.0		
011	met09_sn_2016	ICSA				04/19/16 10:07	1.0	8	10:AL=500000
012	met09_sn_2016	ICSAB				04/19/16 10:36	1.0	9	5:AL=510000
013	met09_sn_2016	SAMPLE	274524-004	Soil	234110	04/19/16 10:58	1.0		
014	met09_sn_2016	SAMPLE	274524-006	Soil	234110	04/19/16 11:02	1.0		
015	met09_sn_2016	SAMPLE	274524-008	Soil	234110	04/19/16 11:06	1.0		6:FE=360000
016	met09_sn_2016	SAMPLE	276093-001	WET Leachate	234079	04/19/16 11:14	10.0		1:NA=140000
017	met09_sn_2016	SAMPLE	276094-001	WET Leachate	234079	04/19/16 11:18	10.0		1:NA=120000
018	met09_sn_2016	SAMPLE	274645-001	Soil	234110	04/19/16 11:22	1.0		4:AL=170000
019	met09_sn_2016	SAMPLE	275998-001	Soil	234110	04/19/16 11:30	1.0		4:FE=200000
020	met09_sn_2016	BSD	QC831725	Water	234135	04/19/16 11:38	1.0		
021	met09_sn_2016	SAMPLE	276042-001	Water	234135	04/19/16 11:42	1.0		2:NA=180000
022	met09_sn_2016	SAMPLE	275998-002	Soil	234110	04/19/16 11:50	1.0		6:CA=240000
023	met09_sn_2016	CCV				04/19/16 11:58	1.0	10	
024	met09_sn_2016	CCB				04/19/16 12:04	1.0		
025	met09_sn_2016	SAMPLE	275998-003	Soil	234110	04/19/16 12:10	1.0		6:CA=620000
026	met09_sn_2016	BLANK	QC831916	Filtrate	234182	04/19/16 12:17	1.0		
027	met09_sn_2016	BS	QC831917	Filtrate	234182	04/19/16 12:23	1.0		
028	met09_sn_2016	BSD	QC831918	Filtrate	234182	04/19/16 12:27	1.0		
029	met09_sn_2016	SAMPLE	276067-001	Filtrate	234182	04/19/16 12:31	1.0		
030	met09_sn_2016	BLANK	QC831873	Soil	234171	04/19/16 12:39	1.0		
031	met09_sn_2016	BLANK	QC831916	Filtrate	234182	04/19/16 12:44	1.0		
032	met09_sn_2016	SAMPLE	275998-001	Soil	234110	04/19/16 12:49	1.0		4:FE=210000
033	met09_sn_2016	SAMPLE	275998-002	Soil	234110	04/19/16 12:57	1.0		4:FE=200000
034	met09_sn_2016	BS	QC831874	Soil	234171	04/19/16 13:04	1.0		
035	met09_sn_2016	CCV				04/19/16 13:09	1.0	10	
036	met09_sn_2016	CCB				04/19/16 13:15	1.0		
037	met09_sn_2016	BSD	QC831875	Soil	234171	04/19/16 13:21	1.0		
038	met09_sn_2016	SAMPLE	276038-001	Soil	234171	04/19/16 13:25	1.0		3:FE=520000
039	met09_sn_2016	SAMPLE	276038-002	Soil	234171	04/19/16 13:32	1.0		
040	met09_sn_2016	SAMPLE	276058-001	Soil	234171	04/19/16 13:38	1.0		4:FE=330000
041	met09_sn_2016	MSS	276059-001	Soil	234171	04/19/16 13:46	1.0		1:FE=180000
042	met09_sn_2016	SAMPLE	276067-002	Soil	234171	04/19/16 13:53	1.0		3:FE=320000
043	met09_sn_2016	CCV				04/19/16 14:01	1.0	10	
044	met09_sn_2016	CCB				04/19/16 14:08	1.0		
045	met09_sn_2016	X	RINSE			04/19/16 14:16	1.0		
046	met09_sn_2016	X	RINSE			04/19/16 14:21	1.0		
047	met09_sn_2016	X	RINSE			04/19/16 14:26	1.0		
048	met09_sn_2016	CCV				04/19/16 14:31	1.0	10	
049	met09_sn_2016	CCB				04/19/16 14:38	1.0		
050	met09_sn_2016	CCV				04/19/16 14:45	1.0	10	
051	met09_sn_2016	CCB				04/19/16 14:52	1.0		
052	met09_sn_2016	BS	QC830078	Filtrate	233730	04/19/16 15:44	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 96158956

Instrument : MET09 Begun : 04/19/16 09:16
Method : EPA 6010B SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met09_sn_2016	BSD	QC830079	Filtrate	233730	04/19/16 15:48	1.0		
054	met09_sn_2016	MSS	275473-002	Filtrate	233730	04/19/16 15:52	10.0		1:MG=100000
055	met09_sn_2016	SAMPLE	275473-003	Filtrate	233730	04/19/16 16:00	10.0		1:MG=100000
056	met09_sn_2016	SAMPLE	275473-004	Filtrate	233730	04/19/16 16:08	10.0		
057	met09_sn_2016	SAMPLE	275473-005	Filtrate	233730	04/19/16 16:13	10.0		1:NA=460000
058	met09_sn_2016	SAMPLE	275473-006	Filtrate	233730	04/19/16 16:18	10.0		
059	met09_sn_2016	SAMPLE	275473-007	Filtrate	233730	04/19/16 16:26	10.0		
060	met09_sn_2016	SAMPLE	275473-008	Filtrate	233730	04/19/16 16:31	10.0		1:NA=250000
061	met09_sn_2016	SAMPLE	275473-009	Filtrate	233730	04/19/16 16:35	10.0		
062	met09_sn_2016	CCV				04/19/16 16:40	1.0	10	
063	met09_sn_2016	CCB				04/19/16 16:47	1.0		
064	met09_sn_2016	SAMPLE	275998-003	Soil	234110	04/19/16 16:58	1.0		6:CA=600000
065	met09_sn_2016	BS	QC831874	Soil	234171	04/19/16 17:06	1.0		
066	met09_sn_2016	BSD	QC831875	Soil	234171	04/19/16 17:10	1.0		
067	met09_sn_2016	SAMPLE	276038-001	Soil	234171	04/19/16 17:14	1.0		3:FE=530000
068	met09_sn_2016	SAMPLE	276038-002	Soil	234171	04/19/16 17:22	1.0		
069	met09_sn_2016	SAMPLE	275568-024	Miscell.	233690	04/19/16 17:26	1.0		7:CA=1300000
070	met09_sn_2016	MSS	276059-001	Soil	234171	04/19/16 17:33	1.0		1:FE=180000
071	met09_sn_2016	SAMPLE	276067-002	Soil	234171	04/19/16 17:41	1.0		4:FE=320000
072	met09_sn_2016	SAMPLE	275473-004	Filtrate	233730	04/19/16 17:49	10.0		2:NA=400000
073	met09_sn_2016	SAMPLE	275473-007	Filtrate	233730	04/19/16 17:53	10.0		1:NA=360000
074	met09_sn_2016	CCV				04/19/16 17:58	1.0	10	
075	met09_sn_2016	CCB				04/19/16 18:05	1.0		
076	met09_sn_2016	BS	QC831917	Filtrate	234182	04/19/16 18:31	1.0		
077	met09_sn_2016	BSD	QC831918	Filtrate	234182	04/19/16 18:36	1.0		
078	met09_sn_2016	SAMPLE	274645-001	Soil	234110	04/19/16 18:40	1.0		2:AL=160000
079	met09_sn_2016	SAMPLE	276067-001	Filtrate	234182	04/19/16 18:47	10.0		
080	met09_sn_2016	X	RINSE			04/19/16 18:56	1.0		
081	met09_sn_2016	CCV				04/19/16 19:02	1.0	10	
082	met09_sn_2016	CCB				04/19/16 19:08	1.0		
083	met09_sn_2016	SAMPLE	275473-010	Filtrate	233730	04/19/16 19:18	10.0		
084	met09_sn_2016	SAMPLE	275580-001	Water	233689	04/19/16 19:27	50.0		
085	met09_sn_2016	XMSS	275534-001	Water	233689	04/19/16 19:32	50.0		
086	met09_sn_2016	XMS	QC829897	Water	233689	04/19/16 19:37	50.0		
087	met09_sn_2016	MSD	QC829898	Water	233689	04/19/16 19:42	50.0		
088	met09_sn_2016	SER	QC829899	Water	233689	04/19/16 19:47	250.0		
089	met09_sn_2016	PDS	QC829900	Water	233689	04/19/16 19:53	50.0	11 12 13	
090	met09_sn_2016	BLANK	QC830106	Wipe	233736	04/19/16 19:57	1.0		
091	met09_sn_2016	BS	QC830107	Wipe	233736	04/19/16 20:02	1.0		
092	met09_sn_2016	BSD	QC830108	Wipe	233736	04/19/16 20:06	1.0		
093	met09_sn_2016	CCV				04/19/16 20:10	1.0	10	
094	met09_sn_2016	CCB				04/19/16 20:17	1.0		
095	met09_sn_2016	SAMPLE	275568-005	Wipe	233736	04/19/16 20:22	1.0		3:CA=580000
096	met09_sn_2016	SAMPLE	275568-006	Wipe	233736	04/19/16 20:30	1.0		1:CA=230000
097	met09_sn_2016	X	RINSE			04/19/16 20:34	1.0		
098	met09_sn_2016	X	RINSE			04/19/16 20:39	1.0		
099	met09_sn_2016	CCV				04/19/16 20:44	1.0	10	
100	met09_sn_2016	CCB				04/19/16 20:51	1.0		

KER 04/19/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 24.

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 96158956

Instrument : MET09 Begun : 04/19/16 09:16
Method : EPA 6010B SOP Version : icp metals_rv17

Standards used: 1=S29300 2=S29393 3=S29394 4=S29395 5=S29125 6=S29396 7=S29301 8=S29660 9=S29661 10=S29397 11=S28385 12=S28386 13=S28732

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 96158956

Date : 04/19/16 Reference : met09_sn_2016
Sequence : MET09 04/19/16 Analyzed : 04/19/16 09:21

#	Type	Sample ID	Y	A
		ICAL STD	4637204	
		LOWER LIMIT	1391161	
		UPPER LIMIT	9274407	
010	ICB		4672303	
011	ICSA		3758444	
012	ICSAB		3673757	
013	SAMPLE	274524-004	4511126	
014	SAMPLE	274524-006	4441978	
015	SAMPLE	274524-008	4313366	
016	SAMPLE	276093-001	4181724	
017	SAMPLE	276094-001	4184542	
018	SAMPLE	274645-001	4323593	
019	SAMPLE	275998-001	4124936	
020	BSD	QC831725	4545474	
021	SAMPLE	276042-001	4373400	
022	SAMPLE	275998-002	4362457	
023	CCV		4317262	
024	CCB		4553453	
025	SAMPLE	275998-003	4291907	
026	BLANK	QC831916	15632016	*
027	BS	QC831917	4493476	
028	BSD	QC831918	4393708	
029	SAMPLE	276067-001	3184553	
030	BLANK	QC831873	4597586	
031	BLANK	QC831916	4630583	
032	SAMPLE	275998-001	4202234	
033	SAMPLE	275998-002	4391787	
034	BS	QC831874	4466488	
035	CCV		4280631	
036	CCB		4639016	
037	BSD	QC831875	4441681	
038	SAMPLE	276038-001	4674088	
039	SAMPLE	276038-002	13044072	*
040	SAMPLE	276058-001	4691110	
041	MSS	276059-001	4476539	
042	SAMPLE	276067-002	4379237	
043	CCV		4406145	
044	CCB		4626005	
048	CCV		4462310	
049	CCB		4621739	
050	CCV		4383455	
051	CCB		4606345	
052	BS	QC830078	4551171	
053	BSD	QC830079	4590645	
054	MSS	275473-002	3986117	
055	SAMPLE	275473-003	3943091	
056	SAMPLE	275473-004	12002529	*
057	SAMPLE	275473-005	4174813	
058	SAMPLE	275473-006	3920515	
059	SAMPLE	275473-007	14449977	*
060	SAMPLE	275473-008	4193731	

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 96158956

Date : 04/19/16 Reference : met09_sn_2016
Sequence : MET09 04/19/16 Analyzed : 04/19/16 09:21

#	Type	Sample ID	Y	A
061	SAMPLE	275473-009	4430612	
062	CCV		4422886	
063	CCB		4585224	
064	SAMPLE	275998-003	4211323	
065	BS	QC831874	4160878	
066	BSD	QC831875	4461624	
067	SAMPLE	276038-001	4576850	
068	SAMPLE	276038-002	4507357	
069	SAMPLE	275568-024	4025160	
070	MSS	276059-001	4528159	
071	SAMPLE	276067-002	4284137	
072	SAMPLE	275473-004	3944498	
073	SAMPLE	275473-007	4197777	
074	CCV		4344631	
075	CCB		4550916	
076	BS	QC831917	4466267	
077	BSD	QC831918	4531728	
078	SAMPLE	274645-001	4493407	
079	SAMPLE	276067-001	4072148	
081	CCV		4229979	
082	CCB		4540437	
083	SAMPLE	275473-010	4043939	
084	SAMPLE	275580-001	4510327	
087	MSD	QC829898	4530080	
088	SER	QC829899	4545888	
089	PDS	QC829900	4460253	
090	BLANK	QC830106	13071218	*
091	BS	QC830107	4449372	
092	BSD	QC830108	4495941	
093	CCV		4259413	
094	CCB		4536397	
095	SAMPLE	275568-005	3875952	
096	SAMPLE	275568-006	4121838	
099	CCV		4261214	
100	CCB		4506040	

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 275899 METALS Filtrate: EPA 6010B

Inst : MET09
Calnum : 96158956001
Units : ug/L

Date : 19-APR-2016 09:16
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met09_sn_2016	96158956002	L1	19-APR-2016 09:21	S29300
L2	met09_sn_2016	96158956003	L2	19-APR-2016 09:26	S29393
L3	met09_sn_2016	96158956004	L3	19-APR-2016 09:30	S29394
L4	met09_sn_2016	96158956005	L4	19-APR-2016 09:35	S29395
L5	met09_sn_2016	96158956006	L5	19-APR-2016 09:42	S29125

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Antimony	A	4.3200	3.6400	3.8334	3.6998		LOR0	0.00000	0.27019		3.8733	1.000	0.995	
Arsenic	A	2.4400	2.0330	2.1736	2.0740		LOR0	0.00000	0.48194		2.1801	1.000	0.995	
Barium	A	87.540	86.276	91.531	85.110		LOR0	0.00000	0.01174		87.614	1.000	0.995	
Beryllium	A	6837.8	6679.8	6997.0			LOR0	0.00000	1.43E-4		6838.2	1.000	0.995	
Cadmium	A	117.06	117.92	125.45	113.72		LOR0	0.00000	0.00878		118.54	1.000	0.995	
Chromium	A	207.80	205.58	216.65	203.76		LOR0	0.00000	0.00490		208.45	1.000	0.995	
Cobalt	A	32.840	31.907	36.315	34.507		LOR0	0.00000	0.02896		33.892	1.000	0.995	
Copper	A	369.44	445.27	489.41	473.53		LOR0	0.00000	0.00211		444.41	1.000	0.995	
Lead	A	19.760	15.496	16.546	15.930		LOR0	0.00000	0.06275		16.933	1.000	0.995	
Molybdenum	A	32.120	32.095	34.498	32.637		LOR0	0.00000	0.03062		32.838	1.000	0.995	
Nickel	A	98.100	94.205	102.36	96.633		LOR0	0.00000	0.01034		97.823	1.000	0.995	
Selenium	A	1.9700	2.8600	3.1072	2.9858		LOR0	0.00000	0.33479		2.7308	1.000	0.995	
Silver	A	52.600	78.675	88.919	86.544		LOR0	0.00000	0.01155		76.684	1.000	0.995	
Thallium	A	2.4900	2.5320	2.7751	2.5715		LOR0	0.00000	0.38857		2.5922	1.000	0.995	
Vanadium	A	286.16	278.57	297.54	284.55		LOR0	0.00000	0.00351		286.70	1.000	0.995	
Zinc	A	56.770	51.336	52.580	48.773		LOR0	0.00000	0.02049		52.365	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Antimony	A	10.000	17	100.00	-2	1000.0	4	10000	0		
Arsenic	A	5.0000	18	100.00	-2	1000.0	5	10000	0		
Barium	A	5.0000	3	100.00	1	1000.0	7	10000	0		
Beryllium	A	2.0000	-2	100.00	-4	1000.0	0				
Cadmium	A	5.0000	3	100.00	4	1000.0	10	10000	0		
Chromium	A	5.0000	2	100.00	1	1000.0	6	10000	0		
Cobalt	A	5.0000	-5	100.00	-8	1000.0	5	10000	0		
Copper	A	5.0000	**-22**	100.00	-6	1000.0	3	10000	0		
Lead	A	5.0000	**24**	100.00	-3	1000.0	4	10000	0		
Molybdenum	A	5.0000	-2	100.00	-2	1000.0	6	10000	0		
Nickel	A	5.0000	1	100.00	-3	1000.0	6	10000	0		
Selenium	A	10.000	**-34**	100.00	-4	1000.0	4	10000	0		
Silver	A	5.0000	**-39**	20.000	-9	200.00	3	2000.0	0		
Thallium	A	10.000	-3	100.00	-2	1000.0	8	10000	0		
Vanadium	A	5.0000	1	100.00	-2	1000.0	5	10000	0		
Zinc	A	20.000	16	100.00	5	1000.0	8	10000	0		

Instrument amount = a0 + response * a1 + response^2 * a2; LOR0=Linear regression forced thru origin, including 0,0 point

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 275899 METALS Filtrate
EPA 6010B

Inst : MET09
Calnum : 96158956001 Cal Date : 19-APR-2016

ICV 96158956007 (19-APR-2016) stds: S29396

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	5000	4946	ug/L	-1	10	
Arsenic	A	5000	5170	ug/L	3	10	
Barium	A	5000	5003	ug/L	0	10	
Beryllium	A	500.0	491.7	ug/L	-2	10	
Cadmium	A	5000	5064	ug/L	1	10	
Chromium	A	5000	4996	ug/L	0	10	
Cobalt	A	5000	4810	ug/L	-4	10	
Copper	A	5000	4927	ug/L	-1	10	
Lead	A	5000	4904	ug/L	-2	10	
Molybdenum	A	5000	4780	ug/L	-4	10	
Nickel	A	5000	4938	ug/L	-1	10	
Selenium	A	5000	5068	ug/L	1	10	
Silver	A	1000	962.8	ug/L	-4	10	
Thallium	A	5000	5030	ug/L	1	10	
Vanadium	A	5000	5009	ug/L	0	10	
Zinc	A	5000	5004	ug/L	0	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275899 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96158956010.1 File : met09_sn_2016 Time : 19-APR-2016 10:02
Cal : 96158956001 Caldate : 19-APR-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	2.500	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	[2.532]	5.000	2.500	ug/L	!ICB
Lead	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4637204	4672303	0.76

!=warning ICB=instrument blank

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 275899 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96158956011.1 File : met09_sn_2016 Time : 19-APR-2016 10:07
Cal : 96158956001 Caldate : 19-APR-2016
Standards: S29660

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	[-1.782]	10.00	ug/L	
Arsenic	A	[2.010]	5.000	ug/L	
Barium	A	[-3.598]	5.000	ug/L	
Beryllium	A	[1.269]	2.000	ug/L	
Cadmium	A	[1.664]	5.000	ug/L	
Cobalt	A	[-4.513]	5.000	ug/L	
Lead	A	[3.065]	5.000	ug/L	
Molybdenum	A	[-0.09643]	5.000	ug/L	
Selenium	A	[9.599]	10.00	ug/L	
Silver	A	[-3.426]	5.000	ug/L	
Thallium	A	[5.889]	10.00	ug/L	
Zinc	A	[13.78]	20.00	ug/L	

Interferent	Ch	Spiked	Quant	Units	%Rec
Chromium	A	20000	19120	ug/L	96
Copper	A	20000	21560	ug/L	108
Manganese	A	20000	18680	ug/L	93
Nickel	A	20000	17480	ug/L	87
Vanadium	A	20000	20040	ug/L	100
Aluminum	R	500000	498000	ug/L	100
Calcium	R	500000	470300	ug/L	94
Iron	R	200000	178300	ug/L	89
Magnesium	R	500000	462600	ug/L	93
Titanium	R	20000	21250	ug/L	106

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4637204	3758444	-18.95

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 275899 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96158956012.1 File : met09_sn_2016 Time : 19-APR-2016 10:36
Cal : 96158956001 Caldate : 19-APR-2016
Standards: S29661

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	558.2	ug/L	12	20	
Arsenic	A	500.0	553.4	ug/L	11	20	
Barium	A	500.0	518.2	ug/L	4	20	
Beryllium	A	500.0	515.2	ug/L	3	20	
Cadmium	A	1000	1017	ug/L	2	20	
Chromium	A	500.0	508.5	ug/L	2	20	
Cobalt	A	500.0	493.5	ug/L	-1	20	
Copper	A	500.0	571.3	ug/L	14	20	
Lead	A	1000	968.9	ug/L	-3	20	
Molybdenum	A	500.0	506.1	ug/L	1	20	
Nickel	A	1000	926.3	ug/L	-7	20	
Selenium	A	500.0	562.7	ug/L	13	20	
Silver	A	1000	1192	ug/L	19	20	
Thallium	A	500.0	521.3	ug/L	4	20	
Vanadium	A	500.0	542.2	ug/L	8	20	
Zinc	A	1000	986.5	ug/L	-1	20	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4637204	3673757	-20.78

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275899 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96158956023.1 File : met09_sn_2016 Time : 19-APR-2016 11:58
Cal : 96158956001 Caldate : 19-APR-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	3.8733	3.4848	5000	4708	ug/L	-6	10	
Arsenic	A	2.1801	2.1675	5000	5223	ug/L	4	10	
Barium	A	87.614	85.213	5000	5002	ug/L	0	10	
Beryllium	A	6838.2	6924.3	500.0	495.0	ug/L	-1	10	
Cadmium	A	118.54	115.21	5000	5060	ug/L	1	10	
Chromium	A	208.45	205.14	5000	5031	ug/L	1	10	
Cobalt	A	33.892	35.228	5000	5102	ug/L	2	10	
Copper	A	444.41	471.49	5000	4977	ug/L	0	10	
Lead	A	16.933	15.471	5000	4854	ug/L	-3	10	
Molybdenum	A	32.838	31.702	5000	4854	ug/L	-3	10	
Nickel	A	97.823	96.211	5000	4975	ug/L	0	10	
Selenium	A	2.7308	3.0284	5000	5069	ug/L	1	10	
Silver	A	76.684	89.689	1000	1036	ug/L	4	10	
Thallium	A	2.5922	2.5956	5000	5043	ug/L	1	10	
Vanadium	A	286.70	287.19	5000	5044	ug/L	1	10	
Zinc	A	52.365	48.757	5000	4995	ug/L	0	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4637204	4317262	-6.90

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275899 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96158956024.1 File : met09_sn_2016 Time : 19-APR-2016 12:04
Cal : 96158956001 Caldate : 19-APR-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	[5.998]	10.00	5.000	ug/L	!CCB
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	2.500	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	[4.924]	5.000	2.500	ug/L	!CCB
Lead	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4637204	4553453	-1.81

!=warning CCB=instrument blank

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275899 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96158956035.1 File : met09_sn_2016 Time : 19-APR-2016 13:09
Cal : 96158956001 Caldate : 19-APR-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	3.8733	3.6183	5000	4888	ug/L	-2	10	
Arsenic	A	2.1801	2.2646	5000	5457	ug/L	9	10	
Barium	A	87.614	86.371	5000	5070	ug/L	1	10	
Beryllium	A	6838.2	7000.6	500.0	500.5	ug/L	0	10	
Cadmium	A	118.54	117.70	5000	5169	ug/L	3	10	
Chromium	A	208.45	210.37	5000	5159	ug/L	3	10	
Cobalt	A	33.892	38.901	5000	5634	ug/L	**13**	10	c+ ***
Copper	A	444.41	477.73	5000	5043	ug/L	1	10	
Lead	A	16.933	15.609	5000	4898	ug/L	-2	10	
Molybdenum	A	32.838	32.164	5000	4925	ug/L	-2	10	
Nickel	A	97.823	98.031	5000	5069	ug/L	1	10	
Selenium	A	2.7308	3.1253	5000	5232	ug/L	5	10	
Silver	A	76.684	101.49	1000	1172	ug/L	**17**	10	c+ ***
Thallium	A	2.5922	2.6607	5000	5169	ug/L	3	10	
Vanadium	A	286.70	292.68	5000	5141	ug/L	3	10	
Zinc	A	52.365	49.798	5000	5101	ug/L	2	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4637204	4280631	-7.69

+=high bias c=CCV

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275899 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96158956036.1 File : met09_sn_2016 Time : 19-APR-2016 13:15
Cal : 96158956001 Caldate : 19-APR-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	2.500	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	[3.009]	5.000	2.500	ug/L	!CCB
Lead	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4637204	4639016	0.04

!=warning CCB=instrument blank

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275899 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96158956074.1 File : met09_sn_2016 Time : 19-APR-2016 17:58
Cal : 96158956001 Caldate : 19-APR-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	3.8733	3.5218	5000	4758	ug/L	-5	10	
Arsenic	A	2.1801	2.1870	5000	5270	ug/L	5	10	
Barium	A	87.614	86.683	5000	5089	ug/L	2	10	
Beryllium	A	6838.2	6975.4	500.0	498.7	ug/L	0	10	
Cadmium	A	118.54	118.25	5000	5194	ug/L	4	10	
Chromium	A	208.45	207.76	5000	5095	ug/L	2	10	
Cobalt	A	33.892	35.057	5000	5077	ug/L	2	10	
Copper	A	444.41	465.50	5000	4914	ug/L	-2	10	
Lead	A	16.933	15.920	5000	4995	ug/L	0	10	
Molybdenum	A	32.838	32.120	5000	4918	ug/L	-2	10	
Nickel	A	97.823	97.566	5000	5045	ug/L	1	10	
Selenium	A	2.7308	3.0652	5000	5131	ug/L	3	10	
Silver	A	76.684	89.441	1000	1033	ug/L	3	10	
Thallium	A	2.5922	2.6422	5000	5134	ug/L	3	10	
Vanadium	A	286.70	289.49	5000	5085	ug/L	2	10	
Zinc	A	52.365	50.317	5000	5154	ug/L	3	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4637204	4344631	-6.31

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275899 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96158956075.1 File : met09_sn_2016 Time : 19-APR-2016 18:05
Cal : 96158956001 Caldate : 19-APR-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	2.500	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	[3.854]	5.000	2.500	ug/L	!CCB
Lead	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4637204	4550916	-1.86

!=warning CCB=instrument blank

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275899 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96158956081.1 File : met09_sn_2016 Time : 19-APR-2016 19:02
Cal : 96158956001 Caldate : 19-APR-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	3.8733	3.1299	5000	4228	ug/L	**-15**	10	c- ***
Arsenic	A	2.1801	1.9656	5000	4737	ug/L	-5	10	
Barium	A	87.614	85.164	5000	4999	ug/L	0	10	
Beryllium	A	6838.2	6967.4	500.0	498.1	ug/L	0	10	
Cadmium	A	118.54	106.96	5000	4698	ug/L	-6	10	
Chromium	A	208.45	205.87	5000	5048	ug/L	1	10	
Cobalt	A	33.892	31.418	5000	4550	ug/L	-9	10	
Copper	A	444.41	465.07	5000	4909	ug/L	-2	10	
Lead	A	16.933	14.800	5000	4644	ug/L	-7	10	
Molybdenum	A	32.838	29.005	5000	4441	ug/L	**-11**	10	c- ***
Nickel	A	97.823	94.593	5000	4892	ug/L	-2	10	
Selenium	A	2.7308	2.7467	5000	4598	ug/L	-8	10	
Silver	A	76.684	82.708	1000	955.4	ug/L	-4	10	
Thallium	A	2.5922	2.4666	5000	4792	ug/L	-4	10	
Vanadium	A	286.70	288.18	5000	5062	ug/L	1	10	
Zinc	A	52.365	44.929	5000	4602	ug/L	-8	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4637204	4229979	-8.78

-=low bias c=CCV

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275899 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96158956082.1 File : met09_sn_2016 Time : 19-APR-2016 19:08
Cal : 96158956001 Caldate : 19-APR-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	[6.410]	10.00	5.000	ug/L	!CCB
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	2.500	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	[3.738]	5.000	2.500	ug/L	!CCB
Lead	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4637204	4540437	-2.09

!=warning CCB=instrument blank

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 86179107

Instrument : MET08
Method : EPA 6010B

Begun : 05/03/16 09:07
SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met08_sn_6010	ICALBLK				05/03/16 09:07	1.0		
002	met08_sn_6010	ICAL	L1			05/03/16 09:11	1.0	1	
003	met08_sn_6010	ICAL	L2			05/03/16 09:14	1.0	2	
004	met08_sn_6010	ICAL	L3			05/03/16 09:16	1.0	3	
005	met08_sn_6010	ICAL	L4			05/03/16 09:19	1.0	4	
006	met08_sn_6010	ICAL	L5			05/03/16 09:21	1.0	5	
007	met08_sn_6010	ICV				05/03/16 09:23	1.0	6	
008	met08_sn_6010	XCRI				05/03/16 09:27	1.0	1	
009	met08_sn_6010	CRI				05/03/16 09:30	1.0	1	
010	met08_sn_6010	ICB				05/03/16 09:35	1.0		
011	met08_sn_6010	ICSA				05/03/16 09:38	1.0	7	10:AL=540000
012	met08_sn_6010	ICSAB				05/03/16 09:47	1.0	8	
013	met08_sn_6010	BLANK	QC831433	Soil	234061	05/03/16 09:56	1.0		
014	met08_sn_6010	BS	QC831434	Soil	234061	05/03/16 09:59	1.0		1:SR=10000
015	met08_sn_6010	BSD	QC831435	Soil	234061	05/03/16 10:02	1.0		1:SR=10000
016	met08_sn_6010	MS	QC831436	Soil	234061	05/03/16 10:04	1.0		1:FE=400000
017	met08_sn_6010	MSD	QC831437	Soil	234061	05/03/16 10:06	1.0		1:CA=310000
018	met08_sn_6010	SAMPLE	275869-001	Soil	234061	05/03/16 10:08	1.0		1:FE=160000
019	met08_sn_6010	SAMPLE	275873-001	Soil	234061	05/03/16 10:11	1.0		2:CA=160000
020	met08_sn_6010	SAMPLE	275947-001	Miscell.	234061	05/03/16 10:13	1.0		2:FE=230000
021	met08_sn_6010	SAMPLE	275870-001	Soil	234061	05/03/16 10:15	1.0		2:FE=200000
022	met08_sn_6010	BLANK	QC832888	Soil	234420	05/03/16 10:17	1.0		
023	met08_sn_6010	CCV				05/03/16 10:21	1.0	9	
024	met08_sn_6010	CCB				05/03/16 10:23	1.0		
025	met08_sn_6010	SAMPLE	276497-001	WET Leachate	234539	05/03/16 10:27	10.0		
026	met08_sn_6010	SAMPLE	276504-001	WET Leachate	234539	05/03/16 10:30	10.0		
027	met08_sn_6010	BLANK	QC833922	Soil	234679	05/03/16 10:32	1.0		
028	met08_sn_6010	BS	QC833923	Soil	234679	05/03/16 10:35	1.0		1:SR=11000
029	met08_sn_6010	BSD	QC833924	Soil	234679	05/03/16 10:38	1.0		1:SR=11000
030	met08_sn_6010	SAMPLE	276502-001	Miscell.	234679	05/03/16 10:40	1.0		7:CA=2100000
031	met08_sn_6010	SAMPLE	276518-001	Soil	234679	05/03/16 10:42	1.0		5:CA=1200000
032	met08_sn_6010	SAMPLE	276518-002	Soil	234679	05/03/16 10:44	1.0		4:CA=670000
033	met08_sn_6010	SAMPLE	276518-003	Soil	234679	05/03/16 10:46	1.0		5:FE=610000
034	met08_sn_6010	SAMPLE	276518-004	Soil	234679	05/03/16 10:49	1.0		5:FE=680000
035	met08_sn_6010	CCV				05/03/16 10:51	1.0	9	
036	met08_sn_6010	CCB				05/03/16 10:53	1.0		
037	met08_sn_6010	CCB				05/03/16 10:56	1.0		
038	met08_sn_6010	SAMPLE	276518-005	Soil	234679	05/03/16 10:59	1.0		4:FE=530000
039	met08_sn_6010	SAMPLE	276518-006	Soil	234679	05/03/16 11:01	1.0		5:FE=660000
040	met08_sn_6010	SAMPLE	276518-007	Soil	234679	05/03/16 11:04	1.0		5:FE=720000
041	met08_sn_6010	SAMPLE	276518-008	Soil	234679	05/03/16 11:06	1.0		4:FE=590000
042	met08_sn_6010	BS	QC832889	Soil	234420	05/03/16 11:08	1.0		1:SR=10000
043	met08_sn_6010	BSD	QC832890	Soil	234420	05/03/16 11:10	1.0		1:SR=11000
044	met08_sn_6010	MSS	276221-001	Soil	234420	05/03/16 11:12	1.0		4:FE=480000
045	met08_sn_6010	MS	QC832891	Soil	234420	05/03/16 11:14	1.0		1:FE=290000
046	met08_sn_6010	MSD	QC832892	Soil	234420	05/03/16 11:16	1.0		1:FE=250000
047	met08_sn_6010	SAMPLE	276221-002	Soil	234420	05/03/16 11:19	1.0		4:FE=480000
048	met08_sn_6010	CCV				05/03/16 11:21	1.0	9	
049	met08_sn_6010	CCB				05/03/16 11:23	1.0		
050	met08_sn_6010	CCB				05/03/16 11:26	1.0		
051	met08_sn_6010	SAMPLE	276221-003	Soil	234420	05/03/16 11:29	1.0		4:FE=640000
052	met08_sn_6010	SAMPLE	276221-006	Soil	234420	05/03/16 11:31	1.0		2:FE=240000

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 86179107

Instrument : MET08 Begun : 05/03/16 09:07
Method : EPA 6010B SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met08_sn_6010	SAMPLE	276221-009	Soil	234420	05/03/16 11:33	1.0		3:FE=450000
054	met08_sn_6010	SAMPLE	276221-012	Soil	234420	05/03/16 11:35	1.0		1:FE=170000
055	met08_sn_6010	SAMPLE	276221-015	Soil	234420	05/03/16 11:37	1.0		2:FE=260000
056	met08_sn_6010	SAMPLE	276502-001	Miscell.	234679	05/03/16 11:39	25.0		
057	met08_sn_6010	SAMPLE	276502-001	Miscell.	234679	05/03/16 11:42	1.0		7:CA=2200000
058	met08_sn_6010	X	RINSE			05/03/16 11:44	1.0		
059	met08_sn_6010	X	RINSE			05/03/16 11:48	1.0		
060	met08_sn_6010	X	RINSE			05/03/16 11:51	1.0		
061	met08_sn_6010	CCV				05/03/16 11:54	1.0	9	
062	met08_sn_6010	CCB				05/03/16 11:57	1.0		
063	met08_sn_6010	CCB				05/03/16 12:00	1.0		
064	met08_sn_6010	SAMPLE	276235-001	Soil	234420	05/03/16 12:03	1.0		5:FE=500000
065	met08_sn_6010	SAMPLE	276248-001	Soil	234420	05/03/16 12:05	1.0		2:FE=340000
066	met08_sn_6010	SAMPLE	276248-002	Soil	234420	05/03/16 12:07	1.0		3:FE=470000
067	met08_sn_6010	X	RINSE			05/03/16 12:09	1.0		
068	met08_sn_6010	BLANK	QC833922	Soil	234679	05/03/16 12:13	1.0		
069	met08_sn_6010	SAMPLE	276248-005	Soil	234420	05/03/16 12:16	1.0		2:FE=440000
070	met08_sn_6010	SAMPLE	276248-006	Soil	234420	05/03/16 12:18	1.0		2:FE=230000
071	met08_sn_6010	SAMPLE	276250-001	Soil	234420	05/03/16 12:20	1.0		1:FE=150000
072	met08_sn_6010	SAMPLE	275801-003	Water	233928	05/03/16 12:23	1.0		1:NA=420000
073	met08_sn_6010	SAMPLE	275747-008	Water	233928	05/03/16 12:26	1.0		2:CA=470000
074	met08_sn_6010	CCV				05/03/16 12:28	1.0	9	
075	met08_sn_6010	CCB				05/03/16 12:30	1.0		
076	met08_sn_6010	CCB				05/03/16 12:33	1.0		
077	met08_sn_6010	SAMPLE	276062-001	Soil	234194	05/03/16 12:37	1.0		1:FE=220000
078	met08_sn_6010	SAMPLE	276250-002	Soil	234420	05/03/16 12:39	1.0		1:FE=150000
079	met08_sn_6010	SAMPLE	276250-004	Soil	234420	05/03/16 12:41	1.0		3:FE=410000
080	met08_sn_6010	SAMPLE	276250-005	Soil	234420	05/03/16 12:43	1.0		5:FE=610000
081	met08_sn_6010	SAMPLE	276250-006	Soil	234420	05/03/16 12:45	1.0		6:FE=660000
082	met08_sn_6010	SAMPLE	276250-007	Soil	234420	05/03/16 12:47	1.0		2:FE=340000
083	met08_sn_6010	SAMPLE	276294-032	Soil	234679	05/03/16 12:49	1.0		3:FE=410000
084	met08_sn_6010	SAMPLE	276294-033	Soil	234679	05/03/16 12:51	1.0		6:FE=760000
085	met08_sn_6010	SAMPLE	276294-034	Soil	234679	05/03/16 12:53	1.0		5:FE=570000
086	met08_sn_6010	SAMPLE	276294-035	Soil	234679	05/03/16 12:55	1.0		2:FE=270000
087	met08_sn_6010	CCV				05/03/16 12:57	1.0	9	
088	met08_sn_6010	CCB				05/03/16 12:59	1.0		
089	met08_sn_6010	CCB				05/03/16 13:02	1.0		
090	met08_sn_6010	SAMPLE	276294-036	Soil	234679	05/03/16 13:05	1.0		6:FE=640000
091	met08_sn_6010	SAMPLE	276339-001	Miscell.	234679	05/03/16 13:07	1.0		3:CA=950000
092	met08_sn_6010	MSS	276377-001	Soil	234679	05/03/16 13:09	1.0		5:FE=360000
093	met08_sn_6010	SAMPLE	276377-002	Soil	234679	05/03/16 13:11	1.0		6:CA=540000
094	met08_sn_6010	SAMPLE	276377-005	Soil	234679	05/03/16 13:13	1.0		5:FE=430000
095	met08_sn_6010	SAMPLE	276377-006	Soil	234679	05/03/16 13:15	1.0		6:FE=440000
096	met08_sn_6010	MS	QC833925	Soil	234679	05/03/16 13:17	1.0		1:FE=400000
097	met08_sn_6010	MSD	QC833926	Soil	234679	05/03/16 13:19	1.0		1:FE=420000
098	met08_sn_6010	SER	QC833927	Soil	234679	05/03/16 13:21	5.0		
099	met08_sn_6010	PDS	QC833928	Soil	234679	05/03/16 13:24	1.0	10 11 12	5:FE=370000
100	met08_sn_6010	CCV				05/03/16 13:26	1.0	9	
101	met08_sn_6010	CCB				05/03/16 13:28	1.0		
102	met08_sn_6010	CCB				05/03/16 13:31	1.0		
103	met08_sn_6010	SAMPLE	275796-001	Miscell.	233910	05/03/16 13:35	50.0		
104	met08_sn_6010	MSS	275799-001	Soil	233910	05/03/16 13:37	1.0		5:CA=520000

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 86179107

Instrument : MET08 Begun : 05/03/16 09:07
Method : EPA 6010B SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
105	met08_sn_6010	SAMPLE	275800-001	Miscell.	233910	05/03/16 13:39	50.0		
106	met08_sn_6010	MS	QC830832	Soil	233910	05/03/16 13:41	1.0		3:FE=560000
107	met08_sn_6010	MSD	QC830833	Soil	233910	05/03/16 13:43	1.0		3:FE=620000
108	met08_sn_6010	SAMPLE	275921-001	Water	234165	05/03/16 13:45	25.0		
109	met08_sn_6010	SAMPLE	275921-002	Water	234165	05/03/16 13:49	1.0		3:CA=330000
110	met08_sn_6010	SAMPLE	275921-008	Water	234165	05/03/16 13:51	1.0		
111	met08_sn_6010	SAMPLE	275921-009	Water	234165	05/03/16 13:54	1.0		1:NA=130000
112	met08_sn_6010	BS	QC831590	Filtrate	234099	05/03/16 13:56	1.0		
113	met08_sn_6010	CCV				05/03/16 13:59	1.0	9	
114	met08_sn_6010	CCB				05/03/16 14:01	1.0		
115	met08_sn_6010	CCB				05/03/16 14:04	1.0		
116	met08_sn_6010	BSD	QC831591	Filtrate	234099	05/03/16 14:07	1.0		
117	met08_sn_6010	BS	QC831917	Filtrate	234182	05/03/16 14:15	1.0		
118	met08_sn_6010	BSD	QC831918	Filtrate	234182	05/03/16 14:17	1.0		
119	met08_sn_6010	MSS	275899-003	Filtrate	234182	05/03/16 14:20	1.0		
120	met08_sn_6010	SAMPLE	275899-004	Filtrate	234182	05/03/16 14:23	1.0		
121	met08_sn_6010	SAMPLE	275899-008	Filtrate	234182	05/03/16 14:26	1.0		
122	met08_sn_6010	SAMPLE	276017-002	Filtrate	234182	05/03/16 14:29	1.0		1:NA=100000
123	met08_sn_6010	SAMPLE	276018-003	Filtrate	234182	05/03/16 14:33	1.0		1:NA=140000
124	met08_sn_6010	SAMPLE	276039-001	Filtrate	234182	05/03/16 14:36	5.0		
125	met08_sn_6010	CCV				05/03/16 14:39	1.0	9	
126	met08_sn_6010	CCB				05/03/16 14:41	1.0		
127	met08_sn_6010	CCB				05/03/16 14:44	1.0		
128	met08_sn_6010	SAMPLE	276039-003	Filtrate	234182	05/03/16 14:48	5.0		
129	met08_sn_6010	SAMPLE	276039-005	Filtrate	234182	05/03/16 14:51	5.0		
130	met08_sn_6010	SAMPLE	276039-007	Filtrate	234182	05/03/16 14:54	5.0		
131	met08_sn_6010	SAMPLE	276039-011	Filtrate	234182	05/03/16 14:56	5.0		
132	met08_sn_6010	SAMPLE	276039-013	Filtrate	234182	05/03/16 15:00	5.0		
133	met08_sn_6010	SAMPLE	276082-002	Filtrate	234182	05/03/16 15:03	5.0		
134	met08_sn_6010	SAMPLE	276083-001	Filtrate	234182	05/03/16 15:06	5.0		
135	met08_sn_6010	MS	QC831919	Filtrate	234182	05/03/16 15:09	1.0		
136	met08_sn_6010	MSD	QC831920	Filtrate	234182	05/03/16 15:12	1.0		
137	met08_sn_6010	MSS	276065-001	Soil	234195	05/03/16 15:14	1.0		4:AL=870000
138	met08_sn_6010	CCV				05/03/16 15:16	1.0	9	
139	met08_sn_6010	CCB				05/03/16 15:18	1.0		
140	met08_sn_6010	CCB				05/03/16 15:21	1.0		
141	met08_sn_6010	SAMPLE	276072-001	Soil	234195	05/03/16 15:25	1.0		2:FE=260000
142	met08_sn_6010	SAMPLE	276072-005	Soil	234195	05/03/16 15:27	1.0		2:FE=270000
143	met08_sn_6010	SAMPLE	276072-007	Soil	234195	05/03/16 15:29	1.0		3:FE=440000
144	met08_sn_6010	SAMPLE	276072-009	Soil	234195	05/03/16 15:31	1.0		2:FE=240000
145	met08_sn_6010	SAMPLE	276072-011	Soil	234195	05/03/16 15:33	1.0		3:FE=330000
146	met08_sn_6010	SAMPLE	276072-013	Soil	234195	05/03/16 15:35	1.0		3:FE=250000
147	met08_sn_6010	SAMPLE	276072-015	Soil	234195	05/03/16 15:37	1.0		2:FE=250000
148	met08_sn_6010	SAMPLE	276072-017	Soil	234195	05/03/16 15:39	1.0		3:FE=320000
149	met08_sn_6010	SAMPLE	276072-018	Soil	234195	05/03/16 15:41	1.0		2:FE=230000
150	met08_sn_6010	SAMPLE	276072-019	Soil	234195	05/03/16 15:43	1.0		2:FE=280000
151	met08_sn_6010	CCV				05/03/16 15:45	1.0	9	
152	met08_sn_6010	CCB				05/03/16 15:47	1.0		
153	met08_sn_6010	XCCB				05/03/16 15:50	1.0		

KER 05/03/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 58.

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 86179107

Instrument : MET08 Begun : 05/03/16 09:07
Method : EPA 6010B SOP Version : icp metals_rv17

Standards used: 1=S29301 2=S29393 3=S29394 4=S29395 5=S29761 6=S29396 7=S29660 8=S29661 9=S29397 10=S28385 11=S28386 12=S29742

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 86179107

Date : 05/03/16 Reference : met08_sn_6010
Sequence : MET08 05/03/16 Analyzed : 05/03/16 09:11

#	Type	Sample ID	Y A
		ICAL STD	11548542
		LOWER LIMIT	3464562
		UPPER LIMIT	23097083
010	ICB		11576604
011	ICSA		11147070
012	ICSAB		10997652
013	BLANK	QC831433	11727444
014	BS	QC831434	11723425
015	BSD	QC831435	11719333
016	MS	QC831436	11473890
017	MSD	QC831437	11675388
020	SAMPLE	275947-001	11518424
022	BLANK	QC832888	11861576
023	CCV		11256117
024	CCB		11656905
025	SAMPLE	276497-001	11823524
026	SAMPLE	276504-001	11575496
027	BLANK	QC833922	11467151
028	BS	QC833923	11594189
029	BSD	QC833924	11351487
030	SAMPLE	276502-001	10859239
031	SAMPLE	276518-001	11063667
032	SAMPLE	276518-002	11161471
033	SAMPLE	276518-003	11659780
034	SAMPLE	276518-004	11531244
035	CCV		11888986
036	CCB		11844255
037	CCB		11840792
038	SAMPLE	276518-005	11626370
039	SAMPLE	276518-006	11604919
040	SAMPLE	276518-007	11376271
041	SAMPLE	276518-008	11281606
042	BS	QC832889	11939885
043	BSD	QC832890	11877626
044	MSS	276221-001	11736058
045	MS	QC832891	11688916
046	MSD	QC832892	12036209
047	SAMPLE	276221-002	11877569
048	CCV		11548784
049	CCB		11668292
050	CCB		11706918
051	SAMPLE	276221-003	11779756
052	SAMPLE	276221-006	11928799
053	SAMPLE	276221-009	11602023
054	SAMPLE	276221-012	11849119
055	SAMPLE	276221-015	11831767
056	SAMPLE	276502-001	12191874
057	SAMPLE	276502-001	10910459
061	CCV		11546358
062	CCB		11743827
063	CCB		11642884

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 86179107

Date : 05/03/16 Reference : met08_sn_6010
Sequence : MET08 05/03/16 Analyzed : 05/03/16 09:11

#	Type	Sample ID	Y	A
064	SAMPLE	276235-001	11707607	
065	SAMPLE	276248-001	11928816	
066	SAMPLE	276248-002	11515909	
068	BLANK	QC833922	11847991	
069	SAMPLE	276248-005	11880643	
070	SAMPLE	276248-006	11646801	
071	SAMPLE	276250-001	11638035	
072	SAMPLE	275801-003	11608717	
073	SAMPLE	275747-008	11168532	
074	CCV		11857064	
075	CCB		11640231	
076	CCB		11892760	
077	SAMPLE	276062-001	11573470	
078	SAMPLE	276250-002	11922272	
079	SAMPLE	276250-004	11699562	
080	SAMPLE	276250-005	11523458	
081	SAMPLE	276250-006	11391770	
082	SAMPLE	276250-007	11666846	
083	SAMPLE	276294-032	11409388	
084	SAMPLE	276294-033	11354279	
085	SAMPLE	276294-034	11770301	
086	SAMPLE	276294-035	11676387	
087	CCV		11770974	
088	CCB		11666483	
089	CCB		11942223	
090	SAMPLE	276294-036	11423923	
091	SAMPLE	276339-001	11175935	
092	MSS	276377-001	11430044	
093	SAMPLE	276377-002	11269709	
094	SAMPLE	276377-005	11662840	
095	SAMPLE	276377-006	11099861	
096	MS	QC833925	11589879	
097	MSD	QC833926	11331266	
098	SER	QC833927	11835804	
099	PDS	QC833928	11620763	
100	CCV		11749261	
101	CCB		11809862	
102	CCB		11947868	
103	SAMPLE	275796-001	11620683	
104	MSS	275799-001	11602028	
105	SAMPLE	275800-001	12090324	
106	MS	QC830832	11664268	
107	MSD	QC830833	11781222	
108	SAMPLE	275921-001	26277283	*
109	SAMPLE	275921-002	11558621	
110	SAMPLE	275921-008	11843740	
111	SAMPLE	275921-009	11732376	
112	BS	QC831590	12242558	
113	CCV		11776890	
114	CCB		11686540	
115	CCB		11633442	
116	BSD	QC831591	12245913	

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 86179107

Date : 05/03/16 Reference : met08_sn_6010
Sequence : MET08 05/03/16 Analyzed : 05/03/16 09:11

#	Type	Sample ID	Y A
117	BS	QC831917	11911992
118	BSD	QC831918	12366099
119	MSS	275899-003	11922336
120	SAMPLE	275899-004	11891131
121	SAMPLE	275899-008	12034916
125	CCV		11423359
126	CCB		11881409
127	CCB		11922951
135	MS	QC831919	11827388
136	MSD	QC831920	12072378
137	MSS	276065-001	11017452
138	CCV		11705960
139	CCB		11421954
140	CCB		11361460
141	SAMPLE	276072-001	11613621
142	SAMPLE	276072-005	11380644
143	SAMPLE	276072-007	11602986
144	SAMPLE	276072-009	11454469
145	SAMPLE	276072-011	11770265
146	SAMPLE	276072-013	11456743
147	SAMPLE	276072-015	11579027
148	SAMPLE	276072-017	11803981
149	SAMPLE	276072-018	11660757
150	SAMPLE	276072-019	11556659
151	CCV		11906043
152	CCB		11684484

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 275899 METALS Filtrate: EPA 6010B

Inst : MET08
Calnum : 86179107001
Units : ug/L

Date : 03-MAY-2016 09:07
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met08_sn_6010	86179107002	L1	03-MAY-2016 09:11	S29301
L2	met08_sn_6010	86179107003	L2	03-MAY-2016 09:14	S29393
L3	met08_sn_6010	86179107004	L3	03-MAY-2016 09:16	S29394
L4	met08_sn_6010	86179107005	L4	03-MAY-2016 09:19	S29395
L5	met08_sn_6010	86179107006	L5	03-MAY-2016 09:21	S29761

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Antimony	A	16.000	16.411	16.385	16.952		LOR0	0.00000	0.05901		16.437	1.000	0.995	
Arsenic	A	10.880	12.076	12.681	13.298		LOR0	0.00000	0.07524		12.234	1.000	0.995	
Barium	A	301.66	299.66	296.27	294.71		LOR0	0.00000	0.00339		298.07	1.000	0.995	
Beryllium	A	3532.0	3488.4	3522.1			LOR0	0.00000	2.84E-4		3514.2	1.000	0.995	
Cadmium	A	154.66	153.40	153.83	152.02		LOR0	0.00000	0.00658		153.48	1.000	0.995	
Chromium	A	107.26	97.543	96.181	96.204		LOR0	0.00000	0.01039		99.297	1.000	0.995	
Cobalt	A	105.40	105.28	104.17	105.41		LOR0	0.00000	0.00949		105.07	1.000	0.995	
Copper	A	511.82	304.25	292.38	301.58		LOR0	0.00000	0.00332		352.51	1.000	0.995	
Lead	A	23.200	31.731	31.431	32.890		LOR0	0.00000	0.03042		29.813	1.000	0.995	
Molybdenum	A	23.760	24.515	24.045	23.962		LOR0	0.00000	0.04173		24.070	1.000	0.995	
Nickel	A	42.480	35.224	34.677	35.212		LOR0	0.00000	0.02840		36.898	1.000	0.995	
Selenium	A	37.880	28.396	25.407	26.117		LOR0	0.00000	0.03830		29.450	1.000	0.995	
Silver	A	1749.4	1596.1	1437.7	1454.0		LOR0	0.00000	6.88E-4		1559.3	1.000	0.995	
Thallium	A	14.420	12.923	12.270	11.954		LOR0	0.00000	0.08363		12.892	1.000	0.995	
Vanadium	A	98.100	92.696	91.601	92.756		LOR0	0.00000	0.01078		93.788	1.000	0.995	
Zinc	A	83.500	68.880	66.170	66.984		LOR0	0.00000	0.01493		71.384	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Antimony	A	10.000	-6	100.00	-3	1000.0	-3	10000	0		
Arsenic	A	5.0000	-18	100.00	-9	1000.0	-5	10000	0		
Barium	A	5.0000	2	100.00	2	1000.0	1	10000	0		
Beryllium	A	2.0000	0	100.00	-1	1000.0	0				
Cadmium	A	5.0000	2	100.00	1	1000.0	1	10000	0		
Chromium	A	5.0000	11	100.00	1	1000.0	0	10000	0		
Cobalt	A	5.0000	0	100.00	0	1000.0	-1	10000	0		
Copper	A	5.0000	**70**	100.00	1	1000.0	-3	10000	0		
Lead	A	5.0000	**-29**	100.00	-3	1000.0	-4	10000	0		
Molybdenum	A	5.0000	-1	100.00	2	1000.0	0	10000	0		
Nickel	A	5.0000	**21**	100.00	0	1000.0	-2	10000	0		
Selenium	A	10.000	**45**	100.00	9	1000.0	-3	10000	0		
Silver	A	5.0000	20	20.000	10	200.00	-1	2000.0	0		
Thallium	A	10.000	**21**	100.00	8	1000.0	3	10000	0		
Vanadium	A	5.0000	6	100.00	0	1000.0	-1	10000	0		
Zinc	A	20.000	**25**	100.00	3	1000.0	-1	10000	0		

Instrument amount = a0 + response * a1 + response^2 * a2; LOR0=Linear regression forced thru origin, including 0,0 point

86179107001

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 275899 METALS Filtrate
EPA 6010B

Inst : MET08
Calnum : 86179107001 Cal Date : 03-MAY-2016

ICV 86179107007 (03-MAY-2016) stds: S29396

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	5000	4984	ug/L	0	10	
Arsenic	A	5000	5084	ug/L	2	10	
Barium	A	5000	5053	ug/L	1	10	
Beryllium	A	500.0	511.5	ug/L	2	10	
Cadmium	A	5000	5107	ug/L	2	10	
Chromium	A	5000	5068	ug/L	1	10	
Cobalt	A	5000	4907	ug/L	-2	10	
Copper	A	5000	4871	ug/L	-3	10	
Lead	A	5000	4997	ug/L	0	10	
Molybdenum	A	5000	4867	ug/L	-3	10	
Nickel	A	5000	5057	ug/L	1	10	
Selenium	A	5000	4937	ug/L	-1	10	
Silver	A	1000	1014	ug/L	1	10	
Thallium	A	5000	4849	ug/L	-3	10	
Vanadium	A	5000	5111	ug/L	2	10	
Zinc	A	5000	5021	ug/L	0	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275899 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86179107010.1 File : met08_sn_6010 Time : 03-MAY-2016 09:35
Cal : 86179107001 Caldate : 03-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	8.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	4.000	ug/L	
Beryllium	A	ND	2.000	1.600	ug/L	
Cadmium	A	ND	5.000	4.000	ug/L	
Chromium	A	ND	5.000	4.000	ug/L	
Cobalt	A	ND	5.000	4.000	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	4.000	ug/L	
Molybdenum	A	ND	5.000	4.000	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	8.000	ug/L	
Vanadium	A	ND	5.000	4.000	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	11548542	11576604	0.24

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 275899 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86179107011.1 File : met08_sn_6010 Time : 03-MAY-2016 09:38
Cal : 86179107001 Caldate : 03-MAY-2016
Standards: S29660

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	[-5.527]	10.00	ug/L	
Arsenic	A	[1.639]	5.000	ug/L	
Barium	A	[-2.392]	5.000	ug/L	
Beryllium	A	[0.1518]	2.000	ug/L	
Cadmium	A	[-1.719]	5.000	ug/L	
Cobalt	A	[1.490]	5.000	ug/L	
Lead	A	[-4.719]	5.000	ug/L	
Molybdenum	A	[3.231]	5.000	ug/L	
Selenium	A	[3.531]	10.00	ug/L	
Silver	A	[3.117]	5.000	ug/L	
Thallium	A	[6.150]	10.00	ug/L	
Zinc	A	[9.971]	20.00	ug/L	

Interferent	Ch	Spiked	Quant	Units	%Rec	Flags
Chromium	A	20000	19370	ug/L	97	
Copper	A	20000	19930	ug/L	100	
Manganese	A	20000	18320	ug/L	92	
Nickel	A	20000	18770	ug/L	94	
Vanadium	A	20000	19900	ug/L	99	
Aluminum	R	500000	543900	ug/L	109	
Calcium	R	500000	537000	ug/L	107	
Iron	R	200000	211400	ug/L	106	
Magnesium	R	500000	525200	ug/L	105	
Titanium	R	20000	21030	ug/L	105	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	11548542	11147070	-3.48

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 275899 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86179107012 File : met08_sn_6010 Time : 03-MAY-2016 09:47
Cal : 86179107001 Caldate : 03-MAY-2016
Standards: S29661

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	524.4	ug/L	5	20	
Arsenic	A	500.0	521.6	ug/L	4	20	
Barium	A	500.0	513.6	ug/L	3	20	
Beryllium	A	500.0	518.2	ug/L	4	20	
Cadmium	A	1000	987.5	ug/L	-1	20	
Chromium	A	500.0	505.5	ug/L	1	20	
Cobalt	A	500.0	509.4	ug/L	2	20	
Copper	A	500.0	510.3	ug/L	2	20	
Lead	A	1000	960.7	ug/L	-4	20	
Molybdenum	A	500.0	486.8	ug/L	-3	20	
Nickel	A	1000	968.0	ug/L	-3	20	
Selenium	A	500.0	477.0	ug/L	-5	20	
Silver	A	1000	1051	ug/L	5	20	
Thallium	A	500.0	480.6	ug/L	-4	20	
Vanadium	A	500.0	550.7	ug/L	10	20	
Zinc	A	1000	986.2	ug/L	-1	20	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	11548542	10997652	-4.77

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275899 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86179107113.1 File : met08_sn_6010 Time : 03-MAY-2016 13:59
Cal : 86179107001 Caldate : 03-MAY-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	16.437	17.678	5000	5216	ug/L	4	10	
Arsenic	A	12.234	14.201	5000	5342	ug/L	7	10	
Barium	A	298.07	300.94	5000	5106	ug/L	2	10	
Beryllium	A	3514.2	3571.0	500.0	507.0	ug/L	1	10	
Cadmium	A	153.48	160.78	5000	5288	ug/L	6	10	
Chromium	A	99.297	95.419	5000	4959	ug/L	-1	10	
Cobalt	A	105.07	102.15	5000	4837	ug/L	-3	10	
Copper	A	352.51	296.54	5000	4918	ug/L	-2	10	
Lead	A	29.813	36.351	5000	5529	ug/L	**11**	10	c+ ***
Molybdenum	A	24.070	23.441	5000	4891	ug/L	-2	10	
Nickel	A	36.898	36.712	5000	5214	ug/L	4	10	
Selenium	A	29.450	26.083	5000	4995	ug/L	0	10	
Silver	A	1559.3	1511.7	1000	1040	ug/L	4	10	
Thallium	A	12.892	11.800	5000	4934	ug/L	-1	10	
Vanadium	A	93.788	98.202	5000	5294	ug/L	6	10	
Zinc	A	71.384	66.538	5000	4967	ug/L	-1	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	11548542	11776890	1.98

+=high bias c=CCV

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275899 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86179107115.1 File : met08_sn_6010 Time : 03-MAY-2016 14:04
Cal : 86179107001 Caldate : 03-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	8.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	4.000	ug/L	
Beryllium	A	ND	2.000	1.600	ug/L	
Cadmium	A	ND	5.000	4.000	ug/L	
Chromium	A	ND	5.000	4.000	ug/L	
Cobalt	A	ND	5.000	4.000	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	4.000	ug/L	
Molybdenum	A	ND	5.000	4.000	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	6.252	5.000	4.000	ug/L	CCB ***
Thallium	A	ND	10.00	8.000	ug/L	
Vanadium	A	ND	5.000	4.000	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	11548542	11633442	0.74

CCB=instrument blank

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275899 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86179107125.1 File : met08_sn_6010 Time : 03-MAY-2016 14:39
Cal : 86179107001 Caldate : 03-MAY-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	16.437	18.050	5000	5326	ug/L	7	10	
Arsenic	A	12.234	14.873	5000	5595	ug/L	**12**	10	c+ ***
Barium	A	298.07	307.63	5000	5219	ug/L	4	10	
Beryllium	A	3514.2	3692.1	500.0	524.2	ug/L	5	10	
Cadmium	A	153.48	166.67	5000	5481	ug/L	10	10	
Chromium	A	99.297	96.489	5000	5015	ug/L	0	10	
Cobalt	A	105.07	105.79	5000	5010	ug/L	0	10	
Copper	A	352.51	304.18	5000	5045	ug/L	1	10	
Lead	A	29.813	37.672	5000	5730	ug/L	**15**	10	c+ ***
Molybdenum	A	24.070	24.049	5000	5018	ug/L	0	10	
Nickel	A	36.898	37.716	5000	5356	ug/L	7	10	
Selenium	A	29.450	27.618	5000	5289	ug/L	6	10	
Silver	A	1559.3	1531.1	1000	1053	ug/L	5	10	
Thallium	A	12.892	12.768	5000	5339	ug/L	7	10	
Vanadium	A	93.788	99.188	5000	5347	ug/L	7	10	
Zinc	A	71.384	69.204	5000	5166	ug/L	3	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	11548542	11423359	-1.08

+=high bias c=CCV

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275899 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86179107126.1 File : met08_sn_6010 Time : 03-MAY-2016 14:41
Cal : 86179107001 Caldate : 03-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	8.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	4.000	ug/L	
Beryllium	A	ND	2.000	1.600	ug/L	
Cadmium	A	ND	5.000	4.000	ug/L	
Chromium	A	ND	5.000	4.000	ug/L	
Cobalt	A	ND	5.000	4.000	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	4.000	ug/L	
Molybdenum	A	ND	5.000	4.000	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	6.827	5.000	4.000	ug/L	CCB ***
Thallium	A	ND	10.00	8.000	ug/L	
Vanadium	A	ND	5.000	4.000	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	11548542	11881409	2.88

CCB=instrument blank

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275899 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86179107127.1 File : met08_sn_6010 Time : 03-MAY-2016 14:44
Cal : 86179107001 Caldate : 03-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	8.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	4.000	ug/L	
Beryllium	A	ND	2.000	1.600	ug/L	
Cadmium	A	ND	5.000	4.000	ug/L	
Chromium	A	ND	5.000	4.000	ug/L	
Cobalt	A	ND	5.000	4.000	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	4.000	ug/L	
Molybdenum	A	ND	5.000	4.000	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	5.978	5.000	4.000	ug/L	CCB ***
Thallium	A	ND	10.00	8.000	ug/L	
Vanadium	A	ND	5.000	4.000	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	11548542	11922951	3.24

CCB=instrument blank

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275899 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86179107138.1 File : met08_sn_6010 Time : 03-MAY-2016 15:16
Cal : 86179107001 Caldate : 03-MAY-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	16.437	17.223	5000	5082	ug/L	2	10	
Arsenic	A	12.234	14.010	5000	5270	ug/L	5	10	
Barium	A	298.07	301.65	5000	5117	ug/L	2	10	
Beryllium	A	3514.2	3593.9	500.0	510.2	ug/L	2	10	
Cadmium	A	153.48	162.49	5000	5344	ug/L	7	10	
Chromium	A	99.297	95.378	5000	4957	ug/L	-1	10	
Cobalt	A	105.07	102.96	5000	4876	ug/L	-2	10	
Copper	A	352.51	298.17	5000	4945	ug/L	-1	10	
Lead	A	29.813	36.731	5000	5586	ug/L	**12**	10	c+ ***
Molybdenum	A	24.070	23.602	5000	4925	ug/L	-2	10	
Nickel	A	36.898	36.783	5000	5224	ug/L	4	10	
Selenium	A	29.450	26.081	5000	4994	ug/L	0	10	
Silver	A	1559.3	1510.7	1000	1039	ug/L	4	10	
Thallium	A	12.892	12.192	5000	5098	ug/L	2	10	
Vanadium	A	93.788	98.168	5000	5292	ug/L	6	10	
Zinc	A	71.384	67.194	5000	5016	ug/L	0	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	11548542	11705960	1.36

+=high bias c=CCV

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275899 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86179107139.1 File : met08_sn_6010 Time : 03-MAY-2016 15:18
Cal : 86179107001 Caldate : 03-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	8.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	4.000	ug/L	
Beryllium	A	ND	2.000	1.600	ug/L	
Cadmium	A	ND	5.000	4.000	ug/L	
Chromium	A	ND	5.000	4.000	ug/L	
Cobalt	A	ND	5.000	4.000	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	4.000	ug/L	
Molybdenum	A	ND	5.000	4.000	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	5.292	5.000	4.000	ug/L	CCB ***
Thallium	A	ND	10.00	8.000	ug/L	
Vanadium	A	ND	5.000	4.000	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	11548542	11421954	-1.10

CCB=instrument blank

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 86179530

Instrument : MET08 Begun : 05/03/16 16:10
Method : EPA 6010B SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met08_sn_6010	ICALBLK				05/03/16 16:10	1.0		
002	met08_sn_6010	ICAL	L1			05/03/16 16:13	1.0	1	
003	met08_sn_6010	ICAL	L2			05/03/16 16:17	1.0	2	
004	met08_sn_6010	ICAL	L3			05/03/16 16:19	1.0	3	
005	met08_sn_6010	ICAL	L4			05/03/16 16:21	1.0	4	
006	met08_sn_6010	ICAL	L5			05/03/16 16:23	1.0	5	
007	met08_sn_6010	ICV				05/03/16 16:25	1.0	6	
008	met08_sn_6010	XCRI				05/03/16 16:31	1.0	1	
009	met08_sn_6010	CRI				05/03/16 16:34	1.0	1	
010	met08_sn_6010	XICB				05/03/16 16:38	1.0		
011	met08_sn_6010	ICB				05/03/16 17:05	1.0		
012	met08_sn_6010	ICSA				05/03/16 17:09	1.0	7	10:AL=510000
013	met08_sn_6010	ICSAB				05/03/16 17:20	1.0	8	3:AL=550000
014	met08_sn_6010	CCV				05/03/16 17:28	1.0	9	
015	met08_sn_6010	CCB				05/03/16 17:30	1.0		
016	met08_sn_6010	XCCB				05/03/16 17:33	1.0		
017	met08_sn_6010	SAMPLE	275921-001	Water	234165	05/03/16 18:11	25.0		1:NA=130000
018	met08_sn_6010	SAMPLE	275800-001	Miscell.	233910	05/03/16 18:15	1.0		3:CU=130000
019	met08_sn_6010	SER	QC830834	Soil	233910	05/03/16 18:18	5.0		
020	met08_sn_6010	BLANK	QC833922	Soil	234679	05/03/16 18:21	1.0		
021	met08_sn_6010	BS	QC833923	Soil	234679	05/03/16 18:25	1.0		1:SR=11000
022	met08_sn_6010	BSD	QC833924	Soil	234679	05/03/16 18:27	1.0		1:SR=11000
023	met08_sn_6010	MSS	276377-001	Soil	234679	05/03/16 18:29	1.0		5:FE=340000
024	met08_sn_6010	MS	QC833925	Soil	234679	05/03/16 18:31	1.0		1:FE=380000
025	met08_sn_6010	MSD	QC833926	Soil	234679	05/03/16 18:33	1.0		1:FE=420000
026	met08_sn_6010	SAMPLE	276294-032	Soil	234679	05/03/16 18:36	1.0		3:FE=390000
027	met08_sn_6010	CCV				05/03/16 18:38	1.0	9	
028	met08_sn_6010	CCB				05/03/16 18:40	1.0		
029	met08_sn_6010	SAMPLE	276294-033	Soil	234679	05/03/16 18:43	1.0		6:FE=740000
030	met08_sn_6010	SAMPLE	276294-034	Soil	234679	05/03/16 18:45	1.0		5:FE=560000
031	met08_sn_6010	SAMPLE	276294-035	Soil	234679	05/03/16 18:47	1.0		2:FE=240000
032	met08_sn_6010	SAMPLE	276294-036	Soil	234679	05/03/16 18:49	1.0		6:FE=600000
033	met08_sn_6010	SAMPLE	276377-002	Soil	234679	05/03/16 18:51	1.0		6:CA=500000
034	met08_sn_6010	SAMPLE	276377-005	Soil	234679	05/03/16 18:53	1.0		5:FE=430000
035	met08_sn_6010	SAMPLE	276377-006	Soil	234679	05/03/16 18:55	1.0		5:FE=400000
036	met08_sn_6010	BS	QC831590	Filtrate	234099	05/03/16 18:57	1.0		
037	met08_sn_6010	BSD	QC831591	Filtrate	234099	05/03/16 19:00	1.0		
038	met08_sn_6010	SAMPLE	275747-008	Filtrate	234099	05/03/16 19:02	5.0		1:NA=260000
039	met08_sn_6010	CCV				05/03/16 19:06	1.0	9	
040	met08_sn_6010	CCB				05/03/16 19:08	1.0		
041	met08_sn_6010	MSS	275899-003	Filtrate	234182	05/03/16 19:11	1.0		
042	met08_sn_6010	SAMPLE	275899-004	Filtrate	234182	05/03/16 19:14	1.0		
043	met08_sn_6010	SAMPLE	275899-008	Filtrate	234182	05/03/16 19:17	1.0		
044	met08_sn_6010	SAMPLE	276039-003	Filtrate	234182	05/03/16 19:21	5.0		
045	met08_sn_6010	SAMPLE	276039-005	Filtrate	234182	05/03/16 19:24	1.0		1:CA=100000
046	met08_sn_6010	SAMPLE	276039-007	Filtrate	234182	05/03/16 19:27	5.0		
047	met08_sn_6010	SAMPLE	276039-011	Filtrate	234182	05/03/16 19:31	1.0		
048	met08_sn_6010	SAMPLE	276039-013	Filtrate	234182	05/03/16 19:33	1.0		1:NA=130000
049	met08_sn_6010	SAMPLE	276082-002	Filtrate	234182	05/03/16 19:35	5.0		
050	met08_sn_6010	SER	QC831921	Filtrate	234182	05/03/16 19:39	5.0		
051	met08_sn_6010	CCV				05/03/16 19:42	1.0	9	
052	met08_sn_6010	CCB				05/03/16 19:44	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 86179530

Instrument : MET08 Begun : 05/03/16 16:10
Method : EPA 6010B SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met08_sn_6010	CCB				05/03/16 19:47	1.0		
054	met08_sn_6010	PDS	QC831922	Filtrate	234182	05/03/16 19:50	1.0	10 11 12	
055	met08_sn_6010	SAMPLE	276072-005	Soil	234195	05/03/16 19:53	1.0		2:FE=270000
056	met08_sn_6010	SAMPLE	276072-007	Soil	234195	05/03/16 19:55	1.0		3:FE=420000
057	met08_sn_6010	SAMPLE	276072-009	Soil	234195	05/03/16 19:57	1.0		2:FE=240000
058	met08_sn_6010	SAMPLE	276072-011	Soil	234195	05/03/16 19:59	1.0		3:FE=300000
059	met08_sn_6010	SAMPLE	276072-019	Soil	234195	05/03/16 20:01	1.0		2:FE=270000
060	met08_sn_6010	SAMPLE	275738-001	Water	233845	05/03/16 20:03	1.0		2:MG=130000
061	met08_sn_6010	SAMPLE	275738-002	Water	233845	05/03/16 20:06	1.0		2:CA=130000
062	met08_sn_6010	SAMPLE	275738-003	Water	233845	05/03/16 20:08	1.0		2:MG=120000
063	met08_sn_6010	SAMPLE	275738-004	Water	233845	05/03/16 20:12	1.0		1:NA=150000
064	met08_sn_6010	CCV				05/03/16 20:15	1.0	9	
065	met08_sn_6010	CCB				05/03/16 20:17	1.0		
066	met08_sn_6010	SAMPLE	275738-006	Water	233845	05/03/16 20:20	1.0		1:MG=110000
067	met08_sn_6010	SAMPLE	275715-001	Water	233845	05/03/16 20:24	1.0		2:CA=580000
068	met08_sn_6010	SAMPLE	275715-002	Water	233845	05/03/16 20:27	1.0		3:NA=860000
069	met08_sn_6010	SAMPLE	275715-003	Water	233845	05/03/16 20:29	1.0		2:CA=420000
070	met08_sn_6010	SAMPLE	275715-004	Water	233845	05/03/16 20:32	1.0		4:NA=330000
071	met08_sn_6010	SAMPLE	275715-005	Water	233845	05/03/16 20:35	1.0		4:NA=1200000
072	met08_sn_6010	MSS	275701-002	Water	233807	05/03/16 20:37	20.0		
073	met08_sn_6010	SAMPLE	275701-007	Water	233807	05/03/16 20:40	10.0		
074	met08_sn_6010	SAMPLE	275711-002	Water	233807	05/03/16 20:43	10.0		
075	met08_sn_6010	SAMPLE	275711-001	Water	233807	05/03/16 20:47	1.0		
076	met08_sn_6010	CCV				05/03/16 20:50	1.0	9	
077	met08_sn_6010	CCB				05/03/16 20:52	1.0		
078	met08_sn_6010	BLANK	QC830406	Water	233807	05/03/16 20:55	20.0		
079	met08_sn_6010	BS	QC830407	Water	233807	05/03/16 20:59	20.0		
080	met08_sn_6010	BSD	QC830408	Water	233807	05/03/16 21:02	100.0		
081	met08_sn_6010	MS	QC830409	Water	233807	05/03/16 21:05	20.0		
082	met08_sn_6010	SAMPLE	276111-001	Soil	234278	05/03/16 21:08	10.0		
083	met08_sn_6010	SAMPLE	276114-001	Miscell.	234278	05/03/16 21:10	50.0		
084	met08_sn_6010	SAMPLE	276114-002	Miscell.	234278	05/03/16 21:12	50.0		
085	met08_sn_6010	SAMPLE	276123-001	Soil	234278	05/03/16 21:15	1.0		2:FE=260000
086	met08_sn_6010	SAMPLE	276153-003	Soil	234323	05/03/16 21:17	1.0		3:FE=290000
087	met08_sn_6010	MSS	276160-001	Soil	234323	05/03/16 21:19	1.0		4:FE=650000
088	met08_sn_6010	CCV				05/03/16 21:21	1.0	9	
089	met08_sn_6010	CCB				05/03/16 21:23	1.0		
090	met08_sn_6010	MS	QC832505	Soil	234323	05/03/16 21:26	1.0		1:FE=850000
091	met08_sn_6010	MSD	QC832506	Soil	234323	05/03/16 21:28	1.0		1:FE=930000
092	met08_sn_6010	SER	QC832507	Soil	234323	05/03/16 21:31	5.0		
093	met08_sn_6010	PDS	QC832508	Soil	234323	05/03/16 21:34	1.0		4:FE=660000
094	met08_sn_6010	MS	QC833008	Water	234452	05/03/16 21:36	1.0		
095	met08_sn_6010	MSD	QC833009	Water	234452	05/03/16 21:38	1.0		

KER 05/04/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 95.

Standards used: 1=S29301 2=S29393 3=S29394 4=S29395 5=S29761 6=S29396 7=S29660 8=S29661 9=S29397 10=S28385 11=S28386 12=S29742

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 86179530

Date : 05/03/16 Reference : met08_sn_6010
Sequence : MET08 05/03/16 Analyzed : 05/03/16 16:13

#	Type	Sample ID	Y A
		ICAL STD	11655586
		LOWER LIMIT	3496676
		UPPER LIMIT	23311172
013	ICSAB		10944366
014	CCV		11510494
015	CCB		11470975
017	SAMPLE	275921-001	12067863
018	SAMPLE	275800-001	12233457
019	SER	QC830834	11668485
020	BLANK	QC833922	11729366
021	BS	QC833923	11577287
022	BSD	QC833924	11474975
023	MSS	276377-001	11482743
024	MS	QC833925	11354459
025	MSD	QC833926	11256499
026	SAMPLE	276294-032	11586500
027	CCV		11527146
028	CCB		11723690
029	SAMPLE	276294-033	11461877
030	SAMPLE	276294-034	11584969
031	SAMPLE	276294-035	11721241
032	SAMPLE	276294-036	11125513
033	SAMPLE	276377-002	11436835
034	SAMPLE	276377-005	11133661
035	SAMPLE	276377-006	11560911
036	BS	QC831590	11849805
037	BSD	QC831591	11939367
038	SAMPLE	275747-008	11677607
039	CCV		11487394
040	CCB		12002604
041	MSS	275899-003	11725031
042	SAMPLE	275899-004	12049316
043	SAMPLE	275899-008	12179000
050	SER	QC831921	11550416
051	CCV		11714376
052	CCB		11559719
053	CCB		11369826
054	PDS	QC831922	11602549
055	SAMPLE	276072-005	11755960
056	SAMPLE	276072-007	11481678
057	SAMPLE	276072-009	11503134
058	SAMPLE	276072-011	11425046
059	SAMPLE	276072-019	11366735
060	SAMPLE	275738-001	11524368
061	SAMPLE	275738-002	11554306
062	SAMPLE	275738-003	11769398
063	SAMPLE	275738-004	11590239
064	CCV		11419040
065	CCB		11367256
066	SAMPLE	275738-006	11477220
067	SAMPLE	275715-001	11013413

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 86179530

Date : 05/03/16 Reference : met08_sn_6010
Sequence : MET08 05/03/16 Analyzed : 05/03/16 16:13

#	Type	Sample ID	Y A
068	SAMPLE	275715-002	10676428
069	SAMPLE	275715-003	11039866
070	SAMPLE	275715-004	11346528
071	SAMPLE	275715-005	10962548
072	MSS	275701-002	11533782
075	SAMPLE	275711-001	11491909
078	BLANK	QC830406	11449770
079	BS	QC830407	11311062
081	MS	QC830409	11477127
082	SAMPLE	276111-001	11517561
083	SAMPLE	276114-001	11461036
084	SAMPLE	276114-002	11631355
085	SAMPLE	276123-001	10959557
086	SAMPLE	276153-003	11141895
090	MS	QC832505	11302953
091	MSD	QC832506	11139446
092	SER	QC832507	11514631
094	MS	QC833008	12111117
095	MSD	QC833009	11832067

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 275899 METALS Filtrate: EPA 6010B

Inst : MET08
Calnum : 86179530001
Units : ug/L

Date : 03-MAY-2016 16:10
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met08_sn_6010	86179530002	L1	03-MAY-2016 16:13	S29301
L2	met08_sn_6010	86179530003	L2	03-MAY-2016 16:17	S29393
L3	met08_sn_6010	86179530004	L3	03-MAY-2016 16:19	S29394
L4	met08_sn_6010	86179530005	L4	03-MAY-2016 16:21	S29395
L5	met08_sn_6010	86179530006	L5	03-MAY-2016 16:23	S29761

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Antimony	A	16.290	17.239	17.382	17.509		LOR0	0.00000	0.05712		17.105	1.000	0.995	
Arsenic	A	26.840	13.689	13.090	13.562		LOR0	0.00000	0.07376		16.795	1.000	0.995	
Barium	A	303.82	308.60	299.63	303.09		LOR0	0.00000	0.00330		303.79	1.000	0.995	
Beryllium	A	3600.2	3533.7	3521.3			LOR0	0.00000	2.84E-4		3551.7	1.000	0.995	
Cadmium	A	157.52	157.30	157.49	158.46		LOR0	0.00000	0.00631		157.69	1.000	0.995	
Chromium	A	104.64	94.584	94.122	95.171		LOR0	0.00000	0.01051		97.129	1.000	0.995	
Cobalt	A	100.90	103.54	102.57	104.88		LOR0	0.00000	0.00954		102.97	1.000	0.995	
Copper	A	527.62	314.96	295.83	306.47		LOR0	0.00000	0.00326		361.22	1.000	0.995	
Lead	A	12.400	32.305	32.183	32.803		LOR0	0.00000	0.03049		27.423	1.000	0.995	
Molybdenum	A	23.480	24.110	24.199	24.452		LOR0	0.00000	0.04090		24.060	1.000	0.995	
Nickel	A	34.700	35.548	35.703	36.530		LOR0	0.00000	0.02738		35.620	1.000	0.995	
Selenium	A	16.060	23.438	24.544	25.464		LOR0	0.00000	0.03929		22.377	1.000	0.995	
Silver	A	1383.0	1531.1	1470.3	1507.0		LOR0	0.00000	6.64E-4		1472.8	1.000	0.995	
Thallium	A	7.2800	10.716	11.123	11.892		LOR0	0.00000	0.08414		10.253	1.000	0.995	
Vanadium	A	94.800	98.690	95.355	97.463		LOR0	0.00000	0.01026		96.577	1.000	0.995	
Zinc	A	83.170	67.825	65.298	66.809		LOR0	0.00000	0.01497		70.775	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Antimony	A	10.000	-7	100.00	-2	1000.0	-1	10000	0		
Arsenic	A	5.0000	**98**	100.00	1	1000.0	-3	10000	0		
Barium	A	5.0000	0	100.00	2	1000.0	-1	10000	0		
Beryllium	A	2.0000	2	100.00	0	1000.0	0				
Cadmium	A	5.0000	-1	100.00	-1	1000.0	-1	10000	0		
Chromium	A	5.0000	10	100.00	-1	1000.0	-1	10000	0		
Cobalt	A	5.0000	-4	100.00	-1	1000.0	-2	10000	0		
Copper	A	5.0000	**72**	100.00	3	1000.0	-3	10000	0		
Lead	A	5.0000	**-62**	100.00	-1	1000.0	-2	10000	0		
Molybdenum	A	5.0000	-4	100.00	-1	1000.0	-1	10000	0		
Nickel	A	5.0000	-5	100.00	-3	1000.0	-2	10000	0		
Selenium	A	10.000	**-37**	100.00	-8	1000.0	-4	10000	0		
Silver	A	5.0000	-8	20.000	2	200.00	-2	2000.0	0		
Thallium	A	10.000	**-39**	100.00	-10	1000.0	-6	10000	0		
Vanadium	A	5.0000	-3	100.00	1	1000.0	-2	10000	0		
Zinc	A	20.000	**25**	100.00	2	1000.0	-2	10000	0		

Instrument amount = a0 + response * a1 + response^2 * a2; LOR0=Linear regression forced thru origin, including 0,0 point

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 275899 METALS Filtrate
EPA 6010B

Inst : MET08
Calnum : 86179530001 Cal Date : 03-MAY-2016

ICV 86179530007 (03-MAY-2016) stds: S29396

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	5000	5065	ug/L	1	10	
Arsenic	A	5000	5247	ug/L	5	10	
Barium	A	5000	5024	ug/L	0	10	
Beryllium	A	500.0	514.5	ug/L	3	10	
Cadmium	A	5000	5133	ug/L	3	10	
Chromium	A	5000	5107	ug/L	2	10	
Cobalt	A	5000	4935	ug/L	-1	10	
Copper	A	5000	4901	ug/L	-2	10	
Lead	A	5000	5211	ug/L	4	10	
Molybdenum	A	5000	4935	ug/L	-1	10	
Nickel	A	5000	5057	ug/L	1	10	
Selenium	A	5000	5240	ug/L	5	10	
Silver	A	1000	1014	ug/L	1	10	
Thallium	A	5000	5292	ug/L	6	10	
Vanadium	A	5000	5107	ug/L	2	10	
Zinc	A	5000	5054	ug/L	1	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275899 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86179530011.2 File : met08_sn_6010 Time : 03-MAY-2016 17:05
Cal : 86179530001 Caldate : 03-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	8.000	ug/L	
Arsenic	A	5.013	5.000	4.000	ug/L	ICB ***
Barium	A	ND	5.000	4.000	ug/L	
Beryllium	A	ND	2.000	1.600	ug/L	
Cadmium	A	ND	5.000	4.000	ug/L	
Chromium	A	ND	5.000	4.000	ug/L	
Cobalt	A	ND	5.000	4.000	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	4.000	ug/L	
Molybdenum	A	ND	5.000	4.000	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	8.000	ug/L	
Vanadium	A	ND	5.000	4.000	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	11655586	11446776	-1.79

ICB=instrument blank

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 275899 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86179530012.2 File : met08_sn_6010 Time : 03-MAY-2016 17:09
Cal : 86179530001 Caldate : 03-MAY-2016
Standards: S29660

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	[5.212]	10.00	ug/L	
Arsenic	A	[-1.631]	5.000	ug/L	
Barium	A	[-2.844]	5.000	ug/L	
Beryllium	A	[-0.1288]	2.000	ug/L	
Cadmium	A	[-1.762]	5.000	ug/L	
Cobalt	A	[1.606]	5.000	ug/L	
Lead	A	[1.478]	5.000	ug/L	
Molybdenum	A	[2.070]	5.000	ug/L	
Selenium	A	[-9.865]	10.00	ug/L	
Silver	A	[-0.5594]	5.000	ug/L	
Thallium	A	[-2.544]	10.00	ug/L	
Zinc	A	[9.972]	20.00	ug/L	

Interferent	Ch	Spiked	Quant	Units	%Rec	Flags
Chromium	A	20000	19650	ug/L	98	
Copper	A	20000	20360	ug/L	102	
Manganese	A	20000	18830	ug/L	94	
Nickel	A	20000	18880	ug/L	94	
Vanadium	A	20000	19760	ug/L	99	
Aluminum	R	500000	506200	ug/L	101	
Calcium	R	500000	495800	ug/L	99	
Iron	R	200000	195000	ug/L	97	
Magnesium	R	500000	492400	ug/L	98	
Titanium	R	20000	20900	ug/L	104	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	11655586	10847997	-6.93

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 275899 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86179530013 File : met08_sn_6010 Time : 03-MAY-2016 17:20
Cal : 86179530001 Caldate : 03-MAY-2016
Standards: S29661

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	549.1	ug/L	10	20	
Arsenic	A	500.0	523.5	ug/L	5	20	
Barium	A	500.0	505.9	ug/L	1	20	
Beryllium	A	500.0	516.6	ug/L	3	20	
Cadmium	A	1000	971.2	ug/L	-3	20	
Chromium	A	500.0	504.9	ug/L	1	20	
Cobalt	A	500.0	501.3	ug/L	0	20	
Copper	A	500.0	508.4	ug/L	2	20	
Lead	A	1000	995.8	ug/L	0	20	
Molybdenum	A	500.0	492.5	ug/L	-2	20	
Nickel	A	1000	974.8	ug/L	-3	20	
Selenium	A	500.0	453.4	ug/L	-9	20	
Silver	A	1000	1036	ug/L	4	20	
Thallium	A	500.0	469.3	ug/L	-6	20	
Vanadium	A	500.0	533.8	ug/L	7	20	
Zinc	A	1000	981.2	ug/L	-2	20	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	11655586	10944366	-6.10

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275899 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86179530039.2 File : met08_sn_6010 Time : 03-MAY-2016 19:06
Cal : 86179530001 Caldate : 03-MAY-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	17.105	17.474	5000	4990	ug/L	0	10	
Arsenic	A	16.795	13.965	5000	5150	ug/L	3	10	
Barium	A	303.79	304.68	5000	5027	ug/L	1	10	
Beryllium	A	3551.7	3650.2	500.0	518.3	ug/L	4	10	
Cadmium	A	157.69	162.32	5000	5122	ug/L	2	10	
Chromium	A	97.129	97.318	5000	5113	ug/L	2	10	
Cobalt	A	102.97	104.81	5000	4989	ug/L	0	10	
Copper	A	361.22	301.53	5000	4921	ug/L	-2	10	
Lead	A	27.423	33.715	5000	5140	ug/L	3	10	
Molybdenum	A	24.060	23.773	5000	4862	ug/L	-3	10	
Nickel	A	35.620	36.916	5000	5054	ug/L	1	10	
Selenium	A	22.377	26.276	5000	5161	ug/L	3	10	
Silver	A	1472.8	1511.1	1000	1003	ug/L	0	10	
Thallium	A	10.253	12.082	5000	5083	ug/L	2	10	
Vanadium	A	96.577	98.503	5000	5054	ug/L	1	10	
Zinc	A	70.775	68.035	5000	5093	ug/L	2	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	11655586	11487394	-1.44

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275899 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86179530040.2 File : met08_sn_6010 Time : 03-MAY-2016 19:08
Cal : 86179530001 Caldate : 03-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	8.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	4.000	ug/L	
Beryllium	A	ND	2.000	1.600	ug/L	
Cadmium	A	ND	5.000	4.000	ug/L	
Chromium	A	ND	5.000	4.000	ug/L	
Cobalt	A	ND	5.000	4.000	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	4.000	ug/L	
Molybdenum	A	ND	5.000	4.000	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	8.000	ug/L	
Vanadium	A	ND	5.000	4.000	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	11655586	12002604	2.98

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275899 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86179530051.1 File : met08_sn_6010 Time : 03-MAY-2016 19:42
Cal : 86179530001 Caldate : 03-MAY-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	17.105	17.111	5000	4887	ug/L	-2	10	
Arsenic	A	16.795	13.814	5000	5094	ug/L	2	10	
Barium	A	303.79	298.24	5000	4921	ug/L	-2	10	
Beryllium	A	3551.7	3551.0	500.0	504.2	ug/L	1	10	
Cadmium	A	157.69	158.63	5000	5005	ug/L	0	10	
Chromium	A	97.129	95.253	5000	5005	ug/L	0	10	
Cobalt	A	102.97	101.80	5000	4846	ug/L	-3	10	
Copper	A	361.22	293.96	5000	4798	ug/L	-4	10	
Lead	A	27.423	32.937	5000	5021	ug/L	0	10	
Molybdenum	A	24.060	23.271	5000	4759	ug/L	-5	10	
Nickel	A	35.620	36.027	5000	4932	ug/L	-1	10	
Selenium	A	22.377	25.740	5000	5056	ug/L	1	10	
Silver	A	1472.8	1480.4	1000	982.6	ug/L	-2	10	
Thallium	A	10.253	11.997	5000	5048	ug/L	1	10	
Vanadium	A	96.577	96.586	5000	4956	ug/L	-1	10	
Zinc	A	70.775	66.103	5000	4948	ug/L	-1	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	11655586	11714376	0.50

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275899 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86179530052.1 File : met08_sn_6010 Time : 03-MAY-2016 19:44
Cal : 86179530001 Caldate : 03-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	8.000	ug/L	
Arsenic	A	7.596	5.000	4.000	ug/L	CCB ***
Barium	A	ND	5.000	4.000	ug/L	
Beryllium	A	ND	2.000	1.600	ug/L	
Cadmium	A	ND	5.000	4.000	ug/L	
Chromium	A	ND	5.000	4.000	ug/L	
Cobalt	A	ND	5.000	4.000	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	4.000	ug/L	
Molybdenum	A	ND	5.000	4.000	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	8.000	ug/L	
Vanadium	A	ND	5.000	4.000	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	11655586	11559719	-0.82

CCB=instrument blank

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275899 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86179530053.1 File : met08_sn_6010 Time : 03-MAY-2016 19:47
Cal : 86179530001 Caldate : 03-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	8.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	4.000	ug/L	
Beryllium	A	ND	2.000	1.600	ug/L	
Cadmium	A	ND	5.000	4.000	ug/L	
Chromium	A	ND	5.000	4.000	ug/L	
Cobalt	A	ND	5.000	4.000	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	4.000	ug/L	
Molybdenum	A	ND	5.000	4.000	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	8.000	ug/L	
Vanadium	A	ND	5.000	4.000	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	11655586	11369826	-2.45

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275899 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86179530064.1 File : met08_sn_6010 Time : 03-MAY-2016 20:15
Cal : 86179530001 Caldate : 03-MAY-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	17.105	17.877	5000	5105	ug/L	2	10	
Arsenic	A	16.795	14.326	5000	5283	ug/L	6	10	
Barium	A	303.79	303.27	5000	5004	ug/L	0	10	
Beryllium	A	3551.7	3591.7	500.0	510.0	ug/L	2	10	
Cadmium	A	157.69	160.78	5000	5073	ug/L	1	10	
Chromium	A	97.129	96.052	5000	5047	ug/L	1	10	
Cobalt	A	102.97	103.06	5000	4905	ug/L	-2	10	
Copper	A	361.22	300.28	5000	4901	ug/L	-2	10	
Lead	A	27.423	33.976	5000	5180	ug/L	4	10	
Molybdenum	A	24.060	23.571	5000	4820	ug/L	-4	10	
Nickel	A	35.620	36.745	5000	5031	ug/L	1	10	
Selenium	A	22.377	26.644	5000	5234	ug/L	5	10	
Silver	A	1472.8	1508.1	1000	1001	ug/L	0	10	
Thallium	A	10.253	12.129	5000	5103	ug/L	2	10	
Vanadium	A	96.577	98.484	5000	5053	ug/L	1	10	
Zinc	A	70.775	66.720	5000	4994	ug/L	0	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	11655586	11419040	-2.03

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275899 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 86179530065.1 File : met08_sn_6010 Time : 03-MAY-2016 20:17
Cal : 86179530001 Caldate : 03-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	8.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	4.000	ug/L	
Beryllium	A	ND	2.000	1.600	ug/L	
Cadmium	A	ND	5.000	4.000	ug/L	
Chromium	A	ND	5.000	4.000	ug/L	
Cobalt	A	ND	5.000	4.000	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	4.000	ug/L	
Molybdenum	A	ND	5.000	4.000	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	8.000	ug/L	
Vanadium	A	ND	5.000	4.000	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	11655586	11367256	-2.47

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 96180549

Instrument : MET09 Begun : 05/04/16 09:09
Method : EPA 6010B SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met09_sn_2016	ICALBLK				05/04/16 09:09	1.0		
002	met09_sn_2016	ICAL	L1			05/04/16 09:14	1.0	1	
003	met09_sn_2016	ICAL	L2			05/04/16 09:19	1.0	2	
004	met09_sn_2016	ICAL	L3			05/04/16 09:23	1.0	3	
005	met09_sn_2016	ICAL	L4			05/04/16 09:27	1.0	4	
006	met09_sn_2016	ICAL	L5			05/04/16 09:34	1.0	5	
007	met09_sn_2016	ICV				05/04/16 09:41	1.0	6	
008	met09_sn_2016	XCRI				05/04/16 09:46	1.0	7	
009	met09_sn_2016	CRI				05/04/16 09:52	1.0	7	
010	met09_sn_2016	ICB				05/04/16 09:58	1.0		
011	met09_sn_2016	ICSA				05/04/16 10:03	1.0	8	10:AL=520000
012	met09_sn_2016	ICSAB				05/04/16 10:19	1.0	9	5:AL=530000
013	met09_sn_2016	BLANK	QC834000	Soil	234704	05/04/16 11:09	1.0		
014	met09_sn_2016	BS	QC834001	Soil	234704	05/04/16 11:14	1.0		
015	met09_sn_2016	BSD	QC834002	Soil	234704	05/04/16 11:19	1.0		
016	met09_sn_2016	MSS	276511-001	Soil	234704	05/04/16 11:23	1.0		4:FE=320000
017	met09_sn_2016	MS	QC834003	Soil	234704	05/04/16 11:30	1.0		
018	met09_sn_2016	MSD	QC834004	Soil	234704	05/04/16 11:37	1.0		
019	met09_sn_2016	SER	QC834005	Soil	234704	05/04/16 11:44	5.0		
020	met09_sn_2016	PDS	QC834006	Soil	234704	05/04/16 11:52	1.0	10 11 12	6:FE=320000
021	met09_sn_2016	SAMPLE	276431-005	Soil	234704	05/04/16 11:59	1.0		6:FE=470000
022	met09_sn_2016	SAMPLE	276431-011	Soil	234704	05/04/16 12:06	1.0		6:FE=480000
023	met09_sn_2016	CCV				05/04/16 12:13	1.0	13	
024	met09_sn_2016	CCB				05/04/16 12:20	1.0		
025	met09_sn_2016	SAMPLE	276431-012	Soil	234704	05/04/16 12:25	1.0		6:FE=460000
026	met09_sn_2016	SAMPLE	276431-022	Soil	234704	05/04/16 12:32	1.0		6:FE=560000
027	met09_sn_2016	SAMPLE	276431-028	Soil	234704	05/04/16 12:39	1.0		6:FE=470000
028	met09_sn_2016	SAMPLE	276431-029	Soil	234704	05/04/16 12:45	1.0		7:FE=470000
029	met09_sn_2016	SAMPLE	276431-030	Soil	234704	05/04/16 12:52	1.0		6:FE=500000
030	met09_sn_2016	SAMPLE	276435-001	Soil	234704	05/04/16 12:59	1.0		3:FE=280000
031	met09_sn_2016	SAMPLE	276473-002	Soil	234704	05/04/16 13:07	1.0		2:FE=230000
032	met09_sn_2016	SAMPLE	276473-003	Soil	234704	05/04/16 13:15	1.0		2:FE=390000
033	met09_sn_2016	SAMPLE	276473-004	Soil	234704	05/04/16 13:22	1.0		1:FE=160000
034	met09_sn_2016	SAMPLE	276501-001	Soil	234704	05/04/16 13:30	1.0		5:FE=350000
035	met09_sn_2016	CCV				05/04/16 13:37	1.0	13	
036	met09_sn_2016	CCB				05/04/16 13:44	1.0		
037	met09_sn_2016	SAMPLE	276522-001	Soil	234704	05/04/16 13:49	1.0		5:CA=420000
038	met09_sn_2016	SAMPLE	276501-001	Soil	234704	05/04/16 13:56	1.0		5:FE=350000
039	met09_sn_2016	SAMPLE	276435-001	Soil	234704	05/04/16 14:02	1.0		3:FE=290000
040	met09_sn_2016	SAMPLE	276301-001	Soil	234704	05/04/16 14:10	1.0		1:FE=160000
041	met09_sn_2016	SAMPLE	276301-002	Soil	234704	05/04/16 14:18	1.0		1:FE=150000
042	met09_sn_2016	SAMPLE	276301-004	Soil	234704	05/04/16 14:26	1.0		3:FE=540000
043	met09_sn_2016	SAMPLE	276301-005	Soil	234704	05/04/16 14:33	1.0		3:FE=560000
044	met09_sn_2016	MSD	QC834004	Soil	234704	05/04/16 14:41	1.0		
045	met09_sn_2016	SAMPLE	276301-007	Soil	234704	05/04/16 14:48	1.0		2:FE=230000
046	met09_sn_2016	SAMPLE	276441-001	Soil	234704	05/04/16 14:55	1.0		5:CA=920000
047	met09_sn_2016	CCV				05/04/16 15:03	1.0	13	
048	met09_sn_2016	CCB				05/04/16 15:10	1.0		
049	met09_sn_2016	BLANK	QC832023	Filtrate	234207	05/04/16 15:15	1.0		
050	met09_sn_2016	BS	QC832024	Filtrate	234207	05/04/16 15:21	1.0		
051	met09_sn_2016	BSD	QC832034	Filtrate	234207	05/04/16 15:25	1.0		
052	met09_sn_2016	MSS	275865-011	Filtrate	234207	05/04/16 15:29	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 96180549

Instrument : MET09 Begun : 05/04/16 09:09
Method : EPA 6010B SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met09_sn_2016	MSS	275865-015	Filtrate	234207	05/04/16 15:34	1.0		3:MG=220000
054	met09_sn_2016	MS	QC832025	Filtrate	234207	05/04/16 15:40	1.0		
055	met09_sn_2016	MSD	QC832026	Filtrate	234207	05/04/16 15:44	1.0		
056	met09_sn_2016	MS	QC832027	Filtrate	234207	05/04/16 15:48	1.0		3:MG=200000
057	met09_sn_2016	MSD	QC832028	Filtrate	234207	05/04/16 15:52	1.0		3:MG=200000
058	met09_sn_2016	SER	QC832029	Filtrate	234207	05/04/16 15:57	5.0		
059	met09_sn_2016	CCV				05/04/16 16:02	1.0	13	
060	met09_sn_2016	CCB				05/04/16 16:09	1.0		
061	met09_sn_2016	PDS	QC832030	Filtrate	234207	05/04/16 16:14	1.0	10 11 12	3:MG=200000
062	met09_sn_2016	SAMPLE	275865-004	Filtrate	234207	05/04/16 16:18	1.0		
063	met09_sn_2016	MS	QC831919	Filtrate	234182	05/04/16 16:23	1.0		
064	met09_sn_2016	MSD	QC831920	Filtrate	234182	05/04/16 16:27	1.0		
065	met09_sn_2016	SAMPLE	275865-005	Filtrate	234207	05/04/16 16:32	1.0		3:CA=160000
066	met09_sn_2016	SAMPLE	275865-006	Filtrate	234207	05/04/16 16:37	1.0		
067	met09_sn_2016	SAMPLE	275865-008	Filtrate	234207	05/04/16 16:47	1.0		2:NA=280000
068	met09_sn_2016	SAMPLE	275865-012	Filtrate	234207	05/04/16 16:51	1.0		
069	met09_sn_2016	SAMPLE	275865-013	Filtrate	234207	05/04/16 16:56	1.0		
070	met09_sn_2016	SAMPLE	275865-018	Filtrate	234207	05/04/16 17:02	1.0		
071	met09_sn_2016	CCV				05/04/16 17:06	1.0	13	
072	met09_sn_2016	CCB				05/04/16 17:13	1.0		
073	met09_sn_2016	SAMPLE	275865-021	Filtrate	234207	05/04/16 17:18	1.0		4:MG=930000
074	met09_sn_2016	SAMPLE	275865-022	Filtrate	234207	05/04/16 17:26	1.0		3:MG=170000
075	met09_sn_2016	SAMPLE	275865-024	Filtrate	234207	05/04/16 17:33	1.0		3:CA=380000
076	met09_sn_2016	MSD	QC834004	Soil	234704	05/04/16 17:41	1.0		
077	met09_sn_2016	CCV				05/04/16 17:48	1.0	13	
078	met09_sn_2016	CCB				05/04/16 17:55	1.0		
079	met09_sn_2016	BS	QC832889	Soil	234420	05/04/16 18:05	1.0		
080	met09_sn_2016	BSD	QC832890	Soil	234420	05/04/16 18:09	1.0		
081	met09_sn_2016	SAMPLE	276522-001	Soil	234704	05/04/16 18:13	1.0		5:CA=430000
082	met09_sn_2016	MSS	276221-001	Soil	234420	05/04/16 18:20	1.0		4:FE=420000
083	met09_sn_2016	SAMPLE	275865-027	Filtrate	234207	05/04/16 18:28	1.0		
084	met09_sn_2016	SAMPLE	275865-021	Filtrate	234207	05/04/16 18:33	1.0		4:MG=970000
085	met09_sn_2016	SAMPLE	275865-018	Filtrate	234207	05/04/16 18:41	1.0		
086	met09_sn_2016	MSS	275865-015	Filtrate	234207	05/04/16 18:45	1.0		
087	met09_sn_2016	MS	QC832891	Soil	234420	05/04/16 18:50	1.0		
088	met09_sn_2016	MSD	QC832892	Soil	234420	05/04/16 18:57	1.0		
089	met09_sn_2016	CCV				05/04/16 19:04	1.0	13	
090	met09_sn_2016	CCB				05/04/16 19:11	1.0		
091	met09_sn_2016	SAMPLE	276221-002	Soil	234420	05/04/16 19:16	1.0		3:FE=500000
092	met09_sn_2016	SAMPLE	276221-003	Soil	234420	05/04/16 19:24	1.0		4:FE=630000
093	met09_sn_2016	SAMPLE	276221-006	Soil	234420	05/04/16 19:31	1.0		2:FE=240000
094	met09_sn_2016	SAMPLE	276221-009	Soil	234420	05/04/16 19:39	1.0		3:FE=430000
095	met09_sn_2016	SAMPLE	276221-012	Soil	234420	05/04/16 19:47	1.0		1:FE=180000
096	met09_sn_2016	SAMPLE	276221-015	Soil	234420	05/04/16 19:55	1.0		2:FE=270000
097	met09_sn_2016	SAMPLE	276235-001	Soil	234420	05/04/16 20:02	1.0		5:FE=480000
098	met09_sn_2016	SAMPLE	276248-001	Soil	234420	05/04/16 20:10	1.0		2:FE=340000
099	met09_sn_2016	SAMPLE	276248-002	Soil	234420	05/04/16 20:18	1.0		3:FE=470000
100	met09_sn_2016	SAMPLE	276248-005	Soil	234420	05/04/16 20:26	1.0		2:FE=430000
101	met09_sn_2016	CCV				05/04/16 20:33	1.0	13	
102	met09_sn_2016	CCB				05/04/16 20:40	1.0		
103	met09_sn_2016	CCB				05/04/16 20:44	1.0		
104	met09_sn_2016	SAMPLE	276248-006	Soil	234420	05/04/16 20:49	1.0		2:FE=230000

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 96180549

Instrument : MET09 Begun : 05/04/16 09:09
Method : EPA 6010B SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
105	met09_sn_2016	SAMPLE	276250-001	Soil	234420	05/04/16 20:57	1.0		1:FE=140000
106	met09_sn_2016	SAMPLE	276250-002	Soil	234420	05/04/16 21:05	1.0		1:FE=160000
107	met09_sn_2016	SAMPLE	276250-004	Soil	234420	05/04/16 21:13	1.0		3:FE=370000
108	met09_sn_2016	SAMPLE	276250-005	Soil	234420	05/04/16 21:20	1.0		4:FE=580000
109	met09_sn_2016	SAMPLE	276250-006	Soil	234420	05/04/16 21:28	1.0		6:FE=630000
110	met09_sn_2016	SAMPLE	276250-007	Soil	234420	05/04/16 21:35	1.0		2:FE=350000
111	met09_sn_2016	SAMPLE	276111-001	Soil	234278	05/04/16 21:43	1.0		8:FE=400000
112	met09_sn_2016	SAMPLE	276114-001	Miscell.	234278	05/04/16 21:51	1.0		4:FE=710000
113	met09_sn_2016	SAMPLE	276114-002	Miscell.	234278	05/04/16 21:58	1.0		3:AL=450000
114	met09_sn_2016	CCV				05/04/16 22:05	1.0	13	
115	met09_sn_2016	CCB				05/04/16 22:11	1.0		
116	met09_sn_2016	CCB				05/04/16 22:16	1.0		
117	met09_sn_2016	SAMPLE	276123-001	Soil	234278	05/04/16 22:21	1.0		2:FE=270000
118	met09_sn_2016	SAMPLE	276013-005	Water	234217	05/04/16 22:29	1.0		4:CA=680000
119	met09_sn_2016	SAMPLE	276013-006	Water	234217	05/04/16 22:34	1.0		4:CA=530000
120	met09_sn_2016	SAMPLE	276013-007	Water	234217	05/04/16 22:41	1.0		3:CA=260000
121	met09_sn_2016	SAMPLE	276013-008	Water	234217	05/04/16 22:49	1.0		2:CA=340000
122	met09_sn_2016	SAMPLE	276013-009	Water	234217	05/04/16 22:57	1.0		4:CA=560000
123	met09_sn_2016	SAMPLE	276013-010	Water	234217	05/04/16 23:05	1.0		1:CA=230000
124	met09_sn_2016	SAMPLE	276013-011	Water	234217	05/04/16 23:13	1.0		
125	met09_sn_2016	CCV				05/04/16 23:18	1.0	13	
126	met09_sn_2016	CCB				05/04/16 23:25	1.0		

KER 05/04/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 37.

Standards used: 1=S29300 2=S29393 3=S29394 4=S29395 5=S29761 6=S29396 7=S29301 8=S29660 9=S29661 10=S28385 11=S28386 12=S29742 13=S29397

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 96180549

Date : 05/04/16 Reference : met09_sn_2016
Sequence : MET09 05/04/16 Analyzed : 05/04/16 09:14

#	Type	Sample ID	Y A
		ICAL STD	4334017
		LOWER LIMIT	1300205
		UPPER LIMIT	8668033
010	ICB		4338513
011	ICSA		3584254
012	ICSAB		3612083
013	BLANK	QC834000	4460671
014	BS	QC834001	4322476
015	BSD	QC834002	4296109
016	MSS	276511-001	3984284
017	MS	QC834003	4114235
018	MSD	QC834004	4095838
019	SER	QC834005	4327154
020	PDS	QC834006	3734945
021	SAMPLE	276431-005	4340753
022	SAMPLE	276431-011	4247958
023	CCV		4167525
024	CCB		4253185
025	SAMPLE	276431-012	4256636
026	SAMPLE	276431-022	4222853
027	SAMPLE	276431-028	4172669
028	SAMPLE	276431-029	4238743
029	SAMPLE	276431-030	4151142
030	SAMPLE	276435-001	4211607
031	SAMPLE	276473-002	4194154
032	SAMPLE	276473-003	4284056
033	SAMPLE	276473-004	4228331
034	SAMPLE	276501-001	4052314
035	CCV		4218243
036	CCB		4291618
037	SAMPLE	276522-001	4060155
038	SAMPLE	276501-001	4021222
039	SAMPLE	276435-001	4226131
040	SAMPLE	276301-001	4265808
041	SAMPLE	276301-002	4247822
042	SAMPLE	276301-004	4104417
043	SAMPLE	276301-005	4071549
044	MSD	QC834004	4011417
045	SAMPLE	276301-007	4240767
046	SAMPLE	276441-001	3580703
047	CCV		4181267
048	CCB		4315252
049	BLANK	QC832023	4269898
050	BS	QC832024	4208612
051	BSD	QC832034	4162885
052	MSS	275865-011	4086952
053	MSS	275865-015	3963031
054	MS	QC832025	3980461
055	MSD	QC832026	3964383
056	MS	QC832027	3934996
057	MSD	QC832028	4008909

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 96180549

Date : 05/04/16 Reference : met09_sn_2016
Sequence : MET09 05/04/16 Analyzed : 05/04/16 09:14

#	Type	Sample ID	Y	A
058	SER	QC832029	4058229	
059	CCV		4188857	
060	CCB		4242433	
061	PDS	QC832030	3947675	
062	SAMPLE	275865-004	4218792	
063	MS	QC831919	3855123	
064	MSD	QC831920	4012629	
065	SAMPLE	275865-005	3908111	
066	SAMPLE	275865-006	4222409	
067	SAMPLE	275865-008	4024517	
068	SAMPLE	275865-012	4209223	
069	SAMPLE	275865-013	4214547	
070	SAMPLE	275865-018	4141471	
071	CCV		4050975	
072	CCB		4274534	
073	SAMPLE	275865-021	2981211	
074	SAMPLE	275865-022	3741237	
075	SAMPLE	275865-024	3862072	
076	MSD	QC834004	4093832	
077	CCV		4271835	
078	CCB		4409047	
079	BS	QC832889	4295895	
080	BSD	QC832890	4271860	
081	SAMPLE	276522-001	4087903	
082	MSS	276221-001	4205330	
083	SAMPLE	275865-027	4390860	
084	SAMPLE	275865-021	2973259	
085	SAMPLE	275865-018	4074404	
086	MSS	275865-015	21483118	*
087	MS	QC832891	4182667	
088	MSD	QC832892	4254295	
089	CCV		4196077	
090	CCB		4322441	
091	SAMPLE	276221-002	4213394	
092	SAMPLE	276221-003	4232227	
093	SAMPLE	276221-006	4402440	
094	SAMPLE	276221-009	4264168	
095	SAMPLE	276221-012	4338995	
096	SAMPLE	276221-015	4356753	
097	SAMPLE	276235-001	4256874	
098	SAMPLE	276248-001	4148892	
099	SAMPLE	276248-002	4180151	
100	SAMPLE	276248-005	4176095	
101	CCV		4131060	
102	CCB		4233778	
103	CCB		4276010	
104	SAMPLE	276248-006	4248159	
105	SAMPLE	276250-001	4225812	
106	SAMPLE	276250-002	4237056	
107	SAMPLE	276250-004	4070216	
108	SAMPLE	276250-005	4149516	
109	SAMPLE	276250-006	3978748	

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 96180549

Date : 05/04/16 Reference : met09_sn_2016
Sequence : MET09 05/04/16 Analyzed : 05/04/16 09:14

#	Type	Sample ID	Y A
110	SAMPLE	276250-007	4087006
111	SAMPLE	276111-001	4000167
112	SAMPLE	276114-001	3986480
113	SAMPLE	276114-002	3988226
114	CCV		4156513
115	CCB		4213981
116	CCB		4186825
117	SAMPLE	276123-001	4148188
118	SAMPLE	276013-005	3714296
119	SAMPLE	276013-006	3527254
120	SAMPLE	276013-007	3741136
121	SAMPLE	276013-008	3681442
122	SAMPLE	276013-009	3580241
123	SAMPLE	276013-010	3830379
124	SAMPLE	276013-011	4284854
125	CCV		4237132
126	CCB		4342949

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 275899 METALS Filtrate: EPA 6010B

Inst : MET09
Calnum : 96180549001
Units : ug/L

Date : 04-MAY-2016 09:09
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met09_sn_2016	96180549002	L1	04-MAY-2016 09:14	S29300
L2	met09_sn_2016	96180549003	L2	04-MAY-2016 09:19	S29393
L3	met09_sn_2016	96180549004	L3	04-MAY-2016 09:23	S29394
L4	met09_sn_2016	96180549005	L4	04-MAY-2016 09:27	S29395
L5	met09_sn_2016	96180549006	L5	04-MAY-2016 09:34	S29761

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Antimony	A	3.0400	3.4440	3.3923	3.4480		LOR0	0.00000	0.29007		3.3311	1.000	0.995	
Arsenic	A	1.9800	1.6430	1.6757	1.7090		LOR0	0.00000	0.58524		1.7519	1.000	0.995	
Barium	A	75.100	76.173	76.105	74.682		LOR0	0.00000	0.01339		75.515	1.000	0.995	
Beryllium	A	5559.5	5646.1	5568.2			LOR0	0.00000	1.80E-4		5591.3	1.000	0.995	
Cadmium	A	100.20	103.44	104.49	100.07		LOR0	0.00000	0.00999		102.05	1.000	0.995	
Chromium	A	192.86	187.70	187.63	186.00		LOR0	0.00000	0.00538		188.55	1.000	0.995	
Cobalt	A	24.740	25.320	26.468	26.657		LOR0	0.00000	0.03752		25.796	1.000	0.995	
Copper	A	738.72	433.42	435.40	442.86		LOR0	0.00000	0.00226		512.60	1.000	0.995	
Lead	A	12.720	13.786	13.858	14.014		LOR0	0.00000	0.07136		13.595	1.000	0.995	
Molybdenum	A	26.760	26.872	26.966	26.521		LOR0	0.00000	0.03770		26.780	1.000	0.995	
Nickel	A	88.380	86.125	88.446	87.583		LOR0	0.00000	0.01142		87.633	1.000	0.995	
Selenium	A	2.3700	2.6570	2.6769	2.7453		LOR0	0.00000	0.36435		2.6123	1.000	0.995	
Silver	A	91.840	84.610	86.988	88.328		LOR0	0.00000	0.01132		87.941	1.000	0.995	
Thallium	A	1.9200	2.1970	2.2341	2.2515		LOR0	0.00000	0.44418		2.1507	1.000	0.995	
Vanadium	A	234.88	243.04	243.50	245.14		LOR0	0.00000	0.00408		241.64	1.000	0.995	
Zinc	A	41.700	38.637	40.718	40.470		LOR0	0.00000	0.02471		40.381	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Antimony	A	10.000	-12	100.00	0	1000.0	-2	10000	0		
Arsenic	A	5.0000	16	100.00	-4	1000.0	-2	10000	0		
Barium	A	5.0000	1	100.00	2	1000.0	2	10000	0		
Beryllium	A	2.0000	0	100.00	1	1000.0	0				
Cadmium	A	5.0000	0	100.00	3	1000.0	4	10000	0		
Chromium	A	5.0000	4	100.00	1	1000.0	1	10000	0		
Cobalt	A	5.0000	-7	100.00	-5	1000.0	-1	10000	0		
Copper	A	5.0000	**67**	100.00	-2	1000.0	-2	10000	0		
Lead	A	5.0000	-9	100.00	-2	1000.0	-1	10000	0		
Molybdenum	A	5.0000	1	100.00	1	1000.0	2	10000	0		
Nickel	A	5.0000	1	100.00	-2	1000.0	1	10000	0		
Selenium	A	10.000	-14	100.00	-3	1000.0	-2	10000	0		
Silver	A	5.0000	4	20.000	-4	200.00	-2	2000.0	0		
Thallium	A	10.000	-15	100.00	-2	1000.0	-1	10000	0		
Vanadium	A	5.0000	-4	100.00	-1	1000.0	-1	10000	0		
Zinc	A	20.000	3	100.00	-5	1000.0	1	10000	0		

Instrument amount = a0 + response * a1 + response^2 * a2; LOR0=Linear regression forced thru origin, including 0,0 point

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 275899 METALS Filtrate
EPA 6010B

Inst : MET09
Calnum : 96180549001 Cal Date : 04-MAY-2016

ICV 96180549007 (04-MAY-2016) stds: S29396

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	5000	4943	ug/L	-1	10	
Arsenic	A	5000	5217	ug/L	4	10	
Barium	A	5000	5109	ug/L	2	10	
Beryllium	A	500.0	521.5	ug/L	4	10	
Cadmium	A	5000	5159	ug/L	3	10	
Chromium	A	5000	5069	ug/L	1	10	
Cobalt	A	5000	5092	ug/L	2	10	
Copper	A	5000	5074	ug/L	1	10	
Lead	A	5000	4996	ug/L	0	10	
Molybdenum	A	5000	4955	ug/L	-1	10	
Nickel	A	5000	5047	ug/L	1	10	
Selenium	A	5000	5069	ug/L	1	10	
Silver	A	1000	995.8	ug/L	0	10	
Thallium	A	5000	5082	ug/L	2	10	
Vanadium	A	5000	5053	ug/L	1	10	
Zinc	A	5000	5151	ug/L	3	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275899 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96180549010.1 File : met09_sn_2016 Time : 04-MAY-2016 09:58
Cal : 96180549001 Caldate : 04-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	2.500	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4334017	4338513	0.10

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 275899 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96180549011.1 File : met09_sn_2016 Time : 04-MAY-2016 10:03
Cal : 96180549001 Caldate : 04-MAY-2016
Standards: S29660

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	[7.792]	10.00	ug/L	
Arsenic	A	[2.761]	5.000	ug/L	
Barium	A	[2.685]	5.000	ug/L	
Beryllium	A	[1.944]	2.000	ug/L	
Cadmium	A	[0.5434]	5.000	ug/L	
Cobalt	A	[-2.023]	5.000	ug/L	
Lead	A	[-2.100]	5.000	ug/L	
Molybdenum	A	[-1.053]	5.000	ug/L	
Selenium	A	[0.2653]	10.00	ug/L	
Silver	A	[4.676]	5.000	ug/L	
Thallium	A	[-9.862]	10.00	ug/L	
Zinc	A	[9.623]	20.00	ug/L	

Interferent	Ch	Spiked	Quant	Units	%Rec	Flags
Chromium	A	20000	18550	ug/L	93	
Copper	A	20000	21610	ug/L	108	
Manganese	A	20000	18530	ug/L	93	
Nickel	A	20000	17080	ug/L	85	
Vanadium	A	20000	19340	ug/L	97	
Aluminum	R	500000	518700	ug/L	104	
Calcium	R	500000	489900	ug/L	98	
Iron	R	200000	188600	ug/L	94	
Magnesium	R	500000	492500	ug/L	99	
Titanium	R	20000	21720	ug/L	109	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4334017	3584254	-17.30

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 275899 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96180549012.1 File : met09_sn_2016 Time : 04-MAY-2016 10:19
Cal : 96180549001 Caldate : 04-MAY-2016
Standards: S29661

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	593.0	ug/L	19	20	
Arsenic	A	500.0	562.1	ug/L	12	20	
Barium	A	500.0	510.4	ug/L	2	20	
Beryllium	A	500.0	514.5	ug/L	3	20	
Cadmium	A	1000	980.9	ug/L	-2	20	
Chromium	A	500.0	491.4	ug/L	-2	20	
Cobalt	A	500.0	496.5	ug/L	-1	20	
Copper	A	500.0	546.1	ug/L	9	20	
Lead	A	1000	941.8	ug/L	-6	20	
Molybdenum	A	500.0	505.5	ug/L	1	20	
Nickel	A	1000	906.5	ug/L	-9	20	
Selenium	A	500.0	549.8	ug/L	10	20	
Silver	A	1000	1120	ug/L	12	20	
Thallium	A	500.0	514.8	ug/L	3	20	
Vanadium	A	500.0	521.7	ug/L	4	20	
Zinc	A	1000	945.7	ug/L	-5	20	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4334017	3612083	-16.66

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275899 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96180549059.1 File : met09_sn_2016 Time : 04-MAY-2016 16:02
Cal : 96180549001 Caldate : 04-MAY-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	3.3311	3.1793	5000	4611	ug/L	-8	10	
Arsenic	A	1.7519	1.7738	5000	5191	ug/L	4	10	
Barium	A	75.515	74.599	5000	4993	ug/L	0	10	
Beryllium	A	5591.3	5648.9	500.0	507.2	ug/L	1	10	
Cadmium	A	102.05	99.489	5000	4969	ug/L	-1	10	
Chromium	A	188.55	185.81	5000	4994	ug/L	0	10	
Cobalt	A	25.796	30.065	5000	5640	ug/L	**13**	10	c+ ***
Copper	A	512.60	440.90	5000	4979	ug/L	0	10	
Lead	A	13.595	13.434	5000	4794	ug/L	-4	10	
Molybdenum	A	26.780	25.052	5000	4722	ug/L	-6	10	
Nickel	A	87.633	86.646	5000	4946	ug/L	-1	10	
Selenium	A	2.6123	2.7170	5000	4950	ug/L	-1	10	
Silver	A	87.941	87.070	1000	985.9	ug/L	-1	10	
Thallium	A	2.1507	2.2552	5000	5009	ug/L	0	10	
Vanadium	A	241.64	243.45	5000	4966	ug/L	-1	10	
Zinc	A	40.381	39.666	5000	4900	ug/L	-2	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4334017	4188857	-3.35

+=high bias c=CCV

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275899 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96180549060.1 File : met09_sn_2016 Time : 04-MAY-2016 16:09
Cal : 96180549001 Caldate : 04-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	2.500	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4334017	4242433	-2.11

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275899 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96180549071 File : met09_sn_2016 Time : 04-MAY-2016 17:06
Cal : 96180549001 Caldate : 04-MAY-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	3.3311	3.3521	5000	4862	ug/L	-3	10	
Arsenic	A	1.7519	1.8533	5000	5423	ug/L	8	10	
Barium	A	75.515	76.714	5000	5135	ug/L	3	10	
Beryllium	A	5591.3	5810.7	500.0	521.7	ug/L	4	10	
Cadmium	A	102.05	105.01	5000	5245	ug/L	5	10	
Chromium	A	188.55	190.71	5000	5126	ug/L	3	10	
Cobalt	A	25.796	29.778	5000	5586	ug/L	**12**	10	c+ ***
Copper	A	512.60	449.68	5000	5078	ug/L	2	10	
Lead	A	13.595	14.101	5000	5031	ug/L	1	10	
Molybdenum	A	26.780	26.685	5000	5030	ug/L	1	10	
Nickel	A	87.633	89.252	5000	5095	ug/L	2	10	
Selenium	A	2.6123	2.8777	5000	5242	ug/L	5	10	
Silver	A	87.941	88.491	1000	1002	ug/L	0	10	
Thallium	A	2.1507	2.3383	5000	5193	ug/L	4	10	
Vanadium	A	241.64	249.12	5000	5082	ug/L	2	10	
Zinc	A	40.381	42.490	5000	5249	ug/L	5	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4334017	4050975	-6.53

+=high bias c=CCV

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275899 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 96180549072 File : met09_sn_2016 Time : 04-MAY-2016 17:13
Cal : 96180549001 Caldate : 04-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	2.500	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4334017	4274534	-1.37

SAMPLE PREPARATION SUMMARY

Batch # : 234182 Analysis : ICP
Started By : RLG Prep Date : 18-APR-2016 11:40 Finished By : RLG
Method : METHOD Units : mL
Spike #1 ID : S29076 Spike #2 ID : S29077 Spike #3 ID : S28732

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
275899-003		Filtrate	50	50	1	1.0						6010	
275899-004		Filtrate	50	50	1	1.0						6010	
275899-008		Filtrate	50	50	1	1.0						6010	
276017-002		Filtrate	50	50	1	1.0						6010	
276018-003		Filtrate	50	50	1	1.0						6010	
276039-001		Filtrate	50	50	1	1.0						6010	
276039-003		Filtrate	50	50	1	1.0						6010	
276039-005		Filtrate	50	50	1	1.0						6010	
276039-007		Filtrate	50	50	1	1.0						6010	
276039-011		Filtrate	50	50	1	1.0						6010	
276039-013		Filtrate	50	50	1	1.0						6010	
276067-001		Filtrate	50	50	1	1.0						6010	
276082-002		Filtrate	50	50	1	1.0						6010	
276083-001		Filtrate	50	50	1	1.0						6010	
QC831916	BLANK	Filtrate	50	50	1	1.0							
QC831917	BS	Filtrate	50	50	1	1.0		.5	.5	.5			
QC831918	BSD	Filtrate	50	50	1	1.0		.5	.5	.5			
QC831919	MS	Filtrate	50	50	1	1.0		.5	.5	.5			
QC831920	MSD	Filtrate	50	50	1	1.0		.5	.5	.5			
QC831921	SER	Filtrate	50	50	1	1.0							
QC831922	PDS	Filtrate	50	50	1	1.0							

Analyst: KER Date: 04/19/16 Reviewer: PRW Date: 04/19/16

Water Digestion for ICP

Curtis & Tompkins, Ltd.

LIMS Batch #: 234182
Digested by: RLG
Date Digested: 4/18/16

Digestion Method
☐ EPA 3010a for ICP
☐ EPA 200.7
☒ Filtrates

BK 3879
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Lvl.	Sample #	Container ID	Volume Sample(mL)	Final Volume (mL)	Filtered? (y/n)	ID ✓	Comments
	BLANK 4/15/16		☒ 50 ☐	☒ 50 ☐	N	✓	QC831916
	BS		☒ 50 ☐	☒ 50 ☐		✓	17
	BSD		☒ 50 ☐	☒ 50 ☐		✓	18
	MS		☒ 50 ☐	☒ 50 ☐		✓	19
5	MSD		☒ 50 ☐	☒ 50 ☐		✓	20
IV	275899-003	D	☒ 50 ☐	☒ 50 ☐		✓	MS
	-004		☒ 50 ☐	☒ 50 ☐		✓	
	-008		☒ 50 ☐	☒ 50 ☐		✓	
III	276017-002	A	☒ 50 ☐	☒ 50 ☐		✓	
10	276018-003		☒ 50 ☐	☒ 50 ☐		✓	
	276039-001		☒ 50 ☐	☒ 50 ☐		✓	
	-003		☒ 50 ☐	☒ 50 ☐		✓	
	-005		☒ 50 ☐	☒ 50 ☐		✓	
	-007		☒ 50 ☐	☒ 50 ☐		✓	
15	-011		☒ 50 ☐	☒ 50 ☐		✓	
	-013		☒ 50 ☐	☒ 50 ☐		✓	
II	276067-001	G	☒ 50 ☐	☒ 50 ☐		✓	
III	276082-002	A	☒ 50 ☐	☒ 50 ☐		✓	
	276083-001	A	☒ 50 ☐	☒ 50 ☐		✓	
20			☐ 50 ☐	☐ 50 ☐			
			☐ 50 ☐	☐ 50 ☐			
			☐ 50 ☐	☐ 50 ☐			
			☐ 50 ☐	☐ 50 ☐			
			☐ 50 ☐	☐ 50 ☐			
			☐ 50 ☐	☐ 50 ☐			

	Reagent ID or LIMS #	Initials / Date
Digestion tubes/ Watch glasses, lot #	ACCUFLOW	RLG 4/18/16
.5 mL of spike solution (Std1) was added to all spikes	529076	
.5 mL of spike solution (Std2) was added to all spikes	529077	
.5 mL of spike solution (Std3) was added to all spikes	528732	
Digestion Block ID/ Probe Location		
Thermometer ID, Temperature (°C)		
Digestion begun at (time)		
☒ Conc. HNO3 lot#, or ☐ 1:1 HNO3 reagent ID	JTB 127622	
☒ Conc. HCl lot#, or ☐ 1:1 HCl reagent ID	FS 4115100	
digestion ended at (time)		
☐ filtered thru' Whatman # 541, lot#		
Relinquished to ICP group	ICP	

Pipettes

Vol.(mL)	ID
.5	N27150D

Prep Chemist / Date 4/18/16

Continued from page 0.
Continued on page _____.

Reviewed Online / See LIMS
Version 12, Dec.2015

PROJECT _____ Notebook No. _____

Continued From Page _____

SAMPLE	CONT. ID	TIME	DATE	FILTER LOT #	BATCH #	VOL (ml)	PH ≤ 2	INT	BLANK SHEET
BLANK	QC831279	15:45	4/12/16	PALLT41683I	234025	250ml	YES	RLG	17
275882-006	A					200ml			
275919-001	E								
-002	E								
-003	E								
-004	E	16:20	4/12/16						
BLANK	QC831290	15:05	4/15/16	PALLT41683I	234151	250ml	YES	RLG	36
276067-001	G	15:50				200ml			

Continued on Page

Read and Understood By

Signed _____ Date _____ Signed _____ Date _____

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 1076168134

Instrument : MET54 Begun : 04/25/16 18:14
Method : EPA 7470A SOP Version : hg_water_rv16

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met54	ICALBLK				04/25/16 18:14	1.0		
002	met54	ICAL	ICAL1			04/25/16 18:15	1.0	1	
003	met54	ICAL	ICAL2			04/25/16 18:17	1.0	1	
004	met54	ICAL	ICAL3			04/25/16 18:18	1.0	1	
005	met54	ICAL	ICAL4			04/25/16 18:19	1.0	1	
006	met54	ICAL	ICAL5			04/25/16 18:20	1.0	1	
007	met54	ICV				04/25/16 18:22	1.0	2	
008	met54	ICB				04/25/16 18:23	1.0		
009	met54	LOD	255715-021	Water	234428	04/25/16 18:24	1.0		
010	met54	BLANK	QC832920	Water	234428	04/25/16 18:25	1.0		
011	met54	BS	QC832921	Water	234428	04/25/16 18:27	1.0		
012	met54	BSD	QC832922	Filtrate	234428	04/25/16 18:28	1.0		
013	met54	MSS	275865-015	Filtrate	234428	04/25/16 18:29	1.0		
014	met54	MS	QC832923	Filtrate	234428	04/25/16 18:30	1.0		
015	met54	MSD	QC832924	Filtrate	234428	04/25/16 18:32	1.0		
016	met54	SER	QC832925	Filtrate	234428	04/25/16 18:33	5.0		
017	met54	BLANK	QC832943	Filtrate	234428	04/25/16 18:34	1.0		
018	met54	SAMPLE	275161-015	Water	234428	04/25/16 18:35	1.0		
019	met54	CCV				04/25/16 18:36	1.0	3	
020	met54	CCB				04/25/16 18:38	1.0		
021	met54	SAMPLE	275865-018	Filtrate	234428	04/25/16 18:39	1.0		
022	met54	SAMPLE	275865-021	Filtrate	234428	04/25/16 18:40	1.0		
023	met54	SAMPLE	275865-022	Filtrate	234428	04/25/16 18:41	1.0		
024	met54	SAMPLE	275865-024	Filtrate	234428	04/25/16 18:43	1.0		
025	met54	SAMPLE	275865-027	Filtrate	234428	04/25/16 18:44	1.0		
026	met54	SAMPLE	275899-003	Filtrate	234428	04/25/16 18:45	1.0		
027	met54	SAMPLE	275899-004	Filtrate	234428	04/25/16 18:46	1.0		
028	met54	SAMPLE	275899-008	Filtrate	234428	04/25/16 18:48	1.0		
029	met54	SAMPLE	276066-001	Water	234428	04/25/16 18:49	1.0		
030	met54	SAMPLE	276066-002	Water	234428	04/25/16 18:50	1.0		
031	met54	CCV				04/25/16 18:51	1.0	3	
032	met54	CCB				04/25/16 18:52	1.0		
033	met54	SAMPLE	276066-003	Water	234428	04/25/16 18:54	1.0		
034	met54	SAMPLE	276066-004	Water	234428	04/25/16 18:55	1.0		
035	met54	SAMPLE	276066-005	Water	234428	04/25/16 18:56	1.0		
036	met54	SAMPLE	276066-007	Water	234428	04/25/16 18:57	1.0		
037	met54	SAMPLE	276066-008	Water	234428	04/25/16 18:59	1.0		
038	met54	SAMPLE	276243-002	Filtrate	234428	04/25/16 19:00	1.0		
039	met54	CCV				04/25/16 19:01	1.0	3	
040	met54	CCB				04/25/16 19:02	1.0		

LCS 04/25/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 40.

Standards used: 1=S29719 2=S29721 3=S29722

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 275899 METALS Filtrate: EPA 7470A

Inst : MET54
Calnum : 1076168134001
Units : ug/L

Date : 25-APR-2016 18:14
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met54	1076168134002	ICAL1	25-APR-2016 18:15	S29719 (500X)
L2	met54	1076168134003	ICAL2	25-APR-2016 18:17	S29719 (200X)
L3	met54	1076168134004	ICAL3	25-APR-2016 18:18	S29719 (50X)
L4	met54	1076168134005	ICAL4	25-APR-2016 18:19	S29719 (20X)
L5	met54	1076168134006	ICAL5	25-APR-2016 18:20	S29719 (10X)

Analyte	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Mercury	0.0475	0.0480	0.0478	0.0484	0.0453	LIN0	-0.0614	21.9142		0.0474	0.999	.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Mercury	0.2000	**-27**	0.5000	-7	2.0000	2	5.0000	5	10.000	-1

Instrument amount = a0 + response * a1 + response^2 * a2; LIN0=Linear regression including 0,0 point

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 275899 METALS Filtrate
EPA 7470A

Inst : MET54
Calnum : 1076168134001 Cal Date : 25-APR-2016

ICV 1076168134007 (25-APR-2016) stds: S29721

Analyte	Spiked	Quant	Units	%D	Max	Flags
Mercury	5.000	5.018	ug/L	0	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275899 METALS Filtrate
EPA 7470A

Inst : MET54 IDF : 1.0
Seqnum : 1076168134008 File : met54 Time : 25-APR-2016 18:23
Cal : 1076168134001 Caldate : 25-APR-2016

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275899 METALS Filtrate
EPA 7470A

Inst : MET54 IDF : 1.0
Seqnum : 1076168134019 File : met54 Time : 25-APR-2016 18:36
Cal : 1076168134001 Caldate : 25-APR-2016
Standards: S29722

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0474	0.0450	5.000	4.867	ug/L	-3	20	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275899 METALS Filtrate
EPA 7470A

Inst : MET54 IDF : 1.0
Seqnum : 1076168134020 File : met54 Time : 25-APR-2016 18:38
Cal : 1076168134001 Caldate : 25-APR-2016

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 275899 METALS Filtrate
EPA 7470A

Inst : MET54 IDF : 1.0
Seqnum : 1076168134031 File : met54 Time : 25-APR-2016 18:51
Cal : 1076168134001 Caldate : 25-APR-2016
Standards: S29722

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0474	0.0457	5.000	4.942	ug/L	-1	20	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 275899 METALS Filtrate
EPA 7470A

Inst : MET54 IDF : 1.0
Seqnum : 1076168134032 File : met54 Time : 25-APR-2016 18:52
Cal : 1076168134001 Caldate : 25-APR-2016

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

SAMPLE PREPARATION SUMMARY

Batch # : 234428
Started By : LCS
Method : METHOD
Spike #1 ID : S29719

Prep Date : 25-APR-2016 15:18

Analysis : HG
Finished By : LCS
Units : mL

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
255715-021		Water	50	50	1	1.0		.05				HG	
275161-015		Water	50	50	1	1.0						T22/HG	
275865-015		Filtrate	50	50	1	1.0						T22/HG	
275865-018		Filtrate	50	50	1	1.0						T22/HG	
275865-021		Filtrate	50	50	1	1.0						T22/HG	
275865-022		Filtrate	50	50	1	1.0						T22/HG	
275865-024		Filtrate	50	50	1	1.0						T22/HG	
275865-027		Filtrate	50	50	1	1.0						T22/HG	
275899-003		Filtrate	50	50	1	1.0						T22/HG	
275899-004		Filtrate	50	50	1	1.0						T22/HG	
275899-008		Filtrate	50	50	1	1.0						T22/HG	
276066-001		Water	50	50	1	1.0						T22/HG	
276066-002		Water	50	50	1	1.0						T22/HG	
276066-003		Water	50	50	1	1.0						T22/HG	
276066-004		Water	50	50	1	1.0						T22/HG	
276066-005		Water	50	50	1	1.0						T22/HG	
276066-007		Water	50	50	1	1.0						T22/HG	
276066-008		Water	50	50	1	1.0						T22/HG	
276243-002		Filtrate	50	50	1	1.0						T22/HG	
QC832920	BLANK	Water	50	50	1	1.0							
QC832921	BS	Water	50	50	1	1.0		1.25					
QC832922	BSD	Filtrate	50	50	1	1.0		1.25					
QC832923	MS	Filtrate	50	50	1	1.0		1.25					
QC832924	MSD	Filtrate	50	50	1	1.0		1.25					
QC832925	SER	Filtrate	50	50	1	1.0							
QC832943	BLANK	Filtrate	50	50	1	1.0							

LCS 05/02/16 : corrected typo -025 as -027. Added 243 to bottom after verification it was ran

Analyst: LCS Date: 04/25/16 Reviewer: PRW Date: 05/04/16

Water Digestion for Mercury

Curtis & Tompkins, Ltd.

LIMS Batch #: 234428 Digestion Method: ☒ EPA 7470A/ EPA 245.1 BK3846

Date Digested: 4/25/16 ☐ _____ Page 35

Sample #	container ID	Volume Sample (mL)	Final Volume (mL)	Filtered? (y/n)	Comments
LOD: 255715-021		☒ 50 ☐ ___	☒ 50 ☐ ___	N	Spiked S29719 @ 0.5 mL
275161-015	A	☒ 50 ☐ ___	☒ 50 ☐ ___		
275865-015		☒ 50 ☐ ___	☒ 50 ☐ ___		MSS
275865-018		☒ 50 ☐ ___	☒ 50 ☐ ___		
-021		☒ 50 ☐ ___	☒ 50 ☐ ___		
-022		☒ 50 ☐ ___	☒ 50 ☐ ___		
-024		☒ 50 ☐ ___	☒ 50 ☐ ___		
-025 275 5/2		☒ 50 ☐ ___	☒ 50 ☐ ___		
275899-003 5/2	B	☒ 50 ☐ ___	☒ 50 ☐ ___		
-004		☒ 50 ☐ ___	☒ 50 ☐ ___		
-008		☒ 50 ☐ ___	☒ 50 ☐ ___		
276066-001	A	☒ 50 ☐ ___	☒ 50 ☐ ___		
-002		☒ 50 ☐ ___	☒ 50 ☐ ___		
-003		☒ 50 ☐ ___	☒ 50 ☐ ___		
-004		☒ 50 ☐ ___	☒ 50 ☐ ___		
-005		☒ 50 ☐ ___	☒ 50 ☐ ___		
-007		☒ 50 ☐ ___	☒ 50 ☐ ___		
-008		☒ 50 ☐ ___	☒ 50 ☐ ___		
MB		☒ 50 ☐ ___	☒ 50 ☐ ___		
BS		☒ 50 ☐ ___	☒ 50 ☐ ___		
BSD		☒ 50 ☐ ___	☒ 50 ☐ ___		
MS		☒ 50 ☐ ___	☒ 50 ☐ ___		
MSD		☒ 50 ☐ ___	☒ 50 ☐ ___		
FH.BLK		☒ 50 ☐ ___	☒ 50 ☐ ___		QC832943
276243-002 5/2		☒ 50 ☐ ___	☒ 50 ☐ ___		

	Reagent ID/ LIMS# / Time	Initials / Date
Digestion Tube Lot #	EK160028	LJ 4/25
1.25 mL of spike solution was added to all spikes	S29719	
Using pipette #	L30 4078D	
☒ CAL digested with this batch? ICAL Std S#	S29720	
ICV / CCV LIMS S#	S29721/S29721	
Digestion Temperature (°C), Block and Probe Location	94 / 3	
Digestion Block ID: Denali Thermometer #	L91303	
Digestion Started at (time)	15:18	
concentrated H_2SO_4	ES157449	
concentrated HNO_3	JTB133393	
5% $KMnO_4$ Reagent ID	4-21-16	
5% $K_2S_2O_8$ Reagent ID	4-19-16	
NaCl.hydroxylamine hydrochloride Reagent ID	4-21-16	
Stannous Chloride Reagent ID	4-19-16	
Digestion Completed at (time)	17:18	✓
☐ filtered thru' 0.45 um syringe filter (lot #)		

153D
693E
678D
101

4/25/16

omist / Date

Continued from page _____
Continued on page _____

Reviewed Online / See LIMS
Version 5, Dec.2015