SFCTA Contract Number 06/07-29

SOUTH ACCESS TO THE GOLDEN GATE BRIDGE

DOYLE DRIVE

DOYLE DRIVE REPLACEMENT PROJECT

CDSM/CIDH PROTOTYPE FIELD TEST PROGRAM – MONITORING WELL INSTALLATION AND SAMPLING

Caltrans EA 04-1637J4

May 2010

Prepared By:

BASELINE Environmental Consulting

Our ref 131558/FRG
File ref 4-01
Date May 19, 2010

SOUTH ACCESS TO THE GOLDEN GATE BRIDGE
DOYLE DRIVE

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Re: CDSM/CIDH Prototype Field Test Program – Monitoring Well Installation and Sampling
Doyle Drive Replacement Project
San Francisco, California

Dear Mr. Khalife:

The Arup PB Joint Venture (JV) is pleased to present four (4) hard copies and four (4) CDs of the Monitoring Well Installation and Sampling Report on the subject project. The report was prepared by BASELINE Environmental Consulting, who is engaged under an agreement with the JV to provide environmental groundwater investigation services.

The report describes and summarizes project background, field activities, investigation results, recommendations for well abandonment, and limitations. Appropriate figures and tables are presented to support the report discussions.

The report contains the following appendices that are presented on a CD-ROM.

- Appendix A – Dig Permit
- Appendix B – Monitoring Well CDSM-MW-1 Boring Log
- Appendix C – Groundwater Sampling and Well Development Forms
- Appendix D – Laboratory Reports
- Appendix E – LDC Data Validation Report
- Appendix F – Waste Disposal Manifest
- Appendix G – Presidio Trust Environmental Standard Operating Procedure: Well Maintenance and Abandonment, SOP No. 006

Should you have any questions regarding this report, please contact Cheri Page of BASELINE at (707) 762-5233 or the undersigned.

Yours sincerely

Francis R. Greguras, P.E., G.E.
Arup PB JV

Distribution: Walid Khalife, Caltrans – 4 copies plus 4 CDs
Timothy Pokrywka, Caltrans – 1 copy plus 1 CD
Cheri Page, BASELINE Environmental Consulting – 3 copies plus 3 CDs
John Karn, Arup PB JV Project Manager – 1 copy plus 1 CD
Sabine van der Sluis, Parsons Brinckerhoff – 1 copy plus 1 CD
Project Files

DOYLE DRIVE CDSM/CIDH PROTOTYPE FIELD TEST PROGRAM - MONITORING WELL INSTALLATION AND SAMPLING

MAY 2010

DOYLE DRIVE REPLACEMENT PROJECT
SAN FRANCISCO, CALIFORNIA

For:

Arup/PB Joint Venture
San Francisco, California

Y0239-04.A8.01470

5900 Hollis Street, Suite D • Emeryville, CA 94608 • (510) 420-8686

DOYLE DRIVE CDSM/CIDH PROTOTYPE FIELD TEST PROGRAM – MONITORING WELL INSTALLATION AND SAMPLING

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This *Doyle Drive CDSM/CIDH Prototype Field Test Program – Monitoring Well Installation and Sampling* report, dated 19 May 2010, has been prepared by BASELINE Environmental Consulting as part of Caltrans contract 04A3362.

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DOYLE DRIVE CDSM/CIDH PROTOTYPE FIELD TEST PROGRAM – MONITORING WELL INSTALLATION AND SAMPLING

DOYLE DRIVE REPLACEMENT PROJECT
San Francisco, California

1. INTRODUCTION

BASELINE Environmental Consulting ("BASELINE"), under subcontract to Arup/PB Joint Venture, has prepared this environmental groundwater investigation report for the proposed Doyle Drive Replacement Project ("DDRP") in San Francisco, California (Figure 1). The San Francisco County Transportation Authority and the State of California Department of Transportation ("Caltrans") propose to upgrade a portion of Doyle Drive within the Presidio to meet current design and safety standards.

The DDRP would include ground improvement of the subsoils below the Main Post Tunnel and Girard Road. A prototype field test of ground improvement using concrete deep soil mixing methods was conducted by Caltrans with the assistance of the Arup/PB Joint Venture to evaluate the effectiveness of these treatment methods. The Presidio Trust and National Park Service required installation of a monitoring well downgradient of the prototype field test area, and groundwater sampling before and after the soil mixing activities. The purpose of this investigation was to conduct a preliminary evaluation of the effect on groundwater quality downgradient of the prototype field test area by installing and sampling the required monitoring well.

2. BACKGROUND

The Caltrans and Malcolm Drilling Company, Inc. ("Malcolm Drilling") of Hayward, California implemented the prototype field test ("CDSM/CIDH testing") southeast of the intersection of Mason and Marshall streets in the Presidio, San Francisco, California (Figure 1). Two methods of concrete soil mixing were conducted from January 4 to 15, 2010. Deep soil mixing ("DSM") equipment was used from January 4 to 6, 2010 and cutter soil mixing ("CSM") was conducted from January 12 to 15, 2010. Cast-in-drilled-hole ("CIDH") piles were installed from January 21 to 25, 2010. Test locations are shown on Figure 2.

CDSM/CIDH testing was completed within a rectangular area of approximately 30 feet long by 10 feet wide (Figure 2). Mixing depth was approximately 37 feet below ground surface ("bgs") for DSM; 37 to 60 feet bgs for CSM; and 55 feet bgs for CIDH. Details related to field test methods and geotechnical results were reported separately (Malcolm Drilling, 2010).

3. FIELD ACTIVITIES

3.1. Monitoring Well Installation

Prior to well installation, the Arup/PB Joint Venture cleared underground utilities in the proposed well location with Underground Service Alert, and obtained a dig permit from Presidio Trust on behalf of Caltrans. The dig permit is included in Appendix A.

On 28 December 2009, Gregg Drilling & Testing, Inc. ("Gregg Drilling") of Martinez, California, a C-57 licensed driller, drilled a boring and installed one monitoring well (CDSM-MW-1) under the direct supervision of a BASELINE geologist. The well was installed approximately 10 feet northwest of the field test area, in the topographically downgradient direction (Figure 2). The well location was measured relative to the field test area, and was not surveyed.

Drilling was conducted using a mud rotary drill rig with a seven-inch diameter drill bit to a depth of 51 feet bgs. Drilling mud consisted of a mixture of Quick Gel®, potable water, and bentonite. Continuous soil sampling was conducted from 6 to 51 feet bgs for lithologic description, using a 101 coring system with a 5-foot long push barrel. Soil samples were used only for lithologic description; none were retained for laboratory analysis. BASELINE monitored air quality in the vicinity of the borehole for volatile organic compounds using a photoionization detector ("PID") during drilling; volatile organic compounds were not detected. The BASELINE geologist logged soil samples in accordance with the Unified Soil Classification System. Loose sand with brick and concrete (Fill) was encountered from the ground surface to a depth of 5 feet bgs, where native sand and groundwater was encountered. Blue-gray wet sand was encountered from 5 to 47 feet bgs, with clay lenses from approximately 9 to 11 feet bgs, and 30 to 32.5 feet bgs. Clay was encountered at the bottom of the boring from 47 to 51 feet bgs. A boring log with monitoring well completion details is attached as Appendix B.

Prior to installation of the well casing for CDSM-MW-1, the borehole was flushed of drilling mud with potable water. The monitoring well was constructed by installing a 2-inch diameter PVC pipe casing from 0 to 46 feet bgs, screened with 0.010-inch machine-slotted well screen from approximately 36 to 46 feet bgs. All PVC section connections were threaded. Prior to installing the casing and screen, the boring was backfilled with sand from 46 to 51 feet bgs. The casing, which was equipped with centralizers, and screen were then lowered into the boring. Fine sand filter pack (#2/16 sand) was installed into the annular space outside of the casing from 34 to 46 feet bgs. The annular space above the sand filter pack was filled with 3.5 feet of bentonite seal followed by neat cement grout to the ground surface. The well head was protected with a locking well cap and a Christy box cover.

3.2. Monitoring Well Development

On 29 December 2009, Gregg Drilling developed monitoring well CDSM-MW-1 by surging the well with a surge block, then purging 135 gallons of groundwater. Purging was performed using an electric, submersible, variable-speed pump followed by a peristaltic pump equipped with new polyethylene tubing. Purging proceeded until approximately 18 casing volumes of groundwater had been removed, and clear water was produced from the well to remove any remaining drilling mud.

Prior to well development, BASELINE measured the water level and the potential presence of free product in the monitoring well with a dual-interface probe. The water level in the well was measured at 1.0 foot below top of casing with no measureable free product. No odor, sheen, or floating product was observed in the purged water.

Purge water derived from well development was placed in 55-gallon drums stored in a secure location on-site. Well development records are included in Appendix C.

3.3. Groundwater Sampling and Analysis

Groundwater samples were collected from monitoring well CDSM-MW-1 before soil-cement mixing on 30 December 2009, and after concrete mixing on 8 February 2010 and 4 March 2010. Before sampling, BASELINE measured the water level to the nearest one-hundredth of a foot from the top of the casing and checked for the presence of free-phase product using a dual-phase interface probe. Free-phase product was not observed during any sampling event. Depth to groundwater in the well was 0.75 foot below top of casing ("BTOC") on 30 December 2009; 0.42 foot BTOC on 8 February 2010; and 0.1 foot BTOC on 4 March 2010. Water level measurements are documented on the groundwater sampling forms in Appendix C.

Groundwater samples from the monitoring well were collected using a low-flow sampling method developed by the U.S. Environmental Protection Agency (EPA, 1996). Groundwater was purged at a slow rate from the well using a peristaltic pump equipped with new disposable polyethylene tubing. Water quality indicator parameters (temperature, pH, DO, oxygen-reduction potential, electrical conductivity, and turbidity) were measured in the field with portable equipment. Purging continued until pH and electrical conductivity stabilized. Monitoring details for each sampling event are documented on groundwater sampling forms included in Appendix C.

Groundwater samples were collected directly from the pump tubing into glass sample bottles supplied by the analytical laboratory. Immediately following sample collection, the sample containers were labeled with the project name, date and time of collection, samplers' initials, unique sample identification, and stored in a cooler containing ice. The groundwater samples were submitted to Curtis & Tompkins, Ltd., a California-certified analytical laboratory, under chain-of-custody procedures. Groundwater samples from each sampling event were analyzed for:

- Title 22 Metals (EPA 6010B and EPA 7470A, filtered and preserved by laboratory)
- Total Dissolved Solids ("TDS") (SM2540C)

Groundwater samples from the last sampling event on 4 March 2010 were also analyzed for the following:

- pH (EPA 9040C)
- Turbidity (SM2130B)

The laboratory reports for the three sampling events are included in Appendix D. Summary tables of analytical results are presented in Tables 1 and 2.

3.3.1. Laboratory Quality Assurance

Curtis & Tompkins performed laboratory analyses and quality assurance/quality control procedures in accordance with Presidio Trust's Quality Assurance Project Plan ("QAPP") (Tetra Tech, 2001), with exceptions presented in the Responsibilities and Assumptions Document (BASELINE, 2008). Presidio Trust reviewed the proposed QAPP deviations and did not request changes.

The field sample data were reviewed by Laboratory Data Consultants, Inc. ("LDC") of Sacramento, California for compliance with the Presidio Trust QAPP. Data were reviewed based on the appropriate EPA methods referenced (EPA, 1986), *National Functional Guidelines for Organic Data Review* (EPA, 1999), *National Functional Guidelines for Inorganic Data Review* (EPA, 2004), and the project-specific control limits provided in the QAPP or Presidio-approved variances requested by Curtis & Tompkins. Where specific guidance was not available, the data were evaluated in a conservative manner consistent with industry standards using professional experience.

Data review by LDC concluded that all analytical results for groundwater samples collected by BASELINE in monitoring well CDSM-MW-1 from December 2009 through March 2010 were valid, as analytical methods and reporting were consistent with the Presidio Trust QAPP, *National Functional Guidelines*, or project-specific control limits. LDC's data validation report for these samples is attached as Appendix E. Electronic data are also provided on compact disk in the Presidio Trust electronic data deliverable ("EDD") format with data qualifiers added by LDC (Appendix E).

3.4. Groundwater Field Measurements

Caltrans collected groundwater parameter measurements from monitoring well CDSM-MW-1 during and after the CDSM/CIDH test period. Groundwater parameters included depth to water, electrical conductivity, temperature, turbidity, and pH, and were collected on 13 days between 4 January 2010 and 1 February 2010. Field measurements are summarized in Table 3, and original field notes are included in Appendix C.

Groundwater parameters were collected from a beaker of groundwater purged from the monitoring well. Before filling the beaker, approximately one liter, or one tubing volume, of groundwater was purged using a peristaltic pump with dedicated tubing. Tubing intake was located at approximately the mid-screen elevation of the monitoring well. Measurements were recorded using a Horiba U-22XD multifunction water quality monitoring instrument. The water quality meter was calibrated daily before measurements were recorded.

3.5. Investigation-Derived Waste Disposal

Drill cuttings (drill mud and soil) were placed in approved U.S. Department of Transportation 55-gallon drums. Purge water generated during groundwater sampling activities was also placed in 55-gallon drums. The drums were sealed, labeled, and stored for no longer than 90 days at a secure location near the field test area. Drums were hauled off-site to an appropriate disposal facility as soon as possible after laboratory results were available and pick-up by a licensed waste hauler could be scheduled.

Eleven drums of soil and groundwater generated during drilling and sampling activities conducted between 28 December 2009 and 4 March 2010 were picked up on 17 March 2010 by Clearwater Environmental of Union City, California. Five drums of liquid and six soil drums were disposed of as non-hazardous waste at Alviso Independent Oil of Alviso, California. The non-hazardous waste disposal manifest is included in Appendix F. One non-hazardous drum of soil from the Doyle Drive Dragonfly Creek investigation was also picked up with the CDSM well installation drums, and is included on the non-hazardous waste manifest.

4. GROUNDWATER INVESTIGATION RESULTS

Laboratory analytical results for all the groundwater samples are summarized in Tables 1 and 2, and laboratory reports are included in Appendix D.

Five metals were reported above laboratory reporting limits in at least one of the three groundwater sampling events. Each of these metals is discussed below.

- Arsenic was reported at a concentration of 0.014 milligram per liter (mg/L) in the first event conducted on 30 December 2009, before CDSM/CIDH activities were conducted, and was not reported in subsequent events. Therefore, the presence of arsenic is unlikely to be a result of CDSM/CIDH activities.

- Barium was reported in all three events, at concentrations ranging from 0.0084 to 0.033 mg/L. Concentrations decreased in each subsequent event. These concentrations of barium may be naturally occurring or may be due to remnant concentrations of drilling mud.

- Copper, molybdenum, and zinc were reported at a concentration of 0.0089 mg/L, 0.0053 mg/L, and 0.024 mg/L, respectively, on 8 February 2010, the second groundwater sampling event. This groundwater sample was collected approximately two weeks after the CDSM/CIDH activities had been completed. Each of these metals was below laboratory reporting limits in the first and third sampling events, conducted before CDSM/CIDH activities began and approximately five weeks after CDSM/CIDH activities were completed, respectively. The occurrence of these metals only in the sample collected within two weeks after completion of CDSM/CIDH activities may indicate that the detection of copper, molybdenum, and zinc was related to CDSM/CIDH activities. However, these metals were detected at trace concentrations just above reporting limits.

TDS levels were measured at 1,020 mg/L in monitoring well CDSM-MW-1 on 30 December 2009, before CDSM/CIDH activities began. TDS levels were 1,010 mg/L and 980 mg/L after CDSM/CIDH activities were completed. Due to low variation in TDS concentrations over the three sampling periods (maximum variation was 4 percent). TDS effects appear to be negligible.

Field parameters collected from 4 January to 1 February 2010, during and after the CDSM/CIDH activities, are presented on Table 3 and Figures 3 through 6. Parameter variation during this time period is discussed below.

- Depth to groundwater varied from 0.7 foot below top of casing (TOC) to 1.6 feet below TOC (Figures 3 through 6).

- pH showed an overall increase from 6.15 on the first day of CDSM/CIDH activities to 6.39 two days after CDSM/CIDH activities were completed (Figure 3). As shown on Figure 3, some correlation between pH levels and groundwater levels may have occurred during this period. However, due to low variation in pH levels over the sampling period (maximum variation was 4 percent); pH effects appear to be negligible.

- Temperature increased from 13.30º C on the first day of CDSM/CIDH activities to 16.31º C two days after CDSM/CIDH activities were completed (Figure 4), a 22 percent increase. Therefore, groundwater temperature may have increased as a result of CDSM/CIDH activities.

- Electrical conductivity ("EC") readings increased during each CDSM/CIDH activity (Figure 5). However, due to low variation in EC levels over the sampling period (maximum variation was 4 percent), EC effects appear to be negligible.

- Turbidity readings did not show a consistent pattern, and did not show an obvious response to CDSM/CIDH activities (Figure 6).

5. MONITORING WELL ABANDONMENT

Caltrans has received approval from the Presidio Trust to schedule the required CDSM demolition work prior to the start of construction for the detour route work under Contract No. 4 (EA 04-163741). Therefore, it is recommended that the monitoring well be abandoned just prior to the scheduled CDSM demolition under Contract No. 4.

When the monitoring well is abandoned, the abandonment shall be in accordance with the Presidio Trust Environmental Standard Operating Procedure (ESOP) for well maintenance and abandonment (SOP No. 006). A copy of the ESOP is attached under Appendix G.

6. LIMITATIONS

BASELINE's objective is to perform our work with care, exercising the customary thoroughness and competence of earth science, environmental, and engineering consulting professionals, in accordance with the standard for professional services for a consulting firm at the time these services were provided. It is important to recognize that even the most comprehensive scope of services may fail to detect environmental conditions and potential liability at a particular site. Therefore, BASELINE cannot act as insurers and cannot "certify or underwrite" that a site is free of environmental contamination, and no expressed or implied representation or warranty is included or intended in this report except that the work was performed within the limits prescribed with the customary thoroughness and competence of our profession.

The passage of time, manifestation of latent conditions, or occurrence of future events may require further exploration at the project site, analysis of the data, and re-evaluation of the findings, observations, conclusions, and recommendations expressed in the report.

The findings, observations, conclusions, and recommendations expressed by BASELINE in this report are limited by the scope of services and should not be considered an opinion concerning the compliance of any past or current owner or operator of the site with any federal, state, or

local law or regulation. No warranty or guarantee, whether expressed or implied is made with respect to the data reported or findings, observations, conclusions, and recommendations expressed in this report.

7. REFERENCES

BASELINE Environmental Consulting ("BASELINE"), 2008, Responsibilities and Assumptions Document - BASELINE, Curtis & Tompkins, and Laboratory Data Consultants, 4 November.

Caltrans and Arup/PB Joint Venture, 2008, Doyle Drive Replacement Project, License to Enter and Conduct Geotechnical Investigations, Exhibit No. 3, Soil and Groundwater Sampling Work Plan, October.

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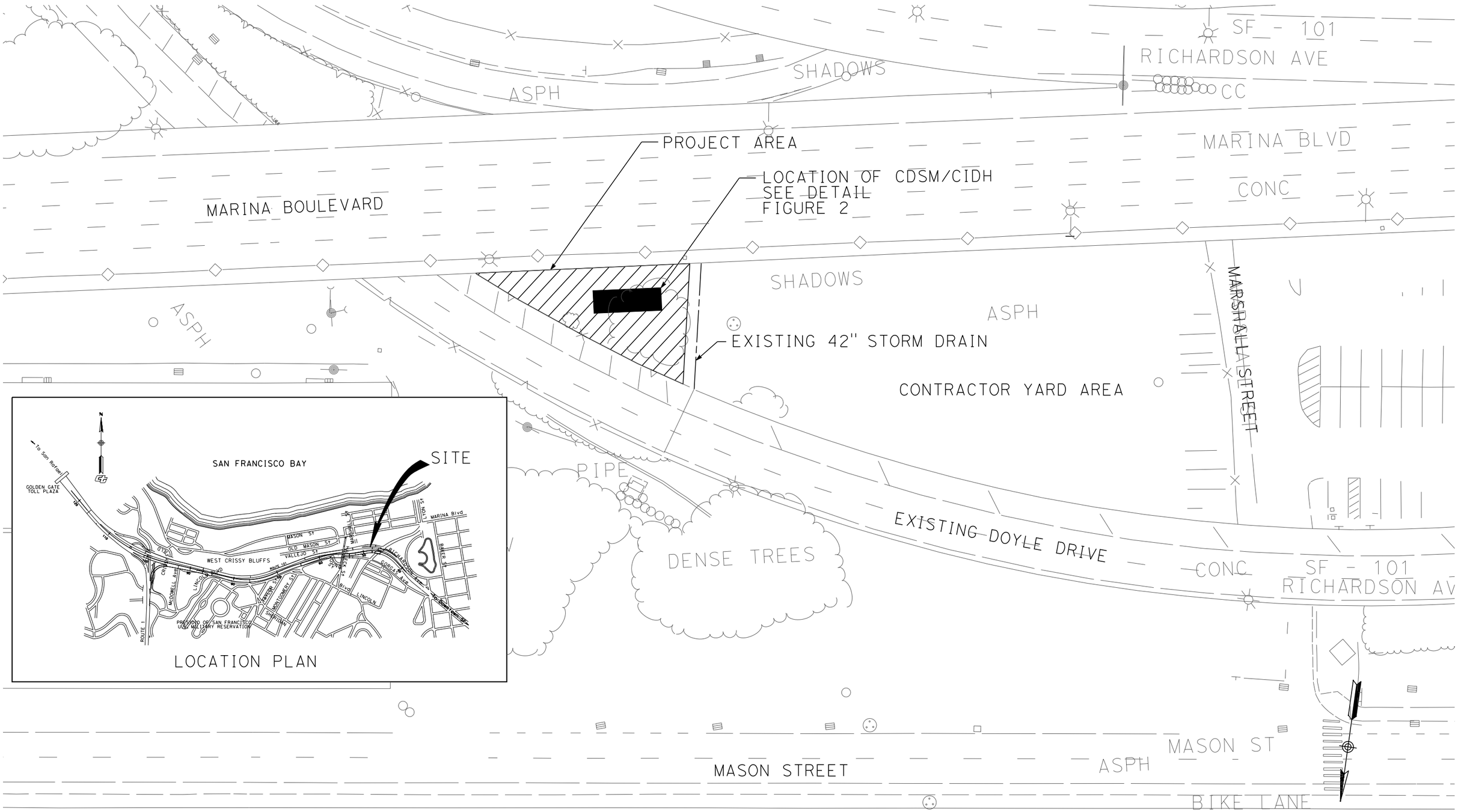
Malcolm Drilling, 2010, Doyle Drive Test Program, Contract No. 04A3362, Deep Soil Mixing (DSM)/Cutter Soil Mixing (CSM) Testing Report, undated.

Tetra Tech EM, Inc., (Tetra Tech) 2001, Presidio-Wide Quality Assurance Project Plan, Sampling and Analysis Plan, Presidio of San Francisco, San Francisco, California, Revision 1, April.

FIGURES



DOYLE DRIVE CDSM/CIDH
Prototype Field Test Program
The Presidio
FIGURE 1 - May 04, 2010 - Rev.00

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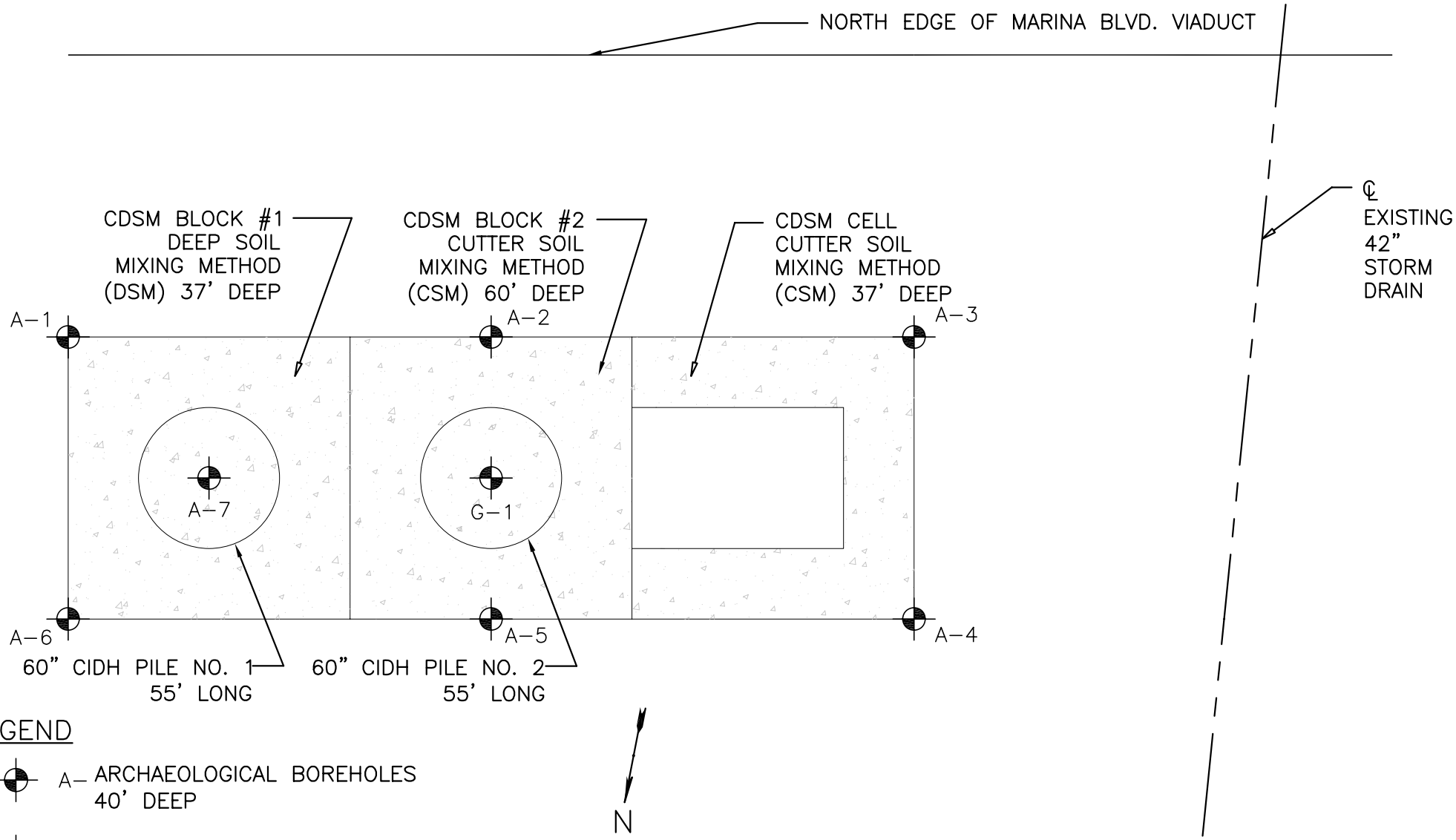
2010-05-03 CDSM Prototype Field Test-Fig1.dgn



LEGEND

- A– ARCHAEOLOGICAL BOREHOLES 40' DEEP
- G– GEOTECHNICAL BOREHOLE 62.5' DEEP
- CDSM–MW– GROUNDWATER MONITORING WELL 46' DEEP

0 5 10

SCALE IN FEET

CDSM–MW–1

BOREHOLE, CIDH PILE, AND CDSM LOCATIONS

Doyle Drive CDSM/CIDH
Prototype Field Test Program
The Presidio
San Francisco, California

MAY 2010

ARUP PB joint venture

FIGURE 2

Figure 3: pH and Depth to Groundwater in Monitoring Well CDSM-MW-1
Doyle Drive CDSM/CIDH Prototype Field Test Program

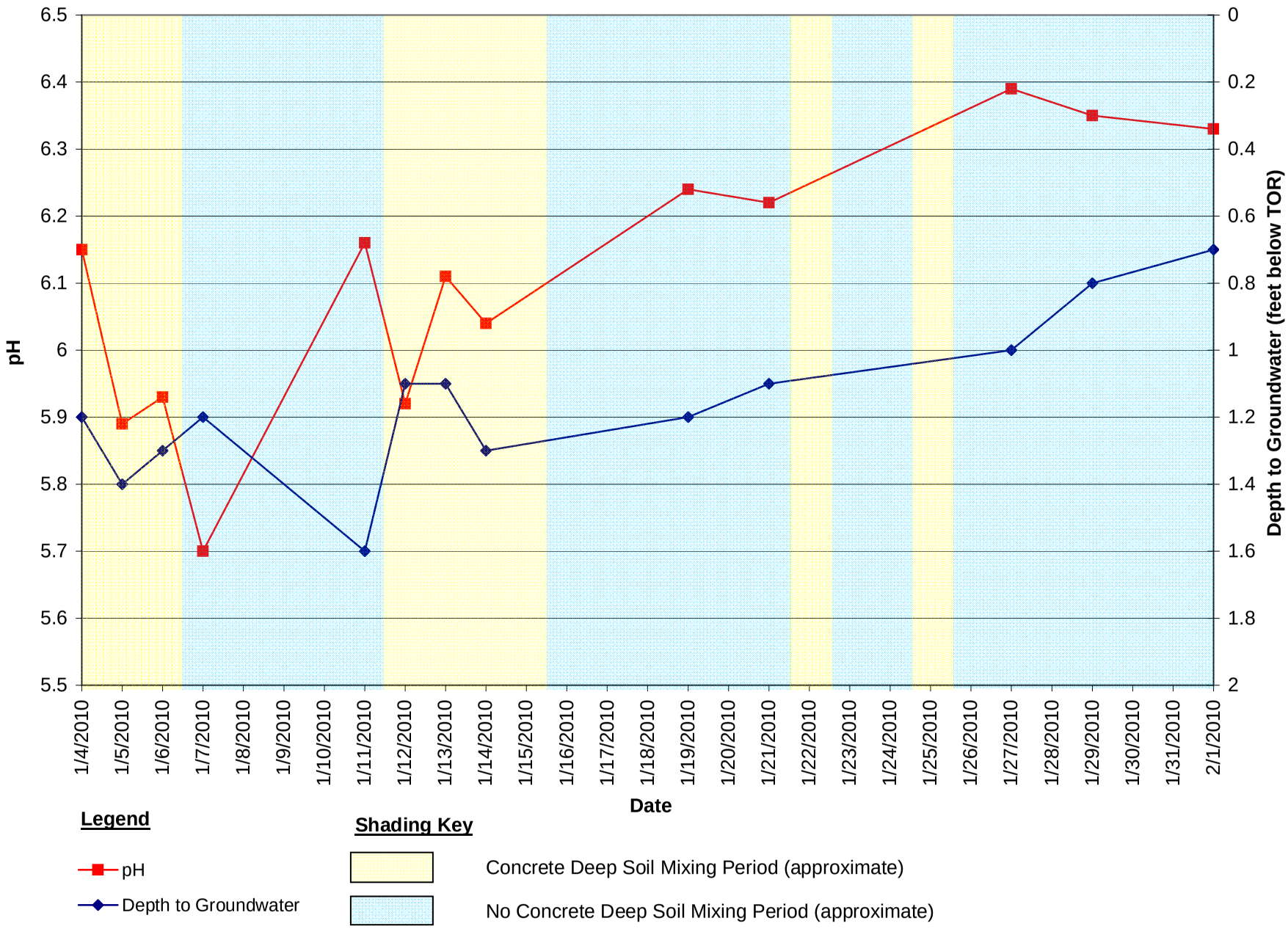


Figure 4: Temperature and Depth to Groundwater in Monitoring Well CDSM-MW-1
Doyle Drive CDSM/CIDH Prototype Field Test Program

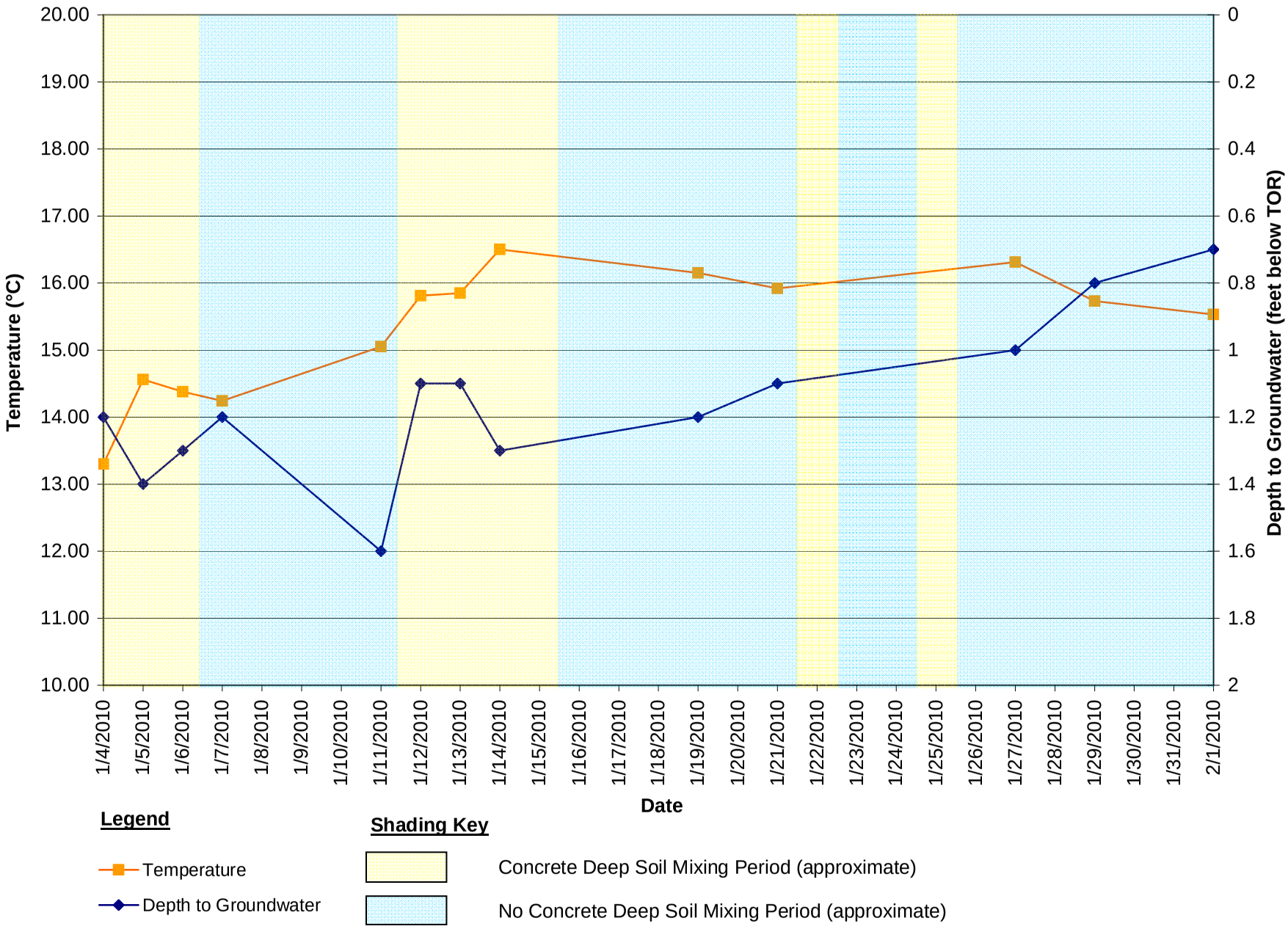


Figure 5: Electrical Conductivity and Depth to Groundwater in Monitoring Well CDSM-MW-1
Doyle Drive CDSM/CIDH Prototype Field Test Program

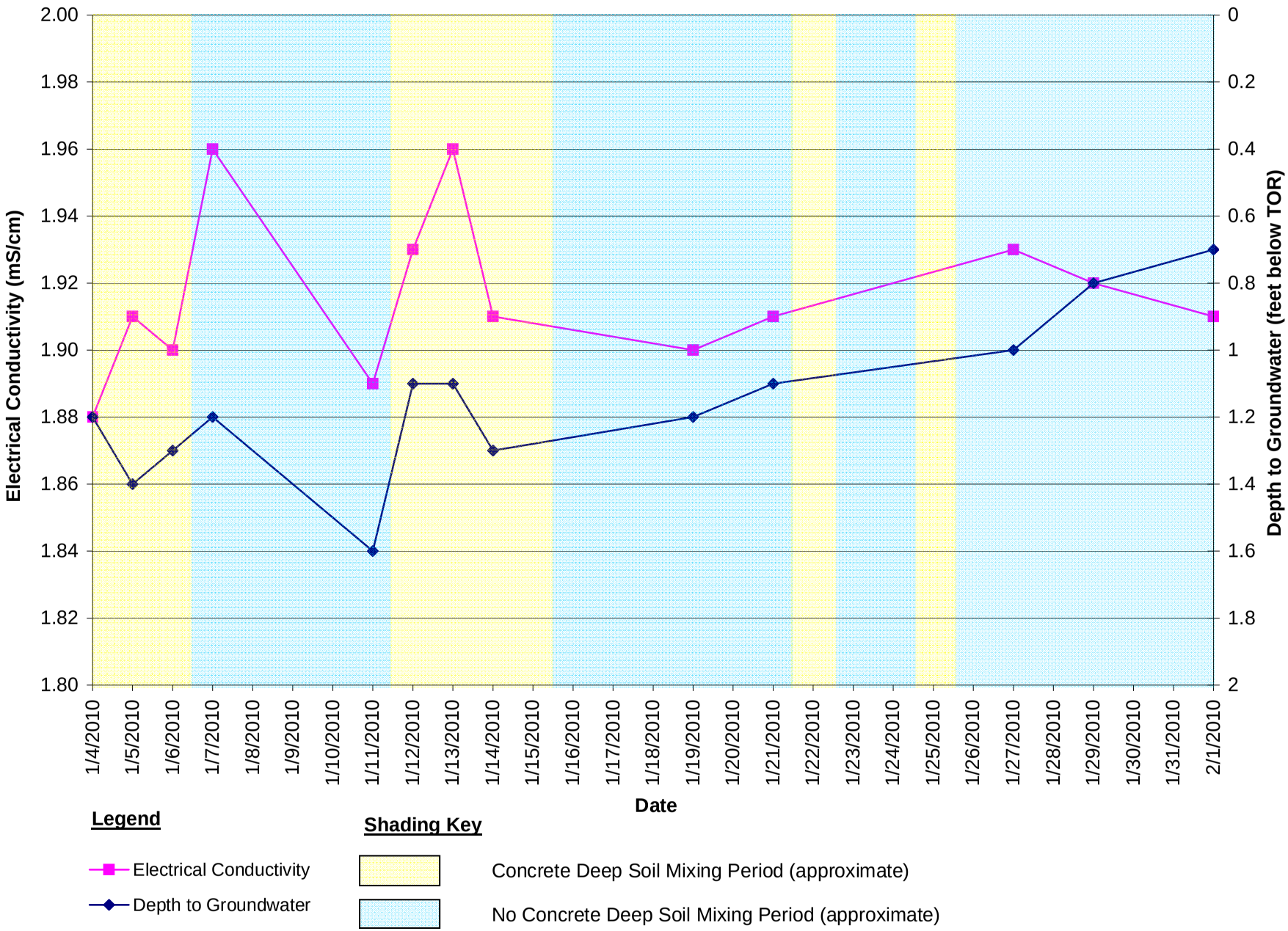
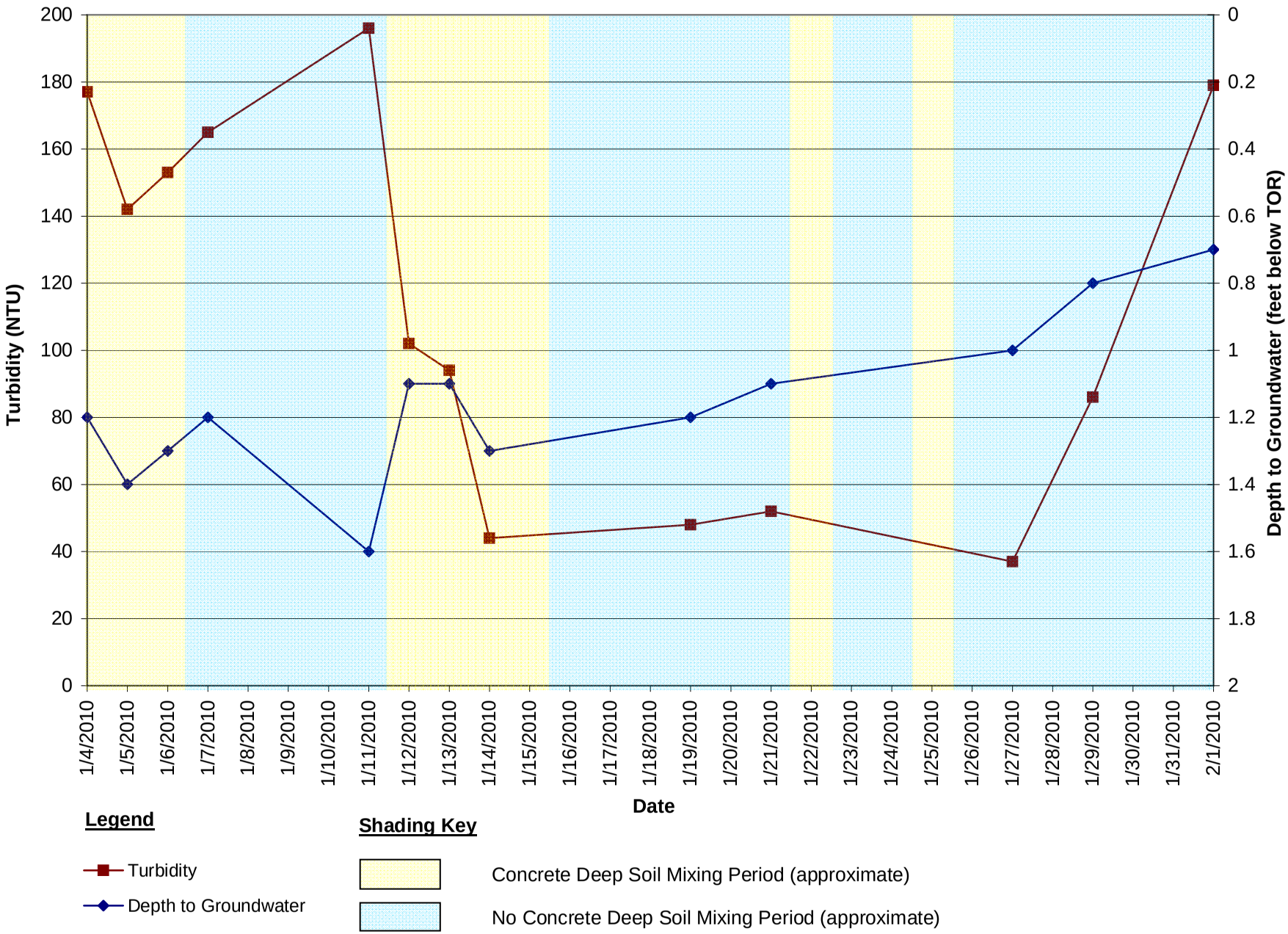


Figure 6: Turbidity and Depth to Groundwater in Monitoring Well CDSM-MW-1
Doyle Drive CDSM/CIDH Prototype Field Test Program



TABLES

TABLE 1: Groundwater Analytical Results for Dissolved Metal Concentrations in Monitoring Well CDSM-MW-1 (mg/L)
Doyle Drive CDSM/CIDH Prototype Field Test Program

Sample ID	Sample Date	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
CDSM-MW-1	12/30/2009	<0.01	**0.014**	**0.033**	<0.002	<0.005	<0.005	<0.005	<0.005	<0.003	<0.0002	<0.005	<0.005	<0.01	<0.005	<0.01	<0.005	<0.02
CDSM-MW-1;020810	2/8/2010	<0.01	<0.005	**0.014**	<0.002	<0.005	<0.005	<0.005	**0.0089**	<0.005	<0.0002	**0.0053**	<0.005	<0.01	<0.005	<0.01	<0.005	**0.024**
CDSM-MW-1;030410	3/4/2010	<0.01	<0.005	**0.0084**	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0002	<0.005	<0.005	<0.01	<0.005	<0.01	<0.005	<0.02

Notes:
All analyses performed by Curtis & Tompkins, Ltd.
Values shown in bold indicate the analyte was quantified above the laboratory reporting limit.
Dissolved metals analyzed by Environmental Protection Agency Methods 6010B and 7470A (Mercury).
mg/L = milligram per liter.
<x.x = Analyte was not identified above laboratory reporting limit of x.x.

TABLE 2: Groundwater Analytical Results for Miscellaneous Parameters in Monitoring Well CDSM-MW-1
Doyle Drive CDSM/CIDH Prototype Field Test Program

Sample ID	Sample Date	pH (SU)	Turbidity (NTU)	Total Dissolved Solids (mg/L)
CDSM-MW-1	12/30/2009	--	--	**1020**
CDSM-MW-1;020810	2/8/2010	--	--	**1010**
CDSM-MW-1;030410	3/4/2010	**7.7**	**2.1**	**980**

Notes:
All analyses performed by Curtis & Tompkins, Ltd.
Values shown in bold indicate the compound was quantified above the laboratory reporting limit.
pH analyzed by Environmental Protection Agency Method 9040C.
Turbidity analyzed by Standard Method 2130B.
Total dissolved solids analyzed by Standard Method 2540C.
SU = Standard Units.
NTU = Nephelometric Turbidity Units.
mg/L = milligram per liter.
-- = Not analyzed.

TABLE 3: Groundwater Field Measurements in Monitoring Well CDSM-MW-1
Doyle Drive CDSM/CIDH Prototype Field Test Program

Date	Time	Depth to Water (feet below TOR)	Temperature (°C)	Electrical Conductivity (mS/cm)	pH (SU)	Turbidity (NTU)	Mixing	Purge Volume (liters)
1/4/2010	6:57	1.2	13.30	1.88	6.15	177	Yes	1
1/5/2010	15:10	1.4	14.56	1.91	5.89	142	Yes	1
1/6/2010	15:53	1.3	14.38	1.90	5.93	153	Yes	1
1/7/2010	15:50	1.2	14.24	1.96	5.7	165	No	1
1/11/2010	17:35	1.6	15.05	1.89	6.16	196	No	1
1/12/2010	16:05	1.1	15.81	1.93	5.92	102	Yes	1
1/13/2010	15:48	1.1	15.85	1.96	6.11	94	Yes	1
1/14/2010	16:40	1.3	16.50	1.91	6.04	44	Yes	1
1/19/2010	13:43	1.2	16.15	1.90	6.24	48	No	1
1/21/2010	16:44	1.1	15.92	1.91	6.22	52	No[1]	1
1/27/2010	16:30	1.0	16.31	1.93	6.39	37	No	1
1/29/2010	16:15	0.8	15.73	1.92	6.35	86	No	1
2/1/2010	17:35	0.7	15.53	1.91	6.33	179	No	1

Notes:
TOR = Top of Rim.
°C = degrees Celsius.
mS/cm = milliSiemens per centimeter.
SU = Standard Units.
NTU = Nephelometric Turbidity Units.

All measurements were collected by Caltrans in the field using a Horiba U-22XD multifunction water quality monitoring instrument, calibrated daily to pH 4.00, turbidity 0.0 NTU, and electrical conductivity 4.49 mS/cm.

[1] CIDH Pile No. 1 was attempted on January 21 and 22 and was unsuccessful. The boring was backfilled with 22 cubic yards of cement on 22 January 2010.

APPENDICES

(IN PDF ON CD ROM)

APPENDIX A

DIG PERMIT

THE PRESIDIO TRUST

EXCAVATION CLEARANCE

CLEARANCE NUMBER: **5286D** USA NUMBER: **Contractor Is Responsible For Calling In USA**

DATE CLEARANCE ISSUED: **12/10/09** CLEARANCE EXPIRATION: ** **n/a**

** For extension of clearance expiration date, call Excavation Clearance Official two (2) days before clearance expiration at 415-561-5327.

CLEARANCE ISSUED TO: **Walid Khalife or David Nesbitt (Caltrans)**

ADDRESS: **111 Grand Avenue**

Oakland, CA 94623

CONTACT: **David Nesbitt**

PHONE NUMBER: CELLULAR: **510.301.4373**

FAX NUMBER: E-MAIL ADDRESS: **david_nesbitt@dot.ca.gov**

LOCATION OF UTILITY / EXCAVATION: **East end of parking lot in the south-east quadrant of Mason Street and Marshall Street intersection – Drill (1) Geotechnical boring and (7) Archaeological borings for the prototype field test location for Deep Soil mixing. One monitoring well will be installed.**

COMMENTS: **PLEASE SEE COPY OF PROGRESS REPORT ATTACHED. CONTRACTORS WERE DIGGING INSIDE THE SURVEY AREA FOR THE ELECTRICAL CONDUIT INVESTIGATION.**

Signature of Permitting Department Official:

MANDATORY INSTRUCTIONS FOR CLEARANCE HOLDER

1. This Excavation Clearance must be available for inspection at the excavation site at all times. Failure to maintain this Excavation Clearance is grounds to have the project halted.
2. The Presidio Trust will identify all Presidio Trust operated and maintained utilities: potable water, sanitary sewer, storm sewer, electric cable and communication lines. The location of these utilities are identified in the field with spray paint and/or flags denoting the approximate utility location on the ground surface within the excavation area. The spray paint represents approximate location of utilities, the Contractor / Clearance Holder must exercise extreme care when excavating near utilities.
3. The Contractor and/or Clearance Holder will be responsible for repair to all located and identified Presidio Trust utilities damaged during construction. Utilities shall be repaired to the satisfaction of the Presidio Trust Utility Department.
4. This Excavation Clearance permit requires the issuee to contact USA to have utilities marked and remarked as required by USA guidelines.
5. Contractor and/or Clearance Holder jointly and severally agree to defend, indemnify, and hold harmless the Presidio Trust for all costs, claims, or settlement, or actions of any kind whatsoever arising from or associated with damage to any non-Presidio Trust utility and damage to any identified and located Presidio Trust utility.
6. The Contractor and/or Clearance Holder shall notify the Presidio Trust Permit Department a minimum of 48 hours before burying any utilities. The Permit Department will inspect the excavation to ensure the use of proper procedures and materials, including proper bedding, the use of locator tape and tracer wire, that there is no deterious material in the bedding or backfill material, and that proper compaction of the backfill is obtained.
7. Contractor and/or Clearance Holder will be responsible to comply with OSHA Excavation Standards, as contained in 29 CFR, Parts 1926.650 through 1926.652.
8. This Excavation Clearance allows activity only within the limitation of the entry license agreement, lease agreement or development agreement.

NOTICE: EXCAVATION CLEARANCE IS ONLY AND INDICATION OF THE LOCATION OF UTILITIES IN THE IDENTIFIED EXCAVATION AREA. NO EXCAVATION OR GROUND BREAKING OF ANY KIND IS PERMITTED ANYWHERE AT THE PRESIDIO UNTIL THE APPLICANT HAS RECEIVED THIS CLEARANCE AND PROJECT REVIEW APPROVAL IF WARRANTED.

FOR URGENT MATTERS ONCE AN EXCAVATION HAS BEGUN, THE EXCAVATION CLEARANCE OFFICIAL CAN BE REACHED AT 415-760-0918.

PLEASE REVIEW RESOURCE PROTECTION COMMENTS ATTACHED TO THIS CLEARANCE.

12/14/09
Date

Clearance Holder (Please Sign Here & Attached Review Comments after Reading Instructions)

Unexploded ordnances have been found within the Presidio. Please take all necessary precautions and consult the Trust's Environmental Health and Safety Officer at 415.561.4141.

THE PRESIDIO TRUST

EXCAVATION CLEARANCE

Notes / Comments to Clearance Holder: **Geotech and Archaeological Borings**

UTILITIES:

Please see copy of progress report attached.
NOTE: Contractors were digging inside the survey area for the electrical Conduit investigations.

Nejat Yolasan (Geotech Utility Locating) — 12-10-09

Utility Department Excavation — Date

ARCHAEOLOGY / HISTORIC PRESERVATION:
This project was reviewed by N^2 team members and was determined to have no adverse effect under Section 106 of the NHPA and to be consistent with a Categorical Exclusion under NEPA with the following stipulations for excavation:

- Please contact the Historic Compliance Coordinator (561-5062) or Environmental Protection Specialist (561-2756) if there are any changes to the project.

No further NHPA or NEPA review is required.

Kerry Boutte — 12-9-09

Environmental Protec.Specialist/ Historical Compliance Coordinator — Date

Archaeological Discovery Notice: If historic or archaeological remains (glass, metal, ceramic, bone, shell, etc) are found during any excavation associated with work under this dig permit, notification will be provided to the Presidio Trust Archaeologists (Eric Blind at 415-561-5091/415-850-5166) so the discovery can be examined, recorded, and an in-field decision can be made regarding its treatment. In particular, if any human remains or associated artifacts are found, all work must stop in the vicinity of the discovery. The finds must be protected and left as found, and the designated archaeologists must be contacted immediately.
(Source 43 CFR 10 4 [Inadvertent Discoveries]; 43 CFR 7.4 [Prohibited Acts and Criminal Penalties])

NATURAL RESOURCES:
Implement appropriate Best Management Practices to protect stormwater. No soil or sediment should leave the site or enter the storm drain. If erosion controls are used:

- Wattles must be made of certified weed-free straw and cannot have plastic casing
- Erosion control blanket must be made of one or more of the following: coconut, excelsior, or certified weed free rice straw
- Straw must be certified weed-free rice straw

If activity will be performed between January 1st and August 1st and if the project will impact vegetation taller than 8" a nesting bird survey may be required. Please contact Tania Pollak for more information (561-2733)

Mark Frey — 12-8-09

Natural Resources Specialist — Date

ENVIRONMENTAL REMEDIATION:

OK for environmental.

Jennifer Yata — 12-10-09

Environmental Specialist — Date

ROADS & GROUNDS/IRRIGATION:

-No concerns here.
-No irrigation concerns.

Roy Blomquist / Roy Blomquist — 12-8-09

Roads & Grounds Dept. — Date

FORESTRY/TREE PROTECTION

I approve this permit.

Peter Ehrlich — 12-11-09

Forestry — Date

APPENDIX B

MONITORING WELL CDSM-MW-1 BORING LOG

BASELINE

Boring ID: Key

5900 Hollis Street, D
Emeryville, CA 94608
(510) 420-8686
(510) 420-1707 fax

Date:	12/15/08	Location:	City ZZZ
Project no.:	5Y004	Logger:	WK Scott, P.G. #6104
Driller:	ABC Drilling	Groundwater depth (bgs):	32.75 feet
Method:	HSA/MR	Bore size:	6 inches

Reviewed by: Fred Page

Feet below ground surface

Depth (feet)	Water Level	Sample	USCS	Graphic	PID (ppm)	DESCRIPTION	REMARKS
0			GW			Graphic representation of lithologic unit; Contact between lithologic units	Air monitoring measurement from PID meter in the breathing zone, in parts per million
1						Very light gray clayey SAND with silt, loose, very moist (Native) — Lithological Description	0 ppm PID in BZ; 0% LEL at GS; 3-4-8
2					0	Sample retained for laboratory analysis; Sample for visual identification; SC — Unified Soil Classification or distinguishing unit	Blows per 6 inches of a 140 lb hammer falling 30 inches driving California Modified Sampler
3							Air monitoring measurement from the 4-gas meter on the ground surface directly adjacent and downwind of hole. Readings in percent Lower Explosion Limit.
4						Approximate contact between lithologic units	
4						Water level measurement in boring after completion	
5							
5						Water level encountered during drilling	
6							
7			CL		986	Photoionization detection reading of sample (part per million)	6-7-7 (SPT); Blows per 6 inches of a 140 lb hammer falling 30 inches driving Split Spoon Sampler for a Standard Penetrometer Test
8							
9						Total depth drilled by auger	
10						Total depth explored; TBD/TD	

SAMPLE

UNIFIED SOILS CLASSIFICATION

PRIMARY DIVISIONS			GROUP SYMBOL	SECONDARY DIVISIONS
COARSE GRAINED SOILS MORE THAN HALF OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVELS MORE THAN HALF OF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE	CLEAN GRAVELS (LESS THAN 5% FINES)	GW	Well graded gravels, gravel-sand mixtures, little or no fines.
			GP	Poorly graded gravels or gravel-sand mixtures, little or no fines.
		GRAVEL WITH FINES	GM	Silty gravels, gravel-sand-silt mixtures, non-plastic fines.
			GC	Clayey gravels, gravel-sand-clay mixtures, plastic fines.
	SANDS MORE THAN HALF OF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE	CLEAN SANDS (LESS THAN 5% FINES)	SW	Well graded sands, gravelly sands, little or no fines.
			SP	Poorly graded sands or gravelly sands, little or no fines.
		SANDS WITH FINES	SM	Silty sands, sand-silt mixtures, non-plastic fines.
			SC	Clayey sands, sand-clay mixtures, plastic fines.
FINE GRAINED SOILS MORE THAN HALF OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS LIQUID LIMIT IS LESS THAN 50%		ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity.
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
			OL	Organic silts and organic silty clays of low plasticity.
	SILTS AND CLAYS LIQUID LIMIT IS GREATER THAN 50%		MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.
			CH	Inorganic clays of high plasticity, fat clays.
			OH	Organic clays of medium to high plasticity, organic silts.
HIGHLY ORGANIC SOILS			Pt	Peat and other highly organic soils.

DEFINITION OF TERMS

U.S. STANDARD SERIES SIEVE: 200, 40, 10, 4

CLEAR SQUARE SIEVE OPENINGS: 3/4", 3", 12"

SILTS AND CLAYS	SAND			GRAVEL		COBBLES	BOULDERS
	FINE	MEDIUM	COARSE	FINE	COARSE		

GRAIN SIZES

SANDS AND GRAVELS	BLOWS/FOOT†
VERY LOOSE	0 - 4
LOOSE	4 - 10
MEDIUM DENSE	10 - 30
DENSE	30 - 50
VERY DENSE	OVER 50

RELATIVE DENSITY

SILTS AND CLAYS	STRENGTH‡	BLOWS/FOOT†
VERY SOFT	0 - 1/4	0 - 2
SOFT	1/4 - 1/2	2 - 4
FIRM	1/2 - 1	4 - 8
STIFF	1 - 2	8 - 16
VERY STIFF	2 - 4	16 - 32
HARD	OVER 4	OVER 32

CONSISTENCY

† Number of blows of 140-pound hammer falling 30 inches to drive a 2-inch O.D. (1-3/8 inch I.D.) split spoon (ASTM D-1586).

‡ Unconfined compressive strength in tons/square foot as determined by laboratory testing or approximated by the standard penetration test (ASTM D-1586), pocket penetrometer, torvane, or visual observation.

BASELINE

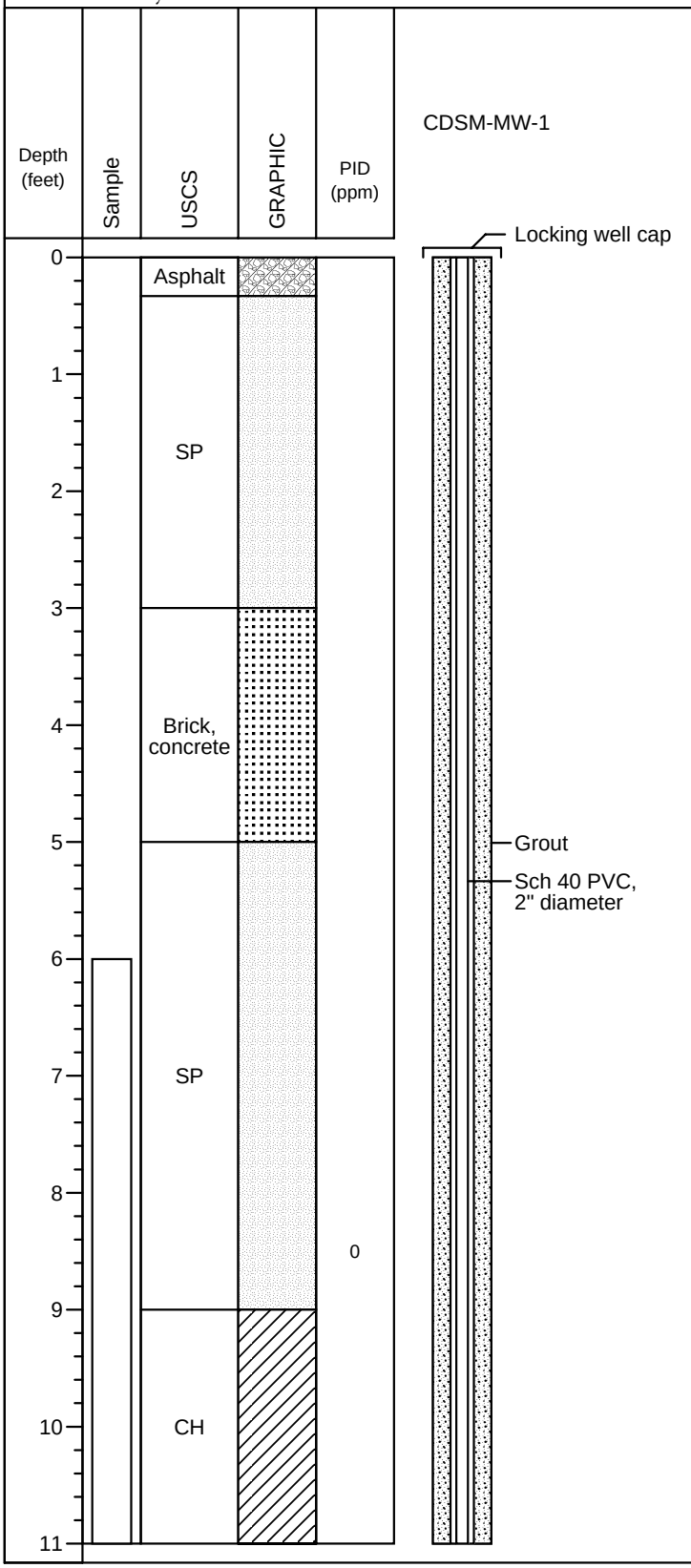
BASELINE

Well ID: CDSM-MW-1

5900 Hollis Street, D
Emeryville, CA 94608
(510) 420-8686
(510) 420-1707 fax

Date:	12/28/09	Location:	Doyle Drive, San Francisco
Project no.:	Y0239-04.A8	Logger:	WK Scott, P.G. #6104
Driller:	Gregg Drilling	Groundwater depth (bgs):	1.0 foot, static after drilling
Method:	Mud Rotary	Bore size:	7 inches

Reviewed by:



DESCRIPTION	REMARKS
Asphalt, 4 inches	Used push core for sampling No sample collected from 0 to 5 feet Hit something hard at 3.0 feet; drilled through
Brown (10YR 4/3) SAND, fine grained, loose, moist (Fill) Pieces of wood	
Pieces of brick (red) and concrete in drill mud Hit brick and concrete (Fill)	
Dark bluish gray (GLEY2 4/1 10B) SAND, fine grained, loose, wet	2 feet of recovery from 6 to 11 feet
Dark bluish gray (GLEY2 4/1 10B) CLAY with sand, high plasticity, pieces of wood, lenses of fine grained sand few millimeters thick, wet	

BASELINE

Well ID: CDSM-MW-1

5900 Hollis Street, D
Emeryville, CA 94608
(510) 420-8686
(510) 420-1707 fax

Date:	12/28/09	Location:	Doyle Drive, San Francisco
Project no.:	Y0239-04.A8	Logger:	WK Scott, P.G. #6104
Driller:	Gregg Drilling	Groundwater depth (bgs):	1.0 foot, static after drilling
Method:	Mud Rotary	Bore size:	7 inches

Reviewed by:

Depth (feet)	Sample	USCS	GRAPHIC	PID (ppm)	CDSM-MW-1	DESCRIPTION	REMARKS
11						Dark bluish gray (GLEY2 4/1 10B) SAND, fine grained, loose, wet	No recovery from 11 to 16 feet
12							
13				0			
14							
15					Centralizer		
16					Grout Sch 40 PVC, 2" diameter	Same as above with lenses of clay, shell fragments	1 foot of recovery from 16 to 21 feet
17		SP					
18				0			
19							
20							
21						Same as above	No recovery from 21 to 26 feet
22				0			

BASELINE

Well ID: CDSM-MW-1

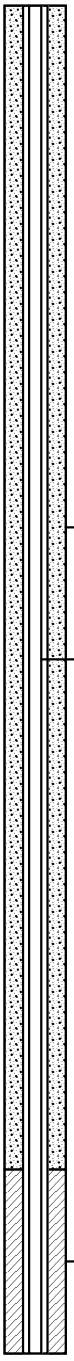
5900 Hollis Street, D
Emeryville, CA 94608
(510) 420-8686
(510) 420-1707 fax

Date:	12/28/09	Location:	Doyle Drive, San Francisco
Project no.:	Y0239-04.A8	Logger:	WK Scott, P.G. #6104
Driller:	Gregg Drilling	Groundwater depth (bgs):	1.0 foot, static after drilling
Method:	Mud Rotary	Bore size:	7 inches

Reviewed by:

Depth (feet)	Sample	USCS	GRAPHIC	PID (ppm)	DESCRIPTION	REMARKS
22						
23						
24				0		
25						
26		SP				1 foot of recovery from 26 to 31 feet Only clay in shoe of sampler
27						
28				0		
29						
30					Dark bluish gray (GLEY2 4/1 5B) CLAY, high plasticity, very soft, wet (Young Bay Mud)	
31		CH				3 feet of recovery from 31 to 36 feet
32				0		
33		SP/SC			Dark bluish gray (GLEY2 4/1 5B) SAND with clay, clayey SAND, fine grained, large shell fragments, wet	

CDSM-MW-1



BASELINE
5900 Hollis Street, D
Emeryville, CA 94608
(510) 420-8686
(510) 420-1707 fax

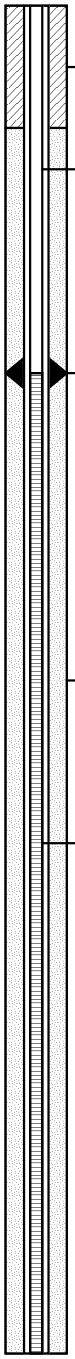
Well ID: CDSM-MW-1

Date:	12/28/09	Location:	Doyle Drive, San Francisco
Project no.:	Y0239-04.A8	Logger:	WK Scott, P.G. #6104
Driller:	Gregg Drilling	Groundwater depth (bgs):	1.0 foot, static after drilling
Method:	Mud Rotary	Bore size:	7 inches

Reviewed by:

Depth (feet)	Sample	USCS	GRAPHIC	PID (ppm)	DESCRIPTION	REMARKS
33						
34				0		
35		SP/SC				
36						3 feet of recovery from 36 to 41 feet
37					Very dark bluish gray (GLEY2 3/1 10BG) SAND, trace clay, fine grained, small shell fragments, wet	
38				0		
39		SP				
40						
41					Very dark bluish gray (GLEY2 4/1 5B) SAND, fine grained, dense, wet (Colma Sand?)	No recovery from 41 to 46 feet
42		SP		0		
43						
44						

CDSM-MW-1



BASELINE
5900 Hollis Street, D
Emeryville, CA 94608
(510) 420-8686
(510) 420-1707 fax

Well ID: CDSM-MW-1

Date:	12/28/09	Location:	Doyle Drive, San Francisco
Project no.:	Y0239-04.A8	Logger:	WK Scott, P.G. #6104
Driller:	Gregg Drilling	Groundwater depth (bgs):	1.0 foot, static after drilling
Method:	Mud Rotary	Bore size:	7 inches

Reviewed by:

Depth (feet)	Sample	USCS	GRAPHIC	PID (ppm)	DESCRIPTION	REMARKS
44						
45		SP		0		
46						4.5 feet of recovery from 46 to 51 feet
47		CH			Very dark bluish gray to dark bluish gray (GLEY2 4/1 5B to 3/1 5B) CLAY, high plasticity, stiff to medium stiff, moist, some thin sand lenses at contact (Old Bay Mud)	
48				0		
49						
50						
51						
52						
53						
54						
55						

CDSM-MW-1

Total depth = 51.0 feet

APPENDIX C

GROUNDWATER SAMPLING AND WELL DEVELOPMENT FORMS

GROUNDWATER SAMPLING

Well No.: CDSM-MW-1

Project No.	Y0238-04.A6	Well screened interval (feet) BTOC:	36	46.0	Date:	12/30/2009
Project name:	Doyle Drive	Tube inlet placed at (feet) BTOC :	41.0		Depth of well (feet) BTOC:	45.8
Location:	Presiodo	Tube inlet (feet) ABOW :	5.0		Well diameter (inches):	2
Sampled and Recorded by:	WKS,DN	Discharge Tubing Used (ID):	0.25 inches			
Weather:	Showers	Water Level from (feet) BTOC:	0.75		Time:	9:00
Precip. in past 5 days (inches):		1/4-inch OD tubing =	0.17 inch ID	0.00708		
Water Level Instrument:	Solinst Model 122, s/n 001654-1	3/8-inch OD tubing =	0.25 inch ID	0.0104		

CALCULATION OF THE WATER VOLUME CONTAINED WITHIN THE LOW-FLOW SYSTEM

41.0 ft. x $(0.0104ft)^2$ x π x 28.32 liters/ft^3 + 0.5 L = 1.40 liters of water in tubing

min. tubing length (ft.) tubing diameter (ft.) flow cell vol (L) 8.5 total liters removed

CALIBRATION	Before Purging	After Purging	Standard
Time:	7:10	10:10	- -
Temp (°C):	17.70	11.61	- -
DO	100%	93%	100% 0^2 saturated
NTU:	0.0 / 9.7	0.0 / 9.3	0.0 / 10.0
ORP (mV):	217@15.5	234.2@11.04	244 @ 15
pH:	4.00/7.00	3.84/6.94	4.00 / 7.00
E C (µmho/cm):	1,000 (µmho/cm):	989 (µmho/cm)	1,000 (µmho/cm):

FIELD MEASUREMENTS

Time	Water Level from TOC (ft.)	Purge Rate (L / min)	pH	EC (µmho/cm):	ORP (mV):	DO (mg/l):	NTU	Cumulative Purge Vol. Removed (L)	Temp (°C)
0936	1.00	--	7.93	1,952	43	0.28	8.10	1.5	17.14
0940	1.00	0.38	7.93	1,911	-30	0.15	0.75	3.0	17.13
0945	1.00	0.30	7.93	1,883	-81	0.11	0.00	4.5	17.11
0951	1.00	0.42	7.92	1,874	-116	0.11	0.00	7.0	17.11
0956	1.00	0.30	7.91	1,869	-138	0.10	0.00	8.5	17.11

Laboratory: Curtis & Tompkins Ltd

Appearance of sample: Clear Sample Time: 10:00

Duplicate/blank number: None Time: - - Rinsate disposal: 55-gallon drum stored on site

Sampling equipment: Peristaltic Pump with dedicated poly tubing. Sample analyses: Metals, TDS

Sample containers: 1- 500ml poly, 1-250ml poly Decon method: ASTM 5088-02, (three bucket wash)

BTOC= below top of casing bgs= below ground surface ABOW= above bottom of well

BASELINE QA/QC Peer Review Completed: CP, 5/5/10

GROUNDWATER SAMPLING

Well No.: CDSM-MW-1

Project No.	Y0238-04.A6	Well screened interval (feet) BTOC:	36	46.0	Date:	2/8/2010
Project name:	Doyle Drive	Tube inlet placed at (feet) BTOC :	41.0		Depth of well (feet) BTOC:	45.8
Location:	Presiodo	Tube inlet (feet) ABOW :	5.0		Well diameter (inches):	2
Sampled and Recorded by:	WKS	Discharge Tubing Used (ID):	0.25 inches			
Weather:	Sunny	Water Level from (feet) BTOC:	0.42		Time:	7:45
Precip. in past 5 days (inches):		1/4-inch OD tubing =	0.17 inch ID	0.00708		
Water Level Instrument:	Solinst Model 122, s/n 001654-1	3/8-inch OD tubing =	0.25 inch ID	0.0104		

CALCULATION OF THE WATER VOLUME CONTAINED WITHIN THE LOW-FLOW SYSTEM

41.0 ft. x $(0.0104ft)^2$ x π x 28.32 liters/ft^3 + 0.5 L = 1.40 liters of water in tubing

min. tubing length (ft.) tubing diameter (ft.) flow cell vol (L) 5.5 total liters removed

CALIBRATION	Before Purging	After Purging	Standard
Time:	8:00	9:00	- -
Temp (°C):	13.50	12.00	- -
DO	100%	104%	100% 0^2 saturated
NTU:	0/1.0	0.1/1.1	0.0 / 1.0
ORP (mV):	217@15.5	248.7@11.73	244 @ 15
pH:	4.00/7.00	3.98/7.02	4.00 / 7.00
E C (µmho/cm):	1,000 (µmho/cm):	1,008 (µmho/cm):	1,000 (µmho/cm):

FIELD MEASUREMENTS

Time	Water Level from TOC (ft.)	Purge Rate (L / min)	pH	EC (µmho/cm):	ORP (mV):	DO (mg/l):	NTU	Cumulative Purge Vol. Removed (L)	Temp (°C)
0830	0.42	--	7.84	1,882	-131	0.45	0.35	1.5	13.00
0835	0.42	0.20	7.86	1,877	-150	0.18	0.22	2.5	14.29
0840	0.42	0.20	7.87	1,884	-151	0.18	0.25	3.5	14.43
0845	0.42	0.20	7.87	1,882	-161	0.17	0.14	4.5	14.42
0850	0.42	0.20	7.87	1,874	-169	0.18	0.15	5.5	14.52

Laboratory: Curtis & Tompkins Ltd

Appearance of sample: Clear Sample Time: 9:00

Duplicate/blank number: None Time: - - Rinsate disposal: 55-gallon drum stored on site

Sampling equipment: Peristaltic Pump with dedicated poly tubing. Sample analyses: Metals, TDS

Sample containers: 1- 500ml poly, 1-250ml poly Decon method: ASTM 5088-02, (three bucket wash)

BTOC= below top of casing bgs= below ground surface ABOW= above bottom of well

BASELINE QA/QC Peer Review Completed: CP, 5/5/10

GROUNDWATER SAMPLING

Well No.: CDSM-MW-1

Project No.	Y0238-04.A6	Well screened interval (feet) BTOC:	36	46.0	Date:	3/4/2010
Project name:	Doyle Drive	Tube inlet placed at (feet) BTOC :	41.0		Depth of well (feet) BTOC:	45.8
Location:	Presiodo	Tube inlet (feet) ABOW :	5.0		Well diameter (inches):	2
Sampled and Recorded by:	WKS	Discharge Tubing Used (ID):	0.25 inches			
Weather:	Sunny	Water Level from (feet) BTOC:	0.1		Time:	11:05
Precip. in past 5 days (inches):		1/4-inch OD tubing =	0.17 inch ID	0.00708		
Water Level Instrument:	Solinst Model 122, s/n 001654-1	3/8-inch OD tubing =	0.25 inch ID	0.0104		

CALCULATION OF THE WATER VOLUME CONTAINED WITHIN THE LOW-FLOW SYSTEM

41.0 ft. x $(0.0104ft)^2$ x π x 28.32 liters/ft^3 + 0.5 L = 1.40 liters of water in tubing

min. tubing length (ft.) tubing diameter (ft.) flow cell vol (L) 5.5 total liters removed

CALIBRATION	Before Purging	After Purging	Standard
Time:	10:30	9:00	- -
Temp (°C):	19.20	19.50	- -
DO	100%	95%	100% 0^2 saturated
NTU:	0/1.0	0.0/0.9	0.0 / 1.0
ORP (mV):	239 @ 19.0	236 @ 21.5	244 @ 15
pH:	4.00/7.00/10.00	4.01/7.06/10.00	4.00/7.00/10.00
E C (µmho/cm):	1,000 (µmho/cm):	1,003 (µmho/cm):	1,000 (µmho/cm):

FIELD MEASUREMENTS

Time	Water Level from TOC (ft.)	Purge Rate (L / min)	pH	EC (µmho/cm):	ORP (mV):	DO (mg/l):	NTU	Cumulative Purge Vol. Removed (L)	Temp (°C)
1110	0.22	--	7.82	1,822	-64	0.32	0.22	1.5	15.41
1115	0.22	0.20	7.82	1,839	-117	0.11	0.04	2.5	15.83
1119	0.22	0.25	7.82	1,841	-133	0.11	0.08	3.5	15.83
1124	0.22	0.20	7.82	1,841	-146	0.11	0.08	4.5	15.92
1129	0.22	0.20	7.82	1,834	-145	0.11	0.10	5.5	16.02

Laboratory: Curtis & Tompkins Ltd

Appearance of sample: Clear Sample Time: 11:35

Duplicate/blank number: None Time: - - Rinsate disposal: 55-gallon drum stored on site

Sampling equipment: Peristaltic Pump with dedicated poly tubing. Sample analyses: Metals, TDS

Sample containers: 1- 500ml poly, 1-250ml poly Decon method: ASTM 5088-02, (three bucket wash)

BTOC= below top of casing bgs= below ground surface ABOW= above bottom of well

BASELINE QA/QC Peer Review Completed: CP, 5/5/10

GREGG

MONITORING WELL DEVELOPMENT LOG

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

Sample ID

Qty. of Drilling Fluid Lost 0

Well Number CDSM- MW1

Date 12-29-09

Time Start: 7:30 End: 1:00

Client ARUP

Project CDSM

Job Number —

Installation Date 12-28-09

Well Diameter 2"

Borehole Diameter ~~8~~ 7"

Screen Length 10'

Measured Depth (pre-development) 45.10

Measured Depth (post-development) 46.00

Static Water Level (ft.) 1.0

Standing Water Column (ft.) 44.10

One Well Volume (gal.) 7.49

One Annulus Vol. (gal.)

Minimum Gal. to be Purged 135 Gallons

Development Method SURGE, BAIL & PUMP

Purging Equipment 2" S.S. BAILER

Water Level Equipment SOLINST

pH/EC Meter HORIBA U-10

Turbidity Meter " "

Other

Time	Amount Purged (gal.)	Field Parameters Measured: pH	EC mS/cm	Turbidity	D.O.	D.O. Temp.	SAL.	GPM / W.L.	Comments	Field Tech.
7:30	—	BAILING	—	—	BAIL	3 Gallons			SOFT BOTTOM	
7:45	—	SURGING	—	—	—				SURGED WELL FOR 30 MIN	
8:15	—	BAILING	—	—	—	BAIL 6 Gallons			(SET UP PUMP, START PUMPING)	
8:35	15/15	7.17	1.71	999	—	20.1	—	1.5 gpm /	WL= 4.04	
8:43	10/25	6.56	2.73	999	—	15.6	—	1.5 gpm /	WL= 4.40	
8:51	10/35	6.88	2.76	999	—	16.8	—	1.5 gpm /	WL= 4.42	
8:59	10/45	7.06	2.83	999	—	16.7	—	1.5 gpm /	WL= 4.50	
9:08	10/55	7.17	2.83	999	—	16.9	—	1.5 gpm /	WL= 4.52	
9:19	10/65	7.16	2.82	891	—	18.2	—	1.5 gpm /	WL= 4.39	
9:28	10/75	7.23	2.81	999	—	17.6	—	1.5 gpm /	WL= 4.39	
9:39	10/85	7.26	2.79	999	—	21.3	—	1.5 gpm /	WL= 4.39	

FINAL FIELD PARAMETER MEASUREMENTS

(STOP FOR 10 MINUTES TO ADJUST PUMP)

GREGG

MONITORING WELL DEVELOPMENT LOG

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

Sample ID _____

Well Number CDSM- MW 1

Date 12-29-09

Time Start: 7:30 End: 1:00

Client ARUP

Project CDSM

Job Number —

Installation Date 12-2-09

Well Diameter 2"

Borehole Diameter ~~8"~~ 7"

Screen Length 10'

Measured Depth (pre-development) 45.10

Measured Depth (post-development) 46.00

Static Water Level (ft.) 1.0

Standing Water Column (ft.) 44.10

One Well Volume (gal.) 7.49

One Annulus Vol. (gal.) _____

Qty. of Drilling Fluid Lost 0

Minimum Gal. to be Purged 135 Gallons

Development Method SURGE, BAIL & PUMP

Purging Equipment 2" SS BAILER

Water Level Equipment SOLINST

pH/EC Meter HORIBA U-10

Turbidity Meter "

Other _____

Time	Amount Purged (gal.)	Field Parameters Measured							Comments	Field Tech.
		pH	EC	Turbidity	D.O.	D.O. Temp.	SAL.	GPM / W.L.		
10:03	10/95	7.24	2.73	924	—	19.1	—	1.5 gpm	WL = 3.90	
10:12	10/105	7.23	2.71	789	—	19.6	—	1.5 gpm	WL = 4.00	
—	STOP	USING 2" GROUND FOSS, NOW USING PERESTALTIC PUMP.								
10:49	5/110	7.22	2.71	853	—	18.3	—			
11:12	5/115	7.24	2.72	909	—	18.6	—			
11:50	5/120	7.23	2.71	600	—	18.8	—			
12:35	5/125	7.20	2.76	358	—	18.4	—			
12:50	5/130	7.23	2.81	150	—	18.3	—			
12:55	5/135	7.22	2.79	85	—	18.4	—			

FINAL FIELD PARAMETER MEASUREMENTS

DOYLE DRIVE REPLACEMENT PROJECT
GROUNDWATER MONITORING OF DEEP SOIL MIXING TEST AREA
MONITORING WELL CDSM-MW-1

Instrument Used: Horiba U-22XD

Calibration Standard: Auto Cal Solution Ph 4.00, NTU 0.0, EC 4.49 mS/cm

Recorded By	Date	Time	Water Level (ft. ~~btoc~~ bgs)	EC (~~µmho/cm~~ mS/cm):	Temp (°C)	NTU	Purge Volume (L)	pH	Site Activities / Comments
DN	1/4/10	6:57	1.2	1.880	13.30	177	1.0	6.15	Mixing today
DN	1/5/10	15:10	1.4	1.910	14.56	142	1.0	5.89	mixing today
DN	1/6/10	15:53	1.3	1.900	14.38	153	1.0	5.93	mixing today
JM/DN	1/7/10	15:50	1.2	1.96	14.24	165	1.0	5.78	~~mixing today~~ No mixing
DN	1/11/10	17:35	1.6	1.89	15.05	196	1.0	6.16	no mixing from 1/8 – 1/11/10
DN	1/12/10	16:05	1.1	1.93	15.81	102	1.0	5.92	mixing today
DN	1/13/10	15:48	1.1	1.96	15.85	94	1.0	6.11	mixed today
DN	1/14/10	16:40	1.3	1.91	16.50	44	1.0	6.04	mixed today
DN	1/19/10	13:43	1.2	1.90	16.15	48	1.0	6.24	no today, last day mixing 1/15/10
DN	1/21/10	16:44	1.1	1.91	15.92	52	1.0	6.22	no mixing today.
DN	1/27/10	16:30	1.0	1.93	16.31	37	1.0	~~5.39~~	no mix today ph=6.39
DN	1/29/10	16:15	0.9	1.92	15.73	96	1.0	6.35	no mixing
DN	2/1/10	~~AM~~ 17:35	0.7	1.91	15.53	179	1.0	6.33	no mixing.

btoc = below top of casing
EC = Specific Conductance

APPENDIX D

LABORATORY REPORTS

217511
218202
218609
218610
218611

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 217511
ANALYTICAL REPORT

Baseline Environmental	Project : Y0239-04.A6
5900 Hollis Street	Location : Doyle Drive
Emeryville, CA 94608	Level : III

Sample ID	Lab ID
CDSM-MW-1	217511-001

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

Signature: Desirée N. Tétrault
Project Manager

Date: 01/07/2010

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**217511**
Client:	**Baseline Environmental**
Project:	**Y0239-04.A6**
Location:	**Doyle Drive**
Request Date:	**12/30/09**
Samples Received:	**12/30/09**

This data package contains sample and QC results for one water sample, requested for the above referenced project on 12/30/09. The sample was received cold and intact.

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

Total Dissolved Solids (TDS) (SM2540C):
No analytical problems were encountered.

Chain of Custody

212511

BASELINE Environmental Consulting
5900 Hollis Street, Suite D
Emeryville, CA 94608
Tel: (510) 420-8686 Fax: (510) 420-1707

CHAIN OF CUSTODY RECORD

Turn-Around-Time Standard
Laboratory Curtis and Tompkins, Ltd.
BASELINE Contact Person Cheri Page

Project Number Y0239-04. A6
Project Name: Doyle Drive Replacement Project
Samplers: (Signature)

Sample ID	Date	Time	Media	No. (total)	L-AG	40-ml VOA	1000 ml-Poly	500 ml-Poly	250 ml Poly	Ice	HCL	HNO_3	H_2SO_4	NaOH	TPH-g & BTEX (EPA Method 8015M)	TPH-d and mo (EPA Method 8015M with silica gel cleanup)	VOC (EPA Method 8260B)	MTBE (EPA Method 8260B)	SVOC (EPA Method 8270)	PCB (EPA Method 8082)	Dissolved Sulfides	TDS ~~Total Suspended Solids~~	CAM 17 Metals * ~~Chemical Oxygen Demand~~	Chlorides	Title 22 Metals (EPA Method 6010B/7471)	Remarks
CDSM-MW-1	12-30-09	9:40	Water					X	X	X												X	X			
			Water							X																
			Water							X																

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	Remarks:
	12/30/09 11:15		12/30/09 11:15	
Relinquished by: (Signature)	Date/Time	Received by: (Signature)		
Relinquished by: (Signature)	Date/Time	Received by: (Signature)		Email contact:

Received at laboratory with intact custody seal	Samples conditions Upon Arrival:	Comments:
Yes No Na	Intact On Ice Cold	* Filter & preseu. at Lab

MASTER9-17-09- Groundwater Lrg.xls

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 217511 Date Received 12-30-9 Number of coolers 1
Client BASELINE Project DOYLE DRIVE

Date Opened 12-30-9 By (print) S. EVANS (sign) [signature]
Date Logged in [signature] By (print) [signature] (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:

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

   ☒ Samples Received on ice & cold without a temperature blank

   ☐ 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 samples in the appropriate containers for indicated tests? ____ (YES) NO
11. Are sample labels present, in good condition and complete? ____ (YES) NO
12. Do the sample labels agree with custody papers? ____ (YES) NO
13. Was sufficient amount of sample sent for tests requested? ____ (YES) NO
14. Are the samples appropriately preserved? ____ YES NO (N/A)
15. Are bubbles > 6mm absent in VOA samples? ____ YES NO (N/A)
16. Was the client contacted concerning this sample delivery? ____ YES NO
   If YES, Who was called? ____ By ____ Date: ____

COMMENTS

Laboratory Job Number 217511

ANALYTICAL REPORT

Metals

Matrix: Filtrate

Curtis & Tompkins, Ltd.

Dissolved California Title 22 Metals

Lab #:	217511	Location:	Doyle Drive
Client:	Baseline Environmental	Prep:	METHOD
Project#:	Y0239-04.A6		
Field ID:	CDSM-MW-1	Diln Fac:	1.000
Lab ID:	217511-001	Sampled:	12/30/09
Matrix:	Filtrate	Received:	12/30/09
Units:	ug/L	Prepared:	12/31/09

Analyte	Result	RL	Batch#	Analyzed	Analysis
Antimony	ND	10	158788	01/04/10	EPA 6010B
Arsenic	14	5.0	158788	01/04/10	EPA 6010B
Barium	33	5.0	158788	01/04/10	EPA 6010B
Beryllium	ND	2.0	158788	01/04/10	EPA 6010B
Cadmium	ND	5.0	158788	01/04/10	EPA 6010B
Chromium	ND	5.0	158788	01/04/10	EPA 6010B
Cobalt	ND	5.0	158788	01/04/10	EPA 6010B
Copper	ND	5.0	158788	01/04/10	EPA 6010B
Lead	ND	3.0	158788	01/04/10	EPA 6010B
Mercury	ND	0.20	158766	12/31/09	EPA 7470A
Molybdenum	ND	5.0	158788	01/04/10	EPA 6010B
Nickel	ND	5.0	158788	01/04/10	EPA 6010B
Selenium	ND	10	158788	01/04/10	EPA 6010B
Silver	ND	5.0	158788	01/04/10	EPA 6010B
Thallium	ND	10	158788	01/04/10	EPA 6010B
Vanadium	ND	5.0	158788	01/04/10	EPA 6010B
Zinc	ND	20	158788	01/04/10	EPA 6010B

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	217511	Location:	Doyle Drive
Client:	Baseline Environmental	Prep:	METHOD
Project#:	Y0239-04.A6	Analysis:	EPA 7470A
Analyte:	Mercury	Diln Fac:	1.000
Type:	BLANK	Batch#:	158766
Lab ID:	QC527674	Prepared:	12/31/09
Matrix:	Water	Analyzed:	12/31/09
Units:	ug/L		

Result	RL
ND	0.20

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	217511	Location:	Doyle Drive
Client:	Baseline Environmental	Prep:	METHOD
Project#:	Y0239-04.A6	Analysis:	EPA 7470A
Analyte:	Mercury	Batch#:	158766
Matrix:	Water	Prepared:	12/31/09
Units:	ug/L	Analyzed:	12/31/09
Diln Fac:	1.000		

Type	Lab ID	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC527675	2.500	2.480	99	77-124		
BSD	QC527676	2.500	2.420	97	77-124	2	12

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	217511	Location:	Doyle Drive
Client:	Baseline Environmental	Prep:	METHOD
Project#:	Y0239-04.A6	Analysis:	EPA 7470A
Analyte:	Mercury	Batch#:	158766
Field ID:	ZZZZZZZZZZ	Sampled:	12/28/09
MSS Lab ID:	217469-001	Received:	12/28/09
Matrix:	Water	Prepared:	12/31/09
Units:	ug/L	Analyzed:	12/31/09
Diln Fac:	1.000		

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
MS	QC527677	<0.03335	2.500	2.790	112	53-149		
MSD	QC527678		2.500	2.580	103	53-149	8	19

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	217511	Location:	Doyle Drive
Client:	Baseline Environmental	Prep:	METHOD
Project#:	Y0239-04.A6	Analysis:	EPA 6010B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC527770	Batch#:	158788
Matrix:	Filtrate	Prepared:	12/31/09
Units:	ug/L	Analyzed:	01/04/10

Analyte	Result	RL
Antimony	ND	10
Arsenic	ND	5.0
Barium	ND	5.0
Beryllium	ND	2.0
Cadmium	ND	5.0
Chromium	ND	5.0
Cobalt	ND	5.0
Copper	ND	5.0
Lead	ND	3.0
Molybdenum	ND	5.0
Nickel	ND	5.0
Selenium	ND	10
Silver	ND	5.0
Thallium	ND	10
Vanadium	ND	5.0
Zinc	ND	20

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	217511	Location:	Doyle Drive
Client:	Baseline Environmental	Prep:	METHOD
Project#:	Y0239-04.A6	Analysis:	EPA 6010B
Matrix:	Filtrate	Batch#:	158788
Units:	ug/L	Prepared:	12/31/09
Diln Fac:	1.000	Analyzed:	01/04/10

Type: BS Lab ID: QC527771

Analyte	Spiked	Result	%REC	Limits
Antimony	500.0	579.4	116	66-129
Arsenic	100.0	113.2	113	78-122
Barium	2,000	2,151	108	80-119
Beryllium	50.00	47.06	94	84-124
Cadmium	50.00	46.39	93	83-121
Chromium	200.0	216.7	108	81-116
Cobalt	500.0	513.2	103	78-115
Copper	250.0	245.9	98	77-115
Lead	100.0	99.39	99	73-124
Molybdenum	400.0	450.5	113	81-120
Nickel	500.0	532.5	107	78-117
Selenium	100.0	105.2	105	74-128
Silver	50.00	44.83	90	71-120
Thallium	100.0	112.4	112	77-124
Vanadium	500.0	547.8	110	81-117
Zinc	500.0	548.8	110	79-120

Type: BSD Lab ID: QC527772

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Antimony	500.0	543.0	109	66-129	6	15
Arsenic	100.0	100.6	101	78-122	12	14
Barium	2,000	2,019	101	80-119	6	15
Beryllium	50.00	45.87	92	84-124	3	14
Cadmium	50.00	44.37	89	83-121	4	14
Chromium	200.0	204.7	102	81-116	6	14
Cobalt	500.0	484.4	97	78-115	6	14
Copper	250.0	230.8	92	77-115	6	15
Lead	100.0	90.51	91	73-124	9	17
Molybdenum	400.0	414.4	104	81-120	8	11
Nickel	500.0	503.4	101	78-117	6	14
Selenium	100.0	98.22	98	74-128	7	15
Silver	50.00	44.23	88	71-120	1	19
Thallium	100.0	106.5	106	77-124	5	13
Vanadium	500.0	517.3	103	81-117	6	14
Zinc	500.0	520.9	104	79-120	5	16

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	217511	Location:	Doyle Drive
Client:	Baseline Environmental	Prep:	METHOD
Project#:	Y0239-04.A6	Analysis:	EPA 6010B
Field ID:	ZZZZZZZZZZ	Batch#:	158788
MSS Lab ID:	217405-001	Sampled:	12/21/09
Matrix:	Filtrate	Received:	12/21/09
Units:	ug/L	Prepared:	12/31/09
Diln Fac:	1.000	Analyzed:	01/04/10

Type: MS Lab ID: QC527773

Analyte	MSS Result	Spiked	Result	%REC	Limits
Antimony	7.946	500.0	501.7	99	53-139
Arsenic	3.602	100.0	105.9	102	60-140
Barium	29.97	2,000	2,048	101	63-128
Beryllium	<0.4000	50.00	43.21	86	74-130
Cadmium	<1.411	50.00	42.58	85	69-128
Chromium	4.891	200.0	205.1	100	68-122
Cobalt	1.719	500.0	475.3	95	68-119
Copper	10.14	250.0	236.1	90	61-130
Lead	<1.000	100.0	97.84	98	55-133
Molybdenum	3.513	400.0	421.6	105	70-128
Nickel	13.00	500.0	503.1	98	61-125
Selenium	<2.968	100.0	99.34	99	57-140
Silver	<1.000	50.00	42.41	85	53-132
Thallium	<2.736	100.0	103.2	103	54-133
Vanadium	1.337	500.0	504.4	101	71-124
Zinc	367.6	500.0	849.7	96	58-137

Type: MSD Lab ID: QC527774

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Antimony	500.0	501.1	99	53-139	0	18
Arsenic	100.0	104.8	101	60-140	1	23
Barium	2,000	2,008	99	63-128	2	21
Beryllium	50.00	42.63	85	74-130	1	15
Cadmium	50.00	43.13	86	69-128	1	14
Chromium	200.0	203.4	99	68-122	1	19
Cobalt	500.0	471.6	94	68-119	1	13
Copper	250.0	235.0	90	61-130	0	19
Lead	100.0	93.39	93	55-133	5	21
Molybdenum	400.0	412.4	102	70-128	2	14
Nickel	500.0	498.2	97	61-125	1	21
Selenium	100.0	99.22	99	57-140	0	24
Silver	50.00	42.44	85	53-132	0	17
Thallium	100.0	100.9	101	54-133	2	24
Vanadium	500.0	497.9	99	71-124	1	16
Zinc	500.0	853.5	97	58-137	0	25

RPD= Relative Percent Difference

REPORTING SUMMARY FOR 217511 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
217511-001	MET14	12/31/09 12:07	1.0										+							
217511-001	MET09	01/04/10 13:15	1.0	+		+	+	+	+	+	+	+		+	+	+	+	+	+	+
217511-001	MET09	01/04/10 13:30	1.0		+															
QC527674	MET14	12/31/09 11:28	1.0										+							
QC527675	MET14	12/31/09 11:30	1.0										+							
QC527676	MET14	12/31/09 11:32	1.0										+							
QC527677	MET14	12/31/09 11:37	1.0										+							
QC527678	MET14	12/31/09 11:39	1.0										+							
QC527679	MET14	12/31/09 11:41	5.0										+							
QC527770	MET09	01/04/10 12:26	1.0	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC527771	MET09	01/04/10 12:31	1.0	+	+	+			+	+	+	+		+	+	+		+	+	+
QC527771	MET08	01/04/10 16:59	1.0				+	+									+			
QC527772	MET09	01/04/10 12:36	1.0	+	+	+			+	+	+	+		+	+	+		+	+	+
QC527772	MET08	01/04/10 17:05	1.0				+	+									+			
QC527773	MET09	01/04/10 12:45	1.0	+	+	+			+	+	+	+		+	+	+		+	+	+
QC527773	MET08	01/04/10 17:15	1.0				+	+									+			
QC527774	MET09	01/04/10 12:50	1.0	+	+	+			+	+	+	+		+	+	+		+	+	+
QC527774	MET08	01/04/10 17:20	1.0				+	+									+			

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 90006270

Instrument : MET09 Begun : 01/04/10 08:30
Method : EPA 6010B SOP Version : icp metals_rv9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met09_sn_6010a	ICALBLK				01/04/10 08:30	1.0		
002	met09_sn_6010a	ICAL	CRIM08			01/04/10 08:35	1.0	1	
003	met09_sn_6010a	ICAL	CS100			01/04/10 08:40	1.0	2	
004	met09_sn_6010a	ICAL	CS1K			01/04/10 08:44	1.0	3	
005	met09_sn_6010a	ICAL	CS10K			01/04/10 08:49	1.0	4	
006	met09_sn_6010a	ICAL	CS100K			01/04/10 08:54	1.0	5	
007	met09_sn_6010a	ICV				01/04/10 09:00	1.0	6	
008	met09_sn_6010a	X				01/04/10 09:05	1.0		
009	met09_sn_6010a	ICB				01/04/10 09:10	1.0		
010	met09_sn_6010a	ICSA				01/04/10 09:15	1.0	7	10:AL=500000
011	met09_sn_6010a	ICSAB				01/04/10 09:26	1.0	8	5:AL=500000
012	met09_sn_6010a	SAMPLE	217483-001	Soil	158730	01/04/10 09:31	1.0		5:AL=800000
013	met09_sn_6010a	SAMPLE	217483-002	Soil	158730	01/04/10 09:38	100.0		
014	met09_sn_6010a	SAMPLE	217483-003	Soil	158730	01/04/10 09:42	1.0		5:AL=450000
015	met09_sn_6010a	SAMPLE	217483-004	Soil	158730	01/04/10 09:48	200.0		
016	met09_sn_6010a	SAMPLE	217483-005	Soil	158730	01/04/10 09:56	100.0		
017	met09_sn_6010a	SAMPLE	217483-006	Soil	158730	01/04/10 10:00	1.0		5:FE=390000
018	met09_sn_6010a	ICSAB				01/04/10 10:06	1.0	8	5:AL=530000
019	met09_sn_6010a	X	RINSE			01/04/10 10:12	1.0		
020	met09_sn_6010a	X				01/04/10 10:17	1.0	9	
021	met09_sn_6010a	CCV				01/04/10 10:32	1.0	9	
022	met09_sn_6010a	CCB				01/04/10 10:38	1.0		
023	met09_sn_6010a	BLANK	QC527547	Water	158731	01/04/10 10:43	1.0		
024	met09_sn_6010a	BS	QC527548	Water	158731	01/04/10 10:48	1.0		
025	met09_sn_6010a	BSD	QC527549	Water	158731	01/04/10 10:53	1.0		
026	met09_sn_6010a	MSS	217493-001	Water	158731	01/04/10 10:57	1.0		1:NA=120000
027	met09_sn_6010a	MS	QC527550	Water	158731	01/04/10 11:05	1.0		1:NA=140000
028	met09_sn_6010a	MSD	QC527551	Water	158731	01/04/10 11:11	1.0		1:NA=140000
029	met09_sn_6010a	SAMPLE	217496-001	Water	158731	01/04/10 11:17	1.0		
030	met09_sn_6010a	SAMPLE	217496-002	Water	158731	01/04/10 11:23	1.0		
031	met09_sn_6010a	SAMPLE	217496-003	Water	158731	01/04/10 11:28	1.0		
032	met09_sn_6010a	SAMPLE	217496-004	Water	158731	01/04/10 11:33	1.0		
033	met09_sn_6010a	X				01/04/10 11:39	1.0	8	5:CA=550000
034	met09_sn_6010a	ICSAB				01/04/10 11:40	1.0	8	5:CA=520000
035	met09_sn_6010a	X				01/04/10 11:46	1.0	9	
036	met09_sn_6010a	CCV				01/04/10 11:56	1.0	9	
037	met09_sn_6010a	X				01/04/10 12:02	1.0		
038	met09_sn_6010a	CCB				01/04/10 12:05	1.0		
039	met09_sn_6010a	BLANK	QC527386	Water	158690	01/04/10 12:10	1.0		
040	met09_sn_6010a	MSS	217493-001	Water	158731	01/04/10 12:15	10.0		
041	met09_sn_6010a	SAMPLE	217405-001	Water	158690	01/04/10 12:21	1.0		
042	met09_sn_6010a	BLANK	QC527770	Filtrate	158788	01/04/10 12:26	1.0		
043	met09_sn_6010a	BS	QC527771	Filtrate	158788	01/04/10 12:31	1.0		
044	met09_sn_6010a	BSD	QC527772	Filtrate	158788	01/04/10 12:36	1.0		
045	met09_sn_6010a	MSS	217405-001	Filtrate	158788	01/04/10 12:40	1.0		
046	met09_sn_6010a	MS	QC527773	Filtrate	158788	01/04/10 12:45	1.0		
047	met09_sn_6010a	MSD	QC527774	Filtrate	158788	01/04/10 12:50	1.0		
048	met09_sn_6010a	SAMPLE	217405-002	Filtrate	158788	01/04/10 12:54	1.0		
049	met09_sn_6010a	CCV				01/04/10 12:59	1.0	9	
050	met09_sn_6010a	X				01/04/10 13:01	1.0	9	
051	met09_sn_6010a	X				01/04/10 13:06	1.0		
052	met09_sn_6010a	CCB				01/04/10 13:10	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 90006270

Instrument : MET09 Begun : 01/04/10 08:30
Method : EPA 6010B SOP Version : icp metals_rv9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met09_sn_6010a	SAMPLE	217511-001	Filtrate	158788	01/04/10 13:15	1.0		1:NA=290000
054	met09_sn_6010a	SAMPLE	217529-001	Filtrate	158788	01/04/10 13:22	1.0		4:MG=3500000
055	met09_sn_6010a	SAMPLE	217511-001	Filtrate	158788	01/04/10 13:30	1.0		1:NA=310000
056	met09_sn_6010a	ICSAB				01/04/10 13:37	1.0	8	5:CA=560000
057	met09_sn_6010a	X				01/04/10 13:39	1.0	8	
058	met09_sn_6010a	X				01/04/10 13:44	1.0	9	
059	met09_sn_6010a	CCV				01/04/10 13:46	1.0	9	
060	met09_sn_6010a	CCB				01/04/10 14:01	1.0		

AH 01/04/10 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 60.

Standards used: 1=S13138 2=S13393 3=S13392 4=S13417 5=S13418 6=S13454 7=S13419 8=S13227 9=S13455

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 90006270

Date : 01/04/10 Reference : met09_sn_6010a
Sequence : MET09 01/04/10 Analyzed : 01/04/10 08:35

#	Type	Sample ID	Y A
		ICAL STD	4934800
		LOWER LIMIT	1480440
		UPPER LIMIT	9869599
009	ICB		4744405
010	ICSA		4116727
011	ICSAB		4067947
012	SAMPLE	217483-001	4549810
013	SAMPLE	217483-002	4881927
014	SAMPLE	217483-003	4592752
015	SAMPLE	217483-004	5018151
016	SAMPLE	217483-005	5214430
017	SAMPLE	217483-006	4394849
018	ICSAB		4109890
021	CCV		4725031
022	CCB		4845571
023	BLANK	QC527547	4819758
024	BS	QC527548	4777265
025	BSD	QC527549	4928623
026	MSS	217493-001	4606444
027	MS	QC527550	4284984
028	MSD	QC527551	4151350
029	SAMPLE	217496-001	4524589
030	SAMPLE	217496-002	4670753
031	SAMPLE	217496-003	4860535
032	SAMPLE	217496-004	4715910
034	ICSAB		4095401
036	CCV		4611036
038	CCB		4829133
039	BLANK	QC527386	4743050
040	MSS	217493-001	4634801
041	SAMPLE	217405-001	4820669
042	BLANK	QC527770	4777506
043	BS	QC527771	4541719
044	BSD	QC527772	4740459
045	MSS	217405-001	4847572
046	MS	QC527773	4677726
047	MSD	QC527774	4736496
048	SAMPLE	217405-002	4909415
049	CCV		4458776
052	CCB		4809445
053	SAMPLE	217511-001	4608702
054	SAMPLE	217529-001	2569351
055	SAMPLE	217511-001	4540753
056	ICSAB		4068274
059	CCV		4946025
060	CCB		4697625

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 217511 METALS Filtrate: EPA 6010B

Inst : MET09 Reviewer : ---
Calnum : 90006270001 Date : 04-JAN-2010 08:30
Units : ug/L X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met09_sn_6010a	90006270002	CRIM08	04-JAN-2010 08:35	S13138
L2	met09_sn_6010a	90006270003	CS100	04-JAN-2010 08:40	S13393
L3	met09_sn_6010a	90006270004	CS1K	04-JAN-2010 08:44	S13392
L4	met09_sn_6010a	90006270005	CS10K	04-JAN-2010 08:49	S13417
L5	met09_sn_6010a	90006270006	CS100K	04-JAN-2010 08:54	S13418

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Antimony	A	10.310	10.597	10.791	11.027		LOR0	0.00000	0.09071		10.681	1.000	0.995	
Arsenic	A	5.0800	5.7030	5.7164	5.7364		LOR0	0.00000	0.17433		5.5589	1.000	0.995	
Barium	A	65.420	63.074	64.889	65.184		LOR0	0.00000	0.01534		64.642	1.000	0.995	
Beryllium	A	3222.6	3355.7	3379.3			LOR0	0.00000	2.96E-4		3319.2	1.000	0.995	
Cadmium	A	112.74	110.80	113.60	113.48		LOR0	0.00000	0.00881		112.66	1.000	0.995	
Chromium	A	111.04	144.07	146.81	148.20		LOR0	0.00000	0.00675		137.53	1.000	0.995	
Cobalt	A	41.740	38.341	40.953	41.293		LOR0	0.00000	0.02422		40.582	1.000	0.995	
Copper	A	94.420	144.46	152.32	157.69		LOR0	0.00000	0.00634		137.22	1.000	0.995	
Lead	A	16.600	30.180	31.119	31.291		LOR0	0.00000	0.03196		27.298	1.000	0.995	
Molybdenum	A	24.300	22.651	22.767	22.981		LOR0	0.00000	0.04352		23.175	1.000	0.995	
Nickel	A	49.220	62.248	68.130	68.735		LOR0	0.00000	0.01455		62.083	1.000	0.995	
Selenium	A	6.0800	7.2880	7.7283	8.0513		LOR0	0.00000	0.12425		7.2869	1.000	0.995	
Silver	A	331.56	315.99	324.69	329.73		LOR0	0.00000	0.00304		325.49	1.000	0.995	
Thallium	A	5.5200	6.0390	6.1415	6.1510		LOR0	0.00000	0.16258		5.9629	1.000	0.995	
Vanadium	A	136.18	165.70	169.83	174.55		LOR0	0.00000	0.00573		161.56	1.000	0.995	
Zinc	A	48.360	43.084	44.027	44.925		LOR0	0.00000	0.02226		45.099	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Antimony	A	10.00	-6	100.0	-4	1000	-2	10000	0		
Arsenic	A	5.000	-11	100.0	-1	1000	0	10000	0		
Barium	A	5.000	0	100.0	-3	1000	0	10000	0		
Beryllium	A	2.000	-5	100.0	-1	1000	0				
Cadmium	A	5.000	-1	100.0	-2	1000	0	10000	0		
Chromium	A	5.000	**-25**	100.0	-3	1000	-1	10000	0		
Cobalt	A	5.000	1	100.0	-7	1000	-1	10000	0		
Copper	A	5.000	**-40**	100.0	-8	1000	-3	10000	0		
Lead	A	3.000	**-47**	100.0	-4	1000	-1	10000	0		
Molybdenum	A	5.000	6	100.0	-1	1000	-1	10000	0		
Nickel	A	5.000	**-28**	100.0	-9	1000	-1	10000	0		
Selenium	A	10.00	**-24**	100.0	-9	1000	-4	10000	0		
Silver	A	5.000	1	100.0	-4	1000	-1	2000	0		
Thallium	A	10.00	-10	100.0	-2	1000	0	10000	0		
Vanadium	A	5.000	**-22**	100.0	-5	1000	-3	10000	0		
Zinc	A	20.00	8	100.0	-4	1000	-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 217511 METALS Filtrate
EPA 6010B

Inst : MET09
Calnum : 90006270001 Cal Date : 04-JAN-2010

ICV 90006270007 (04-JAN-2010) stds: S13454

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	5000	4879	ug/L	-2	10	
Arsenic	A	5000	4988	ug/L	0	10	
Barium	A	5000	4912	ug/L	-2	10	
Beryllium	A	500.0	514.3	ug/L	3	10	
Cadmium	A	5000	4930	ug/L	-1	10	
Chromium	A	5000	4818	ug/L	-4	10	
Cobalt	A	5000	4811	ug/L	-4	10	
Copper	A	5000	4759	ug/L	-5	10	
Lead	A	5000	4763	ug/L	-5	10	
Molybdenum	A	5000	4967	ug/L	-1	10	
Nickel	A	5000	4776	ug/L	-4	10	
Selenium	A	5000	4877	ug/L	-2	10	
Silver	A	1000	948.1	ug/L	-5	10	
Thallium	A	5000	4853	ug/L	-3	10	
Vanadium	A	5000	4907	ug/L	-2	10	
Zinc	A	5000	4915	ug/L	-2	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 217511 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 90006270009.1 File : met09_sn_6010a Time : 04-JAN-2010 09:10
Cal : 90006270001 Caldate : 04-JAN-2010

Analyte	Ch	Quant	IQL	2X MDL	Units	Flags
Antimony	A	ND	10.00	5.859	ug/L	
Arsenic	A	[4.700]	5.000	3.155	ug/L	!ib
Barium	A	ND	5.000	2.438	ug/L	
Beryllium	A	ND	2.000	0.8151	ug/L	
Cadmium	A	ND	5.000	2.619	ug/L	
Chromium	A	ND	5.000	2.618	ug/L	
Cobalt	A	ND	5.000	2.129	ug/L	
Copper	A	ND	5.000	2.750	ug/L	
Lead	A	ND	3.000	2.000	ug/L	
Molybdenum	A	ND	5.000	2.591	ug/L	
Nickel	A	ND	5.000	2.552	ug/L	
Selenium	A	ND	10.00	5.935	ug/L	
Silver	A	ND	5.000	2.000	ug/L	
Thallium	A	ND	10.00	5.472	ug/L	
Vanadium	A	ND	5.000	2.000	ug/L	
Zinc	A	ND	20.00	12.29	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4934800	4744405	-3.86

!=warning ib=instrument blank

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 217511 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 90006270010.1 File : met09_sn_6010a Time : 04-JAN-2010 09:15
Cal : 90006270001 Caldate : 04-JAN-2010
Standards: S13419

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	[2.804]	10.00	ug/L	
Arsenic	A	[-1.024]	5.000	ug/L	
Barium	A	[2.174]	5.000	ug/L	
Beryllium	A	[0.9932]	2.000	ug/L	!a+
Cadmium	A	[-0.8293]	5.000	ug/L	
Cobalt	A	[0.03119]	5.000	ug/L	
Lead	A	[-0.2986]	3.000	ug/L	
Molybdenum	A	[2.532]	5.000	ug/L	
Selenium	A	[6.362]	10.00	ug/L	!a+
Silver	A	[1.306]	5.000	ug/L	
Thallium	A	[8.832]	10.00	ug/L	!a+
Zinc	A	[9.558]	20.00	ug/L	

Interferent	Ch	Spiked	Quant	Units	%Rec
Chromium	A	20000	19310	ug/L	97
Copper	A	20000	20340	ug/L	102
Manganese	A	20000	18680	ug/L	93
Nickel	A	20000	17480	ug/L	87
Vanadium	A	20000	20470	ug/L	102
Aluminum	R	500000	499400	ug/L	100
Calcium	R	500000	483600	ug/L	97
Iron	R	200000	191300	ug/L	96
Magnesium	R	500000	486100	ug/L	97
Titanium	R	20000	21720	ug/L	109

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4934800	4116727	-16.58

!=warning +=high bias a=ICSA

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 217511 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 90006270034 File : met09_sn_6010a Time : 04-JAN-2010 11:40
Cal : 90006270001 Caldate : 04-JAN-2010
Standards: S13227

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	575.9	ug/L	15	20	
Arsenic	A	500.0	560.6	ug/L	12	20	
Barium	A	500.0	558.0	ug/L	12	20	
Beryllium	A	500.0	575.2	ug/L	15	20	
Cadmium	A	1000	1132	ug/L	13	20	
Chromium	A	500.0	535.5	ug/L	7	20	
Cobalt	A	500.0	473.7	ug/L	-5	20	
Copper	A	500.0	534.2	ug/L	7	20	
Lead	A	1000	1022	ug/L	2	20	
Molybdenum	A	500.0	572.5	ug/L	14	20	
Nickel	A	1000	963.5	ug/L	-4	20	
Selenium	A	500.0	547.1	ug/L	9	20	
Silver	A	1000	1162	ug/L	16	20	
Thallium	A	500.0	527.2	ug/L	5	20	
Vanadium	A	500.0	567.2	ug/L	13	20	
Zinc	A	1000	1055	ug/L	6	20	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4934800	4095401	-17.01

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 217511 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 90006270036 File : met09_sn_6010a Time : 04-JAN-2010 11:56
Cal : 90006270001 Caldate : 04-JAN-2010
Standards: S13455

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	10.681	11.551	5000	5239	ug/L	5	10	
Arsenic	A	5.5589	5.6117	5000	4892	ug/L	-2	10	
Barium	A	64.642	66.469	5000	5099	ug/L	2	10	
Beryllium	A	3319.2	3586.6	500.0	530.7	ug/L	6	10	
Cadmium	A	112.66	124.27	5000	5475	ug/L	9	10	
Chromium	A	137.53	146.86	5000	4955	ug/L	-1	10	
Cobalt	A	40.582	40.246	5000	4862	ug/L	-3	10	
Copper	A	137.22	146.47	5000	4646	ug/L	-7	10	
Lead	A	27.298	31.379	5000	5014	ug/L	0	10	
Molybdenum	A	23.175	23.665	5000	5149	ug/L	3	10	
Nickel	A	62.083	68.145	5000	4958	ug/L	-1	10	
Selenium	A	7.2869	7.9840	5000	4960	ug/L	-1	10	
Silver	A	325.49	320.82	1000	976.0	ug/L	-2	10	
Thallium	A	5.9629	6.1251	5000	4979	ug/L	0	10	
Vanadium	A	161.56	176.48	5000	5057	ug/L	1	10	
Zinc	A	45.099	46.497	5000	5176	ug/L	4	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4934800	4611036	-6.56

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 217511 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 90006270038 File : met09_sn_6010a Time : 04-JAN-2010 12:05
Cal : 90006270001 Caldate : 04-JAN-2010

Analyte	Ch	Quant	IQL	2X MDL	Units	Flags
Antimony	A	ND	10.00	5.859	ug/L	
Arsenic	A	ND	5.000	3.155	ug/L	
Barium	A	ND	5.000	2.438	ug/L	
Beryllium	A	ND	2.000	0.8151	ug/L	
Cadmium	A	ND	5.000	2.619	ug/L	
Chromium	A	ND	5.000	2.618	ug/L	
Cobalt	A	ND	5.000	2.129	ug/L	
Copper	A	ND	5.000	2.750	ug/L	
Lead	A	ND	3.000	2.000	ug/L	
Molybdenum	A	ND	5.000	2.591	ug/L	
Nickel	A	ND	5.000	2.552	ug/L	
Selenium	A	ND	10.00	5.935	ug/L	
Silver	A	ND	5.000	2.000	ug/L	
Thallium	A	ND	10.00	5.472	ug/L	
Vanadium	A	ND	5.000	2.000	ug/L	
Zinc	A	ND	20.00	12.29	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4934800	4829133	-2.14

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 217511 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 90006270049 File : met09_sn_6010a Time : 04-JAN-2010 12:59
Cal : 90006270001 Caldate : 04-JAN-2010
Standards: S13455

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	10.681	11.717	5000	5314	ug/L	6	10	
Arsenic	A	5.5589	5.7729	5000	5032	ug/L	1	10	
Barium	A	64.642	68.580	5000	5261	ug/L	5	10	
Beryllium	A	3319.2	3697.6	500.0	547.1	ug/L	9	10	
Cadmium	A	112.66	128.02	5000	5641	ug/L	**13**	10	c+ ***
Chromium	A	137.53	151.74	5000	5120	ug/L	2	10	
Cobalt	A	40.582	41.769	5000	5046	ug/L	1	10	
Copper	A	137.22	151.77	5000	4814	ug/L	-4	10	
Lead	A	27.298	32.159	5000	5139	ug/L	3	10	
Molybdenum	A	23.175	24.212	5000	5268	ug/L	5	10	
Nickel	A	62.083	70.530	5000	5131	ug/L	3	10	
Selenium	A	7.2869	8.2079	5000	5099	ug/L	2	10	
Silver	A	325.49	332.54	1000	1012	ug/L	1	10	
Thallium	A	5.9629	6.2678	5000	5095	ug/L	2	10	
Vanadium	A	161.56	182.24	5000	5222	ug/L	4	10	
Zinc	A	45.099	48.123	5000	5357	ug/L	7	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4934800	4458776	-9.65

+=high bias c=CCV

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 217511 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 90006270052 File : met09_sn_6010a Time : 04-JAN-2010 13:10
Cal : 90006270001 Caldate : 04-JAN-2010

Analyte	Ch	Quant	IQL	2X MDL	Units	Flags
Antimony	A	ND	10.00	5.859	ug/L	
Arsenic	A	ND	5.000	3.155	ug/L	
Barium	A	ND	5.000	2.438	ug/L	
Beryllium	A	ND	2.000	0.8151	ug/L	
Cadmium	A	ND	5.000	2.619	ug/L	
Chromium	A	ND	5.000	2.618	ug/L	
Cobalt	A	ND	5.000	2.129	ug/L	
Copper	A	ND	5.000	2.750	ug/L	
Lead	A	ND	3.000	2.000	ug/L	
Molybdenum	A	[2.737]	5.000	2.591	ug/L	!ib
Nickel	A	ND	5.000	2.552	ug/L	
Selenium	A	ND	10.00	5.935	ug/L	
Silver	A	ND	5.000	2.000	ug/L	
Thallium	A	ND	10.00	5.472	ug/L	
Vanadium	A	ND	5.000	2.000	ug/L	
Zinc	A	ND	20.00	12.29	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4934800	4809445	-2.54

!=warning ib=instrument blank

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 217511 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 90006270056.1 File : met09_sn_6010a Time : 04-JAN-2010 13:37
Cal : 90006270001 Caldate : 04-JAN-2010
Standards: S13227

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	593.0	ug/L	19	20	
Arsenic	A	500.0	586.6	ug/L	17	20	
Barium	A	500.0	577.5	ug/L	16	20	
Beryllium	A	500.0	608.2	ug/L	**22**	20	ab+ ***
Cadmium	A	1000	1171	ug/L	17	20	
Chromium	A	500.0	565.4	ug/L	13	20	
Cobalt	A	500.0	496.2	ug/L	-1	20	
Copper	A	500.0	574.7	ug/L	15	20	
Lead	A	1000	1053	ug/L	5	20	
Molybdenum	A	500.0	584.2	ug/L	17	20	
Nickel	A	1000	999.0	ug/L	0	20	
Selenium	A	500.0	579.8	ug/L	16	20	
Silver	A	1000	1213	ug/L	**21**	20	ab+ ***
Thallium	A	500.0	521.9	ug/L	4	20	
Vanadium	A	500.0	597.3	ug/L	19	20	
Zinc	A	1000	1099	ug/L	10	20	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4934800	4068274	-17.56

+=high bias ab=ICSAB

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 217511 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 90006270059 File : met09_sn_6010a Time : 04-JAN-2010 13:46
Cal : 90006270001 Caldate : 04-JAN-2010
Standards: S13455

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	10.681	11.295	5000	5123	ug/L	2	10	
Arsenic	A	5.5589	5.8620	5000	5110	ug/L	2	10	
Barium	A	64.642	65.411	5000	5018	ug/L	0	10	
Beryllium	A	3319.2	3562.1	500.0	527.1	ug/L	5	10	
Cadmium	A	112.66	120.04	5000	5289	ug/L	6	10	
Chromium	A	137.53	145.84	5000	4921	ug/L	-2	10	
Cobalt	A	40.582	40.421	5000	4883	ug/L	-2	10	
Copper	A	137.22	147.48	5000	4678	ug/L	-6	10	
Lead	A	27.298	31.403	5000	5018	ug/L	0	10	
Molybdenum	A	23.175	23.928	5000	5206	ug/L	4	10	
Nickel	A	62.083	67.712	5000	4926	ug/L	-1	10	
Selenium	A	7.2869	8.3464	5000	5185	ug/L	4	10	
Silver	A	325.49	315.80	1000	960.8	ug/L	-4	10	
Thallium	A	5.9629	6.1636	5000	5010	ug/L	0	10	
Vanadium	A	161.56	174.32	5000	4995	ug/L	0	10	
Zinc	A	45.099	46.330	5000	5157	ug/L	3	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4934800	4946025	0.23

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 217511 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 90006270060 File : met09_sn_6010a Time : 04-JAN-2010 14:01
Cal : 90006270001 Caldate : 04-JAN-2010

Analyte	Ch	Quant	IQL	2X MDL	Units	Flags
Antimony	A	ND	10.00	5.859	ug/L	
Arsenic	A	[3.568]	5.000	3.155	ug/L	!ib
Barium	A	ND	5.000	2.438	ug/L	
Beryllium	A	ND	2.000	0.8151	ug/L	
Cadmium	A	ND	5.000	2.619	ug/L	
Chromium	A	ND	5.000	2.618	ug/L	
Cobalt	A	ND	5.000	2.129	ug/L	
Copper	A	ND	5.000	2.750	ug/L	
Lead	A	ND	3.000	2.000	ug/L	
Molybdenum	A	ND	5.000	2.591	ug/L	
Nickel	A	ND	5.000	2.552	ug/L	
Selenium	A	ND	10.00	5.935	ug/L	
Silver	A	[2.580]	5.000	2.000	ug/L	!ib
Thallium	A	ND	10.00	5.472	ug/L	
Vanadium	A	ND	5.000	2.000	ug/L	
Zinc	A	ND	20.00	12.29	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	4934800	4697625	-4.81

!=warning ib=instrument blank

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 80006275

Instrument : MET08 Begun : 01/04/10 08:35
Method : EPA 6010B SOP Version : icp metals_rv9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met08_sn_6010	ICALBLK				01/04/10 08:35	1.0		
002	met08_sn_6010	ICAL	CRIM08			01/04/10 08:40	1.0	1	
003	met08_sn_6010	ICAL	CS100			01/04/10 08:45	1.0	2	
004	met08_sn_6010	ICAL	CS1K			01/04/10 08:49	1.0	3	
005	met08_sn_6010	ICAL	CS10K			01/04/10 08:55	1.0	4	
006	met08_sn_6010	ICAL	CS100K			01/04/10 09:01	1.0	5	
007	met08_sn_6010	ICV				01/04/10 09:07	1.0	6	
008	met08_sn_6010	ICB				01/04/10 09:12	1.0		
009	met08_sn_6010	ICSA				01/04/10 09:18	1.0	7	10:AL=490000
010	met08_sn_6010	ICSAB				01/04/10 09:46	1.0	8	5:AL=480000
011	met08_sn_6010	BLANK	QC527775	Oil	158789	01/04/10 09:52	1.0		
012	met08_sn_6010	BS	QC527776	Oil	158789	01/04/10 09:58	1.0		
013	met08_sn_6010	BSD	QC527777	Oil	158789	01/04/10 10:02	1.0		
014	met08_sn_6010	MSS	217530-001	Oil	158789	01/04/10 10:07	1.0		
015	met08_sn_6010	MS	QC527778	Oil	158789	01/04/10 10:12	1.0		
016	met08_sn_6010	MSD	QC527779	Oil	158789	01/04/10 10:17	1.0		
017	met08_sn_6010	ICSAB				01/04/10 10:22	1.0	8	5:AL=500000
018	met08_sn_6010	X	RINSE			01/04/10 10:28	1.0		
019	met08_sn_6010	BLANK	QC527847	TCLP Leachate	158810	01/04/10 10:34	10.0		1:NA=150000
020	met08_sn_6010	CCV				01/04/10 10:40	1.0	9	
021	met08_sn_6010	CCB				01/04/10 10:47	1.0		
022	met08_sn_6010	BS	QC527848	TCLP Leachate	158810	01/04/10 10:52	1.0		
023	met08_sn_6010	BSD	QC527849	TCLP Leachate	158810	01/04/10 10:57	1.0		
024	met08_sn_6010	MSS	217423-001	TCLP Leachate	158810	01/04/10 11:02	10.0		1:NA=140000
025	met08_sn_6010	MS	QC527850	TCLP Leachate	158810	01/04/10 11:08	10.0		
026	met08_sn_6010	MSS	217423-001	TCLP Leachate	158810	01/04/10 11:13	10.0		1:NA=140000
027	met08_sn_6010	MSD	QC527851	TCLP Leachate	158810	01/04/10 11:19	10.0		
028	met08_sn_6010	SER	QC527852	TCLP Leachate	158810	01/04/10 11:26	50.0		
029	met08_sn_6010	PDS	QC527853	TCLP Leachate	158810	01/04/10 11:32	10.0	10 11	
030	met08_sn_6010	SAMPLE	217447-003	TCLP Leachate	158810	01/04/10 11:38	10.0		1:NA=150000
031	met08_sn_6010	ICSAB				01/04/10 11:44	1.0	8	5:AL=480000
032	met08_sn_6010	X				01/04/10 11:51	1.0	9	
033	met08_sn_6010	CCV				01/04/10 11:53	1.0	9	
034	met08_sn_6010	CCB				01/04/10 11:59	1.0		
035	met08_sn_6010	X	RINSE			01/04/10 12:05	1.0		
036	met08_sn_6010	SAMPLE	217423-002	TCLP Leachate	158810	01/04/10 12:11	10.0		1:NA=130000
037	met08_sn_6010	SAMPLE	217423-003	TCLP Leachate	158810	01/04/10 12:17	10.0		1:NA=120000
038	met08_sn_6010	SAMPLE	217423-004	TCLP Leachate	158810	01/04/10 12:23	10.0		1:NA=120000
039	met08_sn_6010	SAMPLE	217423-005	TCLP Leachate	158810	01/04/10 12:29	10.0		1:NA=130000
040	met08_sn_6010	SAMPLE	217483-001	TCLP Leachate	158810	01/04/10 12:35	10.0		2:NA=180000
041	met08_sn_6010	SAMPLE	217483-002	TCLP Leachate	158810	01/04/10 12:41	10.0		1:NA=140000
042	met08_sn_6010	SAMPLE	217483-003	TCLP Leachate	158810	01/04/10 12:46	10.0		1:NA=160000
043	met08_sn_6010	SAMPLE	217483-004	TCLP Leachate	158810	01/04/10 12:52	10.0		1:NA=140000
044	met08_sn_6010	SAMPLE	217483-005	TCLP Leachate	158810	01/04/10 13:00	10.0		2:NA=150000
045	met08_sn_6010	CCV				01/04/10 13:08	1.0	9	
046	met08_sn_6010	X				01/04/10 13:09	1.0	9	
047	met08_sn_6010	CCB				01/04/10 13:15	1.0		
048	met08_sn_6010	SAMPLE	217483-005	TCLP Leachate	158810	01/04/10 13:19	100.0		
049	met08_sn_6010	SAMPLE	217483-006	TCLP Leachate	158810	01/04/10 13:23	10.0		1:NA=180000
050	met08_sn_6010	SAMPLE	217485-001	TCLP Leachate	158810	01/04/10 13:29	10.0		1:NA=150000
051	met08_sn_6010	SAMPLE	217506-001	TCLP Leachate	158810	01/04/10 13:35	10.0		1:NA=160000
052	met08_sn_6010	ICSAB				01/04/10 13:41	1.0	8	5:AL=510000

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 80006275

Instrument : MET08 Begun : 01/04/10 08:35
Method : EPA 6010B SOP Version : icp metals_rv9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met08_sn_6010	X	RINSE			01/04/10 13:47	1.0		
054	met08_sn_6010	BLANK	QC527822	TCLP Leachate	158802	01/04/10 13:53	10.0		1:NA=160000
055	met08_sn_6010	BS	QC527823	TCLP Leachate	158802	01/04/10 13:59	1.0		
056	met08_sn_6010	BSD	QC527824	TCLP Leachate	158802	01/04/10 14:04	1.0		
057	met08_sn_6010	MSS	217488-001	TCLP Leachate	158802	01/04/10 14:09	10.0		1:NA=160000
058	met08_sn_6010	CCV				01/04/10 14:15	1.0	9	
059	met08_sn_6010	CCB				01/04/10 14:21	1.0		
060	met08_sn_6010	MS	QC527825	TCLP Leachate	158802	01/04/10 14:28	10.0		
061	met08_sn_6010	MSD	QC527826	TCLP Leachate	158802	01/04/10 14:34	10.0		
062	met08_sn_6010	SER	QC527827	TCLP Leachate	158802	01/04/10 14:40	50.0		
063	met08_sn_6010	PDS	QC527828	TCLP Leachate	158802	01/04/10 14:44	10.0	10 11	
064	met08_sn_6010	SAMPLE	217488-002	TCLP Leachate	158802	01/04/10 14:50	10.0		1:NA=160000
065	met08_sn_6010	SAMPLE	217488-003	TCLP Leachate	158802	01/04/10 14:56	10.0		1:NA=150000
066	met08_sn_6010	SAMPLE	217488-006	TCLP Leachate	158802	01/04/10 15:02	10.0		1:NA=160000
067	met08_sn_6010	SAMPLE	217488-007	TCLP Leachate	158802	01/04/10 15:09	10.0		1:NA=150000
068	met08_sn_6010	SAMPLE	217488-008	TCLP Leachate	158802	01/04/10 15:15	10.0		1:NA=160000
069	met08_sn_6010	SAMPLE	217488-010	TCLP Leachate	158802	01/04/10 15:22	10.0		1:NA=170000
070	met08_sn_6010	CCV				01/04/10 15:28	1.0	9	
071	met08_sn_6010	CCB				01/04/10 15:35	1.0		
072	met08_sn_6010	SAMPLE	217488-012	TCLP Leachate	158802	01/04/10 15:41	10.0		1:NA=160000
073	met08_sn_6010	SAMPLE	217488-013	TCLP Leachate	158802	01/04/10 15:47	10.0		1:NA=160000
074	met08_sn_6010	SAMPLE	217488-015	TCLP Leachate	158802	01/04/10 15:53	10.0		1:NA=170000
075	met08_sn_6010	SAMPLE	217488-016	TCLP Leachate	158802	01/04/10 15:59	10.0		1:NA=170000
076	met08_sn_6010	SAMPLE	217488-017	TCLP Leachate	158802	01/04/10 16:05	10.0		1:NA=160000
077	met08_sn_6010	SAMPLE	217488-018	TCLP Leachate	158802	01/04/10 16:11	10.0		1:NA=160000
078	met08_sn_6010	SAMPLE	217488-021	TCLP Leachate	158802	01/04/10 16:17	10.0		1:NA=150000
079	met08_sn_6010	SAMPLE	217488-023	TCLP Leachate	158802	01/04/10 16:23	10.0		1:NA=160000
080	met08_sn_6010	SAMPLE	217488-028	TCLP Leachate	158802	01/04/10 16:29	10.0		1:NA=140000
081	met08_sn_6010	ICSAB				01/04/10 16:34	1.0	8	5:AL=450000
082	met08_sn_6010	X				01/04/10 16:40	1.0	9	
083	met08_sn_6010	CCV				01/04/10 16:42	1.0	9	
084	met08_sn_6010	CCB				01/04/10 16:48	1.0		
085	met08_sn_6010	X	RINSE			01/04/10 16:53	1.0		
086	met08_sn_6010	BS	QC527771	Filtrate	158788	01/04/10 16:59	1.0		
087	met08_sn_6010	BSD	QC527772	Filtrate	158788	01/04/10 17:05	1.0		
088	met08_sn_6010	MSS	217405-001	Filtrate	158788	01/04/10 17:10	1.0		
089	met08_sn_6010	MS	QC527773	Filtrate	158788	01/04/10 17:15	1.0		
090	met08_sn_6010	MSD	QC527774	Filtrate	158788	01/04/10 17:20	1.0		
091	met08_sn_6010	SAMPLE	217488-003	TCLP Leachate	158802	01/04/10 17:25	10.0		1:NA=140000
092	met08_sn_6010	SAMPLE	217488-008	TCLP Leachate	158802	01/04/10 17:30	10.0		1:NA=150000
093	met08_sn_6010	ICSAB				01/04/10 17:36	1.0	8	5:AL=470000
094	met08_sn_6010	X				01/04/10 17:42	1.0	9	
095	met08_sn_6010	CCV				01/04/10 17:44	1.0	9	
096	met08_sn_6010	CCB				01/04/10 17:50	1.0		

AH 01/05/10 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 96.

Standards used: 1=S13138 2=S13393 3=S13392 4=S13417 5=S13418 6=S13454 7=S13419 8=S13227 9=S13455 10=S12182 11=S12183

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 80006275

Date : 01/04/10 Reference : met08_sn_6010
Sequence : MET08 01/04/10 Analyzed : 01/04/10 08:40

#	Type	Sample ID	Y A
		ICAL STD	1645919
		LOWER LIMIT	493776
		UPPER LIMIT	3291837
008	ICB		1717934
009	ICSA		1511712
010	ICSAB		1579154
011	BLANK	QC527775	1791310
012	BS	QC527776	1705678
013	BSD	QC527777	1689479
014	MSS	217530-001	1732260
015	MS	QC527778	1667432
016	MSD	QC527779	1693838
017	ICSAB		1533238
019	BLANK	QC527847	1508944
020	CCV		1703845
021	CCB		1774780
022	BS	QC527848	1753911
023	BSD	QC527849	1788472
024	MSS	217423-001	1701423
025	MS	QC527850	1733033
026	MSS	217423-001	1908954
027	MSD	QC527851	1751352
028	SER	QC527852	1697655
029	PDS	QC527853	1682393
030	SAMPLE	217447-003	1756965
031	ICSAB		1583967
033	CCV		1679546
034	CCB		1773667
036	SAMPLE	217423-002	1756175
037	SAMPLE	217423-003	1737365
038	SAMPLE	217423-004	1732080
039	SAMPLE	217423-005	1730837
040	SAMPLE	217483-001	1795530
041	SAMPLE	217483-002	1775509
042	SAMPLE	217483-003	1775556
043	SAMPLE	217483-004	1738486
044	SAMPLE	217483-005	1707509
045	CCV		1744188
047	CCB		1642945
048	SAMPLE	217483-005	1744848
049	SAMPLE	217483-006	1752850
050	SAMPLE	217485-001	1712370
051	SAMPLE	217506-001	1729832
052	ICSAB		1601703
054	BLANK	QC527822	1798405
055	BS	QC527823	1778811
056	BSD	QC527824	1737781
057	MSS	217488-001	1758859
058	CCV		1733210
059	CCB		1705844
060	MS	QC527825	1719884

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 80006275

Date : 01/04/10 Reference : met08_sn_6010
Sequence : MET08 01/04/10 Analyzed : 01/04/10 08:40

#	Type	Sample ID	Y A
061	MSD	QC527826	1727249
062	SER	QC527827	1752660
063	PDS	QC527828	1756607
064	SAMPLE	217488-002	1708223
065	SAMPLE	217488-003	1742310
066	SAMPLE	217488-006	1732514
067	SAMPLE	217488-007	1728360
068	SAMPLE	217488-008	1736158
069	SAMPLE	217488-010	1740788
070	CCV		1727594
071	CCB		1803990
072	SAMPLE	217488-012	1726461
073	SAMPLE	217488-013	1784845
074	SAMPLE	217488-015	1756805
075	SAMPLE	217488-016	1759186
076	SAMPLE	217488-017	1728252
077	SAMPLE	217488-018	1721924
078	SAMPLE	217488-021	1757877
079	SAMPLE	217488-023	1787818
080	SAMPLE	217488-028	1746622
081	ICSAB		1709843
083	CCV		1799662
084	CCB		1853519
086	BS	QC527771	1833012
087	BSD	QC527772	1839338
088	MSS	217405-001	1863144
089	MS	QC527773	1900990
090	MSD	QC527774	1907987
091	SAMPLE	217488-003	2040443
092	SAMPLE	217488-008	3185230
093	ICSAB		1680758
095	CCV		1795628
096	CCB		1850942

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 217511 METALS Filtrate: EPA 6010B

Inst : MET08 Reviewer : ---
Calnum : 80006275001 Date : 04-JAN-2010 08:35
Units : ug/L X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met08_sn_6010	80006275002	CRIM08	04-JAN-2010 08:40	S13138
L2	met08_sn_6010	80006275003	CS100	04-JAN-2010 08:45	S13393
L3	met08_sn_6010	80006275004	CS1K	04-JAN-2010 08:49	S13392
L4	met08_sn_6010	80006275005	CS10K	04-JAN-2010 08:55	S13417
L5	met08_sn_6010	80006275006	CS100K	04-JAN-2010 09:01	S13418

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Antimony	A	22.420	25.524	25.377	26.447		LOR0	0.00000	0.03783		24.942	1.000	0.995	
Arsenic	A	11.100	14.822	14.361	15.054		LOR0	0.00000	0.06646		13.834	1.000	0.995	
Barium	A	237.56	225.83	224.77	226.41		LOR0	0.00000	0.00442		228.64	1.000	0.995	
Beryllium	A	2359.6	2347.3	2355.1			LOR0	0.00000	4.25E-4		2354.0	1.000	0.995	
Cadmium	A	158.28	157.82	158.76	161.37		LOR0	0.00000	0.00620		159.06	1.000	0.995	
Chromium	A	45.280	42.334	42.069	42.983		LOR0	0.00000	0.02327		43.167	1.000	0.995	
Cobalt	A	59.880	60.933	60.807	62.409		LOR0	0.00000	0.01603		61.007	1.000	0.995	
Copper	A	246.70	218.99	215.14	219.46		LOR0	0.00000	0.00456		225.07	1.000	0.995	
Lead	A	66.100	39.794	39.152	40.300		LOR0	0.00000	0.02482		46.337	1.000	0.995	
Molybdenum	A	16.440	19.213	19.232	19.770		LOR0	0.00000	0.05060		18.664	1.000	0.995	
Nickel	A	20.560	22.837	23.091	23.670		LOR0	0.00000	0.04226		22.539	1.000	0.995	
Selenium	A	26.350	25.415	24.900	26.384		LOR0	0.00000	0.03792		25.762	1.000	0.995	
Silver	A	499.34	447.02	448.09	459.09		LOR0	0.00000	0.00219		463.38	1.000	0.995	
Thallium	A	13.410	15.168	15.154	15.318		LOR0	0.00000	0.06529		14.763	1.000	0.995	
Vanadium	A	63.420	62.659	63.737	65.925		LOR0	0.00000	0.01517		63.935	1.000	0.995	
Zinc	A	67.850	56.401	55.480	57.162		LOR0	0.00000	0.01750		59.223	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Antimony	A	10.00	-15	100.0	-3	1000	-4	10000	0		
Arsenic	A	5.000	**-26**	100.0	-1	1000	-5	10000	0		
Barium	A	5.000	5	100.0	0	1000	-1	10000	0		
Beryllium	A	2.000	0	100.0	0	1000	0				
Cadmium	A	5.000	-2	100.0	-2	1000	-2	10000	0		
Chromium	A	5.000	5	100.0	-1	1000	-2	10000	0		
Cobalt	A	5.000	-4	100.0	-2	1000	-3	10000	0		
Copper	A	5.000	12	100.0	0	1000	-2	10000	0		
Lead	A	3.000	**64**	100.0	-1	1000	-3	10000	0		
Molybdenum	A	5.000	-17	100.0	-3	1000	-3	10000	0		
Nickel	A	5.000	-13	100.0	-3	1000	-2	10000	0		
Selenium	A	10.00	0	100.0	-4	1000	-6	10000	0		
Silver	A	5.000	9	100.0	-2	1000	-2	2000	0		
Thallium	A	10.00	-12	100.0	-1	1000	-1	10000	0		
Vanadium	A	5.000	-4	100.0	-5	1000	-3	10000	0		
Zinc	A	20.00	19	100.0	-1	1000	-3	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 217511 METALS Filtrate
EPA 6010B

Inst : MET08
Calnum : 80006275001 Cal Date : 04-JAN-2010

ICV 80006275007 (04-JAN-2010) stds: S13454

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	5000	5170	ug/L	3	10	
Arsenic	A	5000	5152	ug/L	3	10	
Barium	A	5000	5217	ug/L	4	10	
Beryllium	A	500.0	542.9	ug/L	9	10	
Cadmium	A	5000	5207	ug/L	4	10	
Chromium	A	5000	5107	ug/L	2	10	
Cobalt	A	5000	5124	ug/L	2	10	
Copper	A	5000	5088	ug/L	2	10	
Lead	A	5000	5045	ug/L	1	10	
Molybdenum	A	5000	5269	ug/L	5	10	
Nickel	A	5000	5069	ug/L	1	10	
Selenium	A	5000	5214	ug/L	4	10	
Silver	A	1000	1015	ug/L	2	10	
Thallium	A	5000	5171	ug/L	3	10	
Vanadium	A	5000	5167	ug/L	3	10	
Zinc	A	5000	5176	ug/L	4	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 217511 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 80006275008.1 File : met08_sn_6010 Time : 04-JAN-2010 09:12
Cal : 80006275001 Caldate : 04-JAN-2010

Analyte	Ch	Quant	IQL	2X MDL	Units	Flags
Antimony	A	ND	10.00	6.580	ug/L	
Arsenic	A	ND	5.000	3.200	ug/L	
Barium	A	ND	5.000	2.669	ug/L	
Beryllium	A	ND	2.000	0.8000	ug/L	
Cadmium	A	ND	5.000	2.822	ug/L	
Chromium	A	ND	5.000	3.200	ug/L	
Cobalt	A	ND	5.000	2.000	ug/L	
Copper	A	ND	5.000	2.514	ug/L	
Lead	A	ND	3.000	2.054	ug/L	
Molybdenum	A	ND	5.000	2.550	ug/L	
Nickel	A	ND	5.000	2.062	ug/L	
Selenium	A	ND	10.00	5.003	ug/L	
Silver	A	ND	5.000	2.000	ug/L	
Thallium	A	ND	10.00	5.231	ug/L	
Vanadium	A	ND	5.000	2.000	ug/L	
Zinc	A	ND	20.00	12.73	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	1645919	1717934	4.38

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 217511 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 80006275009.1 File : met08_sn_6010 Time : 04-JAN-2010 09:18
Cal : 80006275001 Caldate : 04-JAN-2010
Standards: S13419

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	[-6.310]	10.00	ug/L	
Arsenic	A	[-3.911]	5.000	ug/L	!a-
Barium	A	[2.425]	5.000	ug/L	
Beryllium	A	[0.4134]	2.000	ug/L	
Cadmium	A	[2.193]	5.000	ug/L	
Cobalt	A	[-0.5400]	5.000	ug/L	
Lead	A	[-0.03562]	3.000	ug/L	
Molybdenum	A	[-1.805]	5.000	ug/L	
Selenium	A	[-2.372]	10.00	ug/L	
Silver	A	[4.098]	5.000	ug/L	!a+
Thallium	A	[2.738]	10.00	ug/L	
Zinc	A	[13.28]	20.00	ug/L	!a+

Interferent	Ch	Spiked	Quant	Units	%Rec
Chromium	A	20000	19480	ug/L	97
Copper	A	20000	19960	ug/L	100
Manganese	A	20000	18840	ug/L	94
Nickel	A	20000	18670	ug/L	93
Vanadium	A	20000	19980	ug/L	100
Aluminum	R	500000	485400	ug/L	97
Calcium	R	500000	464500	ug/L	93
Iron	R	200000	185300	ug/L	93
Magnesium	R	500000	472200	ug/L	94
Titanium	R	20000	21870	ug/L	109

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	1645919	1511712	-8.15

!=warning +=high bias -=low bias a=ICSA

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 217511 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 80006275081 File : met08_sn_6010 Time : 04-JAN-2010 16:34
Cal : 80006275001 Caldate : 04-JAN-2010
Standards: S13227

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	463.2	ug/L	-7	20	
Arsenic	A	500.0	483.9	ug/L	-3	20	
Barium	A	500.0	479.3	ug/L	-4	20	
Beryllium	A	500.0	497.4	ug/L	-1	20	
Cadmium	A	1000	941.9	ug/L	-6	20	
Chromium	A	500.0	465.1	ug/L	-7	20	
Cobalt	A	500.0	443.1	ug/L	-11	20	
Copper	A	500.0	444.0	ug/L	-11	20	
Lead	A	1000	910.0	ug/L	-9	20	
Molybdenum	A	500.0	471.4	ug/L	-6	20	
Nickel	A	1000	888.3	ug/L	-11	20	
Selenium	A	500.0	457.4	ug/L	-9	20	
Silver	A	1000	1004	ug/L	0	20	
Thallium	A	500.0	437.5	ug/L	-13	20	
Vanadium	A	500.0	491.3	ug/L	-2	20	
Zinc	A	1000	921.6	ug/L	-8	20	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	1645919	1709843	3.88

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 217511 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 80006275083 File : met08_sn_6010 Time : 04-JAN-2010 16:42
Cal : 80006275001 Caldate : 04-JAN-2010
Standards: S13455

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	24.942	26.031	5000	4923	ug/L	-2	10	
Arsenic	A	13.834	14.917	5000	4957	ug/L	-1	10	
Barium	A	228.64	220.95	5000	4880	ug/L	-2	10	
Beryllium	A	2354.0	2395.6	500.0	508.6	ug/L	2	10	
Cadmium	A	159.06	159.95	5000	4957	ug/L	-1	10	
Chromium	A	43.167	41.161	5000	4789	ug/L	-4	10	
Cobalt	A	61.007	60.576	5000	4844	ug/L	-3	10	
Copper	A	225.07	204.53	5000	4661	ug/L	-7	10	
Lead	A	46.337	38.971	5000	4837	ug/L	-3	10	
Molybdenum	A	18.664	19.739	5000	4993	ug/L	0	10	
Nickel	A	22.539	22.914	5000	4841	ug/L	-3	10	
Selenium	A	25.762	26.320	5000	4991	ug/L	0	10	
Silver	A	463.38	436.67	1000	955.8	ug/L	-4	10	
Thallium	A	14.763	14.944	5000	4878	ug/L	-2	10	
Vanadium	A	63.935	64.012	5000	4856	ug/L	-3	10	
Zinc	A	59.223	56.561	5000	4949	ug/L	-1	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	1645919	1799662	9.34

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 217511 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 80006275084 File : met08_sn_6010 Time : 04-JAN-2010 16:48
Cal : 80006275001 Caldate : 04-JAN-2010

Analyte	Ch	Quant	IQL	2X MDL	Units	Flags
Antimony	A	ND	10.00	6.580	ug/L	
Arsenic	A	ND	5.000	3.200	ug/L	
Barium	A	ND	5.000	2.669	ug/L	
Beryllium	A	ND	2.000	0.8000	ug/L	
Cadmium	A	ND	5.000	2.822	ug/L	
Chromium	A	ND	5.000	3.200	ug/L	
Cobalt	A	ND	5.000	2.000	ug/L	
Copper	A	ND	5.000	2.514	ug/L	
Lead	A	ND	3.000	2.054	ug/L	
Molybdenum	A	ND	5.000	2.550	ug/L	
Nickel	A	ND	5.000	2.062	ug/L	
Selenium	A	ND	10.00	5.003	ug/L	
Silver	A	ND	5.000	2.000	ug/L	
Thallium	A	ND	10.00	5.231	ug/L	
Vanadium	A	ND	5.000	2.000	ug/L	
Zinc	A	ND	20.00	12.73	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	1645919	1853519	12.61

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 217511 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 80006275093 File : met08_sn_6010 Time : 04-JAN-2010 17:36
Cal : 80006275001 Caldate : 04-JAN-2010
Standards: S13227

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	475.6	ug/L	-5	20	
Arsenic	A	500.0	473.3	ug/L	-5	20	
Barium	A	500.0	477.8	ug/L	-4	20	
Beryllium	A	500.0	497.1	ug/L	-1	20	
Cadmium	A	1000	933.4	ug/L	-7	20	
Chromium	A	500.0	466.9	ug/L	-7	20	
Cobalt	A	500.0	442.1	ug/L	-12	20	
Copper	A	500.0	443.4	ug/L	-11	20	
Lead	A	1000	900.8	ug/L	-10	20	
Molybdenum	A	500.0	474.1	ug/L	-5	20	
Nickel	A	1000	891.4	ug/L	-11	20	
Selenium	A	500.0	479.8	ug/L	-4	20	
Silver	A	1000	1007	ug/L	1	20	
Thallium	A	500.0	426.8	ug/L	-15	20	
Vanadium	A	500.0	493.3	ug/L	-1	20	
Zinc	A	1000	907.4	ug/L	-9	20	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	1645919	1680758	2.12

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 217511 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 80006275095 File : met08_sn_6010 Time : 04-JAN-2010 17:44
Cal : 80006275001 Caldate : 04-JAN-2010
Standards: S13455

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	24.942	24.992	5000	4727	ug/L	-5	10	
Arsenic	A	13.834	14.197	5000	4717	ug/L	-6	10	
Barium	A	228.64	215.73	5000	4765	ug/L	-5	10	
Beryllium	A	2354.0	2344.1	500.0	497.7	ug/L	0	10	
Cadmium	A	159.06	155.16	5000	4808	ug/L	-4	10	
Chromium	A	43.167	40.211	5000	4678	ug/L	-6	10	
Cobalt	A	61.007	59.130	5000	4728	ug/L	-5	10	
Copper	A	225.07	200.08	5000	4559	ug/L	-9	10	
Lead	A	46.337	37.175	5000	4614	ug/L	-8	10	
Molybdenum	A	18.664	18.971	5000	4799	ug/L	-4	10	
Nickel	A	22.539	22.332	5000	4718	ug/L	-6	10	
Selenium	A	25.762	24.768	5000	4696	ug/L	-6	10	
Silver	A	463.38	425.16	1000	930.6	ug/L	-7	10	
Thallium	A	14.763	14.234	5000	4647	ug/L	-7	10	
Vanadium	A	63.935	63.004	5000	4780	ug/L	-4	10	
Zinc	A	59.223	54.672	5000	4784	ug/L	-4	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	1645919	1795628	9.10

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 217511 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 80006275096 File : met08_sn_6010 Time : 04-JAN-2010 17:50
Cal : 80006275001 Caldate : 04-JAN-2010

Analyte	Ch	Quant	IQL	2X MDL	Units	Flags
Antimony	A	ND	10.00	6.580	ug/L	
Arsenic	A	ND	5.000	3.200	ug/L	
Barium	A	ND	5.000	2.669	ug/L	
Beryllium	A	ND	2.000	0.8000	ug/L	
Cadmium	A	ND	5.000	2.822	ug/L	
Chromium	A	ND	5.000	3.200	ug/L	
Cobalt	A	ND	5.000	2.000	ug/L	
Copper	A	ND	5.000	2.514	ug/L	
Lead	A	ND	3.000	2.054	ug/L	
Molybdenum	A	ND	5.000	2.550	ug/L	
Nickel	A	[2.090]	5.000	2.062	ug/L	!ib
Selenium	A	ND	10.00	5.003	ug/L	
Silver	A	ND	5.000	2.000	ug/L	
Thallium	A	ND	10.00	5.231	ug/L	
Vanadium	A	ND	5.000	2.000	ug/L	
Zinc	A	ND	20.00	12.73	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	1645919	1850942	12.46

!=warning ib=instrument blank

SAMPLE PREPARATION SUMMARY

Batch # : 158788
Started By : MCB
Method : METHOD
Spike #1 ID : S12746

Prep Date : 31-DEC-2009 18:40
Spike #2 ID : S12747

Analysis : ICAP
Finished By : MCB
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
217405-001		Filtrate	50	50	1	1.0						AL, CU, FE, MN, MO, NI, PB, ZN	
217405-002		Filtrate	50	50	1	1.0						AL, CU, FE, MN, MO, NI, PB, ZN	
217511-001		Filtrate	50	50	1	1.0						T22/ICP	
217529-001		Filtrate	50	50	1	1.0						PB	
QC527770	BLANK	Filtrate	50	50	1	1.0							
QC527771	BS	Filtrate	50	50	1	1.0		.5	.5				
QC527772	BSD	Filtrate	50	50	1	1.0		.5	.5				
QC527773	MS	Filtrate	50	50	1	1.0		.5	.5				
QC527774	MSD	Filtrate	50	50	1	1.0		.5	.5				

Reviewed by: AH Date: 01/04/10

Water Digestion for ICP

Curtis & Tompkins, Ltd.

LIMS Batch #: 1587786
Digested by: MCB111
Date Digested: 12/31/09

Digestion Method
- ☐ EPA 3010a for ICP
- ☐ EPA 200.7
- ☒ FILTRATE PREP

BK 2966
Page 76
Continued From:
Continued On:

Sample #	Container ID	Volume Sample (mL)	Final Volume (mL)	Filtered? (y/n)	Comments
BLANK		50	50	N	
BS		↓	↓	↓	
BSD		↓	↓	↓	
MS-405-001	F	↓	↓	↓	
MSD-405-001	↓	↓	↓	↓	
217405-001	↓	↓	↓	↓	
↓ -002	↓	↓	↓	↓	
217511-001	B	↓	↓	↓	
217529-001	↓	↓	↓	↓	

	Reagent ID or LIMS #		Initials / Date
Digestion Tube Lot #	J88314-261		
.5 mL of spike solution (Std1) was added to all spikes	S12746		MCB111 12/31/09
.5 mL of spike solution (Std2) was added to all spikes	S12747		↓
Digestion temperature (90-95 degrees C)	95°		
Digestion started at (time)	6:40PM		
☐ 1:1 HNO3, ☐ concentrated HNO3, added to all samples	H12022	JHBAKER	
1:1 HCl added to all samples	H10030	↓	
Digestion ended at (time)	N/A		
☐ filtered thru' Whatman # 541	Y		
Relinquished to ICP group	ICP		↓

Michael C Bucke 12/31/09
Prep Chemist Signature / Date

Reviewer Signature / Date

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 849526270

Instrument : MET14 Begun : 12/31/09 11:10
Method : EPA 7470A SOP Version : HG_water_rv12

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	158766	ICALBLK	STD01REP1			12/31/09 11:10	1.0		
002	158766	ICAL	STD02REP1			12/31/09 11:12	1.0	1	
003	158766	ICAL	STD03REP1			12/31/09 11:14	1.0	1	
004	158766	ICAL	STD04REP1			12/31/09 11:17	1.0	1	
005	158766	ICAL	STD05REP1			12/31/09 11:19	1.0	1	
006	158766	ICAL	STD06REP1			12/31/09 11:21	1.0	1	
007	158766	ICV				12/31/09 11:23	1.0	2	
008	158766	ICB				12/31/09 11:26	1.0		
009	158766	BLANK	QC527674	Water	158766	12/31/09 11:28	1.0		
010	158766	BS	QC527675	Water	158766	12/31/09 11:30	1.0		
011	158766	BSD	QC527676	Water	158766	12/31/09 11:32	1.0		
012	158766	MSS	217469-001	Water	158766	12/31/09 11:35	1.0		
013	158766	MS	QC527677	Water	158766	12/31/09 11:37	1.0		
014	158766	MSD	QC527678	Water	158766	12/31/09 11:39	1.0		
015	158766	SER	QC527679	Water	158766	12/31/09 11:41	5.0		
016	158766	SAMPLE	217471-001	Water	158766	12/31/09 11:43	1.0		
017	158766	SAMPLE	217496-001	Water	158766	12/31/09 11:45	1.0		
018	158766	SAMPLE	217496-002	Water	158766	12/31/09 11:47	1.0		
019	158766	CCV				12/31/09 11:50	1.0	3	
020	158766	CCB				12/31/09 11:52	1.0		
021	158766	SAMPLE	217496-003	Water	158766	12/31/09 11:54	1.0		
022	158766	SAMPLE	217496-004	Water	158766	12/31/09 11:56	1.0		
023	158766	SAMPLE	217521-002	Water	158766	12/31/09 11:58	1.0		
024	158766	SAMPLE	217526-001	Water	158766	12/31/09 12:00	1.0		
025	158766	SAMPLE	217526-002	Water	158766	12/31/09 12:03	1.0		
026	158766	SAMPLE	217526-003	Water	158766	12/31/09 12:05	1.0		
027	158766	SAMPLE	217511-001	Filtrate	158766	12/31/09 12:07	1.0		
028	158766	CCV				12/31/09 12:10	1.0	3	
029	158766	CCB				12/31/09 12:12	1.0		

WNH 12/31/09 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 29.

Standards used: 1=S13657 2=S13659 3=S13660

Page 1 of 1

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 217511 METALS Filtrate: EPA 7470A

Inst : MET14
Calnum : 849526270001
Units : ug/L

Date : 31-DEC-2009 11:10
X Axis : R

Reviewer : ---
Type : WATER

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	158766	849526270002	STD02REP1	31-DEC-2009 11:12	S13657 (500X)
L2	158766	849526270003	STD03REP1	31-DEC-2009 11:14	S13657 (200X)
L3	158766	849526270004	STD04REP1	31-DEC-2009 11:17	S13657 (50X)
L4	158766	849526270005	STD05REP1	31-DEC-2009 11:19	S13657 (20X)
L5	158766	849526270006	STD06REP1	31-DEC-2009 11:21	S13657 (10X)

Analyte	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Mercury	2945.0	2922.0	2346.5	2251.8	2216.2	LINR	-0.0991	4.55E-4		2536.3	1.000	.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Mercury	0.200	-16	0.500	13	2.000	2	5.000	0	10.00	0

Instrument amount = a0 + response * a1 + response^2 * a2; LINR=Linear regression

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 217511 METALS Filtrate
EPA 7470A

Inst : MET14
Calnum : 849526270001 Cal Date : 31-DEC-2009 Type : WATER

ICV 849526270007 (31-DEC-2009) stds: S13659

Analyte	Spiked	Quant	Units	%D	Max	Flags
Mercury	5.000	4.990	ug/L	0	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 217511 METALS Filtrate
EPA 7470A

Inst : MET14 IDF : 1.0
Seqnum : 849526270008 File : 158766 Time : 31-DEC-2009 11:26
Cal : 849526270001 Caldate : 31-DEC-2009 Caltype : WATER

Analyte	Quant	IQL	MDL	Units	Flags
Mercury	ND	0.2000	0.03335	ug/L	

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 217511 METALS Filtrate
EPA 7470A

Inst : MET14 IDF : 1.0
Seqnum : 849526270019 File : 158766 Time : 31-DEC-2009 11:50
Cal : 849526270001 Caldate : 31-DEC-2009 Caltype : WATER
Standards: S13660

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	2536.3	2196.0	5.000	4.890	ug/L	-2	20	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 217511 METALS Filtrate
EPA 7470A

Inst : MET14 IDF : 1.0
Seqnum : 849526270020 File : 158766 Time : 31-DEC-2009 11:52
Cal : 849526270001 Caldate : 31-DEC-2009 Caltype : WATER

Analyte	Quant	IQL	MDL	Units	Flags
Mercury	ND	0.2000	0.03335	ug/L	

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 217511 METALS Filtrate
EPA 7470A

Inst : MET14 IDF : 1.0
Seqnum : 849526270028 File : 158766 Time : 31-DEC-2009 12:10
Cal : 849526270001 Caldate : 31-DEC-2009 Caltype : WATER
Standards: S13660

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	2536.3	2264.6	5.000	5.050	ug/L	1	20	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 217511 METALS Filtrate
EPA 7470A

Inst : MET14 IDF : 1.0
Seqnum : 849526270029 File : 158766 Time : 31-DEC-2009 12:12
Cal : 849526270001 Caldate : 31-DEC-2009 Caltype : WATER

Analyte	Quant	IQL	MDL	Units	Flags
Mercury	ND	0.2000	0.03335	ug/L	

SAMPLE PREPARATION SUMMARY

Batch # : 158766
Started By : WNH
Method : METHOD
Spike #1 ID : S13657

Prep Date : 31-DEC-2009 08:30

Analysis : HG
Finished By : WNH
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
217469-001		Water	50	50	1	1.0						HG-200	
217471-001		Water	50	50	1	1.0						PP13/HG	
217496-001		Water	50	50	1	1.0						T22/HG	
217496-002		Water	50	50	1	1.0						T22/HG	
217496-003		Water	50	50	1	1.0						T22/HG	
217496-004		Water	50	50	1	1.0						T22/HG	
217511-001		Filtrate	50	50	1	1.0						T22/HG	
217521-002		Water	50	50	1	1.0						HG	
217526-001		Water	50	50	1	1.0						T22/HG	
217526-002		Water	50	50	1	1.0						T22/HG	
217526-003		Water	50	50	1	1.0						T22/HG	
QC527674	BLANK	Water	50	50	1	1.0							
QC527675	BS	Water	50	50	1	1.0		1.25					
QC527676	BSD	Water	50	50	1	1.0		1.25					
QC527677	MS	Water	50	50	1	1.0		1.25					
QC527678	MSD	Water	50	50	1	1.0		1.25					
QC527679	SER	Water	50	50	1	1.0							

Reviewed by: WNH Date: 12/31/09

Water Digestion for Mercury

Curtis & Tompkins, Ltd.

LIMS Batch #: 158766

Date Digested: 12/31/09

Digestion Method

☑ EPA 7470A/ EPA 245.1

☐ _____

BKk2967

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Sample #	container ID	Volume Sample (mL)	Final Volume (mL)	Filtered? (y/n)	Comments
217469-001	A	50	50	N	MSS
217471-001	A				
217496-001	D				
2					
3					
4					
217521-002	A				
217526-001	D				
2					
3					
217511-001	B				
Blank QC527674					
BS 5					
BSD 6					
MS 7	A				
MSD 8	A				

	Reagent ID/ LIMS# / Time	Initials / Date
Digestion Tube Lot #	EK09271	12/31/09
1.25 mL of spike solution was added to all spikes	S13657	
ICAL Source LIMS S#	S13658	
ICV / CCV LIMS S#	S13659 / S13660	
Digestion of Samples & Standards: Digestion Temperature (degrees C)	95	
Digestion Started at (time)	0830	
concentrated H_2SO_4	G35026	
concentrated HNO_3	H120222	
5% $KMnO_4$	121109	
5% $K_2S_2O_8$	111109	
NaCl.hydroxylamine hydrochloride	111109	
Stannous Chloride	122309	
Digestion Completed at (time)	1030	
☐ filtered thru' 0.45 um syringe filter (lot #)	—	—

12/31/09

Prep Chemist / Date

Continued from page ___

Continued on page ___

12/31/09

Reviewed by / Date

Laboratory Job Number 217511

ANALYTICAL REPORT

Wet Chemistry

Matrix: Water

Curtis & Tompkins, Ltd.

Total Dissolved Solids (TDS)

Lab #:	217511	Location:	Doyle Drive
Client:	Baseline Environmental	Prep:	METHOD
Project#:	Y0239-04.A6	Analysis:	SM2540C
Analyte:	Total Dissolved Solids	Batch#:	158825
Field ID:	CDSM-MW-1	Sampled:	12/30/09
Matrix:	Water	Received:	12/30/09
Units:	mg/L	Prepared:	01/04/10
Diln Fac:	1.000	Analyzed:	01/05/10

Type	Lab ID	Result	RL
SAMPLE	217511-001	1,020	10
BLANK	QC527903	ND	10

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Total Dissolved Solids (TDS)

Lab #:	217511	Location:	Doyle Drive
Client:	Baseline Environmental	Prep:	METHOD
Project#:	Y0239-04.A6	Analysis:	SM2540C
Analyte:	Total Dissolved Solids	Batch#:	158825
Field ID:	CDSM-MW-1	Sampled:	12/30/09
MSS Lab ID:	217511-001	Received:	12/30/09
Matrix:	Water	Prepared:	01/04/10
Units:	mg/L	Analyzed:	01/05/10
Diln Fac:	1.000		

Type	Lab ID	MSS Result	Spiked	Result	RL	%REC	Limits	RPD	Lim
BS	QC527904		104.0	88.00		85	80-120		
BSD	QC527905		104.0	90.00		87	80-120	2	20
SDUP	QC527906	1,016		1,046	10.00			3	20

RL= Reporting Limit
RPD= Relative Percent Difference

Curtis & Tompkins Laboratories Sample Batch Report

Batch Number: 158825
Date Started: 04-JAN-2010
Batched by : Shu Ting Liu

Analysis : TDS
Bgroup : N/A
Department : Wet Chemistry

Sample	Type		Client	Matrix	Analyses	Due Date
217511-001			Baseline Environme	Water	TDS	06-JAN-2010
217522-001			LFR Levine Fricke	Water	TDS	06-JAN-2010
217522-002			LFR Levine Fricke	Water	TDS	06-JAN-2010
217522-003			LFR Levine Fricke	Water	TDS	06-JAN-2010
217522-004			LFR Levine Fricke	Water	TDS	06-JAN-2010
217522-006			LFR Levine Fricke	Water	TDS	06-JAN-2010
217529-001			Baseline Environme	Water	TDS	07-JAN-2010
217532-001			LFR Levine Fricke	Water	TDS	05-JAN-2010
217532-002			LFR Levine Fricke	Water	TDS	05-JAN-2010
QC527903	BLANK			Water	TDS	
QC527904	BS			Water	TDS	
QC527905	BSD			Water	TDS	
QC527906	SDUP	of 217511-001		Water	TDS	

Analysis:	**Total Dissolved Solids**	Analyst:	STL		QC Limits	RPD	Recovery
Method:	SMWW 2540C / EPA 160.1	Filtration Date:	**1/4/10**		LCS/ BS/ BSD	15	75 - 106
Matrix:	Water	Batch #:	**158825**		MS/ MSD/SDUP	12	65 - 116
SOP#:	tds_rv 10.doc						

Sample	Sample Vol (mL)	DF (50/vol)	Initial Mass (g)	Constant Mass (g)	Residue Mass (g)	Report (mg/L)	Reporting Limit (mg/L)	Spike Std Conc (mg/L)	Spike Vol. Used (mL)	Spike (mg/L)	Recovery,%	RPD,%
MB	50	1	68.3969	68.3972	0.0003	**ND**	10					
BS	50	1	61.2513	61.2557	0.0044	**88.0**	10	104	50	104	**85**	
BSD	50	1	68.3221	68.3266	0.0045	**90.0**	10	104	50	104	**87**	**2.25**
217511-001	50	1	57.7890	57.8398	0.0508	**1,016.0**	10					
SDUP	50	1	67.7990	67.8513	0.0523	**1,046.0**	10					**2.91**
217511-001	50	1	57.7890	57.8398	0.0508	**1,016.0**	10					
217522-001	50	1	66.9916	67.0198	0.0282	**564.0**	10					
217522-002	50	1	54.5259	54.5396	0.0137	**274.0**	10					
217522-003	50	1	55.7627	55.7948	0.0321	**642.0**	10					
217522-004	50	1	68.5087	68.5347	0.0260	**520.0**	10					
217522-006	50	1	68.6047	68.6277	0.0230	**460.0**	10					
217529-001	1	50	55.0678	55.1701	0.1023	**102,300.0**	500					
217532-001	50	1	67.6160	67.6528	0.0368	**736.0**	10					
217532-002	50	1	67.3994	67.4519	0.0525	**1,050.0**	10					

Reviewed by / date: _____

Curtis & Tompkins, Ltd.
\\lims\fdrive\inorgan\data\Jan 2010\tds-158825

TDS (Total Dissolved Solids)
EPA 160.1 / SMWW 2540C

Curtis & Tompkins, Ltd.

LIMS Batch #: 158825
Filtered by: STL

Prep Date: 1/4/10
Prep Time: 16:40

Benchbook#: **BK2935**
Page: **49**

Filter Mfg/ Lot#: EE 755747
Spike Std LIMS#: 513686

Spike Std Conc (mg/L): 104
Spike Std Vol Added (mL): 50

	In	Out	In-2	Out-2	In-3	Out-3
Date:	1/4/10	1/5/10	1/5/10	1/5/10		
Time:	17:00	11:30	12:55	13:55		
Temp (C):	90°	180°	180°	180°		
Weighed by:		STL		STL		

	Sample # Container ID	EC Value (uS/cm)	Sample Vol. Filtered (mL)	Dish ID	Dish Wt (g)	1st Dry Wt.(g)	2nd Dry Wt (g)*	3rd Dry Wt (g)*
1	MB		50	BAT	68.3969	68.3971	68.3972	
	BS			APT	61.2557	61.2557	61.2557	
	BSD			GDO	68.3221	68.3269	68.3266	
	217511-001B	1918		CHM	57.7[illegible]	57.8400	57.8398	
5	SDUP-001B	1918		PEP	67.7[illegible]	67.8513	67.8512	
	217522-001N	898		S7	66.99[illegible]	67.0197	67.0198	
	-002N	435		G11	54.57[illegible]	54.5894	54.5396	
	-003N	[illegible]		GEO	55.7[illegible]	55.7951	55.7948	
	-004N	831		BEAR	68.5[illegible]	68.5347	68.5347	
10	-006N	[illegible]		GOS	68.[illegible]	68.6278	68.6277	
	217529-001D	740,000		KU	55.0[illegible]	55.1[illegible]	55.1701	
	217532-004A	[illegible]	50	LAP	67.[illegible]	67.4520	67.4519	
	-006	1198		BEER	67.6[illegible]	67.6531	67.6528	
	SK 1/5/10							
15								
20								

* Constant weight must be within 0.0005 from previous reading.

1/4/10
Analyst / Date

1/5/10
Reviewed by / Date

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 218202
ANALYTICAL REPORT

Baseline Environmental	Project	: Y0239-04.A8
5900 Hollis Street	Location	: Doyle Drive Replacement Project
Emeryville, CA 94608	Level	: III

Sample ID	Lab ID
CDSM-MW-1;020810	218202-001

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

Signature: Desirée N. Tetrault
Project Manager

Date: 02/16/2010

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**218202**
Client:	**Baseline Environmental**
Project:	**Y0239-04.A8**
Location:	**Doyle Drive Replacement Project**
Request Date:	**02/08/10**
Samples Received:	**02/08/10**

This data package contains sample and QC results for one water sample, requested for the above referenced project on 02/08/10. 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 02/11/10 16:41; this analyte was not detected at or above the RL in the associated sample.

No other analytical problems were encountered.

Total Dissolved Solids (TDS) (SM2540C):
No analytical problems were encountered.

Chain of Custody

218202

CHAIN OF CUSTODY RECORD

BASELINE Environmental Consulting
5900 Hollis Street, Suite D
Emeryville, CA 94608
Tel: (510) 420-8686 Fax: (510) 420-1707

Turn-Around-Time Standard
Laboratory Curtis and Tompkins, Ltd.
BASELINE Contact Person Cheri Page

Project Number Y0239-04.A8
Project Name: Doyle Drive Replacement Project
Samplers: (Signature)

Sample ID	Date	Time	Media	Containers: No. (total)	Type: L-AG	40-ml VOA	1000 ml-Poly	500 ml-Poly	250 ml Poly	Preservative: Ice	HCL	HNO_3	H_2SO_4	NaOH	TPH-g & BTEX (EPA Method 8015M)	TPH-d and mo (EPA Method 8015M with silica gel cleanup)	VOC (EPA Method 8260B)	MTBE (EPA Method 8260B)	SVOC (EPA Method 8270)	PCB (EPA Method 8082)	Dissolved Sulfides	Total Suspended Solids	TDS (SM2540C)	CAM 17 Metals *	Title 22 Metals (EPA Method 6010B/7471)	Remarks
CDSM-MW-1;020810	2/8/10	9:00	Water	2				1	1	X													X	X		

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	Remarks:
	2/8/10 14:30	Pat Hanagh	2/8/10 14:30	
Relinquished by: (Signature)	Date/Time	Received by: (Signature)		
Relinquished by: (Signature)	Date/Time	Received by: (Signature)		Email contact:

Received at laboratory with intact custody seal: Yes No (Na)

Samples conditions Upon Arrival: (Intact) (On Ice) (Cold)

Comments: * **Lab to Filter and Preserve**

MASTER9-17-09- Groundwater Lrg.xls

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 218202 Date Received 2-8-10 Number of coolers 1
Client BASELINE Project DOYLE DRIVE

Date Opened 2-8-10 By (print) S. EVANS (sign) [signature]
Date Logged in / By (print) / (sign) /

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

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

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

7. Temperature documentation:

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

☒ Samples Received on ice & cold without a temperature blank

☐ 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 samples in the appropriate containers for indicated tests? _____ (YES) NO
11. Are sample labels present, in good condition and complete? _____ (YES) NO
12. Do the sample labels agree with custody papers? _____ (YES) NO
13. Was sufficient amount of sample sent for tests requested? _____ (YES) NO
14. Are the samples appropriately preserved? _____ (YES) NO (N/A)
15. Are bubbles > 6mm absent in VOA samples? _____ YES NO (N/A)
16. Was the client contacted concerning this sample delivery? _____ YES NO
   If YES, Who was called? _____ By _____ Date: _____

COMMENTS

_____
_____
_____
_____
_____
_____
_____
_____

Laboratory Job Number 218202

ANALYTICAL REPORT

Metals

Matrix: Filtrate

Curtis & Tompkins, Ltd.

Dissolved California Title 22 Metals

Lab #:	218202	Location:	Doyle Drive Replacement Project
Client:	Baseline Environmental	Prep:	METHOD
Project#:	Y0239-04.A8		
Field ID:	CDSM-MW-1;020810	Diln Fac:	1.000
Lab ID:	218202-001	Sampled:	02/08/10
Matrix:	Filtrate	Received:	02/08/10
Units:	ug/L		

Analyte	Result	RL	Batch#	Prepared	Analyzed	Analysis
Antimony	ND	10	159872	02/08/10	02/10/10	EPA 6010B
Arsenic	ND	5.0	159872	02/08/10	02/11/10	EPA 6010B
Barium	14	5.0	159872	02/08/10	02/10/10	EPA 6010B
Beryllium	ND	2.0	159872	02/08/10	02/10/10	EPA 6010B
Cadmium	ND	5.0	159872	02/08/10	02/10/10	EPA 6010B
Chromium	ND	5.0	159872	02/08/10	02/10/10	EPA 6010B
Cobalt	ND	5.0	159872	02/08/10	02/10/10	EPA 6010B
Copper	8.9	5.0	159872	02/08/10	02/11/10	EPA 6010B
Lead	ND	5.0	159872	02/08/10	02/10/10	EPA 6010B
Mercury	ND	0.20	159917	02/10/10	02/10/10	EPA 7470A
Molybdenum	5.3	5.0	159872	02/08/10	02/10/10	EPA 6010B
Nickel	ND	5.0	159872	02/08/10	02/10/10	EPA 6010B
Selenium	ND	10	159872	02/08/10	02/10/10	EPA 6010B
Silver	ND	5.0	159872	02/08/10	02/11/10	EPA 6010B
Thallium	ND	10	159872	02/08/10	02/10/10	EPA 6010B
Vanadium	ND	5.0	159872	02/08/10	02/10/10	EPA 6010B
Zinc	24	20	159872	02/08/10	02/10/10	EPA 6010B

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	218202	Location:	Doyle Drive Replacement Project
Client:	Baseline Environmental	Prep:	METHOD
Project#:	Y0239-04.A8	Analysis:	EPA 6010B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC531931	Batch#:	159872
Matrix:	Filtrate	Prepared:	02/08/10
Units:	ug/L	Analyzed:	02/10/10

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

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	218202	Location:	Doyle Drive Replacement Project
Client:	Baseline Environmental	Prep:	METHOD
Project#:	Y0239-04.A8	Analysis:	EPA 6010B
Matrix:	Filtrate	Batch#:	159872
Units:	ug/L	Prepared:	02/08/10
Diln Fac:	1.000	Analyzed:	02/10/10

Type: BS Lab ID: QC531932

Analyte	Spiked	Result	%REC	Limits
Antimony	500.0	440.7	88	66-129
Arsenic	100.0	86.19	86	78-122
Barium	2,000	1,690	84	80-119
Beryllium	50.00	46.77	94	84-124
Cadmium	50.00	44.35	89	83-121
Chromium	200.0	165.5	83	81-116
Cobalt	500.0	430.0	86	78-115
Copper	250.0	207.0	83	77-115
Lead	100.0	84.67	85	73-124
Molybdenum	400.0	349.7	87	81-120
Nickel	500.0	426.4	85	78-117
Selenium	100.0	92.56	93	74-128
Silver	50.00	40.00	80	71-120
Thallium	100.0	87.38	87	77-124
Vanadium	500.0	433.4	87	81-117
Zinc	500.0	443.4	89	79-120

Type: BSD Lab ID: QC531933

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Antimony	500.0	472.5	95	66-129	7	15
Arsenic	100.0	89.14	89	78-122	3	14
Barium	2,000	1,772	89	80-119	5	15
Beryllium	50.00	49.11	98	84-124	5	14
Cadmium	50.00	46.81	94	83-121	5	14
Chromium	200.0	174.7	87	81-116	5	14
Cobalt	500.0	449.6	90	78-115	4	14
Copper	250.0	216.3	87	77-115	4	15
Lead	100.0	91.49	91	73-124	8	17
Molybdenum	400.0	369.3	92	81-120	5	11
Nickel	500.0	451.5	90	78-117	6	14
Selenium	100.0	99.59	100	74-128	7	15
Silver	50.00	42.37	85	71-120	6	19
Thallium	100.0	90.56	91	77-124	4	13
Vanadium	500.0	451.7	90	81-117	4	14
Zinc	500.0	465.9	93	79-120	5	16

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	218202	Location:	Doyle Drive Replacement Project
Client:	Baseline Environmental	Prep:	METHOD
Project#:	Y0239-04.A8	Analysis:	EPA 6010B
Field ID:	ZZZZZZZZZZ	Batch#:	159872
MSS Lab ID:	218076-004	Sampled:	02/01/10
Matrix:	Filtrate	Received:	02/02/10
Units:	ug/L	Prepared:	02/08/10
Diln Fac:	1.000	Analyzed:	02/10/10

Type: MS Lab ID: QC531934

Analyte	MSS Result	Spiked	Result	%REC	Limits
Antimony	<3.290	500.0	461.6	92	53-139
Arsenic	3.932	100.0	90.57	87	60-140
Barium	6.975	2,000	1,692	84	63-128
Beryllium	0.4310	50.00	47.63	94	74-130
Cadmium	<1.411	50.00	44.14	88	69-128
Chromium	6.655	200.0	171.6	82	68-122
Cobalt	<1.000	500.0	425.8	85	68-119
Copper	3.134	250.0	206.9	82	61-130
Lead	<1.027	100.0	84.50	84	55-133
Molybdenum	62.45	400.0	416.1	88	70-128
Nickel	<1.031	500.0	422.2	84	61-125
Selenium	6.039	100.0	98.54	92	57-140
Silver	<1.000	50.00	38.49	77	53-132
Thallium	<2.616	100.0	76.37	76	54-133
Vanadium	9.798	500.0	444.9	87	71-124
Zinc	<6.366	500.0	453.7	91	58-137

Type: MSD Lab ID: QC531935

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Antimony	500.0	471.3	94	53-139	2	18
Arsenic	100.0	93.36	89	60-140	3	23
Barium	2,000	1,674	83	63-128	1	21
Beryllium	50.00	46.53	92	74-130	2	15
Cadmium	50.00	44.21	88	69-128	0	14
Chromium	200.0	168.4	81	68-122	2	19
Cobalt	500.0	412.5	83	68-119	3	13
Copper	250.0	202.9	80	61-130	2	19
Lead	100.0	85.68	86	55-133	1	21
Molybdenum	400.0	422.9	90	70-128	2	14
Nickel	500.0	414.9	83	61-125	2	21
Selenium	100.0	95.56	90	57-140	3	24
Silver	50.00	42.12	84	53-132	9	17
Thallium	100.0	81.94	82	54-133	7	24
Vanadium	500.0	438.7	86	71-124	1	16
Zinc	500.0	441.7	88	58-137	3	25

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	218202	Location:	Doyle Drive Replacement Project
Client:	Baseline Environmental	Prep:	METHOD
Project#:	Y0239-04.A8	Analysis:	EPA 7470A
Analyte:	Mercury	Diln Fac:	1.000
Type:	BLANK	Batch#:	159917
Lab ID:	QC532135	Prepared:	02/10/10
Matrix:	Filtrate	Analyzed:	02/10/10
Units:	ug/L		

Result	RL
ND	0.20

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	218202	Location:	Doyle Drive Replacement Project
Client:	Baseline Environmental	Prep:	METHOD
Project#:	Y0239-04.A8	Analysis:	EPA 7470A
Analyte:	Mercury	Batch#:	159917
Matrix:	Filtrate	Prepared:	02/10/10
Units:	ug/L	Analyzed:	02/10/10
Diln Fac:	1.000		

Type	Lab ID	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC532136	2.500	2.380	95	77-124		
BSD	QC532137	2.500	2.440	98	77-124	2	12

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	218202	Location:	Doyle Drive Replacement Project
Client:	Baseline Environmental	Prep:	METHOD
Project#:	Y0239-04.A8	Analysis:	EPA 7470A
Analyte:	Mercury	Batch#:	159917
Field ID:	ZZZZZZZZZZ	Sampled:	02/08/10
MSS Lab ID:	218199-007	Received:	02/08/10
Matrix:	Filtrate	Prepared:	02/10/10
Units:	ug/L	Analyzed:	02/10/10
Diln Fac:	1.000		

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
MS	QC532138	<0.03335	2.500	2.710	108	53-149		
MSD	QC532139		2.500	2.720	109	53-149	0	19

RPD= Relative Percent Difference

REPORTING SUMMARY FOR 218202 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
218202-001	MET14	02/10/10 11:57	1.0										+							
218202-001	MET08	02/10/10 17:04	1.0	+		+	+	+	+	+		+		+	+	+		+	+	+
218202-001	MET08	02/11/10 15:41	1.0		+						+						+			
QC531931	MET08	02/10/10 13:54	1.0	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC531932	MET08	02/10/10 13:59	1.0	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC531933	MET08	02/10/10 14:05	1.0	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC531934	MET08	02/10/10 14:16	1.0	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC531935	MET08	02/10/10 14:22	1.0	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC531936	MET08	02/10/10 14:28	5.0	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC531937	MET08	02/10/10 14:34	1.0	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC532135	MET14	02/10/10 11:22	1.0										+							
QC532136	MET14	02/10/10 11:24	1.0										+							
QC532137	MET14	02/10/10 11:26	1.0										+							
QC532138	MET14	02/10/10 11:50	1.0										+							
QC532139	MET14	02/10/10 11:52	1.0										+							
QC532140	MET14	02/10/10 11:55	5.0										+							

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 80059538

Instrument : MET08 Begun : 02/10/10 08:18
Method : EPA 6010B SOP Version : icp metals_rv9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met08_sn_6010	ICALBLK				02/10/10 08:18	1.0		
002	met08_sn_6010	ICAL	CRIM08			02/10/10 08:24	1.0	1	
003	met08_sn_6010	ICAL	CS100			02/10/10 08:30	1.0	2	
004	met08_sn_6010	ICAL	CS1K			02/10/10 08:34	1.0	3	
005	met08_sn_6010	ICAL	CS10K			02/10/10 08:40	1.0	4	
006	met08_sn_6010	ICAL	CS100K			02/10/10 08:46	1.0	5	
007	met08_sn_6010	ICV				02/10/10 08:52	1.0	6	
008	met08_sn_6010	ICB				02/10/10 08:58	1.0		
009	met08_sn_6010	ICSA				02/10/10 09:18	1.0	7	10:AL=490000
010	met08_sn_6010	ICSAB				02/10/10 09:46	1.0	8	5:AL=480000
011	met08_sn_6010	BLANK	QC532106	Filtrate	159911	02/10/10 09:52	1.0		
012	met08_sn_6010	BS	QC532107	Filtrate	159911	02/10/10 09:58	1.0		
013	met08_sn_6010	BSD	QC532108	Filtrate	159911	02/10/10 10:04	1.0		
014	met08_sn_6010	MSS	218158-001	Filtrate	159911	02/10/10 10:10	1.0		
015	met08_sn_6010	MS	QC532109	Filtrate	159911	02/10/10 10:16	1.0		
016	met08_sn_6010	MSD	QC532110	Filtrate	159911	02/10/10 10:21	1.0		
017	met08_sn_6010	SAMPLE	218158-003	Filtrate	159911	02/10/10 10:27	1.0		2:NA=600000
018	met08_sn_6010	SAMPLE	218158-004	Filtrate	159911	02/10/10 10:35	1.0		2:NA=300000
019	met08_sn_6010	X				02/10/10 10:41	1.0	9	
020	met08_sn_6010	CCV				02/10/10 10:43	1.0	9	
021	met08_sn_6010	X				02/10/10 10:49	1.0		
022	met08_sn_6010	CCB				02/10/10 10:52	1.0		
023	met08_sn_6010	SAMPLE	218158-005	Filtrate	159911	02/10/10 10:58	1.0		4:NA=450000
024	met08_sn_6010	SAMPLE	218158-007	Filtrate	159911	02/10/10 11:02	1.0		2:NA=1000000
025	met08_sn_6010	SAMPLE	218158-008	Filtrate	159911	02/10/10 11:09	1.0		3:NA=890000
026	met08_sn_6010	SAMPLE	218158-009	Filtrate	159911	02/10/10 11:15	1.0		3:MG=570000
027	met08_sn_6010	SAMPLE	218158-010	Filtrate	159911	02/10/10 11:21	1.0		2:NA=910000
028	met08_sn_6010	SAMPLE	218158-011	Filtrate	159911	02/10/10 11:28	1.0		2:NA=740000
029	met08_sn_6010	SAMPLE	218158-012	Filtrate	159911	02/10/10 11:36	1.0		5:NA=800000
030	met08_sn_6010	SAMPLE	218158-013	Filtrate	159911	02/10/10 11:42	1.0		3:CA=620000
031	met08_sn_6010	SAMPLE	218158-014	Filtrate	159911	02/10/10 11:47	1.0		2:NA=720000
032	met08_sn_6010	SAMPLE	218158-015	Filtrate	159911	02/10/10 11:54	1.0		2:NA=660000
033	met08_sn_6010	X				02/10/10 12:01	1.0	9	
034	met08_sn_6010	CCV				02/10/10 12:04	1.0	9	
035	met08_sn_6010	CCB				02/10/10 12:11	1.0		
036	met08_sn_6010	ICSAB				02/10/10 12:23	1.0	8	5:AL=490000
037	met08_sn_6010	SAMPLE	218158-005	Filtrate	159911	02/10/10 12:37	1.0		4:NA=440000
038	met08_sn_6010	SAMPLE	218158-008	Filtrate	159911	02/10/10 12:41	1.0		3:NA=840000
039	met08_sn_6010	SAMPLE	218158-009	Filtrate	159911	02/10/10 12:47	1.0		3:MG=560000
040	met08_sn_6010	SAMPLE	218158-009	Filtrate	159911	02/10/10 12:54	20.0		
041	met08_sn_6010	SAMPLE	218158-011	Filtrate	159911	02/10/10 12:59	1.0		2:NA=770000
042	met08_sn_6010	SAMPLE	218158-012	Filtrate	159911	02/10/10 13:07	1.0		5:NA=760000
043	met08_sn_6010	SAMPLE	218158-012	Filtrate	159911	02/10/10 13:13	1.0		4:NA=730000
044	met08_sn_6010	SAMPLE	218158-012	Filtrate	159911	02/10/10 13:19	20.0		
045	met08_sn_6010	SAMPLE	218158-014	Filtrate	159911	02/10/10 13:24	1.0		2:NA=740000
046	met08_sn_6010	ICSAB				02/10/10 13:31	1.0	8	5:AL=490000
047	met08_sn_6010	CCV				02/10/10 13:37	1.0	9	
048	met08_sn_6010	CCB				02/10/10 13:42	1.0		
049	met08_sn_6010	X	RINSE			02/10/10 13:48	1.0		
050	met08_sn_6010	BLANK	QC531931	Filtrate	159872	02/10/10 13:54	1.0		
051	met08_sn_6010	BS	QC531932	Filtrate	159872	02/10/10 13:59	1.0		
052	met08_sn_6010	BSD	QC531933	Filtrate	159872	02/10/10 14:05	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 80059538

Instrument : MET08 Begun : 02/10/10 08:18
Method : EPA 6010B SOP Version : icp metals_rv9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met08_sn_6010	MSS	218076-004	Filtrate	159872	02/10/10 14:11	1.0		1:NA=180000
054	met08_sn_6010	MS	QC531934	Filtrate	159872	02/10/10 14:16	1.0		
055	met08_sn_6010	MSD	QC531935	Filtrate	159872	02/10/10 14:22	1.0		
056	met08_sn_6010	SER	QC531936	Filtrate	159872	02/10/10 14:28	5.0		
057	met08_sn_6010	PDS	QC531937	Filtrate	159872	02/10/10 14:34	1.0	10 11	
058	met08_sn_6010	SAMPLE	218076-001	Filtrate	159872	02/10/10 14:39	1.0		1:NA=140000
059	met08_sn_6010	CCV				02/10/10 14:45	1.0	9	
060	met08_sn_6010	CCB				02/10/10 14:51	1.0		
061	met08_sn_6010	MSS	218076-004	Filtrate	159872	02/10/10 14:57	1.0		1:NA=170000
062	met08_sn_6010	SAMPLE	218076-002	Filtrate	159872	02/10/10 15:03	1.0		1:NA=180000
063	met08_sn_6010	SAMPLE	218076-003	Filtrate	159872	02/10/10 15:08	1.0		1:NA=220000
064	met08_sn_6010	SAMPLE	218076-005	Filtrate	159872	02/10/10 15:14	1.0		1:NA=180000
065	met08_sn_6010	SAMPLE	218173-001	Filtrate	159872	02/10/10 15:20	1.0		2:NA=270000
066	met08_sn_6010	SAMPLE	218173-002	Filtrate	159872	02/10/10 15:25	1.0		
067	met08_sn_6010	ICSAB				02/10/10 15:31	1.0	8	5:AL=480000
068	met08_sn_6010	SAMPLE	218173-003	Filtrate	159872	02/10/10 15:37	1.0		
069	met08_sn_6010	SAMPLE	218187-001	Filtrate	159872	02/10/10 15:43	1.0		
070	met08_sn_6010	SAMPLE	218187-002	Filtrate	159872	02/10/10 15:49	1.0		
071	met08_sn_6010	CCV				02/10/10 15:55	1.0	9	
072	met08_sn_6010	CCB				02/10/10 16:01	1.0		
073	met08_sn_6010	SAMPLE	218187-004	Filtrate	159872	02/10/10 16:07	1.0		2:NA=800000
074	met08_sn_6010	SAMPLE	218187-005	Filtrate	159872	02/10/10 16:14	1.0		1:NA=660000
075	met08_sn_6010	SAMPLE	218187-006	Filtrate	159872	02/10/10 16:22	1.0		1:NA=450000
076	met08_sn_6010	SAMPLE	218187-008	Filtrate	159872	02/10/10 16:28	1.0		3:CA=360000
077	met08_sn_6010	SAMPLE	218187-009	Filtrate	159872	02/10/10 16:34	1.0		4:NA=530000
078	met08_sn_6010	SAMPLE	218187-010	Filtrate	159872	02/10/10 16:41	1.0		4:NA=810000
079	met08_sn_6010	SAMPLE	218187-011	Filtrate	159872	02/10/10 16:46	1.0		2:CA=720000
080	met08_sn_6010	SAMPLE	218187-012	Filtrate	159872	02/10/10 16:53	1.0		4:CA=470000
081	met08_sn_6010	SAMPLE	218187-013	Filtrate	159872	02/10/10 16:58	1.0		
082	met08_sn_6010	SAMPLE	218202-001	Filtrate	159872	02/10/10 17:04	1.0		1:NA=240000
083	met08_sn_6010	CCV				02/10/10 17:10	1.0	9	
084	met08_sn_6010	X				02/10/10 17:12	1.0	9	
085	met08_sn_6010	CCB				02/10/10 17:17	1.0		
086	met08_sn_6010	X				02/10/10 17:23	1.0	8	5:AL=480000
087	met08_sn_6010	X	RINSE			02/10/10 17:27	1.0		
088	met08_sn_6010	BLANK	QC531781	Fuels	159832	02/10/10 17:33	40.0		
089	met08_sn_6010	MSS	218083-001	Fuels	159832	02/10/10 17:38	40.0		
090	met08_sn_6010	SDUP	QC531782	Fuels	159832	02/10/10 17:44	40.0		
091	met08_sn_6010	SAMPLE	218083-002	Fuels	159832	02/10/10 17:50	40.0		
092	met08_sn_6010	SAMPLE	218084-001	Fuels	159832	02/10/10 17:55	40.0		
093	met08_sn_6010	SAMPLE	218084-002	Fuels	159832	02/10/10 18:01	40.0		1:V=10000
094	met08_sn_6010	SAMPLE	218084-003	Fuels	159832	02/10/10 18:07	40.0		
095	met08_sn_6010	SAMPLE	218084-004	Fuels	159832	02/10/10 18:12	40.0		
096	met08_sn_6010	X				02/10/10 18:18	1.0	9	
097	met08_sn_6010	CCV				02/10/10 18:20	1.0	9	
098	met08_sn_6010	X				02/10/10 18:26	1.0		
099	met08_sn_6010	CCB				02/10/10 18:29	1.0		
100	met08_sn_6010	MSS	218085-001	Fuels	159832	02/10/10 18:35	40.0		
101	met08_sn_6010	SAMPLE	218085-002	Fuels	159832	02/10/10 18:41	40.0		
102	met08_sn_6010	SAMPLE	218086-001	Fuels	159832	02/10/10 18:46	40.0		
103	met08_sn_6010	SAMPLE	218086-002	Fuels	159832	02/10/10 18:52	40.0		
104	met08_sn_6010	SAMPLE	218088-001	Fuels	159832	02/10/10 18:58	40.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 80059538

Instrument : MET08 Begun : 02/10/10 08:18
Method : EPA 6010B SOP Version : icp metals_rv9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
105	met08_sn_6010	SAMPLE	218088-002	Fuels	159832	02/10/10 19:04	40.0		
106	met08_sn_6010	SAMPLE	218088-003	Fuels	159832	02/10/10 19:09	40.0		
107	met08_sn_6010	SAMPLE	218175-001	Fuels	159832	02/10/10 19:15	40.0		
108	met08_sn_6010	SAMPLE	218175-002	Fuels	159832	02/10/10 19:21	40.0		
109	met08_sn_6010	SAMPLE	218176-001	Fuels	159832	02/10/10 19:26	40.0		
110	met08_sn_6010	CCV				02/10/10 19:32	1.0	9	
111	met08_sn_6010	X				02/10/10 19:34	1.0	9	
112	met08_sn_6010	X				02/10/10 19:40	1.0		
113	met08_sn_6010	CCB				02/10/10 19:43	1.0		
114	met08_sn_6010	SAMPLE	218176-002	Fuels	159832	02/10/10 19:49	40.0		
115	met08_sn_6010	ICSAB				02/10/10 19:55	1.0	8	5:AL=480000
116	met08_sn_6010	X	RINSE			02/10/10 19:58	1.0		
117	met08_sn_6010	BLANK	QC532099	Filtrate	159910	02/10/10 20:04	1.0		
118	met08_sn_6010	BS	QC532100	Filtrate	159910	02/10/10 20:10	1.0		
119	met08_sn_6010	BSD	QC532101	Filtrate	159910	02/10/10 20:15	1.0		
120	met08_sn_6010	MSS	218164-001	Filtrate	159910	02/10/10 20:21	1.0		1:NA=180000
121	met08_sn_6010	MS	QC532102	Filtrate	159910	02/10/10 20:27	1.0		
122	met08_sn_6010	MSD	QC532103	Filtrate	159910	02/10/10 20:32	1.0		
123	met08_sn_6010	SER	QC532104	Filtrate	159910	02/10/10 20:38	5.0		
124	met08_sn_6010	X				02/10/10 20:44	1.0	9	
125	met08_sn_6010	CCV				02/10/10 20:46	1.0	9	
126	met08_sn_6010	CCB				02/10/10 20:51	1.0		
127	met08_sn_6010	PDS	QC532105	Filtrate	159910	02/10/10 20:57	1.0	10 11	
128	met08_sn_6010	SAMPLE	218164-002	Filtrate	159910	02/10/10 21:03	1.0		1:NA=230000
129	met08_sn_6010	SAMPLE	218164-003	Filtrate	159910	02/10/10 21:09	1.0		1:NA=210000
130	met08_sn_6010	SAMPLE	218164-005	Filtrate	159910	02/10/10 21:15	1.0		1:NA=140000
131	met08_sn_6010	SAMPLE	218164-007	Filtrate	159910	02/10/10 21:21	1.0		1:NA=120000
132	met08_sn_6010	SAMPLE	218147-001	Filtrate	159910	02/10/10 21:26	1.0		1:NA=130000
133	met08_sn_6010	SAMPLE	218147-002	Filtrate	159910	02/10/10 21:32	1.0		1:NA=130000
134	met08_sn_6010	SAMPLE	218147-003	Filtrate	159910	02/10/10 21:38	1.0		1:NA=130000
135	met08_sn_6010	SAMPLE	218147-004	Filtrate	159910	02/10/10 21:43	1.0		1:NA=150000
136	met08_sn_6010	SAMPLE	218147-005	Filtrate	159910	02/10/10 21:49	1.0		1:NA=130000
137	met08_sn_6010	X				02/10/10 21:55	1.0	9	
138	met08_sn_6010	CCV				02/10/10 21:57	1.0	9	
139	met08_sn_6010	CCB				02/10/10 22:02	1.0		
140	met08_sn_6010	SAMPLE	218147-006	Filtrate	159910	02/10/10 22:08	1.0		1:NA=130000
141	met08_sn_6010	SAMPLE	218147-010	Filtrate	159910	02/10/10 22:14	1.0		1:NA=190000
142	met08_sn_6010	X				02/10/10 22:19	1.0	8	5:AL=470000
143	met08_sn_6010	X	RINSE			02/10/10 22:23	1.0		
144	met08_sn_6010	BLANK	QC532111	Water	159912	02/10/10 22:29	1.0		
145	met08_sn_6010	BS	QC532112	Water	159912	02/10/10 22:35	1.0		
146	met08_sn_6010	BSD	QC532113	Water	159912	02/10/10 22:40	1.0		
147	met08_sn_6010	MSS	218167-001	Water	159912	02/10/10 22:46	1.0		
148	met08_sn_6010	MS	QC532114	Water	159912	02/10/10 22:52	1.0		
149	met08_sn_6010	MSD	QC532115	Water	159912	02/10/10 22:58	1.0		
150	met08_sn_6010	X				02/10/10 23:03	1.0	9	
151	met08_sn_6010	CCV				02/10/10 23:05	1.0	9	
152	met08_sn_6010	CCB				02/10/10 23:11	1.0		
153	met08_sn_6010	SER	QC532116	Water	159912	02/10/10 23:16	5.0		
154	met08_sn_6010	PDS	QC532117	Water	159912	02/10/10 23:22	1.0	10 11	
155	met08_sn_6010	SAMPLE	218167-002	Water	159912	02/10/10 23:28	1.0		
156	met08_sn_6010	SAMPLE	218167-003	Water	159912	02/10/10 23:33	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 80059538

Instrument : MET08 Begun : 02/10/10 08:18
Method : EPA 6010B SOP Version : icp metals_rv9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
157	met08_sn_6010	SAMPLE	218167-004	Water	159912	02/10/10 23:39	1.0		
158	met08_sn_6010	SAMPLE	218167-005	Water	159912	02/10/10 23:45	1.0		
159	met08_sn_6010	SAMPLE	218167-006	Water	159912	02/10/10 23:51	1.0		
160	met08_sn_6010	SAMPLE	218167-007	Water	159912	02/10/10 23:56	1.0		2:CA=290000
161	met08_sn_6010	SAMPLE	218167-008	Water	159912	02/11/10 00:02	1.0		1:CA=190000
162	met08_sn_6010	SAMPLE	218167-009	Water	159912	02/11/10 00:08	1.0		2:NA=250000
163	met08_sn_6010	CCV				02/11/10 00:13	1.0	9	
164	met08_sn_6010	CCB				02/11/10 00:19	1.0		
165	met08_sn_6010	SAMPLE	218167-010	Water	159912	02/11/10 00:25	1.0		2:CA=540000
166	met08_sn_6010	SAMPLE	218167-011	Water	159912	02/11/10 00:31	1.0		2:NA=400000
167	met08_sn_6010	SAMPLE	218178-001	Water	159912	02/11/10 00:37	1.0		
168	met08_sn_6010	SAMPLE	218076-002	Filtrate	159872	02/11/10 00:42	1.0		1:NA=170000
169	met08_sn_6010	SAMPLE	218173-001	Filtrate	159872	02/11/10 00:48	1.0		2:NA=270000
170	met08_sn_6010	ICSAB				02/11/10 00:54	1.0	8	5:AL=490000
171	met08_sn_6010	CCV				02/11/10 00:58	1.0	9	
172	met08_sn_6010	X				02/11/10 00:59	1.0	9	
173	met08_sn_6010	CCB				02/11/10 01:05	1.0		
174	met08_sn_6010	X				02/11/10 08:06	1.0	8	
175	met08_sn_6010	X				02/11/10 08:09	1.0	8	
176	met08_sn_6010	ICSAB				02/11/10 08:22	1.0	8	5:MG=460000
177	met08_sn_6010	X				02/11/10 08:27	1.0	9	
178	met08_sn_6010	CCV				02/11/10 08:29	1.0	9	
179	met08_sn_6010	CCB				02/11/10 08:35	1.0		
180	met08_sn_6010	SAMPLE	218084-002	Fuels	159832	02/11/10 08:40	400.0		
181	met08_sn_6010	SAMPLE	218085-001	Fuels	159832	02/11/10 08:46	40.0		
182	met08_sn_6010	SAMPLE	218085-002	Fuels	159832	02/11/10 08:52	40.0		
183	met08_sn_6010	SAMPLE	218086-001	Fuels	159832	02/11/10 08:57	40.0		
184	met08_sn_6010	SAMPLE	218086-002	Fuels	159832	02/11/10 09:03	40.0		1:V=10000
185	met08_sn_6010	SAMPLE	218088-001	Fuels	159832	02/11/10 09:09	40.0		
186	met08_sn_6010	SAMPLE	218088-002	Fuels	159832	02/11/10 09:15	40.0		
187	met08_sn_6010	SAMPLE	218088-003	Fuels	159832	02/11/10 09:21	40.0		
188	met08_sn_6010	SAMPLE	218175-001	Fuels	159832	02/11/10 09:27	40.0		
189	met08_sn_6010	SAMPLE	218175-002	Fuels	159832	02/11/10 09:33	40.0		
190	met08_sn_6010	CCV				02/11/10 09:39	1.0	9	
191	met08_sn_6010	CCB				02/11/10 09:48	1.0		
192	met08_sn_6010	SAMPLE	218176-001	Fuels	159832	02/11/10 09:55	40.0		
193	met08_sn_6010	SAMPLE	218176-002	Fuels	159832	02/11/10 10:00	40.0		
194	met08_sn_6010	SAMPLE	218086-002	Fuels	159832	02/11/10 10:10	400.0		
195	met08_sn_6010	ICSAB				02/11/10 10:15	1.0	8	5:AL=490000
196	met08_sn_6010	CCV				02/11/10 10:19	1.0	9	
197	met08_sn_6010	CCB				02/11/10 10:42	1.0		

AH 02/11/10 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 197.

Standards used: 1=S13742 2=S13802 3=S13801 4=S13743 5=S13418 6=S13454 7=S13419 8=S13812 9=S13455 10=S12746 11=S12747

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 80059538

Date : 02/10/10 Reference : met08_sn_6010
Sequence : MET08 02/10/10 Analyzed : 02/10/10 08:24

#	Type	Sample ID	Y A
		ICAL STD	2314614
		LOWER LIMIT	694384
		UPPER LIMIT	4629227
008	ICB		2380281
009	ICSA		2076207
010	ICSAB		2047317
011	BLANK	QC532106	2365787
012	BS	QC532107	2250860
013	BSD	QC532108	2279611
014	MSS	218158-001	2338608
015	MS	QC532109	2291086
016	MSD	QC532110	2282017
017	SAMPLE	218158-003	2138828
018	SAMPLE	218158-004	2141853
020	CCV		2204997
022	CCB		2249910
023	SAMPLE	218158-005	1823217
024	SAMPLE	218158-007	2011977
025	SAMPLE	218158-008	2083900
026	SAMPLE	218158-009	2110536
027	SAMPLE	218158-010	1977323
028	SAMPLE	218158-011	2124123
029	SAMPLE	218158-012	2276698
030	SAMPLE	218158-013	2095010
031	SAMPLE	218158-014	2167198
032	SAMPLE	218158-015	2086309
034	CCV		2256328
035	CCB		2350141
036	ICSAB		1999928
037	SAMPLE	218158-005	2219186
038	SAMPLE	218158-008	2098538
039	SAMPLE	218158-009	2125249
040	SAMPLE	218158-009	2286964
041	SAMPLE	218158-011	2171398
042	SAMPLE	218158-012	2230575
043	SAMPLE	218158-012	2406241
044	SAMPLE	218158-012	2358278
045	SAMPLE	218158-014	2132458
046	ICSAB		2088173
047	CCV		2378205
048	CCB		2376008
050	BLANK	QC531931	2363535
051	BS	QC531932	2349016
052	BSD	QC531933	2332683
053	MSS	218076-004	2262522
054	MS	QC531934	2252269
055	MSD	QC531935	2261806
056	SER	QC531936	2332687
057	PDS	QC531937	2291673
058	SAMPLE	218076-001	2326269
059	CCV		2260108

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 80059538

Date : 02/10/10 Reference : met08_sn_6010
Sequence : MET08 02/10/10 Analyzed : 02/10/10 08:24

#	Type	Sample ID	Y A
060	CCB		2361958
061	MSS	218076-004	2324213
062	SAMPLE	218076-002	2279654
063	SAMPLE	218076-003	2215389
064	SAMPLE	218076-005	2302401
065	SAMPLE	218173-001	2185306
066	SAMPLE	218173-002	2384215
067	ICSAB		2069520
068	SAMPLE	218173-003	2316811
069	SAMPLE	218187-001	2386971
070	SAMPLE	218187-002	2363492
071	CCV		2280212
072	CCB		2404808
073	SAMPLE	218187-004	2109874
074	SAMPLE	218187-005	2102513
075	SAMPLE	218187-006	2247060
076	SAMPLE	218187-008	2238915
077	SAMPLE	218187-009	2095972
078	SAMPLE	218187-010	2184671
079	SAMPLE	218187-011	2132685
080	SAMPLE	218187-012	2197371
081	SAMPLE	218187-013	2268028
082	SAMPLE	218202-001	2250689
083	CCV		2299951
085	CCB		2425063
088	BLANK	QC531781	2314025
089	MSS	218083-001	2332018
090	SDUP	QC531782	2286030
091	SAMPLE	218083-002	2334408
092	SAMPLE	218084-001	2324780
093	SAMPLE	218084-002	2335500
094	SAMPLE	218084-003	2296616
095	SAMPLE	218084-004	2345413
097	CCV		2165256
099	CCB		2319331
100	MSS	218085-001	2327034
101	SAMPLE	218085-002	2317189
102	SAMPLE	218086-001	2349777
103	SAMPLE	218086-002	2321583
104	SAMPLE	218088-001	2360918
105	SAMPLE	218088-002	2334535
106	SAMPLE	218088-003	2351334
107	SAMPLE	218175-001	2265578
108	SAMPLE	218175-002	2312901
109	SAMPLE	218176-001	2300402
110	CCV		2227585
113	CCB		2254509
114	SAMPLE	218176-002	2273909
115	ICSAB		2025779
117	BLANK	QC532099	2359319
118	BS	QC532100	2241078
119	BSD	QC532101	2263665

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 80059538

Date : 02/10/10 Reference : met08_sn_6010
Sequence : MET08 02/10/10 Analyzed : 02/10/10 08:24

#	Type	Sample ID	Y A
120	MSS	218164-001	2231220
121	MS	QC532102	2199956
122	MSD	QC532103	2176478
123	SER	QC532104	2274533
125	CCV		2231103
126	CCB		2312747
127	PDS	QC532105	2142694
128	SAMPLE	218164-002	2161092
129	SAMPLE	218164-003	2186576
130	SAMPLE	218164-005	2205324
131	SAMPLE	218164-007	2233475
132	SAMPLE	218147-001	2186471
133	SAMPLE	218147-002	2216903
134	SAMPLE	218147-003	2288430
135	SAMPLE	218147-004	2181105
136	SAMPLE	218147-005	2257087
138	CCV		2212762
139	CCB		2308559
140	SAMPLE	218147-006	2265417
141	SAMPLE	218147-010	2204963
144	BLANK	QC532111	2412318
145	BS	QC532112	2280938
146	BSD	QC532113	2343852
147	MSS	218167-001	2290141
148	MS	QC532114	2296005
149	MSD	QC532115	2326424
151	CCV		2261759
152	CCB		2340901
153	SER	QC532116	2357894
154	PDS	QC532117	2303060
155	SAMPLE	218167-002	2361163
156	SAMPLE	218167-003	2293275
157	SAMPLE	218167-004	2350725
158	SAMPLE	218167-005	2355087
159	SAMPLE	218167-006	2345445
160	SAMPLE	218167-007	2261932
161	SAMPLE	218167-008	2244658
162	SAMPLE	218167-009	2228274
163	CCV		2251469
164	CCB		2328124
165	SAMPLE	218167-010	2207965
166	SAMPLE	218167-011	2183910
167	SAMPLE	218178-001	2370824
168	SAMPLE	218076-002	2239337
169	SAMPLE	218173-001	2227891
170	ICSAB		1998657
171	CCV		2301696
173	CCB		2336394
176	ICSAB		1864488
178	CCV		2058620
179	CCB		2137933
180	SAMPLE	218084-002	2176719

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 80059538

Date : 02/10/10 Reference : met08_sn_6010
Sequence : MET08 02/10/10 Analyzed : 02/10/10 08:24

#	Type	Sample ID	Y A
181	SAMPLE	218085-001	2062761
182	SAMPLE	218085-002	2017520
183	SAMPLE	218086-001	2022420
184	SAMPLE	218086-002	2012346
185	SAMPLE	218088-001	2015603
186	SAMPLE	218088-002	2034579
187	SAMPLE	218088-003	2089998
188	SAMPLE	218175-001	2006712
189	SAMPLE	218175-002	2021255
190	CCV		1991428
191	CCB		2024096
192	SAMPLE	218176-001	2071327
193	SAMPLE	218176-002	2017062
194	SAMPLE	218086-002	2032383
195	ICSAB		1780791
196	CCV		2038357
197	CCB		2030528

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 218202 METALS Filtrate: EPA 6010B

Inst : MET08 Reviewer : ---
Calnum : 80059538001 Date : 10-FEB-2010 08:18
Units : ug/L X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met08_sn_6010	80059538002	CRIM08	10-FEB-2010 08:24	S13742
L2	met08_sn_6010	80059538003	CS100	10-FEB-2010 08:30	S13802
L3	met08_sn_6010	80059538004	CS1K	10-FEB-2010 08:34	S13801
L4	met08_sn_6010	80059538005	CS10K	10-FEB-2010 08:40	S13743
L5	met08_sn_6010	80059538006	CS100K	10-FEB-2010 08:46	S13418

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Antimony	A	47.360	83.125	85.733	89.625		LOR0	0.00000	0.01116		76.461	1.000	0.995	
Arsenic	A	12.380	10.252	10.725	11.316		LOR0	0.00000	0.08841		11.168	1.000	0.995	
Barium	A	145.70	135.94	138.42	140.44		LOR0	0.00000	0.00712		140.13	1.000	0.995	
Beryllium	A	1897.3	1987.7	2052.1			LOR0	0.00000	4.87E-4		1979.0	1.000	0.995	
Cadmium	A	143.38	139.11	145.56	146.55		LOR0	0.00000	0.00682		143.65	1.000	0.995	
Chromium	A	23.720	29.049	30.128	31.039		LOR0	0.00000	0.03223		28.484	1.000	0.995	
Cobalt	A	49.140	51.743	53.893	54.855		LOR0	0.00000	0.01823		52.408	1.000	0.995	
Copper	A	161.02	117.06	120.60	122.05		LOR0	0.00000	0.00819		130.18	1.000	0.995	
Lead	A	24.640	36.941	37.525	37.973		LOR0	0.00000	0.02634		34.270	1.000	0.995	
Molybdenum	A	22.420	18.399	18.880	19.357		LOR0	0.00000	0.05167		19.764	1.000	0.995	
Nickel	A	17.760	19.603	20.479	20.852		LOR0	0.00000	0.04797		19.673	1.000	0.995	
Selenium	A	14.240	16.797	16.608	17.327		LOR0	0.00000	0.05774		16.243	1.000	0.995	
Silver	A	342.38	369.94	384.36	390.81		LOR0	0.00000	0.00257		371.87	1.000	0.995	
Thallium	A	41.430	43.433	45.824	45.917		LOR0	0.00000	0.02178		44.151	1.000	0.995	
Vanadium	A	48.460	53.779	56.693	59.312		LOR0	0.00000	0.01687		54.561	1.000	0.995	
Zinc	A	54.455	51.950	53.378	54.664		LOR0	0.00000	0.01830		53.612	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Antimony	A	10.00	**-47**	100.0	-7	1000	-4	10000	0		
Arsenic	A	5.000	9	100.0	-9	1000	-5	10000	0		
Barium	A	5.000	4	100.0	-3	1000	-1	10000	0		
Beryllium	A	2.000	-8	100.0	-3	1000	0				
Cadmium	A	5.000	-2	100.0	-5	1000	-1	10000	0		
Chromium	A	5.000	**-24**	100.0	-6	1000	-3	10000	0		
Cobalt	A	5.000	-10	100.0	-6	1000	-2	10000	0		
Copper	A	5.000	**32**	100.0	-4	1000	-1	10000	0		
Lead	A	5.000	**-35**	100.0	-3	1000	-1	10000	0		
Molybdenum	A	5.000	16	100.0	-5	1000	-2	10000	0		
Nickel	A	5.000	-15	100.0	-6	1000	-2	10000	0		
Selenium	A	10.00	-18	100.0	-3	1000	-4	10000	0		
Silver	A	5.000	-12	100.0	-5	1000	-1	2000	0		
Thallium	A	10.00	-10	100.0	-5	1000	0	10000	0		
Vanadium	A	5.000	-18	100.0	-9	1000	-4	10000	0		
Zinc	A	20.00	0	100.0	-5	1000	-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 218202 METALS Filtrate
EPA 6010B

Inst : MET08
Calnum : 80059538001 Cal Date : 10-FEB-2010

ICV 80059538007 (10-FEB-2010) stds: S13454

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	5000	4776	ug/L	-4	10	
Arsenic	A	5000	4767	ug/L	-5	10	
Barium	A	5000	4816	ug/L	-4	10	
Beryllium	A	500.0	514.1	ug/L	3	10	
Cadmium	A	5000	4958	ug/L	-1	10	
Chromium	A	5000	4695	ug/L	-6	10	
Cobalt	A	5000	4793	ug/L	-4	10	
Copper	A	5000	4744	ug/L	-5	10	
Lead	A	5000	4699	ug/L	-6	10	
Molybdenum	A	5000	4882	ug/L	-2	10	
Nickel	A	5000	4767	ug/L	-5	10	
Selenium	A	5000	4901	ug/L	-2	10	
Silver	A	1000	952.7	ug/L	-5	10	
Thallium	A	5000	4759	ug/L	-5	10	
Vanadium	A	5000	4838	ug/L	-3	10	
Zinc	A	5000	4929	ug/L	-1	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 218202 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 80059538008.1 File : met08_sn_6010 Time : 10-FEB-2010 08:58
Cal : 80059538001 Caldate : 10-FEB-2010

Analyte	Ch	Quant	IQL	2X MDL	Units	Flags
Antimony	A	ND	10.00	6.580	ug/L	
Arsenic	A	[4.135]	5.000	3.200	ug/L	!ib
Barium	A	ND	5.000	2.669	ug/L	
Beryllium	A	ND	2.000	0.8000	ug/L	
Cadmium	A	ND	5.000	2.822	ug/L	
Chromium	A	ND	5.000	3.200	ug/L	
Cobalt	A	ND	5.000	2.000	ug/L	
Copper	A	ND	5.000	2.514	ug/L	
Lead	A	ND	5.000	2.054	ug/L	
Molybdenum	A	ND	5.000	2.550	ug/L	
Nickel	A	ND	5.000	2.062	ug/L	
Selenium	A	[9.162]	10.00	5.003	ug/L	!ib
Silver	A	ND	5.000	2.000	ug/L	
Thallium	A	ND	10.00	5.231	ug/L	
Vanadium	A	ND	5.000	2.000	ug/L	
Zinc	A	ND	20.00	12.73	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2314614	2380281	2.84

!=warning ib=instrument blank

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 218202 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 80059538009.1 File : met08_sn_6010 Time : 10-FEB-2010 09:18
Cal : 80059538001 Caldate : 10-FEB-2010
Standards: S13419

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	[-0.1935]	10.00	ug/L	
Arsenic	A	[-2.394]	5.000	ug/L	
Barium	A	[4.529]	5.000	ug/L	!a+
Beryllium	A	[-0.03085]	2.000	ug/L	
Cadmium	A	[4.813]	5.000	ug/L	!a+
Cobalt	A	[0.5920]	5.000	ug/L	
Lead	A	[3.913]	5.000	ug/L	!a+
Molybdenum	A	[3.986]	5.000	ug/L	!a+
Selenium	A	[-7.306]	10.00	ug/L	!a-
Silver	A	[3.781]	5.000	ug/L	!a+
Thallium	A	[4.003]	10.00	ug/L	
Zinc	A	[-1.475]	20.00	ug/L	

Interferent	Ch	Spiked	Quant	Units	%Rec
Chromium	A	20000	18530	ug/L	93
Copper	A	20000	18590	ug/L	93
Manganese	A	20000	17940	ug/L	90
Nickel	A	20000	17780	ug/L	89
Vanadium	A	20000	19450	ug/L	97
Aluminum	R	500000	492300	ug/L	98
Calcium	R	500000	462300	ug/L	92
Iron	R	200000	188500	ug/L	94
Magnesium	R	500000	480200	ug/L	96
Titanium	R	20000	20350	ug/L	102

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2314614	2076207	-10.30

!=warning +=high bias -=low bias a=ICSA

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 218202 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 80059538046.1 File : met08_sn_6010 Time : 10-FEB-2010 13:31
Cal : 80059538001 Caldate : 10-FEB-2010
Standards: S13812

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	479.0	ug/L	-4	20	
Arsenic	A	500.0	440.8	ug/L	-12	20	
Barium	A	500.0	485.5	ug/L	-3	20	
Beryllium	A	500.0	523.1	ug/L	5	20	
Cadmium	A	1000	984.2	ug/L	-2	20	
Chromium	A	500.0	464.9	ug/L	-7	20	
Cobalt	A	500.0	442.9	ug/L	-11	20	
Copper	A	500.0	481.2	ug/L	-4	20	
Lead	A	1000	922.6	ug/L	-8	20	
Molybdenum	A	500.0	485.8	ug/L	-3	20	
Nickel	A	1000	895.1	ug/L	-10	20	
Selenium	A	500.0	504.4	ug/L	1	20	
Silver	A	1000	1022	ug/L	2	20	
Thallium	A	500.0	467.7	ug/L	-6	20	
Vanadium	A	500.0	479.6	ug/L	-4	20	
Zinc	A	1000	970.6	ug/L	-3	20	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2314614	2088173	-9.78

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 218202 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 80059538047.1 File : met08_sn_6010 Time : 10-FEB-2010 13:37
Cal : 80059538001 Caldate : 10-FEB-2010
Standards: S13455

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	76.461	89.321	5000	4985	ug/L	0	10	
Arsenic	A	11.168	10.631	5000	4699	ug/L	-6	10	
Barium	A	140.13	130.44	5000	4645	ug/L	-7	10	
Beryllium	A	1979.0	2101.2	500.0	512.1	ug/L	2	10	
Cadmium	A	143.65	143.74	5000	4905	ug/L	-2	10	
Chromium	A	28.484	28.660	5000	4618	ug/L	-8	10	
Cobalt	A	52.408	52.130	5000	4740	ug/L	-5	10	
Copper	A	130.18	112.94	5000	4628	ug/L	-7	10	
Lead	A	34.270	35.728	5000	4705	ug/L	-6	10	
Molybdenum	A	19.764	18.489	5000	4777	ug/L	-4	10	
Nickel	A	19.673	19.671	5000	4718	ug/L	-6	10	
Selenium	A	16.243	16.927	5000	4887	ug/L	-2	10	
Silver	A	371.87	359.73	1000	923.6	ug/L	-8	10	
Thallium	A	44.151	44.464	5000	4842	ug/L	-3	10	
Vanadium	A	54.561	56.714	5000	4783	ug/L	-4	10	
Zinc	A	53.612	53.612	5000	4905	ug/L	-2	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2314614	2378205	2.75

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 218202 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 80059538048.1 File : met08_sn_6010 Time : 10-FEB-2010 13:42
Cal : 80059538001 Caldate : 10-FEB-2010

Analyte	Ch	Quant	IQL	2X MDL	Units	Flags
Antimony	A	ND	10.00	6.580	ug/L	
Arsenic	A	[3.415]	5.000	3.200	ug/L	!ib
Barium	A	ND	5.000	2.669	ug/L	
Beryllium	A	ND	2.000	0.8000	ug/L	
Cadmium	A	ND	5.000	2.822	ug/L	
Chromium	A	ND	5.000	3.200	ug/L	
Cobalt	A	ND	5.000	2.000	ug/L	
Copper	A	ND	5.000	2.514	ug/L	
Lead	A	ND	5.000	2.054	ug/L	
Molybdenum	A	ND	5.000	2.550	ug/L	
Nickel	A	ND	5.000	2.062	ug/L	
Selenium	A	ND	10.00	5.003	ug/L	
Silver	A	ND	5.000	2.000	ug/L	
Thallium	A	ND	10.00	5.231	ug/L	
Vanadium	A	ND	5.000	2.000	ug/L	
Zinc	A	ND	20.00	12.73	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2314614	2376008	2.65

!=warning ib=instrument blank

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 218202 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 80059538059.1 File : met08_sn_6010 Time : 10-FEB-2010 14:45
Cal : 80059538001 Caldate : 10-FEB-2010
Standards: S13455

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	76.461	93.983	5000	5245	ug/L	5	10	
Arsenic	A	11.168	10.928	5000	4831	ug/L	-3	10	
Barium	A	140.13	132.00	5000	4700	ug/L	-6	10	
Beryllium	A	1979.0	2144.4	500.0	522.7	ug/L	5	10	
Cadmium	A	143.65	147.66	5000	5038	ug/L	1	10	
Chromium	A	28.484	29.213	5000	4707	ug/L	-6	10	
Cobalt	A	52.408	53.299	5000	4847	ug/L	-3	10	
Copper	A	130.18	114.08	5000	4674	ug/L	-7	10	
Lead	A	34.270	36.749	5000	4839	ug/L	-3	10	
Molybdenum	A	19.764	18.818	5000	4862	ug/L	-3	10	
Nickel	A	19.673	20.141	5000	4830	ug/L	-3	10	
Selenium	A	16.243	17.251	5000	4980	ug/L	0	10	
Silver	A	371.87	364.10	1000	934.8	ug/L	-7	10	
Thallium	A	44.151	45.769	5000	4984	ug/L	0	10	
Vanadium	A	54.561	57.675	5000	4864	ug/L	-3	10	
Zinc	A	53.612	55.232	5000	5053	ug/L	1	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2314614	2260108	-2.35

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 218202 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 80059538060.1 File : met08_sn_6010 Time : 10-FEB-2010 14:51
Cal : 80059538001 Caldate : 10-FEB-2010

Analyte	Ch	Quant	IQL	2X MDL	Units	Flags
Antimony	A	ND	10.00	6.580	ug/L	
Arsenic	A	ND	5.000	3.200	ug/L	
Barium	A	ND	5.000	2.669	ug/L	
Beryllium	A	ND	2.000	0.8000	ug/L	
Cadmium	A	ND	5.000	2.822	ug/L	
Chromium	A	ND	5.000	3.200	ug/L	
Cobalt	A	ND	5.000	2.000	ug/L	
Copper	A	ND	5.000	2.514	ug/L	
Lead	A	ND	5.000	2.054	ug/L	
Molybdenum	A	ND	5.000	2.550	ug/L	
Nickel	A	ND	5.000	2.062	ug/L	
Selenium	A	ND	10.00	5.003	ug/L	
Silver	A	ND	5.000	2.000	ug/L	
Thallium	A	ND	10.00	5.231	ug/L	
Vanadium	A	ND	5.000	2.000	ug/L	
Zinc	A	ND	20.00	12.73	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2314614	2361958	2.05

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 218202 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 80059538067.1 File : met08_sn_6010 Time : 10-FEB-2010 15:31
Cal : 80059538001 Caldate : 10-FEB-2010
Standards: S13812

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	500.1	ug/L	0	20	
Arsenic	A	500.0	425.0	ug/L	-15	20	
Barium	A	500.0	480.2	ug/L	-4	20	
Beryllium	A	500.0	524.6	ug/L	5	20	
Cadmium	A	1000	987.3	ug/L	-1	20	
Chromium	A	500.0	469.1	ug/L	-6	20	
Cobalt	A	500.0	448.0	ug/L	-10	20	
Copper	A	500.0	454.6	ug/L	-9	20	
Lead	A	1000	935.3	ug/L	-6	20	
Molybdenum	A	500.0	487.6	ug/L	-2	20	
Nickel	A	1000	911.3	ug/L	-9	20	
Selenium	A	500.0	555.7	ug/L	11	20	
Silver	A	1000	1009	ug/L	1	20	
Thallium	A	500.0	448.0	ug/L	-10	20	
Vanadium	A	500.0	484.9	ug/L	-3	20	
Zinc	A	1000	978.5	ug/L	-2	20	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2314614	2069520	-10.59

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 218202 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 80059538071.1 File : met08_sn_6010 Time : 10-FEB-2010 15:55
Cal : 80059538001 Caldate : 10-FEB-2010
Standards: S13455

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	76.461	94.888	5000	5296	ug/L	6	10	
Arsenic	A	11.168	10.853	5000	4798	ug/L	-4	10	
Barium	A	140.13	130.69	5000	4654	ug/L	-7	10	
Beryllium	A	1979.0	2150.7	500.0	524.2	ug/L	5	10	
Cadmium	A	143.65	147.08	5000	5018	ug/L	0	10	
Chromium	A	28.484	29.137	5000	4695	ug/L	-6	10	
Cobalt	A	52.408	53.259	5000	4843	ug/L	-3	10	
Copper	A	130.18	112.73	5000	4619	ug/L	-8	10	
Lead	A	34.270	36.785	5000	4844	ug/L	-3	10	
Molybdenum	A	19.764	18.634	5000	4814	ug/L	-4	10	
Nickel	A	19.673	20.095	5000	4819	ug/L	-4	10	
Selenium	A	16.243	17.246	5000	4979	ug/L	0	10	
Silver	A	371.87	360.57	1000	925.8	ug/L	-7	10	
Thallium	A	44.151	45.806	5000	4988	ug/L	0	10	
Vanadium	A	54.561	57.542	5000	4853	ug/L	-3	10	
Zinc	A	53.612	55.185	5000	5049	ug/L	1	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2314614	2280212	-1.49

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 218202 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 80059538072.1 File : met08_sn_6010 Time : 10-FEB-2010 16:01
Cal : 80059538001 Caldate : 10-FEB-2010

Analyte	Ch	Quant	IQL	2X MDL	Units	Flags
Antimony	A	ND	10.00	6.580	ug/L	
Arsenic	A	ND	5.000	3.200	ug/L	
Barium	A	ND	5.000	2.669	ug/L	
Beryllium	A	ND	2.000	0.8000	ug/L	
Cadmium	A	ND	5.000	2.822	ug/L	
Chromium	A	ND	5.000	3.200	ug/L	
Cobalt	A	ND	5.000	2.000	ug/L	
Copper	A	ND	5.000	2.514	ug/L	
Lead	A	ND	5.000	2.054	ug/L	
Molybdenum	A	ND	5.000	2.550	ug/L	
Nickel	A	ND	5.000	2.062	ug/L	
Selenium	A	[5.908]	10.00	5.003	ug/L	!ib
Silver	A	ND	5.000	2.000	ug/L	
Thallium	A	ND	10.00	5.231	ug/L	
Vanadium	A	ND	5.000	2.000	ug/L	
Zinc	A	ND	20.00	12.73	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2314614	2404808	3.90

!=warning ib=instrument blank

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 218202 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 80059538083 File : met08_sn_6010 Time : 10-FEB-2010 17:10
Cal : 80059538001 Caldate : 10-FEB-2010
Standards: S13455

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	76.461	95.474	5000	5329	ug/L	7	10	
Arsenic	A	11.168	10.394	5000	4595	ug/L	-8	10	
Barium	A	140.13	126.87	5000	4518	ug/L	-10	10	
Beryllium	A	1979.0	2096.8	500.0	511.1	ug/L	2	10	
Cadmium	A	143.65	143.16	5000	4885	ug/L	-2	10	
Chromium	A	28.484	28.241	5000	4551	ug/L	-9	10	
Cobalt	A	52.408	52.167	5000	4744	ug/L	-5	10	
Copper	A	130.18	108.92	5000	4463	ug/L	**-11**	10	c- ***
Lead	A	34.270	35.707	5000	4702	ug/L	-6	10	
Molybdenum	A	19.764	18.228	5000	4709	ug/L	-6	10	
Nickel	A	19.673	19.575	5000	4695	ug/L	-6	10	
Selenium	A	16.243	16.580	5000	4787	ug/L	-4	10	
Silver	A	371.87	348.04	1000	893.6	ug/L	**-11**	10	c- ***
Thallium	A	44.151	45.399	5000	4944	ug/L	-1	10	
Vanadium	A	54.561	56.407	5000	4757	ug/L	-5	10	
Zinc	A	53.612	53.685	5000	4912	ug/L	-2	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2314614	2299951	-0.63

-=low bias c=CCV

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 218202 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 80059538085 File : met08_sn_6010 Time : 10-FEB-2010 17:17
Cal : 80059538001 Caldate : 10-FEB-2010

Analyte	Ch	Quant	IQL	2X MDL	Units	Flags
Antimony	A	ND	10.00	6.580	ug/L	
Arsenic	A	ND	5.000	3.200	ug/L	
Barium	A	ND	5.000	2.669	ug/L	
Beryllium	A	ND	2.000	0.8000	ug/L	
Cadmium	A	ND	5.000	2.822	ug/L	
Chromium	A	ND	5.000	3.200	ug/L	
Cobalt	A	ND	5.000	2.000	ug/L	
Copper	A	ND	5.000	2.514	ug/L	
Lead	A	ND	5.000	2.054	ug/L	
Molybdenum	A	ND	5.000	2.550	ug/L	
Nickel	A	ND	5.000	2.062	ug/L	
Selenium	A	ND	10.00	5.003	ug/L	
Silver	A	ND	5.000	2.000	ug/L	
Thallium	A	ND	10.00	5.231	ug/L	
Vanadium	A	ND	5.000	2.000	ug/L	
Zinc	A	ND	20.00	12.73	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2314614	2425063	4.77

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 218202 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 80059538115 File : met08_sn_6010 Time : 10-FEB-2010 19:55
Cal : 80059538001 Caldate : 10-FEB-2010
Standards: S13812

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	524.4	ug/L	5	20	
Arsenic	A	500.0	371.1	ug/L	**-26**	20	ab- ***
Barium	A	500.0	443.5	ug/L	-11	20	
Beryllium	A	500.0	487.8	ug/L	-2	20	
Cadmium	A	1000	896.9	ug/L	-10	20	
Chromium	A	500.0	436.4	ug/L	-13	20	
Cobalt	A	500.0	415.2	ug/L	-17	20	
Copper	A	500.0	412.1	ug/L	-18	20	
Lead	A	1000	864.3	ug/L	-14	20	
Molybdenum	A	500.0	451.0	ug/L	-10	20	
Nickel	A	1000	840.6	ug/L	-16	20	
Selenium	A	500.0	449.0	ug/L	-10	20	
Silver	A	1000	918.6	ug/L	-8	20	
Thallium	A	500.0	422.1	ug/L	-16	20	
Vanadium	A	500.0	459.9	ug/L	-8	20	
Zinc	A	1000	889.1	ug/L	-11	20	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2314614	2025779	-12.48

-=low bias ab=ICSAB

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 80061128

Instrument : MET08 Begun : 02/11/10 10:48
Method : EPA 6010B SOP Version : icp metals_rv9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met08_sn_6010	ICALBLK				02/11/10 10:48	1.0		
002	met08_sn_6010	ICAL	CRIM08			02/11/10 10:54	1.0	1	
003	met08_sn_6010	ICAL	CS100			02/11/10 11:00	1.0	2	
004	met08_sn_6010	ICAL	CS1K			02/11/10 11:04	1.0	3	
005	met08_sn_6010	ICAL	CS10K			02/11/10 11:10	1.0	4	
006	met08_sn_6010	ICAL	CS100K			02/11/10 11:18	1.0	5	
007	met08_sn_6010	ICV				02/11/10 11:24	1.0	6	
008	met08_sn_6010	ICB				02/11/10 11:30	1.0		
009	met08_sn_6010	ICSA				02/11/10 11:36	1.0	7	10:AL=500000
010	met08_sn_6010	ICSAB				02/11/10 12:02	1.0	8	5:AL=490000
011	met08_sn_6010	X	RINSE			02/11/10 12:08	1.0		
012	met08_sn_6010	CRI				02/11/10 12:14	1.0	9	
013	met08_sn_6010	BLANK	QC532202	Soil	159928	02/11/10 12:19	1.0		
014	met08_sn_6010	LOD	209512-030	Soil	159928	02/11/10 12:25	1.0		
015	met08_sn_6010	BLANK	QC532317	TCLP Leachate	159962	02/11/10 12:31	10.0		1:NA=130000
016	met08_sn_6010	BS	QC532318	TCLP Leachate	159962	02/11/10 12:36	1.0		
017	met08_sn_6010	BSD	QC532319	TCLP Leachate	159962	02/11/10 12:41	1.0		
018	met08_sn_6010	MSS	218221-001	TCLP Leachate	159962	02/11/10 12:46	10.0		1:NA=160000
019	met08_sn_6010	CCV				02/11/10 12:52	1.0	10	
020	met08_sn_6010	CCB				02/11/10 12:58	1.0		
021	met08_sn_6010	MS	QC532320	TCLP Leachate	159962	02/11/10 13:03	10.0		
022	met08_sn_6010	MSD	QC532321	TCLP Leachate	159962	02/11/10 13:09	10.0		
023	met08_sn_6010	SER	QC532322	TCLP Leachate	159962	02/11/10 13:15	50.0		
024	met08_sn_6010	PDS	QC532323	TCLP Leachate	159962	02/11/10 13:20	10.0	11 12	1:NA=200000
025	met08_sn_6010	SAMPLE	218170-001	TCLP Leachate	159962	02/11/10 13:25	10.0		1:NA=170000
026	met08_sn_6010	ICSAB				02/11/10 13:39	1.0	8	5:AL=490000
027	met08_sn_6010	X	RINSE			02/11/10 13:45	1.0		
028	met08_sn_6010	SAMPLE	218173-003	Filtrate	159872	02/11/10 13:50	1.0		
029	met08_sn_6010	SAMPLE	218187-001	Filtrate	159872	02/11/10 13:56	1.0		
030	met08_sn_6010	SAMPLE	218187-002	Filtrate	159872	02/11/10 14:02	1.0		
031	met08_sn_6010	CCV				02/11/10 14:07	1.0	10	
032	met08_sn_6010	CCB				02/11/10 14:13	1.0		
033	met08_sn_6010	SAMPLE	218187-004	Filtrate	159872	02/11/10 14:19	1.0		4:NA=920000
034	met08_sn_6010	SAMPLE	218187-005	Filtrate	159872	02/11/10 14:27	1.0		1:NA=770000
035	met08_sn_6010	SAMPLE	218187-006	Filtrate	159872	02/11/10 14:35	1.0		1:NA=500000
036	met08_sn_6010	SAMPLE	218187-008	Filtrate	159872	02/11/10 14:41	1.0		3:CA=400000
037	met08_sn_6010	SAMPLE	218187-009	Filtrate	159872	02/11/10 14:47	1.0		4:NA=590000
038	met08_sn_6010	SAMPLE	218187-009	Filtrate	159872	02/11/10 14:55	10.0		
039	met08_sn_6010	SAMPLE	218187-010	Filtrate	159872	02/11/10 15:01	1.0		4:NA=950000
040	met08_sn_6010	SAMPLE	218187-011	Filtrate	159872	02/11/10 15:08	1.0		2:CA=830000
041	met08_sn_6010	SAMPLE	218187-012	Filtrate	159872	02/11/10 15:15	1.0		4:CA=510000
042	met08_sn_6010	SAMPLE	218187-013	Filtrate	159872	02/11/10 15:20	1.0		
043	met08_sn_6010	X				02/11/10 15:26	1.0	10	
044	met08_sn_6010	CCV				02/11/10 15:28	1.0	10	
045	met08_sn_6010	CCB				02/11/10 15:34	1.0		
046	met08_sn_6010	SAMPLE	218202-001	Filtrate	159872	02/11/10 15:41	1.0		1:NA=260000
047	met08_sn_6010	ICSAB				02/11/10 15:48	1.0	8	5:MG=570000
048	met08_sn_6010	X	RINSE			02/11/10 15:54	1.0		
049	met08_sn_6010	BLANK	QC532111	Water	159912	02/11/10 16:00	1.0		
050	met08_sn_6010	BS	QC532112	Water	159912	02/11/10 16:06	1.0		
051	met08_sn_6010	BSD	QC532113	Water	159912	02/11/10 16:12	1.0		
052	met08_sn_6010	MSS	218167-001	Water	159912	02/11/10 16:18	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 80061128

Instrument : MET08 Begun : 02/11/10 10:48
Method : EPA 6010B SOP Version : icp metals_rv9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met08_sn_6010	MS	QC532114	Water	159912	02/11/10 16:24	1.0		
054	met08_sn_6010	MSD	QC532115	Water	159912	02/11/10 16:29	1.0		
055	met08_sn_6010	SER	QC532116	Water	159912	02/11/10 16:35	5.0		
056	met08_sn_6010	CCV				02/11/10 16:41	1.0	10	
057	met08_sn_6010	X				02/11/10 16:42	1.0	10	
058	met08_sn_6010	CCB				02/11/10 16:48	1.0		
059	met08_sn_6010	PDS	QC532117	Water	159912	02/11/10 16:54	1.0	13 14	
060	met08_sn_6010	ICSAB				02/11/10 17:00	1.0	8	5:MG=540000
061	met08_sn_6010	X	RINSE			02/11/10 17:06	1.0		
062	met08_sn_6010	BLANK	QC532099	Filtrate	159910	02/11/10 17:11	1.0		
063	met08_sn_6010	BS	QC532100	Filtrate	159910	02/11/10 17:17	1.0		
064	met08_sn_6010	BSD	QC532101	Filtrate	159910	02/11/10 17:22	1.0		
065	met08_sn_6010	MSS	218164-001	Filtrate	159910	02/11/10 17:28	1.0		1:NA=200000
066	met08_sn_6010	MS	QC532102	Filtrate	159910	02/11/10 17:34	1.0		
067	met08_sn_6010	MSD	QC532103	Filtrate	159910	02/11/10 17:39	1.0		
068	met08_sn_6010	SER	QC532104	Filtrate	159910	02/11/10 17:45	5.0		
069	met08_sn_6010	X				02/11/10 17:51	1.0	10	
070	met08_sn_6010	CCV				02/11/10 17:53	1.0	10	
071	met08_sn_6010	CCB				02/11/10 17:58	1.0		
072	met08_sn_6010	PDS	QC532105	Filtrate	159910	02/11/10 18:04	1.0	13 14	
073	met08_sn_6010	SAMPLE	218164-002	Filtrate	159910	02/11/10 18:10	1.0		1:NA=250000
074	met08_sn_6010	SAMPLE	218164-003	Filtrate	159910	02/11/10 18:16	1.0		1:NA=240000
075	met08_sn_6010	SAMPLE	218147-010	Filtrate	159910	02/11/10 18:21	1.0		1:NA=210000
076	met08_sn_6010	ICSAB				02/11/10 18:27	1.0	8	5:MG=540000
077	met08_sn_6010	CCV				02/11/10 18:33	1.0	10	
078	met08_sn_6010	CCB				02/11/10 18:39	1.0		

AH 02/12/10 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 78.

Standards used: 1=S13742 2=S13802 3=S13801 4=S13743 5=S13418 6=S13454 7=S13419 8=S13812 9=S13765 10=S13455 11=S12182 12=S12183 13=S12746 14=S12747

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 80061128

Date : 02/11/10 Reference : met08_sn_6010
Sequence : MET08 02/11/10 Analyzed : 02/11/10 10:54

#	Type	Sample ID	Y A
		ICAL STD	2040454
		LOWER LIMIT	612136
		UPPER LIMIT	4080909
008	ICB		1993415
009	ICSA		1850171
010	ICSAB		1802735
013	BLANK	QC532202	2043133
014	LOD	209512-030	2018787
015	BLANK	QC532317	1929158
016	BS	QC532318	2117732
017	BSD	QC532319	2065489
018	MSS	218221-001	1969099
019	CCV		1962765
020	CCB		2049412
021	MS	QC532320	2021295
022	MSD	QC532321	1928149
023	SER	QC532322	2046357
024	PDS	QC532323	1926475
025	SAMPLE	218170-001	1993008
026	ICSAB		1882669
028	SAMPLE	218173-003	1983536
029	SAMPLE	218187-001	2040052
030	SAMPLE	218187-002	2092957
031	CCV		1994276
032	CCB		2032454
033	SAMPLE	218187-004	1934985
034	SAMPLE	218187-005	1909268
035	SAMPLE	218187-006	1957672
036	SAMPLE	218187-008	1979036
037	SAMPLE	218187-009	2033813
038	SAMPLE	218187-009	1961027
039	SAMPLE	218187-010	1972710
040	SAMPLE	218187-011	2004683
041	SAMPLE	218187-012	2009475
042	SAMPLE	218187-013	2083641
044	CCV		2090971
045	CCB		2061363
046	SAMPLE	218202-001	2086862
047	ICSAB		1876709
049	BLANK	QC532111	2125589
050	BS	QC532112	2074136
051	BSD	QC532113	2092057
052	MSS	218167-001	2154601
053	MS	QC532114	2111157
054	MSD	QC532115	2058827
055	SER	QC532116	2013925
056	CCV		2092984
058	CCB		2119737
059	PDS	QC532117	2007702
060	ICSAB		1911671
062	BLANK	QC532099	2098946

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 80061128

Date : 02/11/10 Reference : met08_sn_6010
Sequence : MET08 02/11/10 Analyzed : 02/11/10 10:54

#	Type	Sample ID	Y A
063	BS	QC532100	2075748
064	BSD	QC532101	1996187
065	MSS	218164-001	2027514
066	MS	QC532102	2053318
067	MSD	QC532103	1990391
068	SER	QC532104	2059876
070	CCV		2014607
071	CCB		2082564
072	PDS	QC532105	2066207
073	SAMPLE	218164-002	2037384
074	SAMPLE	218164-003	2109805
075	SAMPLE	218147-010	2030294
076	ICSAB		1929117
077	CCV		2048388
078	CCB		2048863

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 218202 METALS Filtrate: EPA 6010B

Inst : MET08 Reviewer : ---
Calnum : 80061128001 Date : 11-FEB-2010 10:48
Units : ug/L X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met08_sn_6010	80061128002	CRIM08	11-FEB-2010 10:54	S13742
L2	met08_sn_6010	80061128003	CS100	11-FEB-2010 11:00	S13802
L3	met08_sn_6010	80061128004	CS1K	11-FEB-2010 11:04	S13801
L4	met08_sn_6010	80061128005	CS10K	11-FEB-2010 11:10	S13743
L5	met08_sn_6010	80061128006	CS100K	11-FEB-2010 11:18	S13418

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Antimony	A	80.400	89.913	88.338	88.855		LOR0	0.00000	0.01125		86.877	1.000	0.995	
Arsenic	A	10.760	9.8690	9.6642	10.098		LOR0	0.00000	0.09907		10.098	1.000	0.995	
Barium	A	128.60	126.32	125.62	125.23		LOR0	0.00000	0.00799		126.44	1.000	0.995	
Beryllium	A	2000.3	1887.5	1862.7			LOR0	0.00000	5.37E-4		1916.8	1.000	0.995	
Cadmium	A	169.40	163.15	162.39	158.96		LOR0	0.00000	0.00629		163.47	1.000	0.995	
Chromium	A	21.420	26.199	26.532	26.867		LOR0	0.00000	0.03722		25.255	1.000	0.995	
Cobalt	A	45.240	50.114	49.910	49.686		LOR0	0.00000	0.02013		48.737	1.000	0.995	
Copper	A	112.98	104.39	103.68	103.63		LOR0	0.00000	0.00965		106.17	1.000	0.995	
Lead	A	43.520	35.613	34.051	34.243		LOR0	0.00000	0.02920		36.857	1.000	0.995	
Molybdenum	A	15.320	16.965	16.740	17.023		LOR0	0.00000	0.05876		16.512	1.000	0.995	
Nickel	A	13.780	18.469	18.670	18.594		LOR0	0.00000	0.05378		17.378	1.000	0.995	
Selenium	A	20.590	15.869	14.719	15.291		LOR0	0.00000	0.06542		16.617	1.000	0.995	
Silver	A	368.28	435.56	441.91	442.52		LOR0	0.00000	0.00226		422.07	1.000	0.995	
Thallium	A	43.720	45.035	43.648	43.203		LOR0	0.00000	0.02314		43.902	1.000	0.995	
Vanadium	A	43.380	49.530	50.831	51.851		LOR0	0.00000	0.01929		48.898	1.000	0.995	
Zinc	A	53.515	52.780	50.826	50.699		LOR0	0.00000	0.01972		51.955	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Antimony	A	10.00	-10	100.0	1	1000	-1	10000	0		
Arsenic	A	5.000	7	100.0	-2	1000	-4	10000	0		
Barium	A	5.000	3	100.0	1	1000	0	10000	0		
Beryllium	A	2.000	7	100.0	1	1000	0				
Cadmium	A	5.000	7	100.0	3	1000	2	10000	0		
Chromium	A	5.000	-20	100.0	-2	1000	-1	10000	0		
Cobalt	A	5.000	-9	100.0	1	1000	0	10000	0		
Copper	A	5.000	9	100.0	1	1000	0	10000	0		
Lead	A	5.000	**27**	100.0	4	1000	-1	10000	0		
Molybdenum	A	5.000	-10	100.0	0	1000	-2	10000	0		
Nickel	A	5.000	**-26**	100.0	-1	1000	0	10000	0		
Selenium	A	10.00	**35**	100.0	4	1000	-4	10000	0		
Silver	A	5.000	-17	100.0	-2	1000	0	2000	0		
Thallium	A	10.00	1	100.0	4	1000	1	10000	0		
Vanadium	A	5.000	-16	100.0	-4	1000	-2	10000	0		
Zinc	A	20.00	6	100.0	4	1000	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 218202 METALS Filtrate
EPA 6010B

Inst : MET08
Calnum : 80061128001 Cal Date : 11-FEB-2010

ICV 80061128007 (11-FEB-2010) stds: S13454

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	5000	5108	ug/L	2	10	
Arsenic	A	5000	4958	ug/L	-1	10	
Barium	A	5000	5087	ug/L	2	10	
Beryllium	A	500.0	527.1	ug/L	5	10	
Cadmium	A	5000	5217	ug/L	4	10	
Chromium	A	5000	5020	ug/L	0	10	
Cobalt	A	5000	5072	ug/L	1	10	
Copper	A	5000	5054	ug/L	1	10	
Lead	A	5000	4982	ug/L	0	10	
Molybdenum	A	5000	5175	ug/L	4	10	
Nickel	A	5000	5067	ug/L	1	10	
Selenium	A	5000	5063	ug/L	1	10	
Silver	A	1000	1020	ug/L	2	10	
Thallium	A	5000	5063	ug/L	1	10	
Vanadium	A	5000	5154	ug/L	3	10	
Zinc	A	5000	5198	ug/L	4	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 218202 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 80061128008.1 File : met08_sn_6010 Time : 11-FEB-2010 11:30
Cal : 80061128001 Caldate : 11-FEB-2010

Analyte	Ch	Quant	IQL	2X MDL	Units	Flags
Antimony	A	ND	10.00	6.580	ug/L	
Arsenic	A	ND	5.000	3.200	ug/L	
Barium	A	ND	5.000	2.669	ug/L	
Beryllium	A	ND	2.000	0.8000	ug/L	
Cadmium	A	ND	5.000	2.822	ug/L	
Chromium	A	ND	5.000	3.200	ug/L	
Cobalt	A	ND	5.000	2.000	ug/L	
Copper	A	ND	5.000	2.514	ug/L	
Lead	A	ND	5.000	2.054	ug/L	
Molybdenum	A	ND	5.000	2.550	ug/L	
Nickel	A	ND	5.000	2.062	ug/L	
Selenium	A	ND	10.00	5.003	ug/L	
Silver	A	ND	5.000	2.000	ug/L	
Thallium	A	ND	10.00	5.231	ug/L	
Vanadium	A	ND	5.000	2.000	ug/L	
Zinc	A	ND	20.00	12.73	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2040454	1993415	-2.31

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 218202 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 80061128009.1 File : met08_sn_6010 Time : 11-FEB-2010 11:36
Cal : 80061128001 Caldate : 11-FEB-2010
Standards: S13419

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	[-1.640]	10.00	ug/L	
Arsenic	A	[2.668]	5.000	ug/L	
Barium	A	[-1.765]	5.000	ug/L	
Beryllium	A	[-0.3688]	2.000	ug/L	
Cadmium	A	[3.849]	5.000	ug/L	!a+
Cobalt	A	[4.802]	5.000	ug/L	!a+
Lead	A	[-4.489]	5.000	ug/L	!a-
Molybdenum	A	[2.411]	5.000	ug/L	
Selenium	A	[-8.759]	10.00	ug/L	!a-
Silver	A	[4.297]	5.000	ug/L	!a+
Thallium	A	[-3.994]	10.00	ug/L	
Zinc	A	[-5.526]	20.00	ug/L	

Interferent	Ch	Spiked	Quant	Units	%Rec
Chromium	A	20000	19230	ug/L	96
Copper	A	20000	19840	ug/L	99
Manganese	A	20000	18920	ug/L	95
Nickel	A	20000	18650	ug/L	93
Vanadium	A	20000	19910	ug/L	100
Aluminum	R	500000	496700	ug/L	99
Calcium	R	500000	478600	ug/L	96
Iron	R	200000	192900	ug/L	96
Magnesium	R	500000	493000	ug/L	99
Titanium	R	20000	20800	ug/L	104

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2040454	1850171	-9.33

!=warning +=high bias -=low bias a=ICSA

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 218202 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 80061128026.1 File : met08_sn_6010 Time : 11-FEB-2010 13:39
Cal : 80061128001 Caldate : 11-FEB-2010
Standards: S13812

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	502.6	ug/L	1	20	
Arsenic	A	500.0	413.3	ug/L	-17	20	
Barium	A	500.0	502.5	ug/L	1	20	
Beryllium	A	500.0	518.5	ug/L	4	20	
Cadmium	A	1000	1003	ug/L	0	20	
Chromium	A	500.0	482.1	ug/L	-4	20	
Cobalt	A	500.0	469.3	ug/L	-6	20	
Copper	A	500.0	418.1	ug/L	-16	20	
Lead	A	1000	955.9	ug/L	-4	20	
Molybdenum	A	500.0	499.6	ug/L	0	20	
Nickel	A	1000	939.1	ug/L	-6	20	
Selenium	A	500.0	507.4	ug/L	1	20	
Silver	A	1000	1062	ug/L	6	20	
Thallium	A	500.0	408.9	ug/L	-18	20	
Vanadium	A	500.0	491.7	ug/L	-2	20	
Zinc	A	1000	987.3	ug/L	-1	20	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2040454	1882669	-7.73

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 218202 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 80061128044.1 File : met08_sn_6010 Time : 11-FEB-2010 15:28
Cal : 80061128001 Caldate : 11-FEB-2010
Standards: S13455

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	86.877	92.953	5000	5231	ug/L	5	10	
Arsenic	A	10.098	11.013	5000	5456	ug/L	9	10	
Barium	A	126.44	131.56	5000	5253	ug/L	5	10	
Beryllium	A	1916.8	2080.2	500.0	558.3	ug/L	**12**	10	c+ ***
Cadmium	A	163.47	179.61	5000	5648	ug/L	**13**	10	c+ ***
Chromium	A	25.255	27.695	5000	5155	ug/L	3	10	
Cobalt	A	48.737	53.486	5000	5369	ug/L	7	10	
Copper	A	106.17	107.93	5000	5208	ug/L	4	10	
Lead	A	36.857	36.093	5000	5270	ug/L	5	10	
Molybdenum	A	16.512	18.290	5000	5373	ug/L	7	10	
Nickel	A	17.378	19.710	5000	5300	ug/L	6	10	
Selenium	A	16.617	17.324	5000	5667	ug/L	**13**	10	c+ ***
Silver	A	422.07	456.43	1000	1032	ug/L	3	10	
Thallium	A	43.902	45.308	5000	5243	ug/L	5	10	
Vanadium	A	48.898	54.228	5000	5230	ug/L	5	10	
Zinc	A	51.955	57.615	5000	5682	ug/L	**14**	10	c+ ***

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2040454	2090971	2.48

+=high bias c=CCV

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 218202 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 80061128045.1 File : met08_sn_6010 Time : 11-FEB-2010 15:34
Cal : 80061128001 Caldate : 11-FEB-2010

Analyte	Ch	Quant	IQL	2X MDL	Units	Flags
Antimony	A	ND	10.00	6.580	ug/L	
Arsenic	A	ND	5.000	3.200	ug/L	
Barium	A	ND	5.000	2.669	ug/L	
Beryllium	A	ND	2.000	0.8000	ug/L	
Cadmium	A	ND	5.000	2.822	ug/L	
Chromium	A	ND	5.000	3.200	ug/L	
Cobalt	A	ND	5.000	2.000	ug/L	
Copper	A	ND	5.000	2.514	ug/L	
Lead	A	ND	5.000	2.054	ug/L	
Molybdenum	A	ND	5.000	2.550	ug/L	
Nickel	A	ND	5.000	2.062	ug/L	
Selenium	A	ND	10.00	5.003	ug/L	
Silver	A	ND	5.000	2.000	ug/L	
Thallium	A	ND	10.00	5.231	ug/L	
Vanadium	A	ND	5.000	2.000	ug/L	
Zinc	A	ND	20.00	12.73	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2040454	2061363	1.02

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 218202 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 80061128047.1 File : met08_sn_6010 Time : 11-FEB-2010 15:48
Cal : 80061128001 Caldate : 11-FEB-2010
Standards: S13812

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	509.1	ug/L	2	20	
Arsenic	A	500.0	495.8	ug/L	-1	20	
Barium	A	500.0	536.8	ug/L	7	20	
Beryllium	A	500.0	566.6	ug/L	13	20	
Cadmium	A	1000	1126	ug/L	13	20	
Chromium	A	500.0	517.8	ug/L	4	20	
Cobalt	A	500.0	520.0	ug/L	4	20	
Copper	A	500.0	442.4	ug/L	-12	20	
Lead	A	1000	1074	ug/L	7	20	
Molybdenum	A	500.0	536.9	ug/L	7	20	
Nickel	A	1000	1046	ug/L	5	20	
Selenium	A	500.0	597.8	ug/L	20	20	
Silver	A	1000	1138	ug/L	14	20	
Thallium	A	500.0	445.8	ug/L	-11	20	
Vanadium	A	500.0	532.2	ug/L	6	20	
Zinc	A	1000	1122	ug/L	12	20	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2040454	1876709	-8.02

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 218202 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 80061128056.1 File : met08_sn_6010 Time : 11-FEB-2010 16:41
Cal : 80061128001 Caldate : 11-FEB-2010
Standards: S13455

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	86.877	97.646	5000	5495	ug/L	10	10	
Arsenic	A	10.098	11.198	5000	5547	ug/L	**11**	10	c+ ***
Barium	A	126.44	130.62	5000	5215	ug/L	4	10	
Beryllium	A	1916.8	2079.7	500.0	558.2	ug/L	**12**	10	c+ ***
Cadmium	A	163.47	179.52	5000	5646	ug/L	**13**	10	c+ ***
Chromium	A	25.255	27.567	5000	5131	ug/L	3	10	
Cobalt	A	48.737	53.539	5000	5374	ug/L	7	10	
Copper	A	106.17	106.94	5000	5160	ug/L	3	10	
Lead	A	36.857	37.019	5000	5406	ug/L	8	10	
Molybdenum	A	16.512	18.093	5000	5315	ug/L	6	10	
Nickel	A	17.378	19.754	5000	5312	ug/L	6	10	
Selenium	A	16.617	17.475	5000	5716	ug/L	**14**	10	c+ ***
Silver	A	422.07	456.57	1000	1032	ug/L	3	10	
Thallium	A	43.902	46.802	5000	5416	ug/L	8	10	
Vanadium	A	48.898	54.268	5000	5234	ug/L	5	10	
Zinc	A	51.955	57.526	5000	5673	ug/L	**13**	10	c+ ***

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2040454	2092984	2.57

+=high bias c=CCV

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 218202 METALS Filtrate
EPA 6010B

Inst : MET08 IDF : 1.0
Seqnum : 80061128058.1 File : met08_sn_6010 Time : 11-FEB-2010 16:48
Cal : 80061128001 Caldate : 11-FEB-2010

Analyte	Ch	Quant	IQL	2X MDL	Units	Flags
Antimony	A	ND	10.00	6.580	ug/L	
Arsenic	A	ND	5.000	3.200	ug/L	
Barium	A	ND	5.000	2.669	ug/L	
Beryllium	A	ND	2.000	0.8000	ug/L	
Cadmium	A	ND	5.000	2.822	ug/L	
Chromium	A	ND	5.000	3.200	ug/L	
Cobalt	A	ND	5.000	2.000	ug/L	
Copper	A	ND	5.000	2.514	ug/L	
Lead	A	ND	5.000	2.054	ug/L	
Molybdenum	A	ND	5.000	2.550	ug/L	
Nickel	A	ND	5.000	2.062	ug/L	
Selenium	A	ND	10.00	5.003	ug/L	
Silver	A	ND	5.000	2.000	ug/L	
Thallium	A	ND	10.00	5.231	ug/L	
Vanadium	A	ND	5.000	2.000	ug/L	
Zinc	A	ND	20.00	12.73	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2040454	2119737	3.89

SAMPLE PREPARATION SUMMARY

Batch # : 159872
Started By : MCB
Method : METHOD
Spike #1 ID : S12746

Prep Date : 08-FEB-2010 19:30
Spike #2 ID : S12747

Analysis : ICAP
Finished By : MCB
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
218076-001		Filtrate	50	50	1	1.0						MO, V	
218076-002		Filtrate	50	50	1	1.0						AS, MO, V	
218076-003		Filtrate	50	50	1	1.0						MO, V	
218076-004		Filtrate	50	50	1	1.0						AS, FE, MN, MO, V	
218076-005		Filtrate	50	50	1	1.0						AS, MO, V	
218173-001		Filtrate	50	50	1	1.0						T22/ICP	
218173-002		Filtrate	50	50	1	1.0						T22/ICP	
218173-003		Filtrate	50	50	1	1.0						T22/ICP	
218187-001		Filtrate	50	50	1	1.0						T22/ICP	
218187-002		Filtrate	50	50	1	1.0						T22/ICP	
218187-004		Filtrate	50	50	1	1.0						T22/ICP	
218187-005		Filtrate	50	50	1	1.0						T22/ICP	
218187-006		Filtrate	50	50	1	1.0						T22/ICP	
218187-007		Filtrate	50	50	1	1.0						(rebatched)	
218187-008		Filtrate	50	50	1	1.0						T22/ICP	
218187-009		Filtrate	50	50	1	1.0						T22/ICP	
218187-010		Filtrate	50	50	1	1.0						T22/ICP	
218187-011		Filtrate	50	50	1	1.0						T22/ICP	
218187-012		Filtrate	50	50	1	1.0						T22/ICP	
218187-013		Filtrate	50	50	1	1.0						T22/ICP	
218202-001		Filtrate	50	50	1	1.0						T22/ICP	
QC531931	BLANK	Filtrate	50	50	1	1.0							
QC531932	BS	Filtrate	50	50	1	1.0		.5	.5				
QC531933	BSD	Filtrate	50	50	1	1.0		.5	.5				
QC531934	MS	Filtrate	50	50	1	1.0		.5	.5				
QC531935	MSD	Filtrate	50	50	1	1.0		.5	.5				
QC531936	SER	Filtrate	50	50	1	1.0							
QC531937	PDS	Filtrate	50	50	1	1.0							

Reviewed by: AH Date: 02/11/10

Water Digestion for ICP

Curtis & Tompkins, Ltd.

LIMS Batch #: 159872
Digested by: MCBill
Date Digested: 2/8/10

Digestion Method
- ☐ EPA 3010a for ICP
- ☐ EPA 200.7
- ☒ FILTRATE PREP

BK 2995
Page 12
Continued From:
Continued On:

Sample #	Container ID	Volume Sample (mL)	Final Volume (mL)	Filtered? (y/n)	Comments
BLANK		50	50	N	
BS		↓	↓	↓	
BSD					
MS-076-004	N				
MSD-076-004	↓				
218076-004					
-001	G				
-002	↓				
-003					
↓ -005	↓				
218173-001	F				
-002	↓				
↓ -003					
218187-001	↓				
-002	B				
-004	F				
-005	↓				
-006	≡				
-008	↓				
-009	F				
-010	≡				
-011	↓				
-012					
↓ -013					
218202-001		↓	↓	↓	

	Reagent ID or LIMS #	Initials / Date
Digestion Tube Lot #	1898890-261	
.5 mL of spike solution (Std1) was added to all spikes	512746	MCBill 2/8/10
.5 mL of spike solution (Std2) was added to all spikes	512747	↓
Digestion temperature (90-95 degrees C)	95°C	
Digestion started at (time)	7:30 PM	
☐ 1:1 HNO3, ☐ concentrated HNO3, added to all samples	H12022 JBAKER	
1:1 HCl added to all samples	648030 ↓	
Digestion ended at (time)	N/A	
☐ filtered thru' Whatman # 541	↓	
Relinquished to ICP group	ICP	↓

Michael C Brock 2/8/10
Prep Chemist Signature / Date

Reviewer Signature / Date

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 840059704

Instrument : MET14 Begun : 02/10/10 11:04
Method : EPA 7470A SOP Version : HG_water_rv12

#	File	Type	Sample ID	P	Matrix	Batch	Analyzed	IDF	Stds Used
001	159917	ICALBLK	STD01REP1				02/10/10 11:04	1.0	
002	159917	ICAL	STD02REP1				02/10/10 11:06	1.0	1
003	159917	ICAL	STD03REP1				02/10/10 11:09	1.0	1
004	159917	ICAL	STD04REP1				02/10/10 11:11	1.0	1
005	159917	ICAL	STD05REP1				02/10/10 11:13	1.0	1
006	159917	ICAL	STD06REP1				02/10/10 11:15	1.0	1
007	159917	ICV					02/10/10 11:18	1.0	2
008	159917	ICB					02/10/10 11:20	1.0	
009	159917	BLANK	QC532135		Filtrate	159917	02/10/10 11:22	1.0	
010	159917	BS	QC532136		Filtrate	159917	02/10/10 11:24	1.0	
011	159917	BSD	QC532137		Filtrate	159917	02/10/10 11:26	1.0	
012	159917	SAMPLE	218173-001		Filtrate	159917	02/10/10 11:28	1.0	
013	159917	SAMPLE	218173-002		Filtrate	159917	02/10/10 11:31	1.0	
014	159917	SAMPLE	218173-003		Filtrate	159917	02/10/10 11:33	1.0	
015	159917	SAMPLE	218199-001		Filtrate	159917	02/10/10 11:35	1.0	
016	159917	SAMPLE	218199-002		Filtrate	159917	02/10/10 11:38	1.0	
017	159917	SAMPLE	218199-004		Filtrate	159917	02/10/10 11:41	1.0	
018	159917	CCV					02/10/10 11:43	1.0	3
019	159917	CCB					02/10/10 11:45	1.0	
020	159917	MSS	218199-007		Filtrate	159917	02/10/10 11:48	1.0	
021	159917	MS	QC532138		Filtrate	159917	02/10/10 11:50	1.0	
022	159917	MSD	QC532139		Filtrate	159917	02/10/10 11:52	1.0	
023	159917	SER	QC532140		Filtrate	159917	02/10/10 11:55	5.0	
024	159917	SAMPLE	218202-001		Filtrate	159917	02/10/10 11:57	1.0	
025	159917	SAMPLE	218226-001		Water	159917	02/10/10 11:59	1.0	
026	159917	SAMPLE	218226-005		Water	159917	02/10/10 12:02	1.0	
027	159917	CCV					02/10/10 12:04	1.0	3
028	159917	CCB					02/10/10 12:06	1.0	
029	159917	BLANK	QC532141	K	Air	159918	02/10/10 12:10	1.0	
030	159917	BS	QC532142	K	Air	159918	02/10/10 12:12	1.0	
031	159917	BSD	QC532143	K	Air	159918	02/10/10 12:15	1.0	
032	159917	MSS	218060-001	K	Air	159918	02/10/10 12:17	1.0	
033	159917	MSS	218060-002	K	Air	159918	02/10/10 12:19	1.0	
034	159917	MSS	218060-003	K	Air	159918	02/10/10 12:21	1.0	
035	159917	MSS	218060-004	K	Air	159918	02/10/10 12:24	1.0	
036	159917	MSS	218060-005	K	Air	159918	02/10/10 12:26	1.0	
037	159917	MSS	218060-006	K	Air	159918	02/10/10 12:28	1.0	
038	159917	MSS	218060-007	K	Air	159918	02/10/10 12:30	1.0	
039	159917	CCV					02/10/10 12:33	1.0	3
040	159917	CCB					02/10/10 12:35	1.0	
041	159917	MSS	218060-008	K	Air	159918	02/10/10 12:37	1.0	
042	159917	SDUP	QC532144	K	Air	159918	02/10/10 12:39	1.0	
043	159917	SDUP	QC532145	K	Air	159918	02/10/10 12:42	1.0	
044	159917	SDUP	QC532146	K	Air	159918	02/10/10 12:44	1.0	
045	159917	SDUP	QC532147	K	Air	159918	02/10/10 12:46	1.0	
046	159917	SDUP	QC532148	K	Air	159918	02/10/10 12:48	1.0	
047	159917	SDUP	QC532149	K	Air	159918	02/10/10 12:51	1.0	
048	159917	SDUP	QC532150	K	Air	159918	02/10/10 12:53	1.0	
049	159917	SDUP	QC532151	K	Air	159918	02/10/10 12:55	1.0	
050	159917	SSPIKE	QC532152	K	Air	159918	02/10/10 12:58	1.0	1
051	159917	CCV					02/10/10 13:01	1.0	3
052	159917	CCB					02/10/10 13:03	1.0	

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 840059704

Instrument : MET14 Begun : 02/10/10 11:04
Method : EPA 7470A SOP Version : HG_water_rv12

#	File	Type	Sample ID	P	Matrix	Batch	Analyzed	IDF	Stds Used	
053	159917	BLANK	QC532153	H	Air	159919	02/10/10 13:05	1.0		
054	159917	BS	QC532154	H	Air	159919	02/10/10 13:07	1.0		
055	159917	BSD	QC532155	H	Air	159919	02/10/10 13:10	1.0		
056	159917	MSS	218060-001	H	Air	159919	02/10/10 13:58	1.0		
057	159917	X	218060-002	H	Air	159919	02/10/10 14:00	1.0		
058	159917	X	218060-003	H	Air	159919	02/10/10 14:02	1.0		
059	159917	MSS	218060-004	H	Air	159919	02/10/10 14:05	1.0		
060	159917	MSS	218060-005	H	Air	159919	02/10/10 14:08	1.0		
061	159917	MSS	218060-006	H	Air	159919	02/10/10 14:10	1.0		
062	159917	MSS	218060-007	H	Air	159919	02/10/10 14:13	1.0		
063	159917	CCV					02/10/10 14:16	1.0	3	
064	159917	CCB					02/10/10 14:18	1.0		
065	159917	MSS	218060-008	H	Air	159919	02/10/10 14:20	1.0		
066	159917	SDUP	QC532156	H	Air	159919	02/10/10 14:22	1.0		
067	159917	X	QC532157	H	Air	159919	02/10/10 14:24	1.0		
068	159917	X	QC532158	H	Air	159919	02/10/10 14:26	1.0		
069	159917	SDUP	QC532159	H	Air	159919	02/10/10 14:28	1.0		
070	159917	SDUP	QC532160	H	Air	159919	02/10/10 14:31	1.0		
071	159917	SDUP	QC532161	H	Air	159919	02/10/10 14:33	1.0		
072	159917	SDUP	QC532162	H	Air	159919	02/10/10 14:36	1.0		
073	159917	SDUP	QC532163	H	Air	159919	02/10/10 14:38	1.0		
074	159917	SSPIKE	QC532164	H	Air	159919	02/10/10 14:41	1.0	1	
075	159917	CCV					02/10/10 14:43	1.0	3	
076	159917	CCB					02/10/10 14:45	1.0		
077	159917	BLANK	QC532167	E	Air	159920	02/10/10 14:47	1.0		
078	159917	BS	QC532168	E	Air	159920	02/10/10 14:56	1.0		
079	159917	BSD	QC532169	E	Air	159920	02/10/10 14:58	1.0		
080	159917	MSS	218060-001	E	Air	159920	02/10/10 15:01	1.0		
081	159917	MSS	218060-002	E	Air	159920	02/10/10 15:04	1.0		
082	159917	MSS	218060-003	E	Air	159920	02/10/10 15:06	1.0		
083	159917	MSS	218060-005	E	Air	159920	02/10/10 15:09	1.0		
084	159917	MSS	218060-006	E	Air	159920	02/10/10 15:11	1.0		
085	159917	MSS	218060-007	E	Air	159920	02/10/10 15:13	1.0		
086	159917	CCV					02/10/10 15:15	1.0	3	
087	159917	CCB					02/10/10 15:18	1.0		
088	159917	MSS	218060-008	E	Air	159920	02/10/10 15:20	1.0		
089	159917	SDUP	QC532170	E	Air	159920	02/10/10 15:22	1.0		
090	159917	SDUP	QC532171	E	Air	159920	02/10/10 15:25	1.0		
091	159917	SDUP	QC532172	E	Air	159920	02/10/10 15:27	1.0		
092	159917	SDUP	QC532173	E	Air	159920	02/10/10 15:29	1.0		
093	159917	SDUP	QC532174	E	Air	159920	02/10/10 15:32	1.0		
094	159917	SDUP	QC532175	E	Air	159920	02/10/10 15:34	1.0	1	
095	159917	CCV					02/10/10 15:36	1.0	3	
096	159917	CCB					02/10/10 15:38	1.0		
097	159917	MSS	218060-002	H	Air	159919	02/10/10 16:08	1.0		
098	159917	SDUP	QC532157	H	Air	159919	02/10/10 16:11	1.0		
099	159917	SDUP	QC532158	H	Air	159919	02/10/10 16:15	1.0		
100	159917	SDUP	QC532176	E	Air	159920	02/10/10 16:17	1.0		
101	159917	SSPIKE	QC532177	E	Air	159920	02/10/10 16:20	1.0	1	
102	159917	CCV					02/10/10 16:22	1.0	3	
103	159917	CCB					02/10/10 16:24	1.0		
104	159917	MSS	218060-003	H	Air	159919	02/10/10 16:33	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 840059704

Instrument : MET14 Begun : 02/10/10 11:04
Method : EPA 7470A SOP Version : HG_water_rv12

#	File	Type	Sample ID	P	Matrix	Batch	Analyzed	IDF	Stds Used	
105	159917	CCV					02/10/10 16:38	1.0	3	
106	159917	CCB					02/10/10 16:40	1.0		

WNH 02/10/10 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 96.

Standards used: 1=S13992 2=S13994 3=S13995

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 218202 METALS Filtrate: EPA 7470A

Inst : MET14
Calnum : 840059704001
Units : ug/L

Date : 10-FEB-2010 11:04
X Axis : R

Reviewer : ---
Type : WATER

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	159917	840059704002	STD02REP1	10-FEB-2010 11:06	S13992 (500X)
L2	159917	840059704003	STD03REP1	10-FEB-2010 11:09	S13992 (200X)
L3	159917	840059704004	STD04REP1	10-FEB-2010 11:11	S13992 (50X)
L4	159917	840059704005	STD05REP1	10-FEB-2010 11:13	S13992 (20X)
L5	159917	840059704006	STD06REP1	10-FEB-2010 11:15	S13992 (10X)

Analyte	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Mercury	2480.0	2258.0	2218.5	2196.0	2086.9	LINR	-0.0781	4.78E-4		2247.9	0.999	.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Mercury	0.200	-20	0.500	-8	2.000	2	5.000	3	10.00	-1

Instrument amount = a0 + response * a1 + response^2 * a2; LINR=Linear regression

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 218202 METALS Filtrate
EPA 7470A

Inst : MET14
Calnum : 840059704001 Cal Date : 10-FEB-2010 Type : WATER

ICV 840059704007 (10-FEB-2010) stds: S13994

Analyte	Spiked	Quant	Units	%D	Max	Flags
Mercury	5.000	5.010	ug/L	0	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 218202 METALS Filtrate
EPA 7470A

Inst : MET14 IDF : 1.0
Seqnum : 840059704008 File : 159917 Time : 10-FEB-2010 11:20
Cal : 840059704001 Caldate : 10-FEB-2010 Caltype : WATER

Analyte	Quant	IQL	MDL	Units	Flags
Mercury	ND	0.2000	0.03335	ug/L	

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 218202 METALS Filtrate
EPA 7470A

Inst : MET14 IDF : 1.0
Seqnum : 840059704018 File : 159917 Time : 10-FEB-2010 11:43
Cal : 840059704001 Caldate : 10-FEB-2010 Caltype : WATER
Standards: S13995

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	2247.9	2079.4	5.000	4.890	ug/L	-2	20	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 218202 METALS Filtrate
EPA 7470A

Inst : MET14 IDF : 1.0
Seqnum : 840059704019 File : 159917 Time : 10-FEB-2010 11:45
Cal : 840059704001 Caldate : 10-FEB-2010 Caltype : WATER

Analyte	Quant	IQL	MDL	Units	Flags
Mercury	ND	0.2000	0.03335	ug/L	

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 218202 METALS Filtrate
EPA 7470A

Inst : MET14 IDF : 1.0
Seqnum : 840059704027 File : 159917 Time : 10-FEB-2010 12:04
Cal : 840059704001 Caldate : 10-FEB-2010 Caltype : WATER
Standards: S13995

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	2247.9	2010.2	5.000	4.730	ug/L	-5	20	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 218202 METALS Filtrate
EPA 7470A

Inst : MET14 IDF : 1.0
Seqnum : 840059704028 File : 159917 Time : 10-FEB-2010 12:06
Cal : 840059704001 Caldate : 10-FEB-2010 Caltype : WATER

Analyte	Quant	IQL	MDL	Units	Flags
Mercury	ND	0.2000	0.03335	ug/L	

SAMPLE PREPARATION SUMMARY

Batch # : 159917
Started By : WNH
Method : METHOD
Spike #1 ID : S13992

Prep Date : 10-FEB-2010 08:22

Analysis : HG-200
Finished By : WNH
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
218173-001		Filtrate	50	50	1	1.0						T22/HG	
218173-002		Filtrate	50	50	1	1.0						T22/HG	
218173-003		Filtrate	50	50	1	1.0						T22/HG	
218199-001		Filtrate	50	50	1	1.0						T22/HG	
218199-002		Filtrate	50	50	1	1.0						T22/HG	
218199-004		Filtrate	50	50	1	1.0						T22/HG	
218199-007		Filtrate	50	50	1	1.0						T22/HG	
218202-001		Filtrate	50	50	1	1.0						T22/HG	
218226-001		Water	50	50	1	1.0						HG-200	
218226-005		Water	50	50	1	1.0						HG-200	
QC532135	BLANK	Filtrate	50	50	1	1.0							
QC532136	BS	Filtrate	50	50	1	1.0		1.25					
QC532137	BSD	Filtrate	50	50	1	1.0		1.25					
QC532138	MS	Filtrate	50	50	1	1.0		1.25					
QC532139	MSD	Filtrate	50	50	1	1.0		1.25					
QC532140	SER	Filtrate	50	50	1	1.0							

Reviewed by: WNH Date: 02/10/10

Water Digestion for Mercury

Curtis & Tompkins, Ltd.

LIMS Batch #: 159917

Date Digested: 2/10/10

Digestion Method

☑ EPA 7470A/ EPA 245.1

☐ _____

BKk2967

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Sample #	container ID	Volume Sample (mL)	Final Volume (mL)	Filtered? (y/n)	Comments
218173-001	F	50	50	~	
2	F				
3	F				
218199-001	E				
2	B				
4	E				
7	E				MSS
218202-001	A				
218226-001	A				
5	A				
Blank QC 532135					
BS 6					
BSD 7					
MS 8					
MSD 9					

	Reagent ID/ LIMS# / Time	Initials / Date
Digestion Tube Lot #	EK09085	2/10/10
1.25 mL of spike solution was added to all spikes	S13992	
ICAL Source LIMS S#	S13993	
ICV / CCV LIMS S#	S13994 / S13995	
Digestion of Samples & Standards: Digestion Temperature (degrees C)	95	
Digestion Started at (time)	0822	
concentrated H_2SO_4	G35026	
concentrated HNO_3	H14024	
5% $KMnO_4$	010810	
5% $K_2S_2O_8$	010810	
NaCl.hydroxylamine hydrochloride	010810	
Stannous Chloride	020810	
Digestion Completed at (time)	1022	
☐ filtered thru' 0.45 um syringe filter (lot #)	—	—

2/10/10

Prep Chemist / Date

Continued from page ____

Continued on page ____

2/10/10

Reviewed by / Date

Laboratory Job Number 218202

ANALYTICAL REPORT

Wet Chemistry

Matrix: Water

Curtis & Tompkins, Ltd.

Total Dissolved Solids (TDS)

Lab #:	218202	Location:	Doyle Drive Replacement Project
Client:	Baseline Environmental	Prep:	METHOD
Project#:	Y0239-04.A8	Analysis:	SM2540C
Analyte:	Total Dissolved Solids	Batch#:	159985
Field ID:	CDSM-MW-1;020810	Sampled:	02/08/10
Matrix:	Water	Received:	02/08/10
Units:	mg/L	Prepared:	02/11/10
Diln Fac:	1.000	Analyzed:	02/12/10

Type	Lab ID	Result	RL
SAMPLE	218202-001	1,010	10
BLANK	QC532397	ND	10

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Total Dissolved Solids (TDS)

Lab #:	218202	Location:	Doyle Drive Replacement Project
Client:	Baseline Environmental	Prep:	METHOD
Project#:	Y0239-04.A8	Analysis:	SM2540C
Analyte:	Total Dissolved Solids	Batch#:	159985
Field ID:	CDSM-MW-1;020810	Sampled:	02/08/10
MSS Lab ID:	218202-001	Received:	02/08/10
Matrix:	Water	Prepared:	02/11/10
Units:	mg/L	Analyzed:	02/12/10
Diln Fac:	1.000		

Type	Lab ID	MSS Result	Spiked	Result	RL	%REC	Limits	RPD	Lim
BS	QC532398		104.0	104.0		104	75-106		
BSD	QC532399		104.0	102.0		102	75-106	2	15
SDUP	QC532400	1,012		810.0	10.00			2	12

RL= Reporting Limit
RPD= Relative Percent Difference

Curtis & Tompkins Laboratories Sample Batch Report

Batch Number: 159985
Date Started: 11-FEB-2010
Batched by : Shu Ting Liu

Analysis : TDS
Bgroup : N/A
Department : Wet Chemistry

Sample	Type		Client	Matrix	Analyses	Due Date
218164-001			U.S. Army Corps of	Water	TDS	18-FEB-2010
218164-002			U.S. Army Corps of	Water	TDS	18-FEB-2010
218164-003			U.S. Army Corps of	Water	TDS	18-FEB-2010
218164-005			U.S. Army Corps of	Water	TDS	18-FEB-2010
218164-006			U.S. Army Corps of	Water	TDS	18-FEB-2010
218164-007			U.S. Army Corps of	Water	TDS	18-FEB-2010
218202-001			Baseline Environme	Water	TDS	12-FEB-2010
218220-001			New Logic Research	Water	TDS	22-FEB-2010
218260-001			New Logic Research	Water	TDS	12-FEB-2010
218260-002			New Logic Research	Water	TDS	12-FEB-2010
QC532397	BLANK			Water	TDS	
QC532398	BS			Water	TDS	
QC532399	BSD			Water	TDS	
QC532400	SDUP	of 218202-001		Water	TDS	

Analysis:	**Total Dissolved Solids**	Analyst:	STL		QC Limits	RPD	Recovery
Method:	SMWW 2540C / EPA 160.1	Filtration Date:	**2/11/10**		LCS/ BS/ BSD	15	75 - 106
Matrix:	Water	Batch #:	**159985**		MS/ MSD/SDUP	12	65 - 116
SOP#:	tds_rv 10.doc						

Sample	Sample Vol (mL)	DF (50/vol)	Initial Mass (g)	Constant Mass (g)	Residue Mass (g)	Report (mg/L)	Reporting Limit (mg/L)	Spike Std Conc (mg/L)	Spike Vol. Used (mL)	Spike (mg/L)	Recovery,%	RPD,%
MB	50	1	67.7938	67.7942	0.0004	**ND**	10					
BS	50	1	60.8708	60.8760	0.0052	**104.0**	10	1,000	5	100	**104**	
BSD	50	1	54.5217	54.5268	0.0051	**102.0**	10	1,000	5	100	**102**	**1.94**
218164-001	50	1	69.1338	69.1750	0.0412	**824.0**	10					
SDUP	50	1	55.7618	55.8023	0.0405	**810.0**	10					**1.71**
218164-001	50	1	69.1338	69.1750	0.0412	**824.0**	10					
218164-002	50	1	67.6129	67.6650	0.0521	**1,042.0**	10					
218164-003	50	1	55.1293	55.1827	0.0534	**1,068.0**	10					
218164-005	50	1	55.0644	55.0940	0.0296	**592.0**	10					
218164-006	50	1	60.0584	60.0920	0.0336	**672.0**	10					
218164-007	50	1	55.2364	55.2649	0.0285	**570.0**	10					
218202-001	50	1	68.3176	68.3682	0.0506	**1,012.0**	10					
218220-001	50	1	61.2490	61.2525	0.0035	**70.0**	10					
218260-001	1	50	58.1829	58.2705	0.0876	**87,600.0**	500					
218260-002	1	50	67.3050	67.4036	0.0986	**98,600.0**	500					

Reviewed by / date: _____

Curtis & Tompkins, Ltd.
\\lims\fdrive\inorgan\data\Feb 2010\tds-159985

page 1 of 1
Version 8.5, Effective 1/28/08

TDS (Total Dissolved Solids)
EPA 160.1 / SMWW 2540C

Curtis & Tompkins, Ltd.

LIMS Batch #: 159985
Filtered by: STL

Prep Date: 2/11/10
Prep Time: 12:50

Benchbook#: BK2988
Page: 9

Filter Mfg/ Lot#: E.E.-755747
Spike Std LIMS#: 514011

Spike Std Conc (mg/L): 104
Spike Std Vol Added (mL): 50

	In	Out	In-2	Out-2	In-3	Out-3
Date:	2/11/10	2/12/10	2/12/10	2/12/10		
Time:	15:15	10:30	11:50	12:50		
Temp (C):	90°	180°	180°	180°		
Weighed by:		STL		STL		

Sample # Container ID	EC Value (uS/cm)	Sample Vol. Filtered (mL)	Dish ID	Dish Wt (g)	1st Dry Wt.(g)	2nd Dry Wt (g)*	3rd Dry Wt (g)*
MB		50	PEP	67.7938	67.7942	67.7942	
BS			CJB	60.8708	60.8762	60.8762	2/16
BSD			G44	54.5217	54.5266	54.5268	
218164-001E	1305		H	69.1338	69.1751	69.1750	
SDR-001E	1305		GEO	55.7618	55.8026	55.8023	
-002E	1702		BEER	67.6129	67.6649	67.6650	
-003H	1687		G30	55.1293	55.1827	55.1827	
-005H	928		KU	55.0644	55.0941	55.0940	
-006G	1066		MAI	60.0584	60.0919	60.0920	
-007H	910		GOO	55.2364	55.2647	55.2649	
218202-001B	1847		GDO	68.3176	68.3681	68.2682	
218220-001A	161.7		APT	61.2490	61.2527	61.2525	
~~218260-001A~~	~~4430~~	~~25~~	~~GOOS~~	~~69.1479~~			
~~-002~~	~~3950~~	~~10~~	~~BEAR~~	~~68.5086~~	STL 2/12/10		
		STL 2/11/10					
		~~G4~~ STL 2/12/10					
218260-001A	—		G4	58.1829	58.2704	58.2705	
-002A	—		GYO	67.3050	67.4038	67.4036	
	In	Out	In-2	Out-2			
	2/12/10	2/16/10	2/16/10	2/16/10			
	13:00	11:10	12:25	13:25			
	90°	180°	180°	180°			

* Constant weight must be within 0.0005 from previous reading.

STL 2/11/10
Analyst / Date

2/12/10
Reviewed by / Date

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 218609
ANALYTICAL REPORT

Baseline Environmental	Project	: Y0239-04.A8
5900 Hollis Street	Location	: Doyle Drive Replacement Project
Emeryville, CA 94608	Level	: III

Sample ID	Lab ID
CDSM-MW-1;DRUMS-1S	218609-001
CDSM-MW-1;DRUMS-2S	218609-002
CDSM-MW-1;DRUMS-3S	218609-003
CDSM-MW-1;DRUMS-4S	218609-004
CDSM-MW-1;DRUMS-5S	218609-005
CDSM-MW-1;DRUMS-1S,2S	218609-006
CDSM-MW-1;DRUMS-3S,4S,5S	218609-007

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

Signature: Desirée N. Tetrault
Project Manager

Date: 03/15/2010

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**218609**
Client:	**Baseline Environmental**
Project:	**Y0239-04.A8**
Location:	**Doyle Drive Replacement Project**
Request Date:	**03/05/10**
Samples Received:	**03/04/10**

This data package contains sample and QC results for one three-point soil composite and one two-point soil composite, requested for the above referenced project on 03/05/10. See attached cooler receipt form for any sample receipt problems or discrepancies.

TPH-Purgeables and/or BTXE by GC (EPA 8015B and EPA 8021B):
High response was observed for gasoline C7-C12 in the CCV analyzed 03/09/10 22:00; this analyte was not detected at or above the RL in the associated samples, and affected data was qualified with "b".

No other analytical problems were encountered.

TPH-Extractables by GC (EPA 8015B):
No analytical problems were encountered.

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

Chain of Custody

Z18609

BASELINE Environmental Consulting
5900 Hollis Street, Suite D
Emeryville, CA 94608
Tel: (510) 420-8686 Fax: (510) 420-1707

CHAIN OF CUSTODY RECORD

Turn-Around-Time Standard
Laboratory Curtis and Tompkins, Ltd.
BASELINE Contact Person Cheri Page

Project Number Y0239-04.A8
Project Name: Doyle Drive Replacement Project
Samplers: (Signature)

	Sample ID	Date	Time	Media	Containers: No. (total)	Type: 40-ml VOA	1000 ml-Poly	500 ml-Poly	250 ml Poly	Preservative: Ice	HCL	HNO_3	H_2SO_4	NaOH	TPH-g & BTEX (EPA Method 8015M)	TPH-d and mo (EPA Method 8015M with silica gel cleanup)	VOC (EPA Method 8260B)	MTBE (EPA Method 8260B)	SVOC (EPA Method 8270)	PCB (EPA Method 8082)	Dissolved Sulfides	Total Suspended Solids	TDS (SM2540C)	CAM 17 Metals	LUFT 5 metals (EPA Method 6010B)	Remarks
1	CDSM-MW-1;Drums-1S	3/4/10	13:30	Soil ~~Water~~ Sludge	1	X				X																
2	CDSM-MW-1;Drum-2S	3/4/10	13:30	Soil Sludge	1	X				X																
3	CDSM-MW-1;Drum-3S	3/4/10	13:30	Soil Sludge	1	X				X																
4	CDSM-MW-1;Drum-4S	3/4/10	13:30	Soil Sludge	1	X				X																
5	CDSM-MW-1;Drum-5S	3/4/10	13:30	Soil Sludge	1	X				X																

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	Remarks:
	3/4/10 14:20	Pat Mangaly	3/4/10 14:20	
Relinquished by: (Signature)	Date/Time	Received by: (Signature)		
Relinquished by: (Signature)	Date/Time	Received by: (Signature)		Email contact: cheri@baseline-eng.com

Received at laboratory with intact custody seal: Yes No Na

Samples conditions Upon Arrival: Intact On Ice Cold

Comments:

MASTER9-17-09- Groundwater Lrg.xls

BASELINE Environmental Consulting

5900 Hollis Street, Suite D
Emeryville, CA 94608
Tel: (510) 420-8686 Fax: (510) 420-1707

CHAIN OF CUSTODY RECORD

Turn-Around-Time Standard
Laboratory Curtis and Tompkins, Ltd.
BASELINE Contact Person Cheri Page

Project Number Y0239-04.A8
Project Name: Doyle Drive Replacement Project
Samplers: (Signature)

Sample ID	Date	Time	Media	No (total)	Containers Type: 16 oz. Jar	40-ml VOA	1000 ml-Poly	500 ml-Poly	250 ml Poly	Preservative: Ice	HCL	HNO_3	H_2SO_4	NaOH	TPH-g & BTEX (EPA Method 8015M)	TPH-d and mo (EPA Method 8015M with silica gel cleanup)	VOC (EPA Method 8260B)	MTBE (EPA Method 8260B)	SVOC (EPA Method 8270)	PCB (EPA Method 8082)	Dissolved Sulfides	Total Suspended Solids	TDS (SM2540C)	CAM 17 Metals	LUFT 5 metals (EPA Method 6010B/7471)	Remarks
CDSM-MW-1;Drums-1S	3/4/10	13:30	Soil Sludge	1	X					X	Composite															
CDSM-MW-1;Drum-2S	3/4/10	13:30	Soil Sludge	1	X					X	Composite				X	X									X	
CDSM-MW-1;Drum-3S	3/4/10	13:30	Soil Sludge	1	X					X	Composite															
CDSM-MW-1;Drum-4S	3/4/10	13:30	Soil Sludge	1	X					X	Composite				X	X									X	
CDSM-MW-1;Drum-5S	3/4/10	13:30	Soil Sludge	1	X					X	Composite															

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	Remarks:
	3/4/10 14:20		3/4/10 14:20	
Relinquished by: (Signature)	Date/Time	Received by: (Signature)		
Relinquished by: (Signature)	Date/Time	Received by: (Signature)		Email contact: cheri@baseline-env.com

Received at laboratory with intact custody seal	Samples conditions Upon Arrival:	Comments:
Yes No Na	Intact On Ice Cold	

MASTER9-17-09- Groundwater Lrg.xls

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 218609 Date Received 3/4/10 Number of coolers 1
Client BASELINE Project DUYLE DRIVE

Date Opened 3/4/10 By (print) M. VILLANUEVA (sign) [signature]
Date Logged in ↓ By (print) ↓ (sign) ↓

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

2A. Were custody seals present? ... ☐ YES (circle) on cooler on samples ☐ (NO)
   How many _____ Name _____ Date _____

2B. Were custody seals intact upon arrival? _____ YES NO (N/A)

3. Were custody papers dry and intact when received? _____ (YES) NO

4. Were custody papers filled out properly (ink, signed, etc)? _____ (YES) NO

5. Is the project identifiable from custody papers? (If so fill out top of form) ___ (YES) NO

6. Indicate the packing in cooler: (if other, describe) _____

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

7. Temperature documentation:

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

   ☑ Samples Received on ice & cold without a temperature blank

   ☐ 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 samples in the appropriate containers for indicated tests? _____ (YES) NO

11. Are sample labels present, in good condition and complete? _____ (YES) NO

12. Do the sample labels agree with custody papers? _____ (YES) NO

13. Was sufficient amount of sample sent for tests requested? _____ (YES) NO

14. Are the samples appropriately preserved? _____ YES NO (N/A)

15. Are bubbles > 6mm absent in VOA samples? _____ YES NO (N/A)

16. Was the client contacted concerning this sample delivery? _____ YES (NO)
   If YES, Who was called? _____ By _____ Date: _____

COMMENTS

_____

_____

_____

_____

_____

_____

_____

_____

Laboratory Job Number 218609

ANALYTICAL REPORT

TPH-Purgeables and/or BTXE by GC

Matrix: Soil

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	218609	Location:	Doyle Drive Replacement Project
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y0239-04.A8		
Matrix:	Soil	Sampled:	03/04/10
Basis:	as received	Received:	03/04/10
Diln Fac:	1.000	Analyzed:	03/09/10
Batch#:	160761		

Field ID: CDSM-MW-1;DRUMS-1S,2S Lab ID: 218609-006
Type: SAMPLE

Analyte	Result	RL	Units	Analysis
Gasoline C7-C12	ND	1.1	mg/Kg	EPA 8015B
Benzene	ND	5.6	ug/Kg	EPA 8021B
Toluene	ND	5.6	ug/Kg	EPA 8021B
Ethylbenzene	ND	5.6	ug/Kg	EPA 8021B
m,p-Xylenes	ND	5.6	ug/Kg	EPA 8021B
o-Xylene	ND	5.6	ug/Kg	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	107	38-168	EPA 8015B
Bromofluorobenzene (FID)	120	27-175	EPA 8015B
Trifluorotoluene (PID)	105	10-183	EPA 8021B
Bromofluorobenzene (PID)	117	7-180	EPA 8021B

Field ID: CDSM-MW-1;DRUMS-3S,4S,5S Lab ID: 218609-007
Type: SAMPLE

Analyte	Result	RL	Units	Analysis
Gasoline C7-C12	ND	1.1	mg/Kg	EPA 8015B
Benzene	ND	5.5	ug/Kg	EPA 8021B
Toluene	ND	5.5	ug/Kg	EPA 8021B
Ethylbenzene	ND	5.5	ug/Kg	EPA 8021B
m,p-Xylenes	ND	5.5	ug/Kg	EPA 8021B
o-Xylene	ND	5.5	ug/Kg	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	94	38-168	EPA 8015B
Bromofluorobenzene (FID)	90	27-175	EPA 8015B
Trifluorotoluene (PID)	96	10-183	EPA 8021B
Bromofluorobenzene (PID)	94	7-180	EPA 8021B

Type: BLANK Lab ID: QC535403

Analyte	Result	RL	Units	Analysis
Gasoline C7-C12	ND	0.20	mg/Kg	EPA 8015B
Benzene	ND	1.0	ug/Kg	EPA 8021B
Toluene	ND	1.0	ug/Kg	EPA 8021B
Ethylbenzene	ND	1.0	ug/Kg	EPA 8021B
m,p-Xylenes	ND	1.0	ug/Kg	EPA 8021B
o-Xylene	ND	1.0	ug/Kg	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	106	38-168	EPA 8015B
Bromofluorobenzene (FID)	111	27-175	EPA 8015B
Trifluorotoluene (PID)	105	10-183	EPA 8021B
Bromofluorobenzene (PID)	112	7-180	EPA 8021B

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	218609	Location:	Doyle Drive Replacement Project
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y0239-04.A8	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC535404	Batch#:	160761
Matrix:	Soil	Analyzed:	03/09/10
Units:	mg/Kg		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1.000	1.055	106	74-123

Surrogate	%REC	Limits
Trifluorotoluene (FID)	137	38-168
Bromofluorobenzene (FID)	127	27-175

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	218609	Location:	Doyle Drive Replacement Project
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y0239-04.A8	Analysis:	EPA 8015B
Field ID:	CDSM-MW-1;DRUMS-1S,2S	Diln Fac:	1.000
MSS Lab ID:	218609-006	Batch#:	160761
Matrix:	Soil	Sampled:	03/04/10
Units:	mg/Kg	Received:	03/04/10
Basis:	as received	Analyzed:	03/09/10

Type: MS Lab ID: QC535405

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	0.2804	10.31	10.92 b	103	14-138

Surrogate	%REC	Limits
Trifluorotoluene (FID)	139	38-168
Bromofluorobenzene (FID)	120	27-175

Type: MSD Lab ID: QC535406

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	10.75	10.79 b	98	14-138	5	52

Surrogate	%REC	Limits
Trifluorotoluene (FID)	141	38-168
Bromofluorobenzene (FID)	122	27-175

b= See narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	218609	Location:	Doyle Drive Replacement Project
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y0239-04.A8	Analysis:	EPA 8021B
Matrix:	Soil	Batch#:	160761
Units:	ug/Kg	Analyzed:	03/09/10
Diln Fac:	1.000		

Type: BS Lab ID: QC535410

Analyte	Spiked	Result	%REC	Limits
Benzene	10.00	9.062	91	67-124
Toluene	10.00	9.251	93	63-135
Ethylbenzene	10.00	9.064	91	65-138
m,p-Xylenes	10.00	8.635	86	66-136
o-Xylene	10.00	8.909	89	64-138

Surrogate	%REC	Limits
Trifluorotoluene (PID)	112	10-183
Bromofluorobenzene (PID)	117	7-180

Type: BSD Lab ID: QC535411

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Benzene	10.00	11.74	117	67-124	26	30
Toluene	10.00	11.60	116	63-135	22	32
Ethylbenzene	10.00	11.24	112	65-138	21	28
m,p-Xylenes	10.00	11.03	110	66-136	24	28
o-Xylene	10.00	11.21	112	64-138	23	27

Surrogate	%REC	Limits
Trifluorotoluene (PID)	114	10-183
Bromofluorobenzene (PID)	116	7-180

RPD= Relative Percent Difference

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 218609 GCVOA Soil: EPA 8021B

Inst : GC19
Calnum : 340087303001
Units : ng

Name : GC19 mbtxe ical 060
Date : 01-MAR-2010 16:19
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	060_003	340087303003	BTXE_1	01-MAR-2010 16:19	S13361 (1000X), S13951 (5000X)
L2	060_004	340087303004	MBTXE_2	01-MAR-2010 16:56	S13360 (1250X), S13951 (5000X)
L3	060_005	340087303005	MBTXE_3	01-MAR-2010 17:34	S13360 (500X), S13951 (5000X)
L4	060_006	340087303006	MBTXE_4	01-MAR-2010 18:11	S13360 (125X), S13951 (5000X)
L5	060_007	340087303007	MBTXE_5	01-MAR-2010 18:49	S13359 (1000X), S13951 (5000X)
L6	060_008	340087303008	MBTXE_6	01-MAR-2010 19:27	S13359 (500X), S13951 (5000X)
L7	060_009	340087303009	MBTXE_7	01-MAR-2010 20:04	S13359 (250X), S13951 (5000X)
L8	060_010	340087303010	MTBE_7	01-MAR-2010 20:42	S13362 (500X), S13951 (5000X)

Analyte	Ch	L1	L2	L3	L4	L5	L6	L7	L8	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
Benzene	B	8510.0	8139.1	8184.2	8170.7	6749.7	6623.3	6454.7		AVRG		1.32E-4		7547.4	12	0.995	20	
Toluene	B	7851.6	7943.0	7717.3	7656.2	6398.9	6331.1	6216.6		AVRG		1.40E-4		7159.3	11	0.995	20	
Ethylbenzene	B	6270.0	6506.2	6208.1	6308.5	5623.5	5441.6	5448.0		AVRG		1.67E-4		5972.3	8	0.995	20	
m,p-Xylenes	B	8534.0	7942.1	8294.6	8263.3	6732.0	6736.3	6595.5		AVRG		1.32E-4		7585.4	11	0.995	20	
o-Xylene	B	5999.6	6279.6	6473.2	6664.2	5582.5	5484.1	5422.1		AVRG		1.67E-4		5986.5	8	0.995	20	
Benzene	C	3900.0	4205.5	5056.6	6093.7	5553.7	5665.0	5681.8		AVRG		1.94E-4		5165.2	16	0.995	20	
Toluene	C	3892.4	3829.7	4640.8	5659.2	5375.4	5505.6	5513.5		AVRG		2.03E-4		4916.7	16	0.995	20	
Ethylbenzene	C	4304.4	3267.2	3943.6	4920.6	4789.0	4913.7	4932.0		AVRG		2.25E-4		4438.6	14	0.995	20	
m,p-Xylenes	C	4319.2	4196.0	4815.0	5938.3	5687.9	5811.8	5832.7		AVRG		1.91E-4		5228.7	15	0.995	20	
o-Xylene	C	2824.4	3517.7	3858.8	4880.7	4733.6	4851.0	4888.3		AVRG		2.37E-4		4222.1	20	0.995	20	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D
Benzene	B	2.500	13	10.00	8	25.00	8	100.0	8	500.0	-11	1000	-12	2000	-14		
Toluene	B	2.500	10	10.00	11	25.00	8	100.0	7	500.0	-11	1000	-12	2000	-13		
Ethylbenzene	B	2.500	5	10.00	9	25.00	4	100.0	6	500.0	-6	1000	-9	2000	-9		
m,p-Xylenes	B	2.500	13	10.00	5	25.00	9	100.0	9	500.0	-11	1000	-11	2000	-13		
o-Xylene	B	2.500	0	10.00	5	25.00	8	100.0	11	500.0	-7	1000	-8	2000	-9		
Benzene	C	2.500	**-24**	10.00	-19	25.00	-2	100.0	18	500.0	8	1000	10	2000	10		
Toluene	C	2.500	**-21**	10.00	**-22**	25.00	-6	100.0	15	500.0	9	1000	12	2000	12		
Ethylbenzene	C	2.500	-3	10.00	**-26**	25.00	-11	100.0	11	500.0	8	1000	11	2000	11		
m,p-Xylenes	C	2.500	-17	10.00	-20	25.00	-8	100.0	14	500.0	9	1000	11	2000	12		
o-Xylene	C	2.500	**-33**	10.00	-17	25.00	-9	100.0	16	500.0	12	1000	15	2000	16		

RFW 03/02/10 [Benzene C]: Separated from coeluting peak in BTXE_1 (060_003).

RFW 03/02/10 [Toluene C]: Separated from coeluting peak in BTXE_1 (060_003).

RFW 03/02/10 [o-Xylene C]: Separated from coeluting peak in BTXE_1 (060_003).

RFW 03/02/10 [MTBE B]: Corrected automatically drawn baseline in MBTXE_2 (060_004).

RFW 03/02/10 : Corrected automatically drawn baseline for Ch. B in MBTXE_3 (060_005).

RFW 03/02/10 [MTBE C]: Separated from coeluting peak in MBTXE_3 (060_005).

RFW 03/02/10 : Corrected automatically drawn baseline for Ch. B in MBTXE_4 (060_006).

Analyst: RFW Date: 03/02/10 Reviewer: EAH Date: 03/02/10

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 218609 GCVOA Soil
EPA 8021B

Inst : GC19 Name : GC19 mbtxe ical 060
Calnum : 340087303001 Cal Date : 01-MAR-2010

ICV 340087303013 (060_013 01-MAR-2010) stds: S13323 (1000X), S13951 (5000X)

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Benzene	B	100.0	93.21	ng	-7	15	
Toluene	B	100.0	87.56	ng	-12	15	
Ethylbenzene	B	100.0	92.34	ng	-8	15	
m,p-Xylenes	B	200.0	173.8	ng	-13	15	
o-Xylene	B	100.0	91.33	ng	-9	15	
Benzene	C	100.0	102.7	ng	3	15	
Toluene	C	100.0	98.43	ng	-2	15	
Ethylbenzene	C	100.0	95.68	ng	-4	15	
m,p-Xylenes	C	200.0	202.3	ng	1	15	
o-Xylene	C	100.0	96.64	ng	-3	15	

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 218609 GCVOA Soil: EPA 8015B

Inst : GC19
Calnum : 340088820001
Units : ng

Name : GC19_TVH_ICAL_061
Date : 02-MAR-2010 17:35
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	061_003	340088820003	TVH_14	02-MAR-2010 17:35	S13781 (1000X), S13951 (5000X)
L2	061_004	340088820004	TVH_15	02-MAR-2010 18:13	S13780 (1000X), S13951 (5000X)
L3	061_005	340088820005	TVH_16	02-MAR-2010 18:51	S13779 (1000X), S13951 (5000X)
L4	061_006	340088820006	TVH_17	02-MAR-2010 19:28	S13778 (2000X), S13951 (5000X)
L5	061_007	340088820007	TVH_18	02-MAR-2010 20:06	S13778 (1000X), S13951 (5000X)

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
Gasoline C7-C12	A	4095.9	3478.5	3542.4	3288.9	3212.5	AVRG		2.84E-4		3523.6	10	0.995	20	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Gasoline C7-C12	A	250.0	16	2500	-1	10000	1	25000	-7	50000	-9

JR 03/03/10 : Separated from coeluting peak (TFT A) for GC19 061_003

JR 03/03/10 : Separated from coeluting peak (TFT A) for GC19 061_004

JR 03/03/10 : Separated from coeluting peak (TFT A) for GC19 061_007

Analyst: JR Date: 03/04/10 Reviewer: EAH Date: 03/04/10

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 218609 GCVOA Soil
EPA 8015B

Inst : GC19 Name : GC19_TVH_ICAL_061
Calnum : 340088820001 Cal Date : 02-MAR-2010

ICV 340088820009 (061_009 02-MAR-2010) stds: S13661 (1000X), S13951 (5000X)

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Gasoline C7-C12	A	10000	9473	ng	-5	15	

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 218609 GCVOA Soil: EPA 8015B / EPA 8021B

Inst : GC19
Calnum : 340097004001
Units : ng

Name : GC19 surr ical 067
Date : 08-MAR-2010 21:40
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	067_016	340097004016	SURROGATE_1	08-MAR-2010 21:40	S13951 (5000X)
L2	067_017	340097004017	SURROGATE_2	08-MAR-2010 22:18	S13951 (5000X)
L3	067_018	340097004018	SURROGATE_3	08-MAR-2010 22:55	S13951 (5000X)
L4	067_019	340097004019	SURROGATE_4	08-MAR-2010 23:33	S13951 (5000X)
L5	067_020	340097004020	SURROGATE_5	09-MAR-2010 00:10	S13951 (5000X)

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
Trifluorotoluene (FID)	A	1760.3	1716.9	1555.3	1817.2	1789.7	AVRG		5.79E-4		1727.9	6	0.995	20	
Bromofluorobenzene (FID)	A	1196.9	1166.5	1050.3	1195.7	1215.1	AVRG		8.58E-4		1164.9	6	0.995	20	
Trifluorotoluene (PID)	B	903.54	891.33	842.57	926.06	942.24	AVRG		0.00111		901.15	4	0.995	20	
Bromofluorobenzene (PID)	B	2079.0	2048.9	1828.8	2123.9	2146.1	AVRG		4.89E-4		2045.3	6	0.995	20	
Trifluorotoluene (PID)	C	661.77	648.02	577.98	687.14	675.92	AVRG		0.00154		650.17	7	0.995	20	
Bromofluorobenzene (PID)	C	1663.8	1640.3	1435.9	1705.1	1689.0	AVRG		6.15E-4		1626.8	7	0.995	20	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Trifluorotoluene (FID)	A	450.0	2	450.0	-1	450.0	-10	450.0	5	450.0	4
Bromofluorobenzene (FID)	A	450.0	3	450.0	0	450.0	-10	450.0	3	450.0	4
Trifluorotoluene (PID)	B	450.0	0	450.0	-1	450.0	-7	450.0	3	450.0	5
Bromofluorobenzene (PID)	B	450.0	2	450.0	0	450.0	-11	450.0	4	450.0	5
Trifluorotoluene (PID)	C	450.0	2	450.0	0	450.0	-11	450.0	6	450.0	4
Bromofluorobenzene (PID)	C	450.0	2	450.0	1	450.0	-12	450.0	5	450.0	4

RFW 03/09/10 : Corrected automatically drawn baseline for Ch. B in SURROGATE_1 (067_016).

RFW 03/09/10 : Corrected automatically drawn baseline for Ch. B in SURROGATE_2 (067_017).

RFW 03/09/10 : Corrected automatically drawn baseline for Ch. B in SURROGATE_3 (067_018).

Analyst: RFW Date: 03/09/10 Reviewer: EAH Date: 03/10/10

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS SPIKE USER REPORT FOR 218609 GCVOA Soil
EPA 8015B / EPA 8021B

Inst : GC19 Run Name : QC535410 IDF : 1.0
Seqnum : 340098527002.2 File : 068_002 Time : 09-MAR-2010 10:45
Standards: S14090 (2000X), S13951 (5000X)

Analyte	Ch	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Benzene	B	340087303001	01-MAR-2010	7547.4	6839.4	50.00	45.31	ng	-9	15	u
Benzene	C	340087303001	01-MAR-2010	5165.2	5041.9	50.00	48.81	ng	-2	15	
Toluene	B	340087303001	01-MAR-2010	7159.3	6623.3	50.00	46.26	ng	-7	15	u
Toluene	C	340087303001	01-MAR-2010	4916.7	4871.7	50.00	49.54	ng	-1	15	
Ethylbenzene	B	340087303001	01-MAR-2010	5972.3	5413.2	50.00	45.32	ng	-9	15	u
Ethylbenzene	C	340087303001	01-MAR-2010	4438.6	3958.7	50.00	44.59	ng	-11	15	
m,p-Xylenes	B	340087303001	01-MAR-2010	7585.4	6550.1	50.00	43.18	ng	-14	15	u
m,p-Xylenes	C	340087303001	01-MAR-2010	5228.7	4781.6	50.00	45.72	ng	-9	15	
o-Xylene	B	340087303001	01-MAR-2010	5986.5	5333.1	50.00	44.54	ng	-11	15	u
o-Xylene	C	340087303001	01-MAR-2010	4222.1	3970.8	50.00	47.02	ng	-6	15	
Trifluorotoluene (FID)	A	340097004001	08-MAR-2010	1727.9	1910.2	450.0	497.5	ng	11	15	
Bromofluorobenzene (FID)	A	340097004001	08-MAR-2010	1164.9	1346.2	450.0	520.1	ng	**16**	15	c+
Trifluorotoluene (PID)	B	340097004001	08-MAR-2010	901.15	1006.0	450.0	502.4	ng	12	15	u
Trifluorotoluene (PID)	C	340097004001	08-MAR-2010	650.17	761.99	450.0	527.4	ng	**17**	15	c+
Bromofluorobenzene (PID)	B	340097004001	08-MAR-2010	2045.3	2393.9	450.0	526.7	ng	**17**	15	c+ u
Bromofluorobenzene (PID)	C	340097004001	08-MAR-2010	1626.8	1947.8	450.0	538.8	ng	**20**	15	c+

JR 03/10/10 : Corrected automatically drawn baseline for Ch. B. [general version]

JR 03/10/10 [Bromofluorobenzene (PID) B]: Passes control limits. [general version]

JR 03/10/10 [Trifluorotoluene (PID) C]: Passes control limits. [general version]

JR 03/10/10 [Bromofluorobenzene (PID) C]: Passes control limits. [general version]

Analyst: JR Date: 03/10/10 Reviewer: EAH Date: 03/11/10

+=high bias c=CCV u=use

CURTIS & TOMPKINS SPIKE USER REPORT FOR 218609 GCVOA Soil
EPA 8015B / EPA 8021B

Inst : GC19 Run Name : QC535404 IDF : 1.0
Seqnum : 340098527003.2 File : 068_003 Time : 09-MAR-2010 11:22
Standards: S14154 (2000X), S13951 (5000X)

Analyte	Ch	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Gasoline C7-C12	A	340088820001	02-MAR-2010	3523.6	3718.3	5000	5276	ng	6	15	u
Trifluorotoluene (FID)	A	340097004001	08-MAR-2010	1727.9	2369.1	450.0	617.0	ng	**37**	15	c+ u
Bromofluorobenzene (FID)	A	340097004001	08-MAR-2010	1164.9	1478.5	450.0	571.2	ng	**27**	15	c+ u
Trifluorotoluene (PID)	B	340097004001	08-MAR-2010	901.15	1233.6	450.0	616.0	ng	**37**	15	c+
Trifluorotoluene (PID)	C	340097004001	08-MAR-2010	650.17	968.57	450.0	670.4	ng	**49**	15	c+
Bromofluorobenzene (PID)	B	340097004001	08-MAR-2010	2045.3	2407.0	450.0	529.6	ng	**18**	15	c+
Bromofluorobenzene (PID)	C	340097004001	08-MAR-2010	1626.8	2038.8	450.0	564.0	ng	**25**	15	c+

JR 03/10/10 : PID surrogates are not applicable. [general version]

JR 03/10/10 [Bromofluorobenzene (FID) A]: Passes control limits. [general version]

JR 03/10/10 [Trifluorotoluene (FID) A]: Separated from coeluting peak. [general version]

JR 03/10/10 [Trifluorotoluene (FID) A]: Passes control limits. [general version]

Analyst: JR Date: 03/10/10 Reviewer: EAH Date: 03/11/10

+=high bias c=CCV u=use

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 218609 GCVOA Soil
EPA 8015B / EPA 8021B

Inst : GC19 Run Name : BTXE IDF : 1.0
Seqnum : 340098527012 File : 068_012 Time : 09-MAR-2010 21:23
Standards: S14090 (1000X), S13951 (5000X)

Analyte	Ch	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Trifluorotoluene (FID)	A	340097004001	08-MAR-2010	1727.9	1633.8	450.0	425.5	ng	-5	15	
Bromofluorobenzene (FID)	A	340097004001	08-MAR-2010	1164.9	1154.3	450.0	445.9	ng	-1	15	
Benzene	B	340087303001	01-MAR-2010	7547.4	8667.8	100.0	114.8	ng	15	15	
Toluene	B	340087303001	01-MAR-2010	7159.3	8225.6	100.0	114.9	ng	15	15	
Ethylbenzene	B	340087303001	01-MAR-2010	5972.3	6855.1	100.0	114.8	ng	15	15	
m,p-Xylenes	B	340087303001	01-MAR-2010	7585.4	8403.7	100.0	110.8	ng	11	15	
o-Xylene	B	340087303001	01-MAR-2010	5986.5	6820.0	100.0	113.9	ng	14	15	
Trifluorotoluene (PID)	B	340097004001	08-MAR-2010	901.15	811.44	450.0	405.2	ng	-10	15	
Bromofluorobenzene (PID)	B	340097004001	08-MAR-2010	2045.3	1981.4	450.0	435.9	ng	-3	15	
Benzene	C	340087303001	01-MAR-2010	5165.2	7163.7	100.0	138.7	ng	**39**	15	c+ ***
Toluene	C	340087303001	01-MAR-2010	4916.7	6585.8	100.0	133.9	ng	**34**	15	c+ ***
Ethylbenzene	C	340087303001	01-MAR-2010	4438.6	5631.7	100.0	126.9	ng	**27**	15	c+ ***
m,p-Xylenes	C	340087303001	01-MAR-2010	5228.7	6783.6	100.0	129.7	ng	**30**	15	c+ ***
o-Xylene	C	340087303001	01-MAR-2010	4222.1	5591.3	100.0	132.4	ng	**32**	15	c+ ***
Trifluorotoluene (PID)	C	340097004001	08-MAR-2010	650.17	611.85	450.0	423.5	ng	-6	15	
Bromofluorobenzene (PID)	C	340097004001	08-MAR-2010	1626.8	1587.0	450.0	439.0	ng	-2	15	

JR 03/10/10 : Corrected automatically drawn baseline for Ch. B.

JR 03/10/10 [Benzene B]: Separated from coeluting peak.

Analyst: JR Date: 03/10/10 Reviewer: EAH Date: 03/10/10

+=high bias c=CCV

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 218609 GCVOA Soil
EPA 8015B / EPA 8021B

Inst : GC19 Run Name : TVH IDF : 1.0
Seqnum : 340098527013 File : 068_013 Time : 09-MAR-2010 22:00
Standards: S14154 (1000X), S13951 (5000X)

Analyte	Ch	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Gasoline C7-C12	A	340088820001	02-MAR-2010	3523.6	4441.3	10000	12600	ng	**26**	15	c+ ***
Trifluorotoluene (FID)	A	340097004001	08-MAR-2010	1727.9	2428.7	450.0	632.5	ng	**41**	15	c+
Bromofluorobenzene (FID)	A	340097004001	08-MAR-2010	1164.9	1346.9	450.0	520.3	ng	**16**	15	c+
Trifluorotoluene (PID)	B	340097004001	08-MAR-2010	901.15	1201.7	450.0	600.1	ng	**33**	15	c+
Bromofluorobenzene (PID)	B	340097004001	08-MAR-2010	2045.3	2085.2	450.0	458.8	ng	2	15	
Trifluorotoluene (PID)	C	340097004001	08-MAR-2010	650.17	1082.1	450.0	748.9	ng	**66**	15	c+
Bromofluorobenzene (PID)	C	340097004001	08-MAR-2010	1626.8	1878.3	450.0	519.6	ng	15	15	

JR 03/10/10 [Bromofluorobenzene (FID) A]: Passes control limits.

JR 03/10/10 [Trifluorotoluene (FID) A]: Passes control limits.

JR 03/10/10 : PID surrogates are not applicable.

JR 03/10/10 : Gas ranges failing high, only reporting samples with gas results of ND

Analyst: JR Date: 03/10/10 Reviewer: EAH Date: 03/10/10

+=high bias c=CCV

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 340087303

Instrument : GC19 Begun : 03/01/10 15:03
Method : EPA 8015B, EPA 8021B SOP Version : TVH_BTXE_rv14

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	060_001	X	IB			03/01/10 15:03	1.0	1	
002	060_002	IB	CALIB			03/01/10 15:41	1.0	1	
003	060_003	ICAL	BTXE_1			03/01/10 16:19	1.0	2 1	
004	060_004	ICAL	MBTXE_2			03/01/10 16:56	1.0	3 1	
005	060_005	ICAL	MBTXE_3			03/01/10 17:34	1.0	3 1	
006	060_006	ICAL	MBTXE_4			03/01/10 18:11	1.0	3 1	
007	060_007	ICAL	MBTXE_5			03/01/10 18:49	1.0	4 1	
008	060_008	ICAL	MBTXE_6			03/01/10 19:27	1.0	4 1	
009	060_009	ICAL	MBTXE_7			03/01/10 20:04	1.0	4 1	
010	060_010	ICAL	MTBE_7			03/01/10 20:42	1.0	5 1	
011	060_011	X	IB			03/01/10 21:20	1.0	1	
012	060_012	X	MBTXE			03/01/10 21:57	1.0	6 1	
013	060_013	ICV	MBTXE			03/01/10 22:35	1.0	6 1	
014	060_014	X	IB			03/01/10 23:12	1.0	1	
015	060_015	IB	CALIB			03/01/10 23:50	1.0	1	
016	060_016	ICAL	TVH_14			03/02/10 00:28	1.0	7 1	
017	060_017	ICAL	TVH_15			03/02/10 01:05	1.0	8 1	
018	060_018	ICAL	TVH_16			03/02/10 01:43	1.0	9 1	
019	060_019	ICAL	TVH_17			03/02/10 02:20	1.0	10 1	
020	060_020	ICAL	TVH_18			03/02/10 02:58	1.0	10 1	
021	060_021	X	IB			03/02/10 03:36	1.0	1	
022	060_022	ICV	TVH			03/02/10 04:13	1.0	11 1	
023	060_023	X	ICV			03/02/10 04:51	1.0	11 1	
024	060_024	X	IB			03/02/10 05:28	1.0	1	
025	060_025	X	CMARK			03/02/10 06:06	1.0	12 1	
026	060_026	ICAL	TVH_14			03/02/10 09:57	1.0	7 1	
027	060_027	ICV	TVH			03/02/10 11:23	1.0	11 1	

RFW 03/02/10 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 27.

Analyst: RFW Date: 03/02/10 Reviewer: _____ Date: _____

Standards used: 1=S13951 2=S13361 3=S13360 4=S13359 5=S13362 6=S13323 7=S13781 8=S13780 9=S13779 10=S13778 11=S13661 12=S13930

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CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 340088820

Instrument : GC19 Begun : 03/02/10 16:20
Method : EPA 8015B, EPA 8021B SOP Version : TVH_BTXE_rv14

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	061_001	X	IB			03/02/10 16:20	1.0	1	
002	061_002	IB	CALIB			03/02/10 16:58	1.0	1	
003	061_003	ICAL	TVH_14			03/02/10 17:35	1.0	2 1	
004	061_004	ICAL	TVH_15			03/02/10 18:13	1.0	3 1	
005	061_005	ICAL	TVH_16			03/02/10 18:51	1.0	4 1	
006	061_006	ICAL	TVH_17			03/02/10 19:28	1.0	5 1	
007	061_007	ICAL	TVH_18			03/02/10 20:06	1.0	5 1	
008	061_008	X	IB			03/02/10 20:43	1.0	1	
009	061_009	ICV	TVH			03/02/10 21:21	1.0	6 1	
010	061_010	X	ICV			03/02/10 21:59	1.0	6 1	
011	061_011	X	IB			03/02/10 22:36	1.0	1	
012	061_012	CMARKER				03/02/10 23:14	1.0	7 1	

Analyst: JR Date: 03/03/10 Reviewer: EAH Date: 03/04/10

Standards used: 1=S13951 2=S13781 3=S13780 4=S13779 5=S13778 6=S13661 7=S13930

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CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 340097004

Instrument : GC19 Begun : 03/08/10 08:44
Method : EPA 8015B, EPA 8021B SOP Version : TVH_BTXE_rv14

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	067_001	X	CMARK			03/08/10 08:44	1.0	1 2	
002	067_002	X	CCV			03/08/10 09:22	1.0	3 2	
003	067_003	X	CCV			03/08/10 10:00	1.0	4 2	
004	067_004	CCV/LCS	QC535203	Water	160713	03/08/10 10:37	1.0	3 2	
005	067_005	X	CCV			03/08/10 12:12	1.0	4 2	
006	067_006	BLANK	QC535202	Water	160713	03/08/10 14:44	1.0	2	
007	067_007	MSS	218587-001	Water	160713	03/08/10 16:02	1.0	2	
008	067_008	MS	QC535204	Water	160713	03/08/10 16:39	1.0	3 2	
009	067_009	MSD	QC535205	Water	160713	03/08/10 17:17	1.0	3 2	
010	067_010	X	IB			03/08/10 17:54	1.0	2	
011	067_011	CCV	BTXE			03/08/10 18:32	1.0	3 2	
012	067_012	X	CCV			03/08/10 19:10	1.0	3 2	
013	067_013	X	IB			03/08/10 19:47	1.0	2	
014	067_014	X	IB			03/08/10 20:25	1.0	2	
015	067_015	X	IB			03/08/10 21:02	1.0	2	
016	067_016	ICAL	SURROGATE_1			03/08/10 21:40	1.0	2	
017	067_017	ICAL	SURROGATE_2			03/08/10 22:18	1.0	2	
018	067_018	ICAL	SURROGATE_3			03/08/10 22:55	1.0	2	
019	067_019	ICAL	SURROGATE_4			03/08/10 23:33	1.0	2	
020	067_020	ICAL	SURROGATE_5			03/09/10 00:10	1.0	2	
021	067_021	X	IB			03/09/10 00:48	1.0	2	

RFW 03/09/10 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 21.

Analyst: RFW Date: 03/09/10 Reviewer: CP Date: 03/09/10

Standards used: 1=S13930 2=S13951 3=S13631 4=S13766

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CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 340098527

Instrument : GC19 Begun : 03/09/10 10:07
Method : EPA 8015B, EPA 8021B SOP Version : TVH_BTXE_rv14

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	068_001	X	CMARK			03/09/10 10:07	1.0	1 2	
002	068_002	CCV/BS	QC535410	Soil	160761	03/09/10 10:45	1.0	3 2	
003	068_003	CCV/LCS	QC535404	Soil	160761	03/09/10 11:22	1.0	4 2	
004	068_004	X	CCV			03/09/10 12:00	1.0	3 2	
005	068_005	BSD	QC535411	Soil	160761	03/09/10 13:18	1.0	3 2	
006	068_006	BLANK	QC535403	Soil	160761	03/09/10 16:09	1.0	2	
007	068_007	MSS	218609-006	Soil	160761	03/09/10 18:14	1.0	2	
008	068_008	MS	QC535405	Soil	160761	03/09/10 18:52	1.0	4 2	
009	068_009	MSD	QC535406	Soil	160761	03/09/10 19:30	1.0	4 2	
010	068_010	SAMPLE	218609-007	Soil	160761	03/09/10 20:07	1.0	2	
011	068_011	SAMPLE	218653-001	Soil	160761	03/09/10 20:45	1.0	2	
012	068_012	CCV	BTXE			03/09/10 21:23	1.0	3 2	
013	068_013	CCV	TVH			03/09/10 22:00	1.0	4 2	
014	068_014	X	CCV			03/09/10 22:38	1.0	3 2	
015	068_015	X	CCV			03/09/10 23:15	1.0	4 2	
016	068_016	X	CMARK			03/09/10 23:53	1.0	1 2	
017	068_017	SAMPLE	218655-002	Soil	160761	03/10/10 00:31	1.0	2	3:GAS:7-12=67000
018	068_018	SAMPLE	218655-004	Soil	160761	03/10/10 01:08	1.0	2	
019	068_019	SAMPLE	218655-006	Soil	160761	03/10/10 01:46	1.0	2	
020	068_020	SAMPLE	218655-008	Soil	160761	03/10/10 02:23	1.0	2	
021	068_021	SAMPLE	218655-010	Soil	160761	03/10/10 03:01	1.0	2	
022	068_022	CCV	TVH			03/10/10 03:39	1.0	4 2	
023	068_023	X	CCV			03/10/10 04:16	1.0	4 2	
024	068_024	X	CMARK			03/10/10 04:54	1.0	1 2	

JR 03/10/10 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 001 through 024.

Analyst: JR Date: 03/10/10 Reviewer: EAH Date: 03/10/10

Standards used: 1=S13930 2=S13951 3=S14090 4=S14154

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Project TVH/BTXE Soil Weight Logbook BK 2923

Continued from Page

Sample/Jar/Core	ID	Weight (g)	Comp?	NaHSO4?	Comments
218602-001	C	JR 3/6/10 5.72	No	No	JR 3/6/10
218616-001	C	6.34	No	No	
218609-006	comp	0.96	Yes		MAM 3/8/10 Com 1,2 @ 5g each, wet
-007		0.96			comp 3,4,5 @ 5g each
218653-001		0.98			Comp 1A,1B,1C @ 5g each
218655-002 mss	A	0.92	no		
-002 ms		1.00			
-002 msd		0.91			
218655-004		0.94			
-006		1.03			
-008		1.06			
-010		0.95			
218609-006 mss	comp	0.90	Yes	No	MAM 3/9/10 Comp 1,2 @ 5g each wet
-006 ms		0.97			
-006 msd		0.93			
-007		0.91			comp 3,4,5 @ 5g each
218653-001		0.94			Comp 1A,1B,1C @ 5g each
218655-002	A	0.93	no		
-004		0.92			
-006		0.91			
-008		0.91			
-010		0.98			

Continued on Page

Read and Understood By

Signed Date Signed Date

REPORTING SUMMARY FOR 218609 GCVOA Soil

Sample ID	Analyte	Inst ID	Ch	Date & Time
218609-006	Gasoline C7-C12	GC19	A	03/09/10 18:14
218609-006	Benzene	GC19	B	03/09/10 18:14
218609-006	Toluene	GC19	B	03/09/10 18:14
218609-006	Ethylbenzene	GC19	B	03/09/10 18:14
218609-006	m,p-Xylenes	GC19	B	03/09/10 18:14
218609-006	o-Xylene	GC19	B	03/09/10 18:14
218609-006	Trifluorotoluene (FID)	GC19	A	03/09/10 18:14
218609-006	Bromofluorobenzene (FID)	GC19	A	03/09/10 18:14
218609-006	Trifluorotoluene (PID)	GC19	B	03/09/10 18:14
218609-006	Bromofluorobenzene (PID)	GC19	B	03/09/10 18:14
218609-007	Gasoline C7-C12	GC19	A	03/09/10 20:07
218609-007	Benzene	GC19	B	03/09/10 20:07
218609-007	Toluene	GC19	B	03/09/10 20:07
218609-007	Ethylbenzene	GC19	B	03/09/10 20:07
218609-007	m,p-Xylenes	GC19	B	03/09/10 20:07
218609-007	o-Xylene	GC19	B	03/09/10 20:07
218609-007	Trifluorotoluene (FID)	GC19	A	03/09/10 20:07
218609-007	Bromofluorobenzene (FID)	GC19	A	03/09/10 20:07
218609-007	Trifluorotoluene (PID)	GC19	B	03/09/10 20:07
218609-007	Bromofluorobenzene (PID)	GC19	B	03/09/10 20:07
QC535403	Gasoline C7-C12	GC19	A	03/09/10 16:09
QC535403	Benzene	GC19	B	03/09/10 16:09
QC535403	Toluene	GC19	B	03/09/10 16:09
QC535403	Ethylbenzene	GC19	B	03/09/10 16:09
QC535403	m,p-Xylenes	GC19	B	03/09/10 16:09
QC535403	o-Xylene	GC19	B	03/09/10 16:09
QC535403	Trifluorotoluene (FID)	GC19	A	03/09/10 16:09
QC535403	Bromofluorobenzene (FID)	GC19	A	03/09/10 16:09
QC535403	Trifluorotoluene (PID)	GC19	B	03/09/10 16:09
QC535403	Bromofluorobenzene (PID)	GC19	B	03/09/10 16:09
QC535404	Gasoline C7-C12	GC19	A	03/09/10 11:22
QC535404	Trifluorotoluene (FID)	GC19	A	03/09/10 11:22
QC535404	Bromofluorobenzene (FID)	GC19	A	03/09/10 11:22
QC535405	Gasoline C7-C12	GC19	A	03/09/10 18:52
QC535405	Trifluorotoluene (FID)	GC19	A	03/09/10 18:52
QC535405	Bromofluorobenzene (FID)	GC19	A	03/09/10 18:52
QC535406	Gasoline C7-C12	GC19	A	03/09/10 19:30
QC535406	Trifluorotoluene (FID)	GC19	A	03/09/10 19:30
QC535406	Bromofluorobenzene (FID)	GC19	A	03/09/10 19:30
QC535410	Benzene	GC19	B	03/09/10 10:45
QC535410	Toluene	GC19	B	03/09/10 10:45
QC535410	Ethylbenzene	GC19	B	03/09/10 10:45
QC535410	m,p-Xylenes	GC19	B	03/09/10 10:45
QC535410	o-Xylene	GC19	B	03/09/10 10:45
QC535410	Trifluorotoluene (PID)	GC19	B	03/09/10 10:45
QC535410	Bromofluorobenzene (PID)	GC19	B	03/09/10 10:45
QC535411	Benzene	GC19	B	03/09/10 13:18

REPORTING SUMMARY FOR 218609 GCVOA Soil

Sample ID	Analyte	Inst ID	Ch	Date & Time
QC535411	Toluene	GC19	B	03/09/10 13:18
QC535411	Ethylbenzene	GC19	B	03/09/10 13:18
QC535411	m,p-Xylenes	GC19	B	03/09/10 13:18
QC535411	o-Xylene	GC19	B	03/09/10 13:18
QC535411	Trifluorotoluene (PID)	GC19	B	03/09/10 13:18
QC535411	Bromofluorobenzene (PID)	GC19	B	03/09/10 13:18

Laboratory Job Number 218609

ANALYTICAL REPORT

TPH-Extractables by GC

Matrix: Soil

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	218609	Location:	Doyle Drive Replacement Project
Client:	Baseline Environmental	Prep:	SHAKER TABLE
Project#:	Y0239-04.A8	Analysis:	EPA 8015B
Matrix:	Soil	Sampled:	03/04/10
Units:	mg/Kg	Received:	03/04/10
Basis:	as received	Prepared:	03/07/10
Batch#:	160693		

Field ID:	CDSM-MW-1;DRUMS-1S,2S	Diln Fac:	5.000
Type:	SAMPLE	Analyzed:	03/09/10
Lab ID:	218609-006	Cleanup Method:	EPA 3630C

Analyte	Result	RL
Diesel C10-C24	27 Y	5.0
Motor Oil C24-C36	77	25

Surrogate	%REC	Limits
o-Terphenyl	63	16-164

Field ID:	CDSM-MW-1;DRUMS-3S,4S,5S	Diln Fac:	1.000
Type:	SAMPLE	Analyzed:	03/08/10
Lab ID:	218609-007	Cleanup Method:	EPA 3630C

Analyte	Result	RL
Diesel C10-C24	10 Y	0.99
Motor Oil C24-C36	66	5.0

Surrogate	%REC	Limits
o-Terphenyl	74	16-164

Type:	BLANK	Analyzed:	03/08/10
Lab ID:	QC535117	Cleanup Method:	EPA 3630C
Diln Fac:	1.000		

Analyte	Result	RL
Diesel C10-C24	ND	1.0
Motor Oil C24-C36	ND	5.0

Surrogate	%REC	Limits
o-Terphenyl	44	16-164

Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	218609	Location:	Doyle Drive Replacement Project
Client:	Baseline Environmental	Prep:	SHAKER TABLE
Project#:	Y0239-04.A8	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC535118	Batch#:	160693
Matrix:	Soil	Prepared:	03/07/10
Units:	mg/Kg	Analyzed:	03/08/10

Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	49.56	36.30	73	36-151

Surrogate	%REC	Limits
o-Terphenyl	90	16-164

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	218609	Location:	Doyle Drive Replacement Project
Client:	Baseline Environmental	Prep:	SHAKER TABLE
Project#:	Y0239-04.A8	Analysis:	EPA 8015B
Field ID:	CDSM-MW-1;DRUMS-1S,2S	Batch#:	160693
MSS Lab ID:	218609-006	Sampled:	03/04/10
Matrix:	Soil	Received:	03/04/10
Units:	mg/Kg	Prepared:	03/07/10
Basis:	as received	Analyzed:	03/09/10
Diln Fac:	5.000		

Type: MS Cleanup Method: EPA 3630C
Lab ID: QC535119

Analyte	MSS Result	Spiked	Result	%REC	Limits
Diesel C10-C24	26.51	49.81	62.73	73	3-174

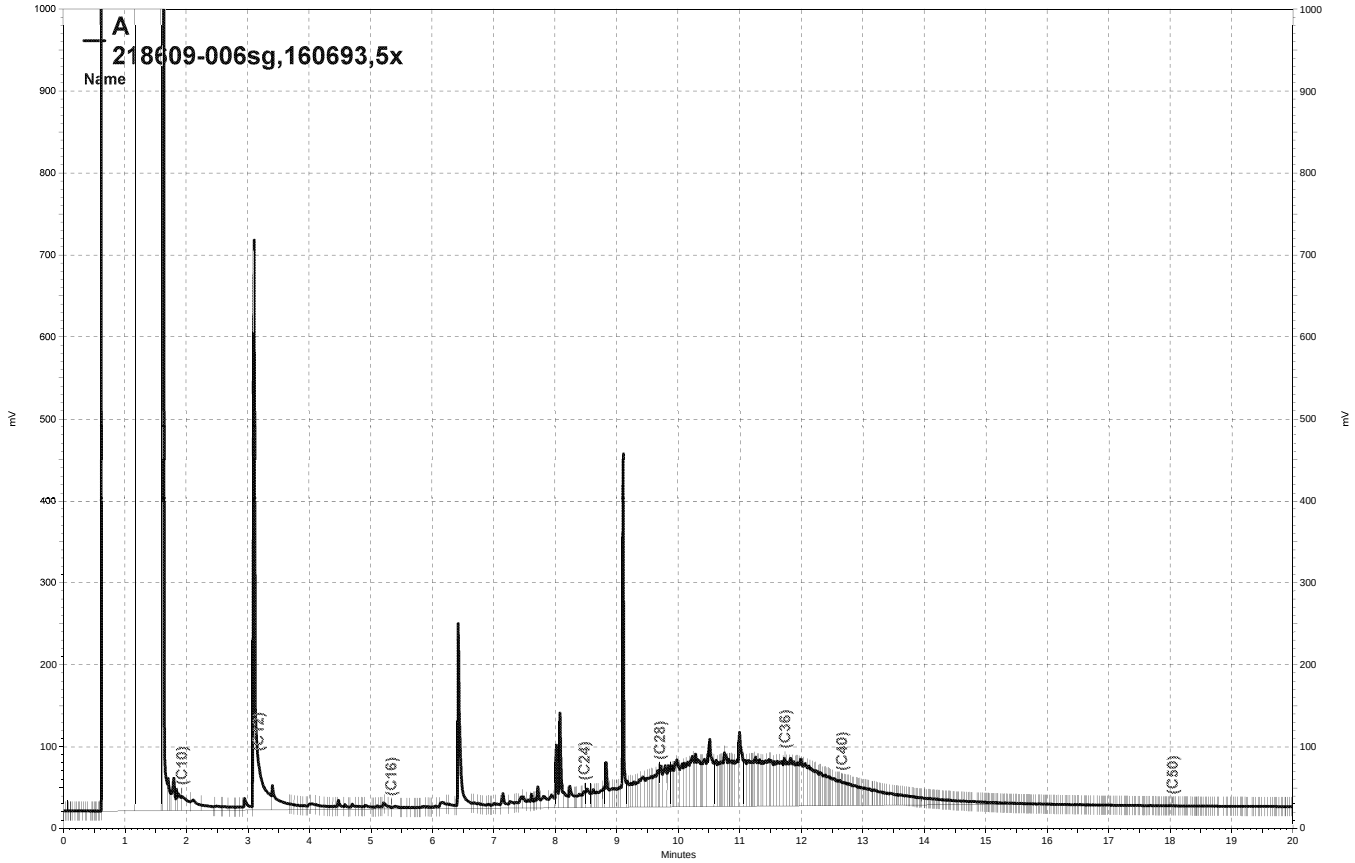
Surrogate	%REC	Limits
o-Terphenyl	57	16-164

Type: MSD Cleanup Method: EPA 3630C
Lab ID: QC535120

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	50.04	51.24	49	3-174	20	54

Surrogate	%REC	Limits
o-Terphenyl	57	16-164

RPD= Relative Percent Difference



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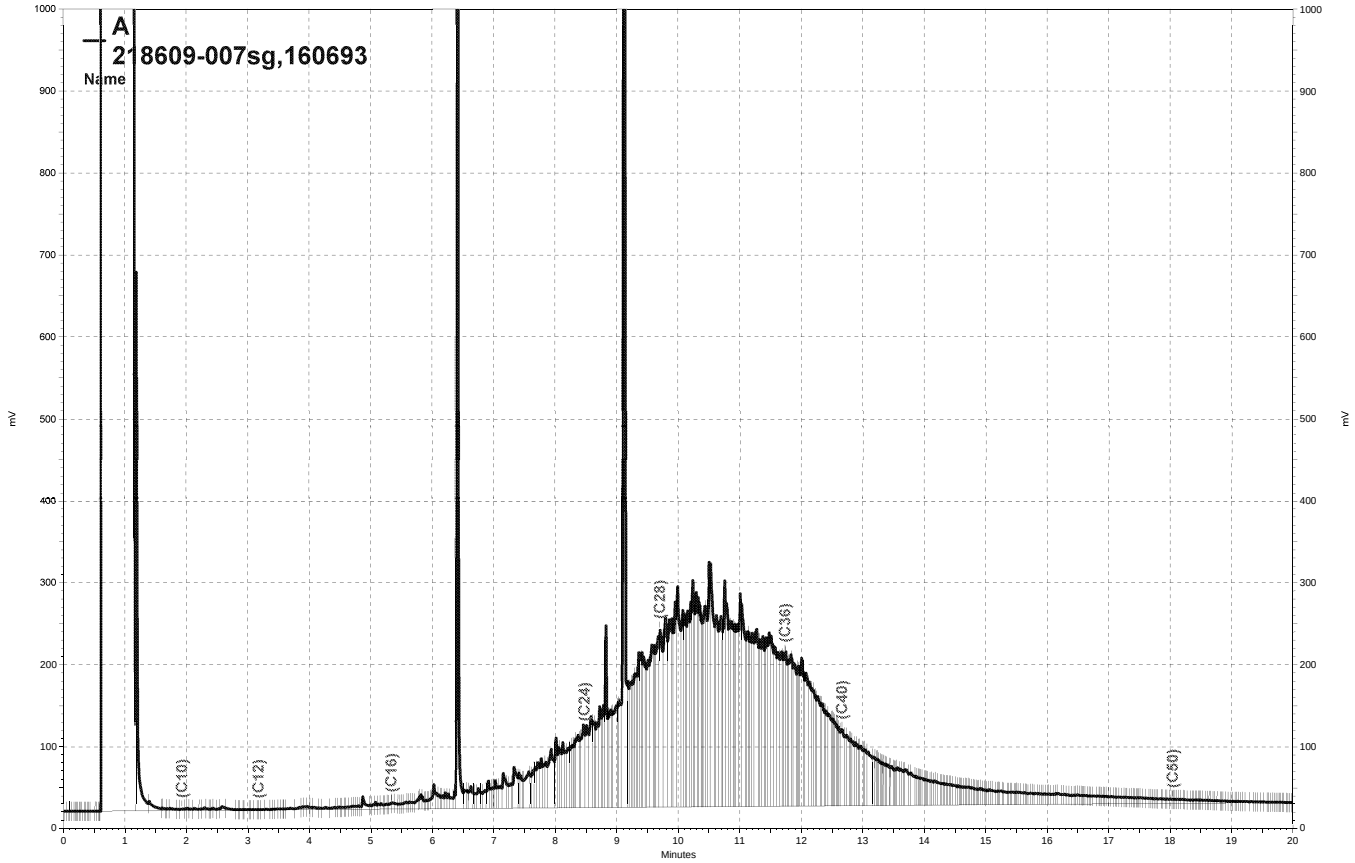

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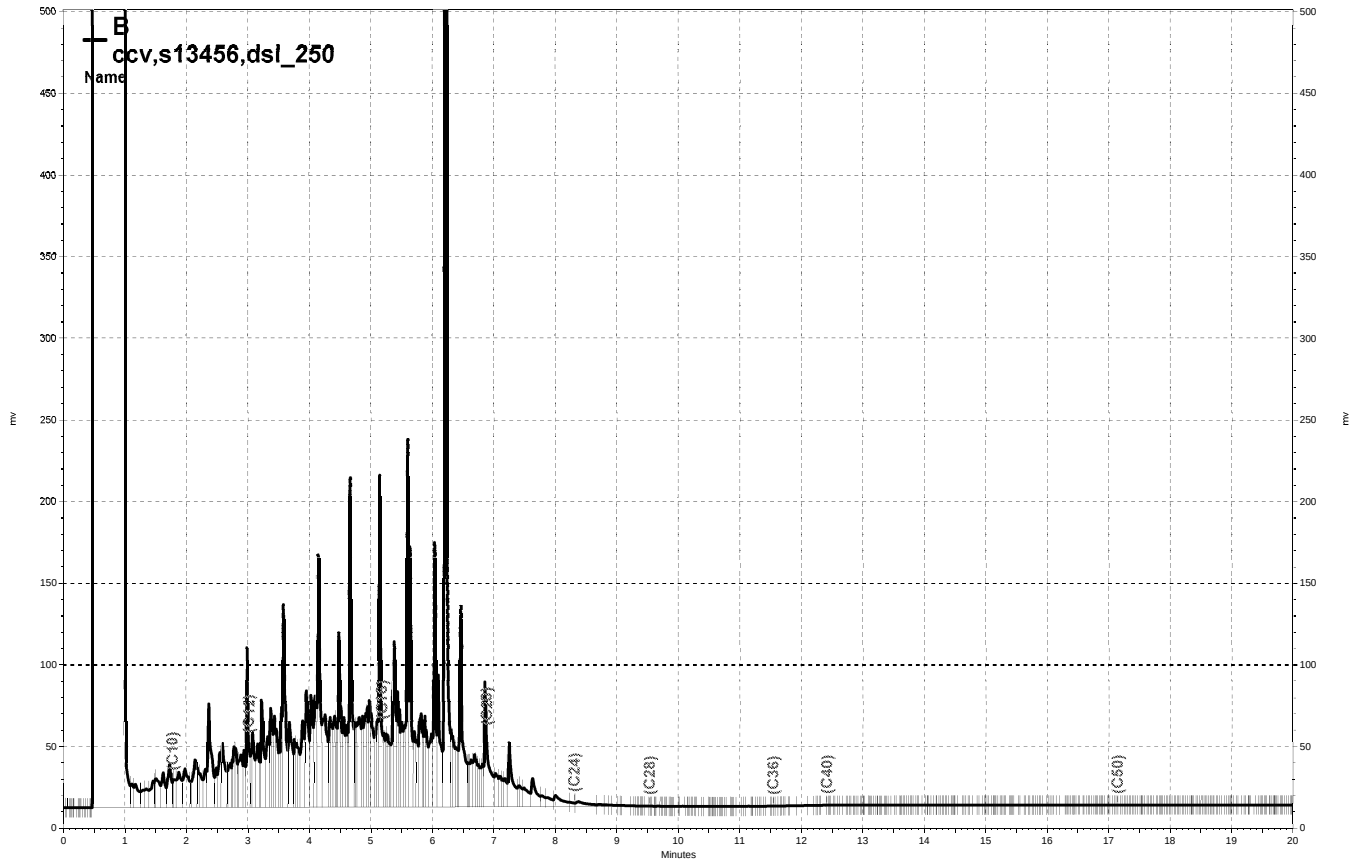

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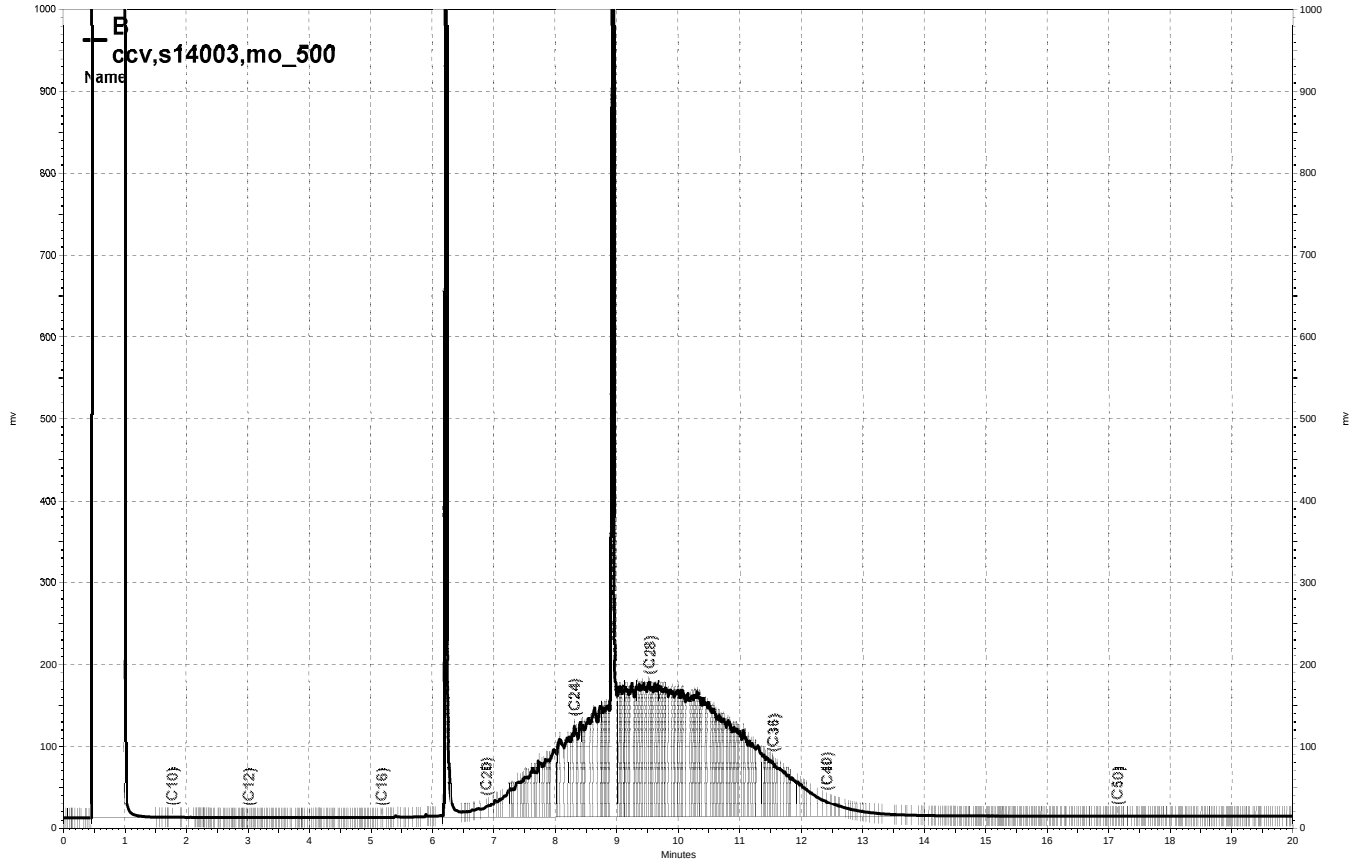

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CURTIS & TOMPKINS INITIAL CALIBRATION FOR 218609 GCSV Soil: EPA 8015B

Inst : GC15B
Calnum : 160015122008
Units : mg/L

Name : HEXOTP_010
Date : 10-JAN-2010 13:26
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	010b004	160015122004	HEXOTP_5	10-JAN-2010 13:26	S13690
L2	010b005	160015122005	HEXOTP_10	10-JAN-2010 13:54	S13691
L3	010b006	160015122006	HEXOTP_25	10-JAN-2010 14:21	S13692
L4	010b007	160015122007	HEXOTP_50	10-JAN-2010 14:49	S13693
L5	010b008	160015122008	HEXOTP_100	10-JAN-2010 15:17	S13694
L6	010b009	160015122009	HEXOTP_200	10-JAN-2010 15:45	S13695

Analyte	L1	L2	L3	L4	L5	L6	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
o-Terphenyl	64413	65438	65659	68934	63215	71786	AVRG		1.50E-5		66574	5	0.995	20	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D
o-Terphenyl	5.000	-3	10.00	-2	25.00	-1	50.00	4	100.0	-5	200.0	8

CP 01/12/10 : JDG: Corrected automatically drawn baseline for all ICALS, except for HEXOTP_50.

Analyst: PRW Date: 01/12/10 Reviewer: CP Date: 01/12/10

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 218609 GCSV Soil: EPA 8015B

Inst : GC15B
Calnum : 160015122002
Units : mg/L

Name : DSL_010
Date : 10-JAN-2010 16:41
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	010b011	160015122011	DSL_10	10-JAN-2010 16:41	S13230
L2	010b012	160015122012	DSL_100	10-JAN-2010 17:09	S13231
L3	010b013	160015122013	DSL_500	10-JAN-2010 17:37	S13232
L4	010b014	160015122014	DSL_1000	10-JAN-2010 18:05	S13233
L5	010b015	160015122015	DSL_5000	10-JAN-2010 18:33	S13229
L6	010b016	160015122016	DSL_7500	10-JAN-2010 19:01	S13234

Analyte	L1	L2	L3	L4	L5	L6	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
Diesel C10-C24	48716	58455	64114	61585	60274	63717	AVRG		1.68E-5		59477	10	0.995	20	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D
Diesel C10-C24	10.00	-18	100.0	-2	500.0	8	1000	4	5000	1	7500	7

JDG 01/11/10 : Corrected automatically drawn baseline in DSL_10 (010b011).

Analyst: JDG Date: 01/11/10 Reviewer: EAH Date: 01/12/10

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 218609 GCSV Soil
EPA 8015B

Inst : GC15B
Calnum : 160015122002

Name : DSL_010
Cal Date : 10-JAN-2010

ICV 160015122018 (010b018 10-JAN-2010) stds: S13457

Analyte	Spiked	Quant	Units	%D	Max	Flags
Diesel C10-C24	500.0	512.2	mg/L	2	15	

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 218609 GCSV Soil: EPA 8015B

Inst : GC17A
Calnum : 179448601003
Units : mg/L

Name : mo_311
Date : 07-NOV-2009 22:37
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	311a023	179448601023	MO_50	07-NOV-2009 22:37	S12675
L2	311a024	179448601024	MO_250	07-NOV-2009 23:04	S12676
L3	311a025	179448601025	MO_500	07-NOV-2009 23:31	S12677
L4	311a026	179448601026	MO_1000	07-NOV-2009 23:58	S12678
L5	311a027	179448601027	MO_5000	08-NOV-2009 00:25	S12679
L6	311a028	179448601028	MO_7500	08-NOV-2009 00:53	S12680

Analyte	L1	L2	L3	L4	L5	L6	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
Motor Oil C24-C36	51301	54796	55523	55157	59813	55299	AVRG		1.81E-5		55315	5	0.995	20	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D
Motor Oil C24-C36	50.00	-7	250.0	-1	500.0	0	1000	0	5000	8	7500	0

SFL 11/09/09 : Manually corrected fuel hump for mo_50, mo_500 - mo_7500

Analyst: SFL Date: 11/09/09 Reviewer: EAH Date: 11/10/09

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 218609 GCSV Soil: EPA 8015B

Inst : GC17A
Calnum : 179513982001
Units : mg/L

Name : HEXOTP_357
Date : 22-DEC-2009 23:16
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	357a003	179513982003	HEXOTP_5	22-DEC-2009 23:16	S12539
L2	357a004	179513982004	HEXOTP_10	22-DEC-2009 23:44	S12540
L3	357a005	179513982005	HEXOTP_25	23-DEC-2009 00:12	S12541
L4	357a006	179513982006	HEXOTP_50	23-DEC-2009 00:39	S12542
L5	357a007	179513982007	HEXOTP_100	23-DEC-2009 01:06	S12543
L6	357a008	179513982008	HEXOTP_200	23-DEC-2009 01:33	S12544

Analyte	L1	L2	L3	L4	L5	L6	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
o-Terphenyl	76638	76562	73973	76427	75946	83744	AVRG		1.30E-5		77215	4	0.995	20	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D
o-Terphenyl	5.000	-1	10.00	-1	25.00	-4	50.00	-1	100.0	-2	200.0	8

JDG 12/23/09 [o-Terphenyl A]: Corrected automatically drawn baseline for all levels except for HEXOTP_5.

Analyst: JDG Date: 12/23/09 Reviewer: CP Date: 12/23/09

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 218609 GCSV Soil: EPA 8015B

Inst : GC17A
Calnum : 170088296002
Units : mg/L

Name : DSL 061
Date : 02-MAR-2010 15:46
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	061a011	170088296011	DSL_10	02-MAR-2010 15:46	S13645
L2	061a012	170088296012	DSL_100	02-MAR-2010 16:14	S13231
L3	061a013	170088296013	DSL_500	02-MAR-2010 16:42	S13232
L4	061a014	170088296014	DSL_1000	02-MAR-2010 17:09	S13233
L5	061a015	170088296015	DSL_5000	02-MAR-2010 17:37	S13229
L6	061a016	170088296016	DSL_7500	02-MAR-2010 18:05	S13234

Analyte	L1	L2	L3	L4	L5	L6	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
Diesel C10-C24	43983	61662	76573	76186	62781	73946	AVRG		1.52E-5		65855	19	0.995	20	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D
Diesel C10-C24	10.00	**-33**	100.0	-6	500.0	16	1000	16	5000	-5	7500	12

TFB 03/04/10 : Corrected automatically drawn baseline for levels 1-5.

TFB: 03/04/10 * JDG: 03/05/10 PRW: 03/05/10 EAH: 03/05/10

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 218609 GCSV Soil
EPA 8015B

Inst : GC17A
Calnum : 170088296002

Name : DSL 061
Cal Date : 02-MAR-2010

ICV 170088296018 (061a018 02-MAR-2010) stds: S14077

Analyte	Spiked	Quant	Units	%D	Max	Flags
Diesel C10-C24	500.0	466.4	mg/L	-7	15	

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 218609 GCSV Soil
EPA 8015B

Inst : GC15B Run Name : MO_500 IDF : 1.0
Seqnum : 160098369004 File : 068b004 Time : 09-MAR-2010 08:53
Standards: S14003

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Motor Oil C24-C36	160015122003	10-JAN-2010	43879	50219	500.0	572.2	mg/L	14	15	
o-Terphenyl	160015122008	10-JAN-2010	66574	68485	50.00	51.43	mg/L	3	15	

Analyst: JDG Date: 03/10/10 Reviewer: SFL Date: 03/10/10

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 218609 GCSV Soil
EPA 8015B

Inst : GC15B Run Name : DSL_250 IDF : 1.0
Seqnum : 160098369005 File : 068b005 Time : 09-MAR-2010 09:21
Standards: S13456

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C10-C24	160015122002	10-JAN-2010	59477	58862	250.0	247.4	mg/L	-1	15	
o-Terphenyl	160015122008	10-JAN-2010	66574	67800	50.00	50.92	mg/L	2	15	

JDG 03/10/10 : Corrected automatically drawn baseline.

Analyst: JDG Date: 03/10/10 Reviewer: SFL Date: 03/10/10

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 218609 GCSV Soil
EPA 8015B

Inst : GC15B Run Name : MO_500 IDF : 1.0
Seqnum : 160098369019 File : 068b019 Time : 09-MAR-2010 22:17
Standards: S14003

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Motor Oil C24-C36	160015122003	10-JAN-2010	43879	47030	500.0	535.9	mg/L	7	15	
o-Terphenyl	160015122008	10-JAN-2010	66574	65204	50.00	48.97	mg/L	-2	15	

Analyst: JDG Date: 03/10/10 Reviewer: SFL Date: 03/10/10

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 218609 GCSV Soil
EPA 8015B

Inst : GC15B Run Name : DSL_500 IDF : 1.0
Seqnum : 160098369020 File : 068b020 Time : 09-MAR-2010 22:45
Standards: S14077

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C10-C24	160015122002	10-JAN-2010	59477	56674	500.0	476.4	mg/L	-5	15	
o-Terphenyl	160015122008	10-JAN-2010	66574	64714	50.00	48.60	mg/L	-3	15	

JDG 03/10/10 [o-Terphenyl B]: Corrected automatically drawn baseline.

Analyst: JDG Date: 03/10/10 Reviewer: SFL Date: 03/10/10

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 218609 GCSV Soil
EPA 8015B

Inst : GC17A Run Name : MO_500 IDF : 1.0
Seqnum : 170097031004 File : 067a004 Time : 08-MAR-2010 10:34
Standards: S14003

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Motor Oil C24-C36	179448601003	07-NOV-2009	55315	56204	500.0	508.0	mg/L	2	15	
o-Terphenyl	179513982001	22-DEC-2009	77215	79250	50.00	51.32	mg/L	3	15	

SFL 03/08/10 : Corrected automatically drawn baseline.

Analyst: SFL Date: 03/08/10 Reviewer: EAH Date: 03/08/10

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 218609 GCSV Soil
EPA 8015B

Inst : GC17A Run Name : DSL_250 IDF : 1.0
Seqnum : 170097031005 File : 067a005 Time : 08-MAR-2010 11:01
Standards: S13456

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C10-C24	170088296002	02-MAR-2010	65855	67735	250.0	257.1	mg/L	3	15	
o-Terphenyl	179513982001	22-DEC-2009	77215	79854	50.00	51.71	mg/L	3	15	

SFL 03/08/10 : Corrected automatically drawn baseline.

Analyst: SFL Date: 03/08/10 Reviewer: EAH Date: 03/08/10

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 218609 GCSV Soil
EPA 8015B

Inst : GC17A Run Name : MO_500 IDF : 1.0
Seqnum : 170097031011 File : 067a011 Time : 08-MAR-2010 13:48
Standards: S14003

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Motor Oil C24-C36	179448601003	07-NOV-2009	55315	53472	500.0	483.3	mg/L	-3	15	
o-Terphenyl	179513982001	22-DEC-2009	77215	74600	50.00	48.31	mg/L	-3	15	

SFL 03/08/10 : Corrected automatically drawn baseline.

Analyst: SFL Date: 03/08/10 Reviewer: EAH Date: 03/08/10

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 218609 GCSV Soil
EPA 8015B

Inst : GC17A Run Name : DSL_1000 IDF : 1.0
Seqnum : 170097031012 File : 067a012 Time : 08-MAR-2010 14:15
Standards: S13458

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C10-C24	170088296002	02-MAR-2010	65855	65633	1000	996.6	mg/L	0	15	
o-Terphenyl	179513982001	22-DEC-2009	77215	82088	50.00	53.16	mg/L	6	15	

Analyst: SFL Date: 03/08/10 Reviewer: EAH Date: 03/08/10

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 218609 GCSV Soil
EPA 8015B

Inst : GC17A Run Name : MO_500 IDF : 1.0
Seqnum : 170097031024 File : 067a024 Time : 08-MAR-2010 21:33
Standards: S14003

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Motor Oil C24-C36	179448601003	07-NOV-2009	55315	49260	500.0	445.3	mg/L	-11	15	
o-Terphenyl	179513982001	22-DEC-2009	77215	71059	50.00	46.01	mg/L	-8	15	

JDG 03/09/10 : Corrected automatically drawn baseline.

Analyst: JDG Date: 03/09/10 Reviewer: SFL Date: 03/09/10

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 218609 GCSV Soil
EPA 8015B

Inst : GC17A Run Name : DSL_500 IDF : 1.0
Seqnum : 170097031025 File : 067a025 Time : 08-MAR-2010 22:00
Standards: S14077

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C10-C24	170088296002	02-MAR-2010	65855	59401	500.0	451.0	mg/L	-10	15	
o-Terphenyl	179513982001	22-DEC-2009	77215	69039	50.00	44.71	mg/L	-11	15	

JDG 03/09/10 [o-Terphenyl A]: Corrected automatically drawn baseline.

Analyst: JDG Date: 03/09/10 Reviewer: SFL Date: 03/09/10

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 218609 GCSV Soil
EPA 8015B

Inst : GC17A Run Name : MO_500 IDF : 1.0
Seqnum : 170098370004 File : 068a004 Time : 09-MAR-2010 08:52
Standards: S14003

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Motor Oil C24-C36	179448601003	07-NOV-2009	55315	48492	500.0	438.3	mg/L	-12	15	
o-Terphenyl	179513982001	22-DEC-2009	77215	69195	50.00	44.81	mg/L	-10	15	

JDG 03/09/10 : Separated from coeluting peak.

Analyst: JDG Date: 03/09/10 Reviewer: SFL Date: 03/11/10

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 218609 GCSV Soil
EPA 8015B

Inst : GC17A Run Name : DSL_250 IDF : 1.0
Seqnum : 170098370005 File : 068a005 Time : 09-MAR-2010 09:20
Standards: S13456

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C10-C24	170088296002	02-MAR-2010	65855	64961	250.0	246.6	mg/L	-1	15	
o-Terphenyl	179513982001	22-DEC-2009	77215	75316	50.00	48.77	mg/L	-2	15	

JDG 03/09/10 [o-Terphenyl A]: Corrected automatically drawn baseline.

Analyst: JDG Date: 03/09/10 Reviewer: SFL Date: 03/11/10

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 218609 GCSV Soil
EPA 8015B

Inst : GC17A Run Name : MO_500 IDF : 1.0
Seqnum : 170098370007 File : 068a007 Time : 09-MAR-2010 10:28
Standards: S14003

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Motor Oil C24-C36	179448601003	07-NOV-2009	55315	46889	500.0	423.8	mg/L	-15	15	
o-Terphenyl	179513982001	22-DEC-2009	77215	67500	50.00	43.71	mg/L	-13	15	

JDG 03/09/10 : Corrected automatically drawn baseline.

Analyst: JDG Date: 03/09/10 Reviewer: SFL Date: 03/11/10

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 218609 GCSV Soil
EPA 8015B

Inst : GC17A Run Name : DSL_500 IDF : 1.0
Seqnum : 170098370008 File : 068a008 Time : 09-MAR-2010 10:55
Standards: S14077

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C10-C24	170088296002	02-MAR-2010	65855	57996	500.0	440.3	mg/L	-12	15	
o-Terphenyl	179513982001	22-DEC-2009	77215	67805	50.00	43.91	mg/L	-12	15	

JDG 03/09/10 [o-Terphenyl A]: Corrected automatically drawn baseline.

Analyst: JDG Date: 03/09/10 Reviewer: SFL Date: 03/11/10

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 160015122

Instrument : GC15B Begun : 01/10/10 12:02
Method : EPA 8015B SOP Version : TEH_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	010b001	X	PRIMER			01/10/10 12:02	1.0		
002	010b002	X	IB			01/10/10 12:30	1.0		
003	010b003	X	IB			01/10/10 12:58	1.0		
004	010b004	ICAL	HEXOTP_5			01/10/10 13:26	1.0	1	
005	010b005	ICAL	HEXOTP_10			01/10/10 13:54	1.0	2	
006	010b006	ICAL	HEXOTP_25			01/10/10 14:21	1.0	3	
007	010b007	ICAL	HEXOTP_50			01/10/10 14:49	1.0	4	
008	010b008	ICAL	HEXOTP_100			01/10/10 15:17	1.0	5	
009	010b009	ICAL	HEXOTP_200			01/10/10 15:45	1.0	6	
010	010b010	IB	CALIB			01/10/10 16:13	1.0		
011	010b011	ICAL	DSL_10			01/10/10 16:41	1.0	7	
012	010b012	ICAL	DSL_100			01/10/10 17:09	1.0	8	
013	010b013	ICAL	DSL_500			01/10/10 17:37	1.0	9	
014	010b014	ICAL	DSL_1000			01/10/10 18:05	1.0	10	
015	010b015	ICAL	DSL_5000			01/10/10 18:33	1.0	11	
016	010b016	ICAL	DSL_7500			01/10/10 19:01	1.0	12	
017	010b017	IB	CALIB			01/10/10 19:29	1.0		
018	010b018	ICV	DSL_500			01/10/10 19:57	1.0	13	
019	010b019	X	ICV			01/10/10 20:24	1.0	13	
020	010b020	IB	CALIB			01/10/10 20:52	1.0		
021	010b021	ICAL	MO_50			01/10/10 21:20	1.0	14	
022	010b022	ICAL	MO_250			01/10/10 21:47	1.0	15	
023	010b023	ICAL	MO_500			01/10/10 22:15	1.0	16	
024	010b024	ICAL	MO_1000			01/10/10 22:43	1.0	17	
025	010b025	ICAL	MO_5000			01/10/10 23:10	1.0	18	
026	010b026	ICAL	MO_7500			01/10/10 23:38	1.0	19	
027	010b027	IB	CALIB			01/11/10 00:06	1.0		
028	010b028	ICAL	JET_10			01/11/10 00:33	1.0	20	
029	010b029	ICAL	JET_100			01/11/10 01:01	1.0	21	
030	010b030	ICAL	JET_500			01/11/10 01:28	1.0	22	
031	010b031	ICAL	JET_1000			01/11/10 01:56	1.0	23	
032	010b032	ICAL	JET_2000			01/11/10 02:24	1.0	24	
033	010b033	ICAL	JET_3000			01/11/10 02:51	1.0	25	
034	010b034	IB	CALIB			01/11/10 03:19	1.0		
035	010b035	ICAL	JP5_10			01/11/10 03:46	1.0	26	
036	010b036	ICAL	JP5_100			01/11/10 04:14	1.0	27	
037	010b037	ICAL	JP5_500			01/11/10 04:42	1.0	28	
038	010b038	ICAL	JP5_1500			01/11/10 05:09	1.0	29	
039	010b039	ICAL	JP5_2500			01/11/10 05:37	1.0	30	
040	010b040	ICAL	JP5_5000			01/11/10 06:05	1.0	31	
041	010b041	IB	CALIB			01/11/10 06:33	1.0		
042	010b042	ICAL	BUNK_50			01/11/10 07:01	1.0	32	
043	010b043	ICAL	BUNK_250			01/11/10 07:28	1.0	33	
044	010b044	ICAL	BUNK_500			01/11/10 07:56	1.0	34	
045	010b045	ICAL	BUNK_1250			01/11/10 08:24	1.0	35	
046	010b046	ICAL	BUNK_2500			01/11/10 08:52	1.0	36	
047	010b047	ICAL	BUNK_5000			01/11/10 09:20	1.0	37	
048	010b048	IB	CALIB			01/11/10 09:48	1.0		
049	010b049	CMARKER	C8_C50			01/11/10 10:16	1.0	38	
050	010b050	IB	CALIB			01/11/10 10:44	1.0		

JDG 01/11/10 : I verified that the vials loaded on the instrument matched the

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 160015122

Instrument : GC15B Begun : 01/10/10 12:02
Method : EPA 8015B SOP Version : TEH_rv13

sequence data entry, for runs 1 through 50.

Standards used: 1=S13690 2=S13691 3=S13692 4=S13693 5=S13694 6=S13695 7=S13230 8=S13231 9=S13232 10=S13233 11=S13229
12=S13234 13=S13457 14=S12675 15=S12676 16=S12677 17=S12678 18=S12679 19=S12680 20=S13618 21=S13619 22=S13620
23=S13621 24=S13622 25=S13623 26=S13175 27=S13176 28=S13177 29=S13178 30=S13179 31=S13174 32=S12707 33=S12708
34=S12709 35=S12710 36=S12711 37=S12706 38=S12636

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 160098369

Instrument : GC15B Begun : 03/09/10 07:29
Method : EPA 8015B SOP Version : TEH_rv13

#	File	Type	Sample ID	P	Matrix	Batch	Analyzed	IDF	Stds Used	
001	068b001	X	PRIMER				03/09/10 07:29	1.0		
002	068b002	X	IB				03/09/10 07:57	1.0		
003	068b003	X	CMARKER				03/09/10 08:25	1.0	1	
004	068b004	CCV	MO_500				03/09/10 08:53	1.0	2	
005	068b005	CCV	DSL_250				03/09/10 09:21	1.0	3	
006	068b006	CCV	JET_250				03/09/10 14:51	1.0	4	
007	068b007	MS	QC535119	S	Soil	160693	03/09/10 16:41	5.0		
008	068b008	MSD	QC535120	S	Soil	160693	03/09/10 17:08	5.0		
009	068b009	X	IB				03/09/10 17:36	1.0		
010	068b010	SAMPLE	218611-001	S	Water	160711	03/09/10 18:04	1.0		
011	068b011	SAMPLE	218646-007	S	Water	160711	03/09/10 18:33	1.0		
012	068b012	SAMPLE	218612-002		Water	160711	03/09/10 19:01	1.0		
013	068b013	SAMPLE	218618-002		Water	160711	03/09/10 19:29	1.0		
014	068b014	SAMPLE	218618-003		Water	160711	03/09/10 19:57	1.0		
015	068b015	SAMPLE	218629-001		Water	160711	03/09/10 20:25	1.0		
016	068b016	SAMPLE	218648-001	S	Water	160711	03/09/10 20:52	1.0		
017	068b017	SAMPLE	218648-002	S	Water	160711	03/09/10 21:21	1.0		
018	068b018	X	CMARKER				03/09/10 21:49	1.0	1	
019	068b019	CCV	MO_500				03/09/10 22:17	1.0	2	
020	068b020	CCV	DSL_500				03/09/10 22:45	1.0	5	
021	068b021	X	CCV				03/09/10 23:13	1.0	2	
022	068b022	X	CCV				03/09/10 23:41	1.0	5	
023	068b023	BLANK	QC535198	S	Water	160712	03/10/10 00:09	1.0		
024	068b024	LCS	QC535199	S	Water	160712	03/10/10 00:37	1.0		
025	068b025	MSS	218613-008	S	Water	160712	03/10/10 01:05	1.0		
026	068b026	MS	QC535200	S	Water	160712	03/10/10 01:33	1.0		
027	068b027	MSD	QC535201	S	Water	160712	03/10/10 02:01	1.0		
028	068b028	X	CMARKER				03/10/10 02:29	1.0	1	
029	068b029	X	MO_500				03/10/10 02:57	1.0	2	
030	068b030	CCV	DSL_1000				03/10/10 03:25	1.0	6	
031	068b031	CCV	MO_500				03/10/10 03:53	1.0	2	
032	068b032	X	CCV				03/10/10 04:21	1.0	6	

JDG 03/10/10 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 32.

Standards used: 1=S13646 2=S14003 3=S13456 4=S13073 5=S14077 6=S13458

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 170088296

Instrument : GC17A Begun : 03/02/10 07:36
Method : EPA 8015B SOP Version : TEH_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	061a001	X	PRIMER			03/02/10 07:36	1.0		
002	061a002	X	IB			03/02/10 08:03	1.0		
003	061a003	X	CMARKER			03/02/10 08:30	1.0	1	
004	061a004	X	MO_500			03/02/10 08:58	1.0	2	
005	061a005	X	DSL_500			03/02/10 09:26	1.0	3	
006	061a006	X	IB			03/02/10 12:08	1.0		
007	061a007	X	CMARKER			03/02/10 12:36	1.0	1	
008	061a008	X	MO_500			03/02/10 13:04	1.0	2	
009	061a009	X	DSL_500			03/02/10 13:31	1.0	3	
010	061a010	IB	CALIB			03/02/10 15:18	1.0		
011	061a011	ICAL	DSL_10			03/02/10 15:46	1.0	4	
012	061a012	ICAL	DSL_100			03/02/10 16:14	1.0	5	
013	061a013	ICAL	DSL_500			03/02/10 16:42	1.0	6	
014	061a014	ICAL	DSL_1000			03/02/10 17:09	1.0	7	
015	061a015	ICAL	DSL_5000			03/02/10 17:37	1.0	8	
016	061a016	ICAL	DSL_7500			03/02/10 18:05	1.0	9	
017	061a017	IB	CALIB			03/02/10 18:33	1.0		
018	061a018	ICV	DSL_500			03/02/10 19:00	1.0	3	
019	061a019	X	ICV			03/02/10 19:28	1.0	3	
020	061a020	IB	CALIB			03/02/10 19:56	1.0		
021	061a021	CMARKER	C8_C50			03/02/10 20:23	1.0	1	
022	061a022	IB	CALIB			03/02/10 20:51	1.0		
023	061a023	X	IB			03/04/10 11:39	1.0		
024	061a024	IB	CALIB			03/04/10 12:06	1.0		
025	061a025	X	DSL_10			03/04/10 12:34	1.0	4	

JDG 03/04/10 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 25.

Standards used: 1=S13646 2=S14003 3=S14077 4=S13645 5=S13231 6=S13232 7=S13233 8=S13229 9=S13234

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 170097031

Instrument : GC17A Begun : 03/08/10 09:11
Method : EPA 8015B SOP Version : TEH_rv13

#	File	Type	Sample ID	P	Matrix	Batch	Analyzed	IDF	Stds Used	
001	067a001	X	PRIMER				03/08/10 09:11	1.0		
002	067a002	X	IB				03/08/10 09:38	1.0		
003	067a003	X	CMARKER				03/08/10 10:06	1.0	1	
004	067a004	CCV	MO_500				03/08/10 10:34	1.0	2	
005	067a005	CCV	DSL_250				03/08/10 11:01	1.0	3	
006	067a006	BLANK	QC535117	S	Soil	160693	03/08/10 11:32	1.0		
007	067a007	LCS	QC535118	S	Soil	160693	03/08/10 12:00	1.0		
008	067a008	SAMPLE	218643-001	S	Soil	160693	03/08/10 12:27	1.0		
009	067a009	SAMPLE	218643-002	S	Soil	160693	03/08/10 12:54	1.0		
010	067a010	SAMPLE	218643-003	S	Soil	160693	03/08/10 13:21	1.0		
011	067a011	CCV	MO_500				03/08/10 13:48	1.0	2	
012	067a012	CCV	DSL_1000				03/08/10 14:15	1.0	4	
013	067a013	MSS	218609-006	S	Soil	160693	03/08/10 16:31	1.0		7:JP8:10-16=11000
014	067a014	X	IB				03/08/10 16:58	1.0		
015	067a015	MS	QC535119	S	Soil	160693	03/08/10 17:26	1.0		
016	067a016	MSD	QC535120	S	Soil	160693	03/08/10 17:53	1.0		7:JP8:10-16=12000
017	067a017	X	IB				03/08/10 18:21	1.0		
018	067a018	SAMPLE	218609-007	S	Soil	160693	03/08/10 18:48	1.0		
019	067a019	X	IB				03/08/10 19:16	1.0		
020	067a020	SAMPLE	218612-001		Soil	160693	03/08/10 19:43	20.0		
021	067a021	X	IB				03/08/10 20:11	1.0		
022	067a022	SAMPLE	218635-001		Soil	160693	03/08/10 20:38	1.0		
023	067a023	X	CMARKER				03/08/10 21:06	1.0	1	
024	067a024	CCV	MO_500				03/08/10 21:33	1.0	2	
025	067a025	CCV	DSL_500				03/08/10 22:00	1.0	5	
026	067a026	X	CCV				03/08/10 22:28	1.0	2	
027	067a027	X	CCV				03/08/10 22:55	1.0	5	

SFL 03/08/10 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 12.

SFL 03/10/10 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 13 through 27.

Standards used: 1=S13646 2=S14003 3=S13456 4=S13458 5=S14077

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 170098370

Instrument : GC17A Begun : 03/09/10 07:30
Method : EPA 8015B SOP Version : TEH_rv13

#	File	Type	Sample ID	P	Matrix	Batch	Analyzed	IDF	Stds Used	
001	068a001	X	PRIMER				03/09/10 07:30	1.0		
002	068a002	X	IB				03/09/10 07:57	1.0		
003	068a003	X	CMARKER				03/09/10 08:25	1.0	1	
004	068a004	CCV	MO_500				03/09/10 08:52	1.0	2	
005	068a005	CCV	DSL_250				03/09/10 09:20	1.0	3	
006	068a006	MSS	218609-006	S	Soil	160693	03/09/10 09:47	5.0		
007	068a007	CCV	MO_500				03/09/10 10:28	1.0	2	
008	068a008	CCV	DSL_500				03/09/10 10:55	1.0	4	
009	068a009	X	IB				03/09/10 13:28	1.0		
010	068a010	X	CMARKER				03/09/10 13:56	1.0	1	
011	068a011	X	MO_500				03/09/10 14:23	1.0	2	
012	068a012	X	DSL_250				03/09/10 14:51	1.0	3	
013	068a013	X	MO_500				03/09/10 15:41	1.0	2	
014	068a014	X	IB				03/09/10 17:52	1.0		
015	068a015	X	C8-C50				03/09/10 18:20	1.0	1	
016	068a016	X	MO_500				03/09/10 18:47	1.0	2	
017	068a017	X	DSL_500				03/09/10 19:15	1.0	4	
019	068a019	IB	CALIB				03/09/10 20:20	1.0		
020	068a020	ICAL	HEXOTP_5				03/09/10 20:48	1.0	5	
021	068a021	ICAL	HEXOTP_10				03/09/10 21:15	1.0	6	
022	068a022	ICAL	HEXOTP_25				03/09/10 21:43	1.0	7	
023	068a023	ICAL	HEXOTP_50				03/09/10 22:10	1.0	8	
024	068a024	ICAL	HEXOTP_100				03/09/10 22:37	1.0	9	
025	068a025	ICAL	HEXOTP_200				03/09/10 23:05	1.0	10	
026	068a026	IB	CALIB				03/09/10 23:32	1.0		

JDG 03/09/10 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 8.

JDG 03/10/10 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 9 through 26.

Standards used: 1=S13646 2=S14003 3=S13456 4=S14077 5=S13690 6=S13691 7=S13692 8=S13693 9=S13694 10=S13695

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 179448601

Instrument : GC17A Begun : 11/07/09 12:41
Method : EPA 8015B SOP Version : TEH_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
002	311a002	X	CMARKER			11/07/09 12:41	1.0	1	
003	311a003	X	IB			11/07/09 13:32	1.0		
004	311a004	X	IB			11/07/09 13:59	1.0		
005	311a005	IB	CALIB			11/07/09 14:27	1.0		
006	311a006	ICAL	HEXOTP_5			11/07/09 14:54	1.0	2	
007	311a007	ICAL	HEXOTP_10			11/07/09 15:21	1.0	3	
008	311a008	ICAL	HEXOTP_25			11/07/09 15:48	1.0	4	
009	311a009	ICAL	HEXOTP_50			11/07/09 16:15	1.0	5	
010	311a010	ICAL	HEXOTP_100			11/07/09 16:42	1.0	6	
011	311a011	ICAL	HEXOTP_200			11/07/09 17:10	1.0	7	
012	311a012	IB	CALIB			11/07/09 17:37	1.0		
013	311a013	X	DSL_10			11/07/09 18:05	1.0	8	
014	311a014	X	DSL_100			11/07/09 18:32	1.0	9	
015	311a015	X	DSL_500			11/07/09 18:59	1.0	10	
016	311a016	X	DSL_1000			11/07/09 19:26	1.0	11	
017	311a017	X	DSL_5000			11/07/09 19:53	1.0	12	
018	311a018	X	DSL_7500			11/07/09 20:21	1.0	13	
019	311a019	IB	CALIB			11/07/09 20:48	1.0		
020	311a020	X	DSL_500			11/07/09 21:15	1.0	14	
021	311a021	X	DSL_500			11/07/09 21:42	1.0	14	
022	311a022	IB	CALIB			11/07/09 22:10	1.0		
023	311a023	ICAL	MO_50			11/07/09 22:37	1.0	15	
024	311a024	ICAL	MO_250			11/07/09 23:04	1.0	16	
025	311a025	ICAL	MO_500			11/07/09 23:31	1.0	17	
026	311a026	ICAL	MO_1000			11/07/09 23:58	1.0	18	
027	311a027	ICAL	MO_5000			11/08/09 00:25	1.0	19	
028	311a028	ICAL	MO_7500			11/08/09 00:53	1.0	20	
029	311a029	IB	CALIB			11/08/09 01:20	1.0		
030	311a030	ICAL	JET_10			11/08/09 01:47	1.0	21	
031	311a031	ICAL	JET_100			11/08/09 02:14	1.0	22	
032	311a032	ICAL	JET_500			11/08/09 02:42	1.0	23	
033	311a033	ICAL	JET_1000			11/08/09 03:09	1.0	24	
034	311a034	ICAL	JET_2000			11/08/09 03:36	1.0	25	
035	311a035	ICAL	JET_3000			11/08/09 04:04	1.0	26	
036	311a036	IB	CALIB			11/08/09 04:31	1.0		
037	311a037	ICAL	JP5_10			11/08/09 04:59	1.0	27	
038	311a038	ICAL	JP5_100			11/08/09 05:27	1.0	28	
039	311a039	ICAL	JP5_500			11/08/09 05:54	1.0	29	
040	311a040	ICAL	JP5_1500			11/08/09 06:21	1.0	30	
041	311a041	ICAL	JP5_2500			11/08/09 06:48	1.0	31	
042	311a042	ICAL	JP5_5000			11/08/09 07:15	1.0	32	
043	311a043	IB	CALIB			11/08/09 07:42	1.0		
044	311a044	ICAL	BUNK_50			11/08/09 08:10	1.0	33	
045	311a045	ICAL	BUNK_250			11/08/09 08:37	1.0	34	
046	311a046	ICAL	BUNK_500			11/08/09 09:04	1.0	35	
047	311a047	ICAL	BUNK_1250			11/08/09 09:31	1.0	36	
048	311a048	ICAL	BUNK_2500			11/08/09 09:59	1.0	37	
049	311a049	ICAL	BUNK_5000			11/08/09 10:26	1.0	38	
050	311a050	IB	CALIB			11/08/09 10:53	1.0		
051	311a051	CMARKER	C8_C50			11/08/09 11:20	1.0	1	

SFL 11/09/09 : I verified that the vials loaded on the instrument matched the

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 179448601

Instrument : GC17A Begun : 11/07/09 12:41
Method : EPA 8015B SOP Version : TEH_rv13

sequence data entry, for runs 1 through 51.

Standards used: 1=S12636 2=S12539 3=S12540 4=S12541 5=S12542 6=S12543 7=S12544 8=S13230 9=S13231 10=S13232 11=S13233
12=S13229 13=S13234 14=S12961 15=S12675 16=S12676 17=S12677 18=S12678 19=S12679 20=S12680 21=S12341 22=S12342
23=S12343 24=S12344 25=S12345 26=S12346 27=S13175 28=S13176 29=S13177 30=S13178 31=S13179 32=S13174 33=S12707
34=S12708 35=S12709 36=S12710 37=S12711 38=S12706

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 179513982

Instrument : GC17A Begun : 12/22/09 22:22
Method : EPA 8015B SOP Version : TEH_rv13

#	File	Type	Sample ID	P	Matrix	Batch	Analyzed	IDF	Stds Used	
001	357a001	X	IB				12/22/09 22:22	1.0		
002	357a002	IB	CALIB				12/22/09 22:49	1.0		
003	357a003	ICAL	HEXOTP_5				12/22/09 23:16	1.0	1	
004	357a004	ICAL	HEXOTP_10				12/22/09 23:44	1.0	2	
005	357a005	ICAL	HEXOTP_25				12/23/09 00:12	1.0	3	
006	357a006	ICAL	HEXOTP_50				12/23/09 00:39	1.0	4	
007	357a007	ICAL	HEXOTP_100				12/23/09 01:06	1.0	5	
008	357a008	ICAL	HEXOTP_200				12/23/09 01:33	1.0	6	
009	357a009	IB	CALIB				12/23/09 02:00	1.0		
010	357a010	X	C8-C50				12/23/09 02:28	1.0	7	
011	357a011	CCV	DSL_1000				12/23/09 02:55	1.0	8	
012	357a012	CCV	MO_500				12/23/09 03:23	1.0	9	
013	357a013	X	CCV				12/23/09 03:51	1.0	8	
014	357a014	X	CCV				12/23/09 04:18	1.0	9	
015	357a015	SAMPLE	217344-006	S	Water	158498	12/23/09 04:45	3.0		16:BUNKC:12-40=40000
016	357a016	SAMPLE	217344-017	S	Water	158498	12/23/09 05:13	5.0		16:BUNKC:12-40=38000
017	357a017	X	IB				12/23/09 05:40	1.0		
018	357a018	SAMPLE	217335-004		Water	158498	12/23/09 06:08	1.0		
019	357a019	SAMPLE	217335-005		Water	158498	12/23/09 06:35	1.0		
020	357a020	SAMPLE	217335-006		Water	158498	12/23/09 07:02	1.0		
021	357a021	SAMPLE	217344-012	S	Water	158498	12/23/09 07:29	1.0		
022	357a022	SAMPLE	217344-019	S	Water	158498	12/23/09 07:57	1.0		
023	357a023	CCV	DSL_500				12/23/09 08:24	1.0	10	
024	357a024	CCV	MO_500				12/23/09 08:52	1.0	9	
025	357a025	BLANK	QC526592	S	Water	158490	12/23/09 09:35	1.0		
026	357a026	BS	QC526593	S	Water	158490	12/23/09 10:02	1.0		
027	357a027	BSD	QC526594	S	Water	158490	12/23/09 10:29	1.0		
028	357a028	SAMPLE	217342-001	S	Water	158490	12/23/09 11:41	1.0		
029	357a029	SAMPLE	217288-001		Soil	158480	12/23/09 12:27	2.0		
030	357a030	SAMPLE	217288-002		Soil	158480	12/23/09 12:54	2.0		
031	357a031	SAMPLE	217288-003		Soil	158480	12/23/09 13:22	2.0		
032	357a032	SAMPLE	217288-004		Soil	158480	12/23/09 13:49	2.0		
033	357a033	X	CMARKER				12/23/09 14:17	1.0	7	
034	357a034	CCV	DSL_250				12/23/09 14:44	1.0	11	
035	357a035	CCV	MO_500				12/23/09 15:12	1.0	9	
036	357a036	SAMPLE	217342-017	S	Water	158490	12/23/09 16:28	1.0		
037	357a037	SAMPLE	217342-016	S	Water	158490	12/23/09 16:55	1.0		
038	357a038	SAMPLE	217342-015	S	Water	158490	12/23/09 17:23	1.0		
039	357a039	SAMPLE	217342-014	S	Water	158490	12/23/09 17:50	1.0		
040	357a040	SAMPLE	217342-013	S	Water	158490	12/23/09 18:18	1.0		2:BUNKC:12-40=7400
041	357a041	SAMPLE	217342-012	S	Water	158490	12/23/09 18:45	1.0		
042	357a042	SAMPLE	217342-011	S	Water	158490	12/23/09 19:13	1.0		
043	357a043	SAMPLE	217342-010	S	Water	158490	12/23/09 19:41	1.0		
044	357a044	SAMPLE	217342-018	S	Water	158490	12/23/09 20:08	1.0		
045	357a045	SAMPLE	217342-020	S	Water	158490	12/23/09 20:36	1.0		
046	357a046	CCV	DSL_1000				12/23/09 21:03	1.0	8	
047	357a047	CCV	MO_500				12/23/09 21:30	1.0	9	

JDG 12/23/09 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 24.

JDG 12/23/09 : I verified that the vials loaded on the instrument matched the

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 179513982

Instrument : GC17A Begun : 12/22/09 22:22
Method : EPA 8015B SOP Version : TEH_rv13

sequence data entry, for runs 25 through 35.

TFB 12/27/09 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 36 through 47.

Standards used: 1=S12539 2=S12540 3=S12541 4=S12542 5=S12543 6=S12544 7=S12636 8=S12962 9=S13471 10=S13457 11=S12960

SAMPLE PREPARATION SUMMARY

Batch # : 160693
Started By : SFL
Method : SHAKER TABLE
Spike #1 ID : S13777

Prep Date : 07-MAR-2010 14:00
SOP Version : TEH1_rv9
Spike #2 ID : S14101

Analysis : TEH
Finished By : KKM
Units : g

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
218594-001		Soil	49.99	5	1	0.1000		1			3630C	TEHM	
218594-002		Soil	49.98	5	1	0.1000		1			3630C	TEHM	
218594-003		Soil	49.97	5	1	0.1001		1			3630C	TEHM	
218594-004		Soil	49.81	5	1	0.1004		1			3630C	TEHM	
218594-005		Soil	50.15	5	1	0.0997		1			3630C	TEHM	Sharpie Contamination
218594-006		Soil	49.99	5	1	0.1000		1			3630C	TEHM	
218594-007		Soil	50.12	5	1	0.09976		1			3630C	TEHM	
218594-008		Soil	50.13	5	1	0.09974		1			3630C	TEHM	
218594-009		Soil	49.71	5	1	0.1006		1			3630C	TEHM	
218609-006		Soil	49.99	5	1	0.1000		1			3630C	TEHM	MSS
218609-007		Soil	50.5	5	1	0.09901		1			3630C	TEHM	
218612-001		Soil	50.25	5	1	0.0995		1				TEHM	
218635-001		Soil	49.6	5	1	0.1008		1				TEHM	
218643-001		Soil	50.08	5	1	0.09984		1			3630C	TEHM	
218643-002		Soil	49.82	5	1	0.1004		1			3630C	TEHM	
218643-003		Soil	50.43	5	1	0.09915		1			3630C	TEHM	
QC535117	BLANK	Soil	50.18	5	1	0.09964		1			3630C		
QC535118	LCS	Soil	50.44	5	1	0.09913		1	1		3630C		
QC535119	MS	Soil	50.19	5	1	0.09962		1	1		3630C		
QC535120	MSD	Soil	49.96	5	1	0.1001		1	1		3630C		

Analyst: SFL Date: 03/09/10 Reviewer: TFB Date: 03/09/10

TEH (8015) Soil Prep Log

Curtis & Tompkins, Ltd.

BK 2993 Page 32

LIMS Batch No: 100693

LIMS Analysis TEH

Date Extracted: 3/7/10

Extraction Method:
- ☑ Shaker Table
- ☐ EPA 3550 Sonication
- ☐ _____

Cleanup Method (if necessary):
- ☑ EPA 3630 Silica Gel
- ☐ _____

Sample #	container ID	Weight of Sample (g)	Final Volume (mL)	Cleanup (x if needed)	Comments
218594-001	A	49.99	5.0	X	
2		49.98			
3		49.97			
4		49.81			
5		50.15			POSS SEDIMENT CONTAMINATION
6		49.99			
7		50.12			
8		50.13			
9		49.71			
218609-006	COMP	49.99			MSS
07		50.50			
218612-001	A	50.25			
218635-001	A	49.60	5.0		
218643-001	COMP	50.08		X	
02		49.82			
03		50.43			
MB QC535117	NA	50.18			
LCS 118		50.44			
MS 119		50.19	5.0		
MSD 120		49.96			

KAC 3/8/10

	Mfg & Lot # / LIMS # / Time	Date/Initials
Baked, solvent-rinsed granular Na2SO4 weighed out for QC samples	EM 4924 7942	SE 3/7/10
Samples were dried with CH2Cl2-rinsed powdered Na2SO4		
1.0 mL of Surrogate solution was added to all samples	S 13777 D	
1.0 mL of Spike solution was added to all spikes	S 14101 A	
1:1 CH_2Cl_2 (lot# EM 49346): Acetone (lot# EM 49260) was added to all	✓	
Solvent added at (time)	1400	
☐ Sonicated 3 times w/ ≥100mL ☑ placed on Shaker Table at:	1430	
taken off Shaker Table at:	1630	
Extracts filtered through baked, rinsed ~~powdered~~ GRAN Na_2SO_4	EM 4924 7942	KRY 3/8/10
Concentrated to final volume at temperature (degrees C)	100	
Relinquished to TEH Department	✓	

3/7/10

Extraction Chemist / Date

Continued from page ____

Continued on page ____

3/8/10

Reviewed by / Date

Curtis & Tompkins, Ltd. **Silica Gel Cleanup** **EPA 3630c**

Prep Chemist: KKel
Cleanup Date: 3/8/10

Benchbook # **BK 2983**
Page 84

Sample #	Batch#	Initial Volume (mL)	Final Volume (mL)	Comments
218594.001	166693	1.0	1.0	
002				
003				
004				
005				
006				
007				
008				
009				
218609.006				MSS
007				
218643.001			1.0	
002				
003				
MB QC535117				
LCS 18				
MS 19			1.0	
MSD 20				

KAL 3/8/10

	Mfg & Lot # / Time / Program	Initials / Date
☐ Extracts were cleaned up using C&T assembled ____g columns	NA	KKel 3/8/10
☑ Extracts were cleaned up using 1.0 g cartridges	SP147680 1	
Extracts were eluted with 40 mL CH_2Cl_2	BM49338	
Concentrated to volumes as noted above	✓	

KKel 3/8/10
Extraction Chemist / Date

Continued from page ____
Continued on page ____

3/8/10
Reviewed by / Date

188 Project Soil Aliquot BK 2971

Continued from Page

SAMPLE ID	WEIGHT(g)	ANALYSIS	BATCH#	COMMENTS
218602-001G	49.84	TEHM		
218603-001A	50.05	↓		
LCS	49.80	↓		
			MB 3/4/10	
218601-001A	30.21	8081		
↓ -004 ↓	30.05	↓		
218602-001H	30.08	PCB		
218603-001A	~~50.05~~ 30.23	~~TEHM~~ PCB		
218612-001A	50.05	~~TEHM~~	160693	
218616-001G	30.20	P/P		
				TW 3/5/10
218594-001A	49.99	TEHM	160693	
002	49.98			
003	49.97			
004	49.81			
005	50.15			
006	49.99			
007	50.12			
008	50.13			
009	49.71			
218635-001 ↓	49.60	↓	↓	
			MB 3/5/10	

Continued on Page

Read and Understood By

Signed Date Signed Date

Project Soil Aliquot BK2971

Continued from Page

Sample ID	Weight (g)	Analysis	Batch #	Comments
218624-001A	30.16	PCB		
-003	29.55			
-005	30.41			
-007	30.19			
-009	29.98			
-011	30.42			
-013	30.18			
-014	30.05			
-016	30.44			
-018	30.23			
				KAL 3/5/10
218609-006	49.99	TEH	1006093 WET	MSS; COMP-001A, -02A @ 100g EA
07	50.50			-03A, 04A, 05A
218643-001	50.08			COMP 4 JARS A-D @ 20g EA
2	49.82			
3	50.43			
MB	50.18			EM49247942
LCS	50.44			
MS	50.19			218609-006; WET
MSD	49.96			
			SFL 3/7/10	

Continued on Page

Read and Understood By

Signed Date Signed Date

Laboratory Job Number 218609

ANALYTICAL REPORT

Metals

Matrix: Soil

Curtis & Tompkins, Ltd.

Cadmium

Lab #:	218609	Location:	Doyle Drive Replacement Project
Client:	Baseline Environmental	Prep:	EPA 3050B
Project#:	Y0239-04.A8	Analysis:	EPA 6010B
Analyte:	Cadmium	Batch#:	160726
Matrix:	Soil	Sampled:	03/04/10
Units:	mg/Kg	Received:	03/04/10
Basis:	as received	Prepared:	03/08/10
Diln Fac:	1.000	Analyzed:	03/09/10

Field ID	Type	Lab ID	Result	RL
CDSM-MW-1;DRUMS-1S,2S	SAMPLE	218609-006	ND	0.25
CDSM-MW-1;DRUMS-3S,4S,5S	SAMPLE	218609-007	ND	0.25
	BLANK	QC535252	ND	0.25

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

California LUFT Metals

Lab #:	218609	Location:	Doyle Drive Replacement Project
Client:	Baseline Environmental	Prep:	EPA 3050B
Project#:	Y0239-04.A8	Analysis:	EPA 6010B
Matrix:	Soil	Sampled:	03/04/10
Units:	mg/Kg	Received:	03/04/10
Basis:	as received	Prepared:	03/08/10
Diln Fac:	1.000	Analyzed:	03/09/10
Batch#:	160726		

Field ID: CDSM-MW-1;DRUMS-1S,2S Lab ID: 218609-006
Type: SAMPLE

Analyte	Result	RL
Cadmium	ND	0.25
Chromium	9.8	0.25
Lead	5.5	0.25
Nickel	8.9	0.25
Zinc	20	1.0

Field ID: CDSM-MW-1;DRUMS-3S,4S,5S Lab ID: 218609-007
Type: SAMPLE

Analyte	Result	RL
Cadmium	ND	0.25
Chromium	22	0.25
Lead	9.9	0.25
Nickel	23	0.25
Zinc	23	1.0

Type: BLANK Lab ID: QC535252

Analyte	Result	RL
Cadmium	ND	0.25
Chromium	ND	0.25
Lead	ND	0.25
Nickel	ND	0.25
Zinc	ND	1.0

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Cadmium

Lab #:	218609	Location:	Doyle Drive Replacement Project
Client:	Baseline Environmental	Prep:	EPA 3050B
Project#:	Y0239-04.A8	Analysis:	EPA 6010B
Analyte:	Cadmium	Batch#:	160726
Field ID:	ZZZZZZZZZZ	Sampled:	02/19/10
MSS Lab ID:	218499-001	Received:	02/25/10
Units:	mg/Kg	Prepared:	03/08/10
Diln Fac:	1.000	Analyzed:	03/09/10

Type	Lab ID	Matrix	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC535253	Soil		10.00	9.824	98	77-120		
BSD	QC535254	Soil		10.00	9.925	99	77-120	1	18
MS	QC535255	Oil	<0.02429	9.709	9.795	101	46-132		
MSD	QC535256	Oil		9.901	9.711	98	46-132	3	29

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

California LUFT Metals

Lab #:	218609	Location:	Doyle Drive Replacement Project
Client:	Baseline Environmental	Prep:	EPA 3050B
Project#:	Y0239-04.A8	Analysis:	EPA 6010B
Matrix:	Soil	Batch#:	160726
Units:	mg/Kg	Prepared:	03/08/10
Diln Fac:	1.000	Analyzed:	03/09/10

Type: BS Lab ID: QC535253

Analyte	Spiked	Result	%REC	Limits
Cadmium	10.00	9.824	98	77-120
Chromium	100.0	94.00	94	74-118
Lead	100.0	94.57	95	73-117
Nickel	25.00	23.09	92	73-115
Zinc	25.00	23.73	95	71-119

Type: BSD Lab ID: QC535254

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Cadmium	10.00	9.925	99	77-120	1	18
Chromium	100.0	94.00	94	74-118	0	25
Lead	100.0	94.88	95	73-117	0	24
Nickel	25.00	23.18	93	73-115	0	17
Zinc	25.00	23.64	95	71-119	0	18

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

California LUFT Metals

Lab #:	218609	Location:	Doyle Drive Replacement Project
Client:	Baseline Environmental	Prep:	EPA 3050B
Project#:	Y0239-04.A8	Analysis:	EPA 6010B
Field ID:	ZZZZZZZZZZ	Batch#:	160726
MSS Lab ID:	218499-001	Sampled:	02/19/10
Matrix:	Oil	Received:	02/25/10
Units:	mg/Kg	Prepared:	03/08/10
Diln Fac:	1.000	Analyzed:	03/09/10

Type: MS Lab ID: QC535255

Analyte	MSS Result	Spiked	Result	%REC	Limits
Cadmium	<0.02429	9.709	9.795	101	46-132
Chromium	<0.05998	97.09	95.69	99	27-153
Lead	0.09626	97.09	93.96	97	27-147
Nickel	<0.06267	24.27	23.32	96	15-165
Zinc	1.341	24.27	25.95	101	6-172

Type: MSD Lab ID: QC535256

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Cadmium	9.901	9.711	98	46-132	3	29
Chromium	99.01	93.55	94	27-153	4	40
Lead	99.01	93.07	94	27-147	3	54
Nickel	24.75	23.27	94	15-165	2	46
Zinc	24.75	24.53	94	6-172	7	53

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Cadmium

Lab #:	218609	Location:	Doyle Drive Replacement Project
Client:	Baseline Environmental	Prep:	EPA 3050B
Project#:	Y0239-04.A8	Analysis:	EPA 6010B
Analyte:	Cadmium	Units:	mg/Kg
Field ID:	ZZZZZZZZZZ	Diln Fac:	5.000
Type:	Serial Dilution	Batch#:	160726
MSS Lab ID:	218499-001	Sampled:	02/19/10
Lab ID:	QC535304	Received:	02/25/10
Matrix:	Oil	Analyzed:	03/09/10

MSS Result	MSS RL	Result	RL	% Diff	Lim
ND	0.2500	ND	1.190	NC	10

NC= Not Calculated
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

California LUFT Metals

Lab #:	218609	Location:	Doyle Drive Replacement Project
Client:	Baseline Environmental	Prep:	EPA 3050B
Project#:	Y0239-04.A8	Analysis:	EPA 6010B
Field ID:	ZZZZZZZZZZ	Diln Fac:	5.000
Type:	Serial Dilution	Batch#:	160726
MSS Lab ID:	218499-001	Sampled:	02/19/10
Lab ID:	QC535304	Received:	02/25/10
Matrix:	Oil	Analyzed:	03/09/10
Units:	mg/Kg		

Analyte	MSS Result	MSS RL	Result	RL	% Diff	Lim
Cadmium	ND	0.2500	ND	1.190	NC	10
Chromium	ND	0.2500	ND	1.190	NC	10
Lead	0.09626	0.2500	ND	1.190	NC	10
Nickel	ND	0.2500	ND	1.190	NC	10
Zinc	1.341	1.000	2.057 J	4.762	NC	10

J= Estimated value
NC= Not Calculated
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Cadmium

Lab #:	218609	Location:	Doyle Drive Replacement Project
Client:	Baseline Environmental	Prep:	EPA 3050B
Project#:	Y0239-04.A8	Analysis:	EPA 6010B
Analyte:	Cadmium	Units:	mg/Kg
Field ID:	ZZZZZZZZZZ	Diln Fac:	1.000
Type:	Post Digest Spike	Batch#:	160726
MSS Lab ID:	218499-001	Sampled:	02/19/10
Lab ID:	QC535305	Received:	02/25/10
Matrix:	Oil	Analyzed:	03/09/10

MSS Result	Spiked	Result	%REC	Limits
<0.02429	9.524	9.116	96	75-125

Curtis & Tompkins, Ltd.

Batch QC Report

California LUFT Metals

Lab #:	218609	Location:	Doyle Drive Replacement Project
Client:	Baseline Environmental	Prep:	EPA 3050B
Project#:	Y0239-04.A8	Analysis:	EPA 6010B
Field ID:	ZZZZZZZZZZ	Diln Fac:	1.000
Type:	Post Digest Spike	Batch#:	160726
MSS Lab ID:	218499-001	Sampled:	02/19/10
Lab ID:	QC535305	Received:	02/25/10
Matrix:	Oil	Analyzed:	03/09/10
Units:	mg/Kg		

Analyte	MSS Result	Spiked	Result	%REC	Limits
Cadmium	<0.02429	9.524	9.116	96	75-125
Chromium	<0.05998	95.24	85.96	90	75-125
Lead	0.09626	95.24	86.54	91	75-125
Nickel	<0.06267	23.81	21.75	91	75-125
Zinc	1.341	23.81	23.06	91	75-125

REPORTING SUMMARY FOR 218609 METALS Soil
Curtis & Tompkins Laboratories

Lab ID	Inst ID	Analyzed	IDF	CD	CR	PB	NI	ZN
218609-006	MET09	03/09/10 12:20	1.0	+	+	+	+	+
218609-007	MET09	03/09/10 12:25	1.0	+	+	+	+	+
QC535252	MET09	03/09/10 11:32	1.0	+	+	+	+	+
QC535253	MET09	03/09/10 11:37	1.0	+	+	+	+	+
QC535254	MET09	03/09/10 11:40	1.0	+	+	+	+	+
QC535255	MET09	03/09/10 11:49	1.0	+	+	+	+	+
QC535256	MET09	03/09/10 11:52	1.0	+	+	+	+	+
QC535304	MET09	03/09/10 11:56	5.0	+	+	+	+	+
QC535305	MET09	03/09/10 12:01	1.0	+	+	+	+	+

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 90098560

Instrument : MET09 Begun : 03/09/10 10:40
Method : EPA 6010B SOP Version : icp metals_rv9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met09_sn_6010a	ICALBLK				03/09/10 10:40	1.0		
002	met09_sn_6010a	ICAL	CRI5.1			03/09/10 10:45	1.0	1	
003	met09_sn_6010a	ICAL	CS100			03/09/10 10:50	1.0	2	
004	met09_sn_6010a	ICAL	CS1K			03/09/10 10:55	1.0	3	
005	met09_sn_6010a	ICAL	CS10K			03/09/10 10:58	1.0	4	
006	met09_sn_6010a	ICAL	CS100K			03/09/10 11:04	1.0	5	
007	met09_sn_6010a	ICV				03/09/10 11:09	1.0	6	
008	met09_sn_6010a	ICB				03/09/10 11:14	1.0		
009	met09_sn_6010a	ICSA				03/09/10 11:20	1.0	7	10:AL=470000
010	met09_sn_6010a	ICSAB				03/09/10 11:26	1.0	8	5:AL=470000
011	met09_sn_6010a	BLANK	QC535252	Soil	160726	03/09/10 11:32	1.0		
012	met09_sn_6010a	BS	QC535253	Soil	160726	03/09/10 11:37	1.0		
013	met09_sn_6010a	BSD	QC535254	Soil	160726	03/09/10 11:40	1.0		
014	met09_sn_6010a	MSS	218499-001	Oil	160726	03/09/10 11:44	1.0		
015	met09_sn_6010a	MS	QC535255	Oil	160726	03/09/10 11:49	1.0		
016	met09_sn_6010a	MSD	QC535256	Oil	160726	03/09/10 11:52	1.0		
017	met09_sn_6010a	SER	QC535304	Oil	160726	03/09/10 11:56	5.0		
018	met09_sn_6010a	PDS	QC535305	Oil	160726	03/09/10 12:01	1.0	9 10	
019	met09_sn_6010a	CCV				03/09/10 12:04	1.0	11	
020	met09_sn_6010a	CCB				03/09/10 12:10	1.0		
021	met09_sn_6010a	SAMPLE	218499-002	Oil	160726	03/09/10 12:15	1.0		
022	met09_sn_6010a	SAMPLE	218609-006	Soil	160726	03/09/10 12:20	1.0		2:CA=420000
023	met09_sn_6010a	SAMPLE	218609-007	Soil	160726	03/09/10 12:25	1.0		1:FE=190000
024	met09_sn_6010a	SAMPLE	218575-001	Soil	160726	03/09/10 12:29	1.0		3:FE=330000
025	met09_sn_6010a	SAMPLE	218575-002	Soil	160726	03/09/10 12:32	1.0		3:FE=280000
026	met09_sn_6010a	SAMPLE	218575-003	Soil	160726	03/09/10 12:37	1.0		3:FE=260000
027	met09_sn_6010a	SAMPLE	218575-004	Soil	160726	03/09/10 12:41	1.0		2:FE=360000
028	met09_sn_6010a	SAMPLE	218575-005	Soil	160726	03/09/10 12:45	1.0		3:FE=210000
029	met09_sn_6010a	SAMPLE	218575-006	Soil	160726	03/09/10 12:50	1.0		3:FE=400000
030	met09_sn_6010a	SAMPLE	218575-007	Soil	160726	03/09/10 12:53	1.0		2:FE=270000
031	met09_sn_6010a	CCV				03/09/10 12:57	1.0	11	
032	met09_sn_6010a	CCB				03/09/10 13:03	1.0		
033	met09_sn_6010a	SAMPLE	218575-008	Soil	160726	03/09/10 13:08	1.0		3:FE=390000
034	met09_sn_6010a	SAMPLE	218575-009	Soil	160726	03/09/10 13:11	1.0		1:FE=210000
035	met09_sn_6010a	ICSAB				03/09/10 13:16	1.0	8	5:AL=470000
036	met09_sn_6010a	X	RINSE			03/09/10 13:21	1.0		
037	met09_sn_6010a	BLANK	QC535272	Filtrate	160730	03/09/10 13:26	1.0		
038	met09_sn_6010a	SAMPLE	218575-001	Soil	160726	03/09/10 13:31	1.0		3:FE=330000
039	met09_sn_6010a	SAMPLE	218575-002	Soil	160726	03/09/10 13:35	10.0		
040	met09_sn_6010a	SAMPLE	218575-003	Soil	160726	03/09/10 13:39	10.0		
041	met09_sn_6010a	SAMPLE	218575-005	Soil	160726	03/09/10 13:44	10.0		
042	met09_sn_6010a	ICSAB				03/09/10 13:48	1.0	8	5:CA=460000
043	met09_sn_6010a	X	RINSE			03/09/10 13:53	1.0		
044	met09_sn_6010a	BLANK	QC535272	Filtrate	160730	03/09/10 13:58	1.0		
045	met09_sn_6010a	BS	QC535273	Filtrate	160730	03/09/10 14:04	1.0		
046	met09_sn_6010a	CCV				03/09/10 14:08	1.0	11	
047	met09_sn_6010a	CCB				03/09/10 14:14	1.0		
048	met09_sn_6010a	BSD	QC535274	Filtrate	160730	03/09/10 14:19	1.0		
049	met09_sn_6010a	MSS	218557-001	Filtrate	160730	03/09/10 14:23	1.0		
050	met09_sn_6010a	MS	QC535275	Filtrate	160730	03/09/10 14:28	1.0		
051	met09_sn_6010a	MSD	QC535276	Filtrate	160730	03/09/10 14:32	1.0		
052	met09_sn_6010a	SER	QC535306	Filtrate	160730	03/09/10 14:36	5.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 90098560

Instrument : MET09 Begun : 03/09/10 10:40
Method : EPA 6010B SOP Version : icp metals_rv9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met09_sn_6010a	PDS	QC535307	Filtrate	160730	03/09/10 14:42	1.0	12 13	
054	met09_sn_6010a	SAMPLE	218577-002	Filtrate	160730	03/09/10 14:46	1.0		2:NA=260000
055	met09_sn_6010a	SAMPLE	218577-003	Filtrate	160730	03/09/10 14:53	1.0		3:MG=950000
056	met09_sn_6010a	SAMPLE	218577-004	Filtrate	160730	03/09/10 15:01	1.0		4:MG=1000000
057	met09_sn_6010a	SAMPLE	218577-005	Filtrate	160730	03/09/10 15:08	1.0		3:MG=550000
058	met09_sn_6010a	CCV				03/09/10 15:15	1.0	11	
059	met09_sn_6010a	X				03/09/10 15:21	1.0		
060	met09_sn_6010a	CCB				03/09/10 15:24	1.0		
061	met09_sn_6010a	SAMPLE	218577-006	Filtrate	160730	03/09/10 15:30	1.0		3:MG=820000
062	met09_sn_6010a	SAMPLE	218577-004	Filtrate	160730	03/09/10 15:37	1.0		4:MG=950000
063	met09_sn_6010a	SAMPLE	218577-007	Filtrate	160730	03/09/10 15:44	1.0		3:MG=560000
064	met09_sn_6010a	SAMPLE	218577-008	Filtrate	160730	03/09/10 15:52	1.0		2:MG=410000
065	met09_sn_6010a	SAMPLE	218577-009	Filtrate	160730	03/09/10 15:59	1.0		2:CA=270000
066	met09_sn_6010a	SAMPLE	218577-010	Filtrate	160730	03/09/10 16:06	1.0		3:MG=620000
067	met09_sn_6010a	SAMPLE	218577-011	Filtrate	160730	03/09/10 16:14	1.0		2:MG=420000
068	met09_sn_6010a	ICSAB				03/09/10 16:21	1.0	8	5:CA=480000
069	met09_sn_6010a	X	RINSE			03/09/10 16:26	1.0		
070	met09_sn_6010a	SAMPLE	218557-002	Filtrate	160730	03/09/10 16:32	1.0		
071	met09_sn_6010a	CCV				03/09/10 16:37	1.0	11	
072	met09_sn_6010a	X				03/09/10 16:45	1.0		
073	met09_sn_6010a	CCB				03/09/10 16:49	1.0		
074	met09_sn_6010a	SAMPLE	218610-001	Filtrate	160730	03/09/10 16:54	1.0		1:NA=250000
075	met09_sn_6010a	SAMPLE	218612-002	Filtrate	160730	03/09/10 17:01	1.0		1:NA=100000
076	met09_sn_6010a	SAMPLE	218529-001	Miscell.	160726	03/09/10 17:09	1.0		1:CA=230000
077	met09_sn_6010a	SAMPLE	218612-001	Soil	160726	03/09/10 17:13	1.0		
078	met09_sn_6010a	SAMPLE	218639-001	Miscell.	160726	03/09/10 17:18	1.0		
079	met09_sn_6010a	SAMPLE	218640-001	Miscell.	160726	03/09/10 17:24	1.0		
080	met09_sn_6010a	SAMPLE	218641-001	Miscell.	160726	03/09/10 17:29	1.0		
081	met09_sn_6010a	SAMPLE	218642-001	Miscell.	160726	03/09/10 17:36	1.0		1:PB=28000
082	met09_sn_6010a	SAMPLE	218653-001	Soil	160726	03/09/10 17:43	1.0		4:CA=630000
083	met09_sn_6010a	ICSAB				03/09/10 17:47	1.0	8	5:CA=480000
084	met09_sn_6010a	CCV				03/09/10 17:53	1.0	11	
085	met09_sn_6010a	X				03/09/10 17:54	1.0	11	
086	met09_sn_6010a	X				03/09/10 18:00	1.0		
087	met09_sn_6010a	CCB				03/09/10 18:03	1.0		

AH 03/10/10 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 87.

Standards used: 1=S13742 2=S13802 3=S13801 4=S13743 5=S13923 6=S14097 7=S14040 8=S14041 9=S12182 10=S12183 11=S14098 12=S12746 13=S12747

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 90098560

Date : 03/09/10 Reference : met09_sn_6010a
Sequence : MET09 03/09/10 Analyzed : 03/09/10 10:45

#	Type	Sample ID	Y A
		ICAL STD	3977109
		LOWER LIMIT	1193133
		UPPER LIMIT	7954219
008	ICB		4023077
009	ICSA		3373297
010	ICSAB		3427204
011	BLANK	QC535252	3956818
012	BS	QC535253	3823321
013	BSD	QC535254	3858020
014	MSS	218499-001	4094375
015	MS	QC535255	3886030
016	MSD	QC535256	3922163
017	SER	QC535304	3920844
018	PDS	QC535305	3899175
019	CCV		3993550
020	CCB		4079469
021	SAMPLE	218499-002	4099768
022	SAMPLE	218609-006	3723645
023	SAMPLE	218609-007	3934493
024	SAMPLE	218575-001	3711532
025	SAMPLE	218575-002	3896098
026	SAMPLE	218575-003	3916072
027	SAMPLE	218575-004	3924348
028	SAMPLE	218575-005	3981475
029	SAMPLE	218575-006	3872791
030	SAMPLE	218575-007	3963790
031	CCV		4013818
032	CCB		4118314
033	SAMPLE	218575-008	4046503
034	SAMPLE	218575-009	3903976
035	ICSAB		3426482
037	BLANK	QC535272	4180256
038	SAMPLE	218575-001	3972597
039	SAMPLE	218575-002	3961451
040	SAMPLE	218575-003	4147773
041	SAMPLE	218575-005	4061903
042	ICSAB		3440686
044	BLANK	QC535272	4172975
045	BS	QC535273	4035488
046	CCV		3973255
047	CCB		4200447
048	BSD	QC535274	4036354
049	MSS	218557-001	4165812
050	MS	QC535275	4058479
051	MSD	QC535276	4045552
052	SER	QC535306	4260852
053	PDS	QC535307	4078219
054	SAMPLE	218577-002	3990095
055	SAMPLE	218577-003	3118358
056	SAMPLE	218577-004	3096501
057	SAMPLE	218577-005	3092943

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 90098560

Date : 03/09/10 Reference : met09_sn_6010a
Sequence : MET09 03/09/10 Analyzed : 03/09/10 10:45

#	Type	Sample ID	Y A
058	CCV		4172348
060	CCB		4297355
061	SAMPLE	218577-006	3027906
062	SAMPLE	218577-004	3222706
063	SAMPLE	218577-007	3357402
064	SAMPLE	218577-008	3587787
065	SAMPLE	218577-009	3802285
066	SAMPLE	218577-010	3176397
067	SAMPLE	218577-011	3494200
068	ICSAB		3681368
070	SAMPLE	218557-002	4502182
071	CCV		4314954
073	CCB		4480057
074	SAMPLE	218610-001	4072503
075	SAMPLE	218612-002	4264970
076	SAMPLE	218529-001	4106442
077	SAMPLE	218612-001	4363608
078	SAMPLE	218639-001	4357046
079	SAMPLE	218640-001	4444410
080	SAMPLE	218641-001	4374936
081	SAMPLE	218642-001	4402685
082	SAMPLE	218653-001	4149703
083	ICSAB		3678305
084	CCV		4240944
087	CCB		4441349

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 218609 METALS Soil: EPA 6010B

Inst : MET09 Reviewer : ---
Calnum : 90098560001 Date : 09-MAR-2010 10:40
Units : ug/L X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met09_sn_6010a	90098560002	CRI5.1	09-MAR-2010 10:45	S13742
L2	met09_sn_6010a	90098560003	CS100	09-MAR-2010 10:50	S13802
L3	met09_sn_6010a	90098560004	CS1K	09-MAR-2010 10:55	S13801
L4	met09_sn_6010a	90098560005	CS10K	09-MAR-2010 10:58	S13743
L5	met09_sn_6010a	90098560006	CS100K	09-MAR-2010 11:04	S13923

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Cadmium	A	151.74	156.90	158.26	152.21		LOR0	0.00000	0.00657		154.78	1.000	0.995	
Chromium	A	160.24	195.57	196.29	195.39		LOR0	0.00000	0.00512		186.87	1.000	0.995	
Lead	A	30.840	41.134	41.933	41.109		LOR0	0.00000	0.02432		38.754	1.000	0.995	
Nickel	A	75.740	87.155	90.504	90.080		LOR0	0.00000	0.01110		85.870	1.000	0.995	
Zinc	A	65.145	58.780	57.890	58.493		LOR0	0.00000	0.01710		60.077	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Cadmium	A	5.000	0	100.0	3	1000	4	10000	0		
Chromium	A	5.000	-18	100.0	0	1000	0	10000	0		
Lead	A	5.000	**-25**	100.0	0	1000	2	10000	0		
Nickel	A	5.000	-16	100.0	-3	1000	0	10000	0		
Zinc	A	20.00	11	100.0	1	1000	-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 218609 METALS Soil
EPA 6010B

Inst : MET09
Calnum : 90098560001 Cal Date : 09-MAR-2010

ICV 90098560007 (09-MAR-2010) stds: S14097

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Cadmium	A	5000	4954	ug/L	-1	10	
Chromium	A	5000	4716	ug/L	-6	10	
Lead	A	5000	4689	ug/L	-6	10	
Nickel	A	5000	4714	ug/L	-6	10	
Zinc	A	5000	4864	ug/L	-3	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 218609 METALS Soil
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 90098560008 File : met09_sn_6010a Time : 09-MAR-2010 11:14
Cal : 90098560001 Caldate : 09-MAR-2010

Analyte	Ch	Quant	IQL	2X MDL	Units	Flags
Cadmium	A	ND	5.000	2.619	ug/L	
Chromium	A	ND	5.000	2.618	ug/L	
Lead	A	ND	5.000	2.000	ug/L	
Nickel	A	ND	5.000	2.552	ug/L	
Zinc	A	ND	20.00	12.29	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3977109	4023077	1.16

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 218609 METALS Soil
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 90098560009 File : met09_sn_6010a Time : 09-MAR-2010 11:20
Cal : 90098560001 Caldate : 09-MAR-2010
Standards: S14040

Analyte	Ch	Quant	IQL	Units	Flags
Cadmium	A	[-1.526]	5.000	ug/L	
Lead	A	[0.4099]	5.000	ug/L	
Zinc	A	[4.600]	20.00	ug/L	

Interferent	Ch	Spiked	Quant	Units	%Rec
Chromium	A	20000	18350	ug/L	92
Copper	A	20000	20070	ug/L	100
Manganese	A	20000	17870	ug/L	89
Nickel	A	20000	16850	ug/L	84
Vanadium	A	20000	19520	ug/L	98
Aluminum	R	500000	473500	ug/L	95
Calcium	R	500000	470700	ug/L	94
Iron	R	200000	185200	ug/L	93
Magnesium	R	500000	468700	ug/L	94
Titanium	R	20000	20020	ug/L	100

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3977109	3373297	-15.18

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 218609 METALS Soil
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 90098560010 File : met09_sn_6010a Time : 09-MAR-2010 11:26
Cal : 90098560001 Caldate : 09-MAR-2010
Standards: S14041

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Cadmium	A	1000	926.7	ug/L	-7	20	
Chromium	A	500.0	465.4	ug/L	-7	20	
Lead	A	1000	853.0	ug/L	-15	20	
Nickel	A	1000	818.3	ug/L	-18	20	
Zinc	A	1000	876.8	ug/L	-12	20	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3977109	3427204	-13.83

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 218609 METALS Soil
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 90098560019 File : met09_sn_6010a Time : 09-MAR-2010 12:04
Cal : 90098560001 Caldate : 09-MAR-2010
Standards: S14098

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Cadmium	A	154.78	149.69	5000	4916	ug/L	-2	10	
Chromium	A	186.87	183.97	5000	4708	ug/L	-6	10	
Lead	A	38.754	38.731	5000	4710	ug/L	-6	10	
Nickel	A	85.870	84.820	5000	4708	ug/L	-6	10	
Zinc	A	60.077	56.726	5000	4849	ug/L	-3	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3977109	3993550	0.41

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 218609 METALS Soil
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 90098560020 File : met09_sn_6010a Time : 09-MAR-2010 12:10
Cal : 90098560001 Caldate : 09-MAR-2010

Analyte	Ch	Quant	IQL	2X MDL	Units	Flags
Cadmium	A	ND	5.000	2.619	ug/L	
Chromium	A	ND	5.000	2.618	ug/L	
Lead	A	ND	5.000	2.000	ug/L	
Nickel	A	ND	5.000	2.552	ug/L	
Zinc	A	ND	20.00	12.29	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3977109	4079469	2.57

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 218609 METALS Soil
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 90098560031 File : met09_sn_6010a Time : 09-MAR-2010 12:57
Cal : 90098560001 Caldate : 09-MAR-2010
Standards: S14098

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Cadmium	A	154.78	150.78	5000	4951	ug/L	-1	10	
Chromium	A	186.87	182.12	5000	4660	ug/L	-7	10	
Lead	A	38.754	38.508	5000	4683	ug/L	-6	10	
Nickel	A	85.870	84.124	5000	4669	ug/L	-7	10	
Zinc	A	60.077	55.588	5000	4752	ug/L	-5	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3977109	4013818	0.92

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 218609 METALS Soil
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 90098560032 File : met09_sn_6010a Time : 09-MAR-2010 13:03
Cal : 90098560001 Caldate : 09-MAR-2010

Analyte	Ch	Quant	IQL	2X MDL	Units	Flags
Cadmium	A	ND	5.000	2.619	ug/L	
Chromium	A	ND	5.000	2.618	ug/L	
Lead	A	ND	5.000	2.000	ug/L	
Nickel	A	ND	5.000	2.552	ug/L	
Zinc	A	ND	20.00	12.29	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3977109	4118314	3.55

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 218609 METALS Soil
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 90098560035 File : met09_sn_6010a Time : 09-MAR-2010 13:16
Cal : 90098560001 Caldate : 09-MAR-2010
Standards: S14041

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Cadmium	A	1000	947.5	ug/L	-5	20	
Chromium	A	500.0	470.4	ug/L	-6	20	
Lead	A	1000	876.3	ug/L	-12	20	
Nickel	A	1000	856.5	ug/L	-14	20	
Zinc	A	1000	897.2	ug/L	-10	20	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3977109	3426482	-13.84

SAMPLE PREPARATION SUMMARY

Batch # : 160726
Started By : MCB
Method : 3050B
Spike #1 ID : S12182

Prep Date : 08-MAR-2010 21:20
SOP Version : 3050B_ICP_rv9
Spike #2 ID : S12183

Analysis : ICAP
Finished By : MCB
Units : g

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
218499-001		Oil	1.05	50	1	47.62						T22/ICP	
218499-002		Oil	1.01	50	1	49.50						T22/ICP	
218529-001		Miscell.	1.02	50	1	49.02						T22/ICP	
218575-001		Soil	1.01	50	1	49.50						T22/ICP	
218575-002		Soil	1.04	50	1	48.08						T22/ICP	
218575-003		Soil	1.11	50	1	45.05						T22/ICP	
218575-004		Soil	1.04	50	1	48.08						T22/ICP	
218575-005		Soil	1.08	50	1	46.30						T22/ICP	
218575-006		Soil	1.05	50	1	47.62						T22/ICP	
218575-007		Soil	1.07	50	1	46.73						T22/ICP	
218575-008		Soil	1.06	50	1	47.17						T22/ICP	
218575-009		Soil	1.05	50	1	47.62						T22/ICP	
218609-006		Soil	1.05	50	1	47.62						CD, CD, CR, NI, PB, ZN	
218609-007		Soil	1.1	50	1	45.45						CD, CD, CR, NI, PB, ZN	
218612-001		Soil	1.04	50	1	48.08						T22/ICP	
218639-001		Miscell.	1.04	50	1	48.08						AS, CD, PB, SB	
218640-001		Miscell.	1.02	50	1	49.02						AS, CD, PB, SB	
218641-001		Miscell.	1.06	50	1	47.17						AS, CD, PB, SB	
218642-001		Miscell.	1.09	50	1	45.87						AS, CD, PB, SB	
218653-001		Soil	1.08	50	1	46.30						PB	
QC535252	BLANK	Soil	1	50	1	50.0							
QC535253	BS	Soil	1	50	1	50.0		.5	.5				
QC535254	BSD	Soil	1	50	1	50.0		.5	.5				
QC535255	MS	Oil	1.03	50	1	48.54		.5	.5				
QC535256	MSD	Oil	1.01	50	1	49.50		.5	.5				
QC535304	SER	Oil	1.05	50	1	47.62							
QC535305	PDS	Oil	1.05	50	1	47.62							

Reviewed by: AH Date: 03/09/10

Soil Digestion for ICP & ICP-MS

Curtis & Tompkins, Ltd.

LIMS Batch #: 160726
Date Digested: 3/5/10
Digested by: MCB III

Digestion Method
☒ EPA 3050b
☐ _____

BK 2996
Page 56

Sample #	Container ID	Weight of Sample (g)	Final Volume (mL)	Filtered? (y/n)	Comments
BLANK		Ø	50	y	
BS		↓	↓	↓	
BSD		↓	↓	↓	
MS-499-001	A	1.03	↓	↓	
MSD-499-001	↓	1.01	↓	↓	
218499-001	↓	1.05	↓	↓	
↓ -002	↓	1.01	↓	↓	
218529-001	↓	1.02	↓	↓	
218575-001	↓	1.01	↓	↓	
↓ -002	↓	1.04	↓	↓	
-003	↓	1.11	↓	↓	
-004	↓	1.04	↓	↓	
-005	↓	1.08	↓	↓	
-006	↓	1.05	↓	↓	
-007	↓	1.07	↓	↓	
-008	↓	1.06	↓	↓	
↓ -009	↓	1.05	↓	↓	
218609-006	↓	1.05	↓	↓	218609-006, 15A COMP OF 001, 002, 5 GRA.
↓ -007	↓	1.10	↓	↓	↓ -007 ↓ ↓ 003-005 ↓
218612-001	A	1.04	↓	↓	
218639-001	↓	1.04	↓	↓	
218640-001	↓	1.02	↓	↓	
218641-001	↓	1.06	↓	↓	
218642-001	↓	1.09	↓	↓	
218653-001	A-C	1.08	↓	↓	218653-001, 15A COMP OF 3 CONT. 5 GRA.

	Reagent ID or LIMS #	Initials / Date
Digestion tubes, lot#	J92614-261	
.5 mL of spike solution (Std1) was added to all spikes	S121562	MCB III 3/5/10
.5 mL of spike solution (Std2) was added to all spikes	S121563	↓
digestion temperature (90 - 95 degrees C)	95°C	↓
Digestion begun at (time)	9:20AM	↓
1:1 HNO3	H14024 JT BAKER	↓
concentrated HNO3	H14024 ↓	↓
3mL 30% hydrogen peroxide	H36A15	↓
concentrated HCl	G48030 ↓	↓
Digestion ended at (time)		↓
☒ filtered thru' Whatman # 541		↓
Relinquished to ICP group	ICP	↓

Michael C. Brock III 3/5/10
Digestion Chemist / Date

Continued from page ___
Continued on page ___

Reviewed by / Date

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 218610
ANALYTICAL REPORT

Baseline Environmental	Project	: Y0239-04.A8
5900 Hollis Street	Location	: Doyle Drive Replacement Project
Emeryville, CA 94608	Level	: III

Sample ID	Lab ID
CDSM-MW-1;030410	218610-001

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

Signature: Desirée N. Tetrault
Project Manager

Date: 03/15/2010

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**218610**
Client:	**Baseline Environmental**
Project:	**Y0239-04.A8**
Location:	**Doyle Drive Replacement Project**
Request Date:	**03/05/10**
Samples Received:	**03/04/10**

This data package contains sample and QC results for one water sample, requested for the above referenced project on 03/05/10. See attached cooler receipt form for any sample receipt problems or discrepancies.

Metals (EPA 6010B and EPA 7470A):
Low recovery was observed for silver in the post digest spike for batch 160730; the parent sample was not a project sample, and the BS/BSD were within limits.

No other analytical problems were encountered.

Total Dissolved Solids (TDS) (SM2540C):
No analytical problems were encountered.

pH (EPA 9040C):
No analytical problems were encountered.

Turbidity (SM2130B):
No analytical problems were encountered.

Chain of Custody

218610

BASELINE Environmental Consulting
5900 Hollis Street, Suite D
Emeryville, CA 94608
Tel: (510) 420-8686 Fax: (510) 420-1707

CHAIN OF CUSTODY RECORD

Turn-Around-Time Standard
Laboratory Curtis and Tompkins, Ltd.
BASELINE Contact Person Cheri Page

Project Number Y0239-04.A8
Project Name: Doyle Drive Replacement Project
Samplers: (Signature)

Sample ID	Date	Time	Media	Containers: No. (total)	Type: 1-AG	40-ml VOA	1000 ml-Poly	500 ml-Poly	250 ml Poly	Preservative: Ice	HCL	HNO_3	H_2SO_4	NaOH	TPH-g & BTEX (EPA Method 8015M)	TPH-d and mo (EPA Method 8015M with silica gel cleanup)	VOC (EPA Method 8260B)	MTBE (EPA Method 8260B)	SVOC (EPA Method 8270)	PCB (EPA Method 8082)	Dissolved Sulfides	Total Suspended Solids	TDS (SM2540C)	~~CAM 17 Metals*~~ Cu Pb Zn	Title 22 Metals (EPA Method 6010B/7471) *	Remarks
CDSM-MW-1;030410	3/4/10	16:35	Water	2				1	1	X													X		X	

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	Remarks:
	3-4-10 14:20	Pat Mangly	3/4/10 14:20	
Relinquished by: (Signature)	Date/Time	Received by: (Signature)		
Relinquished by: (Signature)	Date/Time	Received by: (Signature)		Email contact:

Received at laboratory with intact custody seal: Yes No Na

Samples conditions Upon Arrival: Intact On Ice Cold

Comments: * Lab to Filter and Preserve

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 218610 Date Received 3/4/10 Number of coolers 1
Client BASELINE Project DUYLER DRIVE

Date Opened 3/4/10 By (print) M. VILLANUEVA (sign) [signature]
Date Logged in ↓ By (print) ↓ (sign) ↓

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

2A. Were custody seals present? ... ☐ YES (circle) on cooler on samples ☑ (NO)
   How many _____ Name _____ Date _____

2B. Were custody seals intact upon arrival? _____ YES NO (N/A)

3. Were custody papers dry and intact when received? _____ (YES) NO

4. Were custody papers filled out properly (ink, signed, etc)? _____ (YES) NO

5. Is the project identifiable from custody papers? (If so fill out top of form) ___ (YES) NO

6. Indicate the packing in cooler: (if other, describe) _____

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

7. Temperature documentation:

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

☑ Samples Received on ice & cold without a temperature blank

☐ 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 samples in the appropriate containers for indicated tests? _____ (YES) NO

11. Are sample labels present, in good condition and complete? _____ (YES) NO

12. Do the sample labels agree with custody papers? _____ (YES) NO

13. Was sufficient amount of sample sent for tests requested? _____ (YES) NO

14. Are the samples appropriately preserved? _____ YES NO (N/A)

15. Are bubbles > 6mm absent in VOA samples? _____ YES NO (N/A)

16. Was the client contacted concerning this sample delivery? _____ YES (NO)
   If YES, Who was called? _____ By _____ Date: _____

COMMENTS

_____
_____
_____
_____
_____
_____
_____
_____

Laboratory Job Number 218610

ANALYTICAL REPORT

Metals

Matrix: Filtrate

Curtis & Tompkins, Ltd.

Dissolved California Title 22 Metals

Lab #:	218610	Location:	Doyle Drive Replacement Project
Client:	Baseline Environmental	Prep:	METHOD
Project#:	Y0239-04.A8		
Field ID:	CDSM-MW-1;030410	Diln Fac:	1.000
Lab ID:	218610-001	Sampled:	03/04/10
Matrix:	Filtrate	Received:	03/04/10
Units:	ug/L	Prepared:	03/08/10

Analyte	Result	RL	Batch#	Analyzed	Analysis
Antimony	ND	10	160730	03/09/10	EPA 6010B
Arsenic	ND	5.0	160730	03/09/10	EPA 6010B
Barium	8.4	5.0	160730	03/09/10	EPA 6010B
Beryllium	ND	2.0	160730	03/09/10	EPA 6010B
Cadmium	ND	5.0	160730	03/09/10	EPA 6010B
Chromium	ND	5.0	160730	03/09/10	EPA 6010B
Cobalt	ND	5.0	160730	03/09/10	EPA 6010B
Copper	ND	5.0	160730	03/09/10	EPA 6010B
Lead	ND	5.0	160730	03/09/10	EPA 6010B
Mercury	ND	0.20	160699	03/08/10	EPA 7470A
Molybdenum	ND	5.0	160730	03/09/10	EPA 6010B
Nickel	ND	5.0	160730	03/09/10	EPA 6010B
Selenium	ND	10	160730	03/09/10	EPA 6010B
Silver	ND	5.0	160730	03/09/10	EPA 6010B
Thallium	ND	10	160730	03/09/10	EPA 6010B
Vanadium	ND	5.0	160730	03/09/10	EPA 6010B
Zinc	ND	20	160730	03/09/10	EPA 6010B

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	218610	Location:	Doyle Drive Replacement Project
Client:	Baseline Environmental	Prep:	METHOD
Project#:	Y0239-04.A8	Analysis:	EPA 7470A
Analyte:	Mercury	Diln Fac:	1.000
Type:	BLANK	Batch#:	160699
Lab ID:	QC535146	Prepared:	03/08/10
Matrix:	Water	Analyzed:	03/08/10
Units:	ug/L		

Result	RL
ND	0.20

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	218610	Location:	Doyle Drive Replacement Project
Client:	Baseline Environmental	Prep:	METHOD
Project#:	Y0239-04.A8	Analysis:	EPA 7470A
Analyte:	Mercury	Batch#:	160699
Matrix:	Water	Prepared:	03/08/10
Units:	ug/L	Analyzed:	03/08/10
Diln Fac:	1.000		

Type	Lab ID	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC535147	2.500	2.660	106	77-124		
BSD	QC535148	2.500	2.460	98	77-124	8	12

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	218610	Location:	Doyle Drive Replacement Project
Client:	Baseline Environmental	Prep:	METHOD
Project#:	Y0239-04.A8	Analysis:	EPA 7470A
Analyte:	Mercury	Batch#:	160699
Field ID:	ZZZZZZZZZZ	Sampled:	03/04/10
MSS Lab ID:	218622-001	Received:	03/05/10
Matrix:	Water	Prepared:	03/08/10
Units:	ug/L	Analyzed:	03/08/10
Diln Fac:	1.000		

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
MS	QC535149	<0.03335	2.500	2.360	94	53-149		
MSD	QC535150		2.500	2.610	104	53-149	10	19

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	218610	Location:	Doyle Drive Replacement Project
Client:	Baseline Environmental	Prep:	METHOD
Project#:	Y0239-04.A8	Analysis:	EPA 7470A
Analyte:	Mercury	Units:	ug/L
Field ID:	ZZZZZZZZZZ	Diln Fac:	5.000
Type:	Serial Dilution	Batch#:	160699
MSS Lab ID:	218622-001	Sampled:	03/04/10
Lab ID:	QC535151	Received:	03/05/10
Matrix:	Water	Analyzed:	03/08/10

MSS Result	MSS RL	Result	RL	% Diff	Lim
ND	0.2000	ND	1.000	NC	10

NC= Not Calculated
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	218610	Location:	Doyle Drive Replacement Project
Client:	Baseline Environmental	Prep:	METHOD
Project#:	Y0239-04.A8	Analysis:	EPA 6010B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC535272	Batch#:	160730
Matrix:	Filtrate	Prepared:	03/08/10
Units:	ug/L	Analyzed:	03/09/10

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

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	218610	Location:	Doyle Drive Replacement Project
Client:	Baseline Environmental	Prep:	METHOD
Project#:	Y0239-04.A8	Analysis:	EPA 6010B
Matrix:	Filtrate	Batch#:	160730
Units:	ug/L	Prepared:	03/08/10
Diln Fac:	1.000	Analyzed:	03/09/10

Type: BS Lab ID: QC535273

Analyte	Spiked	Result	%REC	Limits
Antimony	500.0	435.8	87	66-129
Arsenic	100.0	98.71	99	78-122
Barium	2,000	1,808	90	80-119
Beryllium	50.00	47.09	94	84-124
Cadmium	50.00	47.21	94	83-121
Chromium	200.0	182.0	91	81-116
Cobalt	500.0	442.7	89	78-115
Copper	250.0	216.7	87	77-115
Lead	100.0	83.67	84	73-124
Molybdenum	400.0	371.1	93	81-120
Nickel	500.0	450.9	90	78-117
Selenium	100.0	89.60	90	74-128
Silver	50.00	46.04	92	71-120
Thallium	100.0	96.11	96	77-124
Vanadium	500.0	463.6	93	81-117
Zinc	500.0	463.3	93	79-120

Type: BSD Lab ID: QC535274

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Antimony	500.0	439.4	88	66-129	1	15
Arsenic	100.0	99.75	100	78-122	1	14
Barium	2,000	1,813	91	80-119	0	15
Beryllium	50.00	46.80	94	84-124	1	14
Cadmium	50.00	47.82	96	83-121	1	14
Chromium	200.0	181.1	91	81-116	0	14
Cobalt	500.0	438.7	88	78-115	1	14
Copper	250.0	214.1	86	77-115	1	15
Lead	100.0	84.98	85	73-124	2	17
Molybdenum	400.0	376.3	94	81-120	1	11
Nickel	500.0	448.6	90	78-117	1	14
Selenium	100.0	91.94	92	74-128	3	15
Silver	50.00	45.71	91	71-120	1	19
Thallium	100.0	98.88	99	77-124	3	13
Vanadium	500.0	460.9	92	81-117	1	14
Zinc	500.0	460.1	92	79-120	1	16

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	218610	Location:	Doyle Drive Replacement Project
Client:	Baseline Environmental	Prep:	METHOD
Project#:	Y0239-04.A8	Analysis:	EPA 6010B
Field ID:	ZZZZZZZZZZ	Batch#:	160730
MSS Lab ID:	218557-001	Sampled:	02/26/10
Matrix:	Filtrate	Received:	03/02/10
Units:	ug/L	Prepared:	03/08/10
Diln Fac:	1.000	Analyzed:	03/09/10

Type: MS Lab ID: QC535275

Analyte	MSS Result	Spiked	Result	%REC	Limits
Antimony	17.21	500.0	438.6	84	53-139
Arsenic	<1.578	100.0	104.7	105	60-140
Barium	68.46	2,000	1,894	91	63-128
Beryllium	<0.4075	50.00	47.03	94	74-130
Cadmium	1.545	50.00	49.68	96	69-128
Chromium	4.554	200.0	183.3	89	68-122
Cobalt	<1.064	500.0	439.2	88	68-119
Copper	75.62	250.0	290.8	86	61-130
Lead	18.26	100.0	106.7	88	55-133
Molybdenum	19.45	400.0	401.8	96	70-128
Nickel	5.860	500.0	450.6	89	61-125
Selenium	<2.968	100.0	93.54	94	57-140
Silver	<1.000	50.00	44.54	89	53-132
Thallium	3.321	100.0	98.68	95	54-133
Vanadium	1.478	500.0	457.3	91	71-124
Zinc	234.0	500.0	668.5	87	58-137

Type: MSD Lab ID: QC535276

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Antimony	500.0	448.6	86	53-139	2	18
Arsenic	100.0	106.9	107	60-140	2	23
Barium	2,000	1,920	93	63-128	1	21
Beryllium	50.00	47.86	96	74-130	2	15
Cadmium	50.00	49.66	96	69-128	0	14
Chromium	200.0	188.8	92	68-122	3	19
Cobalt	500.0	451.2	90	68-119	3	13
Copper	250.0	294.4	88	61-130	1	19
Lead	100.0	106.4	88	55-133	0	21
Molybdenum	400.0	405.8	97	70-128	1	14
Nickel	500.0	459.5	91	61-125	2	21
Selenium	100.0	96.76	97	57-140	3	24
Silver	50.00	45.62	91	53-132	2	17
Thallium	100.0	100.5	97	54-133	2	24
Vanadium	500.0	470.3	94	71-124	3	16
Zinc	500.0	677.4	89	58-137	1	25

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	218610	Location:	Doyle Drive Replacement Project
Client:	Baseline Environmental	Prep:	METHOD
Project#:	Y0239-04.A8	Analysis:	EPA 6010B
Field ID:	ZZZZZZZZZZ	Diln Fac:	5.000
Type:	Serial Dilution	Batch#:	160730
MSS Lab ID:	218557-001	Sampled:	02/26/10
Lab ID:	QC535306	Received:	03/02/10
Matrix:	Filtrate	Analyzed:	03/09/10
Units:	ug/L		

Analyte	MSS Result	MSS RL	Result	RL	% Diff	Lim
Antimony	17.21	10.00	18.53 J	50.00	NC	10
Arsenic	ND	5.000	ND	25.00	NC	10
Barium	68.46	5.000	68.44	25.00	0	10
Beryllium	ND	2.000	ND	10.00	NC	10
Cadmium	1.545	5.000	ND	25.00	NC	10
Chromium	4.554	5.000	ND	25.00	NC	10
Cobalt	ND	5.000	ND	25.00	NC	10
Copper	75.62	5.000	68.42	25.00	10	10
Lead	18.26	5.000	12.86 J	25.00	NC	10
Molybdenum	19.45	5.000	20.65 J	25.00	NC	10
Nickel	5.860	5.000	ND	25.00	NC	10
Selenium	ND	10.00	ND	50.00	NC	10
Silver	ND	5.000	ND	25.00	NC	10
Thallium	3.321	10.00	ND	50.00	NC	10
Vanadium	1.478	5.000	ND	25.00	NC	10
Zinc	234.0	20.00	219.7	100.0	NC	10

J= Estimated value
NC= Not Calculated
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	218610	Location:	Doyle Drive Replacement Project
Client:	Baseline Environmental	Prep:	METHOD
Project#:	Y0239-04.A8	Analysis:	EPA 6010B
Field ID:	ZZZZZZZZZZ	Diln Fac:	1.000
Type:	Post Digest Spike	Batch#:	160730
MSS Lab ID:	218557-001	Sampled:	02/26/10
Lab ID:	QC535307	Received:	03/02/10
Matrix:	Filtrate	Analyzed:	03/09/10
Units:	ug/L		

Analyte	MSS Result	Spiked	Result	%REC	Limits
Antimony	17.21	500.0	454.5	87	75-125
Arsenic	<1.578	100.0	103.5	104	75-125
Barium	68.46	2,000	1,971	95	75-125
Beryllium	<0.4075	50.00	49.77	100	75-125
Cadmium	1.545	50.00	52.21	101	75-125
Chromium	4.554	200.0	195.6	96	75-125
Cobalt	<1.064	500.0	460.4	92	75-125
Copper	75.62	250.0	306.5	92	75-125
Lead	18.26	100.0	109.8	92	75-125
Molybdenum	19.45	400.0	415.1	99	75-125
Nickel	5.860	500.0	479.9	95	75-125
Selenium	<2.968	100.0	98.26	98	75-125
Silver	<1.000	50.00	34.57	69 *	75-125
Thallium	3.321	100.0	104.8	102	75-125
Vanadium	1.478	500.0	489.3	98	75-125
Zinc	234.0	500.0	705.8	94	75-125

*= Value outside of QC limits; see narrative

REPORTING SUMMARY FOR 218610 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
218610-001	MET14	03/08/10 15:57	1.0										+							
218610-001	MET09	03/09/10 16:54	1.0	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC535146	MET14	03/08/10 15:27	1.0										+							
QC535147	MET14	03/08/10 15:34	1.0										+							
QC535148	MET14	03/08/10 15:36	1.0										+							
QC535149	MET14	03/08/10 17:00	1.0										+							
QC535150	MET14	03/08/10 17:03	1.0										+							
QC535151	MET14	03/08/10 17:06	5.0										+							
QC535152	MET14	03/08/10 15:29	1.0										+							
QC535153	MET14	03/08/10 15:41	1.0										+							
QC535154	MET14	03/08/10 15:43	1.0										+							
QC535155	MET14	03/08/10 15:32	1.0										+							
QC535156	MET14	03/08/10 15:52	1.0										+							
QC535157	MET14	03/08/10 15:55	1.0										+							
QC535272	MET09	03/09/10 13:26	1.0	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC535272	MET09	03/09/10 13:58	1.0																	
QC535273	MET09	03/09/10 14:04	1.0	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC535274	MET09	03/09/10 14:19	1.0	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC535275	MET09	03/09/10 14:28	1.0	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC535276	MET09	03/09/10 14:32	1.0	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC535306	MET09	03/09/10 14:36	5.0	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC535307	MET09	03/09/10 14:42	1.0	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 90098560

Instrument : MET09 Begun : 03/09/10 10:40
Method : EPA 6010B SOP Version : icp metals_rv9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met09_sn_6010a	ICALBLK				03/09/10 10:40	1.0		
002	met09_sn_6010a	ICAL	CRI5.1			03/09/10 10:45	1.0	1	
003	met09_sn_6010a	ICAL	CS100			03/09/10 10:50	1.0	2	
004	met09_sn_6010a	ICAL	CS1K			03/09/10 10:55	1.0	3	
005	met09_sn_6010a	ICAL	CS10K			03/09/10 10:58	1.0	4	
006	met09_sn_6010a	ICAL	CS100K			03/09/10 11:04	1.0	5	
007	met09_sn_6010a	ICV				03/09/10 11:09	1.0	6	
008	met09_sn_6010a	ICB				03/09/10 11:14	1.0		
009	met09_sn_6010a	ICSA				03/09/10 11:20	1.0	7	10:AL=470000
010	met09_sn_6010a	ICSAB				03/09/10 11:26	1.0	8	5:AL=470000
011	met09_sn_6010a	BLANK	QC535252	Soil	160726	03/09/10 11:32	1.0		
012	met09_sn_6010a	BS	QC535253	Soil	160726	03/09/10 11:37	1.0		
013	met09_sn_6010a	BSD	QC535254	Soil	160726	03/09/10 11:40	1.0		
014	met09_sn_6010a	MSS	218499-001	Oil	160726	03/09/10 11:44	1.0		
015	met09_sn_6010a	MS	QC535255	Oil	160726	03/09/10 11:49	1.0		
016	met09_sn_6010a	MSD	QC535256	Oil	160726	03/09/10 11:52	1.0		
017	met09_sn_6010a	SER	QC535304	Oil	160726	03/09/10 11:56	5.0		
018	met09_sn_6010a	PDS	QC535305	Oil	160726	03/09/10 12:01	1.0	9 10	
019	met09_sn_6010a	CCV				03/09/10 12:04	1.0	11	
020	met09_sn_6010a	CCB				03/09/10 12:10	1.0		
021	met09_sn_6010a	SAMPLE	218499-002	Oil	160726	03/09/10 12:15	1.0		
022	met09_sn_6010a	SAMPLE	218609-006	Soil	160726	03/09/10 12:20	1.0		2:CA=420000
023	met09_sn_6010a	SAMPLE	218609-007	Soil	160726	03/09/10 12:25	1.0		1:FE=190000
024	met09_sn_6010a	SAMPLE	218575-001	Soil	160726	03/09/10 12:29	1.0		3:FE=330000
025	met09_sn_6010a	SAMPLE	218575-002	Soil	160726	03/09/10 12:32	1.0		3:FE=280000
026	met09_sn_6010a	SAMPLE	218575-003	Soil	160726	03/09/10 12:37	1.0		3:FE=260000
027	met09_sn_6010a	SAMPLE	218575-004	Soil	160726	03/09/10 12:41	1.0		2:FE=360000
028	met09_sn_6010a	SAMPLE	218575-005	Soil	160726	03/09/10 12:45	1.0		3:FE=210000
029	met09_sn_6010a	SAMPLE	218575-006	Soil	160726	03/09/10 12:50	1.0		3:FE=400000
030	met09_sn_6010a	SAMPLE	218575-007	Soil	160726	03/09/10 12:53	1.0		2:FE=270000
031	met09_sn_6010a	CCV				03/09/10 12:57	1.0	11	
032	met09_sn_6010a	CCB				03/09/10 13:03	1.0		
033	met09_sn_6010a	SAMPLE	218575-008	Soil	160726	03/09/10 13:08	1.0		3:FE=390000
034	met09_sn_6010a	SAMPLE	218575-009	Soil	160726	03/09/10 13:11	1.0		1:FE=210000
035	met09_sn_6010a	ICSAB				03/09/10 13:16	1.0	8	5:AL=470000
036	met09_sn_6010a	X	RINSE			03/09/10 13:21	1.0		
037	met09_sn_6010a	BLANK	QC535272	Filtrate	160730	03/09/10 13:26	1.0		
038	met09_sn_6010a	SAMPLE	218575-001	Soil	160726	03/09/10 13:31	1.0		3:FE=330000
039	met09_sn_6010a	SAMPLE	218575-002	Soil	160726	03/09/10 13:35	10.0		
040	met09_sn_6010a	SAMPLE	218575-003	Soil	160726	03/09/10 13:39	10.0		
041	met09_sn_6010a	SAMPLE	218575-005	Soil	160726	03/09/10 13:44	10.0		
042	met09_sn_6010a	ICSAB				03/09/10 13:48	1.0	8	5:CA=460000
043	met09_sn_6010a	X	RINSE			03/09/10 13:53	1.0		
044	met09_sn_6010a	BLANK	QC535272	Filtrate	160730	03/09/10 13:58	1.0		
045	met09_sn_6010a	BS	QC535273	Filtrate	160730	03/09/10 14:04	1.0		
046	met09_sn_6010a	CCV				03/09/10 14:08	1.0	11	
047	met09_sn_6010a	CCB				03/09/10 14:14	1.0		
048	met09_sn_6010a	BSD	QC535274	Filtrate	160730	03/09/10 14:19	1.0		
049	met09_sn_6010a	MSS	218557-001	Filtrate	160730	03/09/10 14:23	1.0		
050	met09_sn_6010a	MS	QC535275	Filtrate	160730	03/09/10 14:28	1.0		
051	met09_sn_6010a	MSD	QC535276	Filtrate	160730	03/09/10 14:32	1.0		
052	met09_sn_6010a	SER	QC535306	Filtrate	160730	03/09/10 14:36	5.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 90098560

Instrument : MET09 Begun : 03/09/10 10:40
Method : EPA 6010B SOP Version : icp metals_rv9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met09_sn_6010a	PDS	QC535307	Filtrate	160730	03/09/10 14:42	1.0	12 13	
054	met09_sn_6010a	SAMPLE	218577-002	Filtrate	160730	03/09/10 14:46	1.0		2:NA=260000
055	met09_sn_6010a	SAMPLE	218577-003	Filtrate	160730	03/09/10 14:53	1.0		3:MG=950000
056	met09_sn_6010a	SAMPLE	218577-004	Filtrate	160730	03/09/10 15:01	1.0		4:MG=1000000
057	met09_sn_6010a	SAMPLE	218577-005	Filtrate	160730	03/09/10 15:08	1.0		3:MG=550000
058	met09_sn_6010a	CCV				03/09/10 15:15	1.0	11	
059	met09_sn_6010a	X				03/09/10 15:21	1.0		
060	met09_sn_6010a	CCB				03/09/10 15:24	1.0		
061	met09_sn_6010a	SAMPLE	218577-006	Filtrate	160730	03/09/10 15:30	1.0		3:MG=820000
062	met09_sn_6010a	SAMPLE	218577-004	Filtrate	160730	03/09/10 15:37	1.0		4:MG=950000
063	met09_sn_6010a	SAMPLE	218577-007	Filtrate	160730	03/09/10 15:44	1.0		3:MG=560000
064	met09_sn_6010a	SAMPLE	218577-008	Filtrate	160730	03/09/10 15:52	1.0		2:MG=410000
065	met09_sn_6010a	SAMPLE	218577-009	Filtrate	160730	03/09/10 15:59	1.0		2:CA=270000
066	met09_sn_6010a	SAMPLE	218577-010	Filtrate	160730	03/09/10 16:06	1.0		3:MG=620000
067	met09_sn_6010a	SAMPLE	218577-011	Filtrate	160730	03/09/10 16:14	1.0		2:MG=420000
068	met09_sn_6010a	ICSAB				03/09/10 16:21	1.0	8	5:CA=480000
069	met09_sn_6010a	X	RINSE			03/09/10 16:26	1.0		
070	met09_sn_6010a	SAMPLE	218557-002	Filtrate	160730	03/09/10 16:32	1.0		
071	met09_sn_6010a	CCV				03/09/10 16:37	1.0	11	
072	met09_sn_6010a	X				03/09/10 16:45	1.0		
073	met09_sn_6010a	CCB				03/09/10 16:49	1.0		
074	met09_sn_6010a	SAMPLE	218610-001	Filtrate	160730	03/09/10 16:54	1.0		1:NA=250000
075	met09_sn_6010a	SAMPLE	218612-002	Filtrate	160730	03/09/10 17:01	1.0		1:NA=100000
076	met09_sn_6010a	SAMPLE	218529-001	Miscell.	160726	03/09/10 17:09	1.0		1:CA=230000
077	met09_sn_6010a	SAMPLE	218612-001	Soil	160726	03/09/10 17:13	1.0		
078	met09_sn_6010a	SAMPLE	218639-001	Miscell.	160726	03/09/10 17:18	1.0		
079	met09_sn_6010a	SAMPLE	218640-001	Miscell.	160726	03/09/10 17:24	1.0		
080	met09_sn_6010a	SAMPLE	218641-001	Miscell.	160726	03/09/10 17:29	1.0		
081	met09_sn_6010a	SAMPLE	218642-001	Miscell.	160726	03/09/10 17:36	1.0		1:PB=28000
082	met09_sn_6010a	SAMPLE	218653-001	Soil	160726	03/09/10 17:43	1.0		4:CA=630000
083	met09_sn_6010a	ICSAB				03/09/10 17:47	1.0	8	5:CA=480000
084	met09_sn_6010a	CCV				03/09/10 17:53	1.0	11	
085	met09_sn_6010a	X				03/09/10 17:54	1.0	11	
086	met09_sn_6010a	X				03/09/10 18:00	1.0		
087	met09_sn_6010a	CCB				03/09/10 18:03	1.0		

AH 03/10/10 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 87.

Standards used: 1=S13742 2=S13802 3=S13801 4=S13743 5=S13923 6=S14097 7=S14040 8=S14041 9=S12182 10=S12183 11=S14098 12=S12746 13=S12747

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 90098560

Date : 03/09/10 Reference : met09_sn_6010a
Sequence : MET09 03/09/10 Analyzed : 03/09/10 10:45

#	Type	Sample ID	Y A
		ICAL STD	3977109
		LOWER LIMIT	1193133
		UPPER LIMIT	7954219
008	ICB		4023077
009	ICSA		3373297
010	ICSAB		3427204
011	BLANK	QC535252	3956818
012	BS	QC535253	3823321
013	BSD	QC535254	3858020
014	MSS	218499-001	4094375
015	MS	QC535255	3886030
016	MSD	QC535256	3922163
017	SER	QC535304	3920844
018	PDS	QC535305	3899175
019	CCV		3993550
020	CCB		4079469
021	SAMPLE	218499-002	4099768
022	SAMPLE	218609-006	3723645
023	SAMPLE	218609-007	3934493
024	SAMPLE	218575-001	3711532
025	SAMPLE	218575-002	3896098
026	SAMPLE	218575-003	3916072
027	SAMPLE	218575-004	3924348
028	SAMPLE	218575-005	3981475
029	SAMPLE	218575-006	3872791
030	SAMPLE	218575-007	3963790
031	CCV		4013818
032	CCB		4118314
033	SAMPLE	218575-008	4046503
034	SAMPLE	218575-009	3903976
035	ICSAB		3426482
037	BLANK	QC535272	4180256
038	SAMPLE	218575-001	3972597
039	SAMPLE	218575-002	3961451
040	SAMPLE	218575-003	4147773
041	SAMPLE	218575-005	4061903
042	ICSAB		3440686
044	BLANK	QC535272	4172975
045	BS	QC535273	4035488
046	CCV		3973255
047	CCB		4200447
048	BSD	QC535274	4036354
049	MSS	218557-001	4165812
050	MS	QC535275	4058479
051	MSD	QC535276	4045552
052	SER	QC535306	4260852
053	PDS	QC535307	4078219
054	SAMPLE	218577-002	3990095
055	SAMPLE	218577-003	3118358
056	SAMPLE	218577-004	3096501
057	SAMPLE	218577-005	3092943

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 90098560

Date : 03/09/10 Reference : met09_sn_6010a
Sequence : MET09 03/09/10 Analyzed : 03/09/10 10:45

#	Type	Sample ID	Y A
058	CCV		4172348
060	CCB		4297355
061	SAMPLE	218577-006	3027906
062	SAMPLE	218577-004	3222706
063	SAMPLE	218577-007	3357402
064	SAMPLE	218577-008	3587787
065	SAMPLE	218577-009	3802285
066	SAMPLE	218577-010	3176397
067	SAMPLE	218577-011	3494200
068	ICSAB		3681368
070	SAMPLE	218557-002	4502182
071	CCV		4314954
073	CCB		4480057
074	SAMPLE	218610-001	4072503
075	SAMPLE	218612-002	4264970
076	SAMPLE	218529-001	4106442
077	SAMPLE	218612-001	4363608
078	SAMPLE	218639-001	4357046
079	SAMPLE	218640-001	4444410
080	SAMPLE	218641-001	4374936
081	SAMPLE	218642-001	4402685
082	SAMPLE	218653-001	4149703
083	ICSAB		3678305
084	CCV		4240944
087	CCB		4441349

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 218610 METALS Filtrate: EPA 6010B

Inst : MET09 Reviewer : ---
Calnum : 90098560001 Date : 09-MAR-2010 10:40
Units : ug/L X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met09_sn_6010a	90098560002	CRI5.1	09-MAR-2010 10:45	S13742
L2	met09_sn_6010a	90098560003	CS100	09-MAR-2010 10:50	S13802
L3	met09_sn_6010a	90098560004	CS1K	09-MAR-2010 10:55	S13801
L4	met09_sn_6010a	90098560005	CS10K	09-MAR-2010 10:58	S13743
L5	met09_sn_6010a	90098560006	CS100K	09-MAR-2010 11:04	S13923

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Antimony	A	13.490	14.540	14.807	14.711		LOR0	0.00000	0.06797		14.387	1.000	0.995	
Arsenic	A	9.1200	7.6800	7.7239	7.3340		LOR0	0.00000	0.13628		7.9645	1.000	0.995	
Barium	A	89.300	88.867	90.268	88.885		LOR0	0.00000	0.01125		89.330	1.000	0.995	
Beryllium	A	4777.6	4709.8	4753.6			LOR0	0.00000	2.10E-4		4747.0	1.000	0.995	
Cadmium	A	151.74	156.90	158.26	152.21		LOR0	0.00000	0.00657		154.78	1.000	0.995	
Chromium	A	160.24	195.57	196.29	195.39		LOR0	0.00000	0.00512		186.87	1.000	0.995	
Cobalt	A	51.100	52.674	54.617	54.720		LOR0	0.00000	0.01828		53.278	1.000	0.995	
Copper	A	196.28	199.27	208.13	207.48		LOR0	0.00000	0.00482		202.79	1.000	0.995	
Lead	A	30.840	41.134	41.933	41.109		LOR0	0.00000	0.02432		38.754	1.000	0.995	
Molybdenum	A	29.440	30.907	30.815	30.324		LOR0	0.00000	0.03297		30.371	1.000	0.995	
Nickel	A	75.740	87.155	90.504	90.080		LOR0	0.00000	0.01110		85.870	1.000	0.995	
Selenium	A	9.9300	10.599	10.823	10.967		LOR0	0.00000	0.09120		10.580	1.000	0.995	
Silver	A	420.46	432.33	443.48	444.00		LOR0	0.00000	0.00225		435.07	1.000	0.995	
Thallium	A	8.8400	8.0960	8.2491	7.9981		LOR0	0.00000	0.12499		8.2958	1.000	0.995	
Vanadium	A	200.12	225.78	227.68	230.82		LOR0	0.00000	0.00433		221.10	1.000	0.995	
Zinc	A	65.145	58.780	57.890	58.493		LOR0	0.00000	0.01710		60.077	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Antimony	A	10.00	-8	100.0	-1	1000	1	10000	0		
Arsenic	A	5.000	**24**	100.0	5	1000	5	10000	0		
Barium	A	5.000	0	100.0	0	1000	2	10000	0		
Beryllium	A	2.000	1	100.0	-1	1000	0				
Cadmium	A	5.000	0	100.0	3	1000	4	10000	0		
Chromium	A	5.000	-18	100.0	0	1000	0	10000	0		
Cobalt	A	5.000	-7	100.0	-4	1000	0	10000	0		
Copper	A	5.000	-5	100.0	-4	1000	0	10000	0		
Lead	A	5.000	**-25**	100.0	0	1000	2	10000	0		
Molybdenum	A	5.000	-3	100.0	2	1000	2	10000	0		
Nickel	A	5.000	-16	100.0	-3	1000	0	10000	0		
Selenium	A	10.00	-9	100.0	-3	1000	-1	10000	0		
Silver	A	5.000	-5	100.0	-3	1000	0	2000	0		
Thallium	A	10.00	10	100.0	1	1000	3	10000	0		
Vanadium	A	5.000	-13	100.0	-2	1000	-1	10000	0		
Zinc	A	20.00	11	100.0	1	1000	-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 218610 METALS Filtrate
EPA 6010B

Inst : MET09
Calnum : 90098560001 Cal Date : 09-MAR-2010

ICV 90098560007 (09-MAR-2010) stds: S14097

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	5000	4799	ug/L	-4	10	
Arsenic	A	5000	5127	ug/L	3	10	
Barium	A	5000	4844	ug/L	-3	10	
Beryllium	A	500.0	496.9	ug/L	-1	10	
Cadmium	A	5000	4954	ug/L	-1	10	
Chromium	A	5000	4716	ug/L	-6	10	
Cobalt	A	5000	4743	ug/L	-5	10	
Copper	A	5000	4717	ug/L	-6	10	
Lead	A	5000	4689	ug/L	-6	10	
Molybdenum	A	5000	4911	ug/L	-2	10	
Nickel	A	5000	4714	ug/L	-6	10	
Selenium	A	5000	4792	ug/L	-4	10	
Silver	A	1000	938.9	ug/L	-6	10	
Thallium	A	5000	4814	ug/L	-4	10	
Vanadium	A	5000	4848	ug/L	-3	10	
Zinc	A	5000	4864	ug/L	-3	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 218610 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 90098560008 File : met09_sn_6010a Time : 09-MAR-2010 11:14
Cal : 90098560001 Caldate : 09-MAR-2010

Analyte	Ch	Quant	IQL	2X MDL	Units	Flags
Antimony	A	ND	10.00	5.859	ug/L	
Arsenic	A	ND	5.000	3.155	ug/L	
Barium	A	ND	5.000	2.438	ug/L	
Beryllium	A	ND	2.000	0.8151	ug/L	
Cadmium	A	ND	5.000	2.619	ug/L	
Chromium	A	ND	5.000	2.618	ug/L	
Cobalt	A	ND	5.000	2.129	ug/L	
Copper	A	ND	5.000	2.750	ug/L	
Lead	A	ND	5.000	2.000	ug/L	
Molybdenum	A	ND	5.000	2.591	ug/L	
Nickel	A	ND	5.000	2.552	ug/L	
Selenium	A	ND	10.00	5.935	ug/L	
Silver	A	ND	5.000	2.000	ug/L	
Thallium	A	ND	10.00	5.472	ug/L	
Vanadium	A	ND	5.000	2.000	ug/L	
Zinc	A	ND	20.00	12.29	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3977109	4023077	1.16

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 218610 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 90098560009 File : met09_sn_6010a Time : 09-MAR-2010 11:20
Cal : 90098560001 Caldate : 09-MAR-2010
Standards: S14040

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	[-5.939]	10.00	ug/L	!a-
Arsenic	A	[4.490]	5.000	ug/L	!a+
Barium	A	[2.513]	5.000	ug/L	!a+
Beryllium	A	[0.3524]	2.000	ug/L	
Cadmium	A	[-1.526]	5.000	ug/L	
Cobalt	A	[4.498]	5.000	ug/L	!a+
Lead	A	[0.4099]	5.000	ug/L	
Molybdenum	A	[2.031]	5.000	ug/L	
Selenium	A	[-3.436]	10.00	ug/L	
Silver	A	[0.9061]	5.000	ug/L	
Thallium	A	[-1.345]	10.00	ug/L	
Zinc	A	[4.600]	20.00	ug/L	

Interferent	Ch	Spiked	Quant	Units	%Rec
Chromium	A	20000	18350	ug/L	92
Copper	A	20000	20070	ug/L	100
Manganese	A	20000	17870	ug/L	89
Nickel	A	20000	16850	ug/L	84
Vanadium	A	20000	19520	ug/L	98
Aluminum	R	500000	473500	ug/L	95
Calcium	R	500000	470700	ug/L	94
Iron	R	200000	185200	ug/L	93
Magnesium	R	500000	468700	ug/L	94
Titanium	R	20000	20020	ug/L	100

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3977109	3373297	-15.18

!=warning +=high bias -=low bias a=ICSA

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 218610 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 90098560031 File : met09_sn_6010a Time : 09-MAR-2010 12:57
Cal : 90098560001 Caldate : 09-MAR-2010
Standards: S14098

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	14.387	13.853	5000	4708	ug/L	-6	10	
Arsenic	A	7.9645	7.3888	5000	5035	ug/L	1	10	
Barium	A	89.330	85.384	5000	4802	ug/L	-4	10	
Beryllium	A	4747.0	4685.8	500.0	492.9	ug/L	-1	10	
Cadmium	A	154.78	150.78	5000	4951	ug/L	-1	10	
Chromium	A	186.87	182.12	5000	4660	ug/L	-7	10	
Cobalt	A	53.278	50.627	5000	4616	ug/L	-8	10	
Copper	A	202.79	193.00	5000	4651	ug/L	-7	10	
Lead	A	38.754	38.508	5000	4683	ug/L	-6	10	
Molybdenum	A	30.371	29.757	5000	4906	ug/L	-2	10	
Nickel	A	85.870	84.124	5000	4669	ug/L	-7	10	
Selenium	A	10.580	10.448	5000	4764	ug/L	-5	10	
Silver	A	435.07	409.39	1000	922.3	ug/L	-8	10	
Thallium	A	8.2958	7.5768	5000	4735	ug/L	-5	10	
Vanadium	A	221.10	221.53	5000	4799	ug/L	-4	10	
Zinc	A	60.077	55.588	5000	4752	ug/L	-5	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3977109	4013818	0.92

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 218610 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 90098560032 File : met09_sn_6010a Time : 09-MAR-2010 13:03
Cal : 90098560001 Caldate : 09-MAR-2010

Analyte	Ch	Quant	IQL	2X MDL	Units	Flags
Antimony	A	ND	10.00	5.859	ug/L	
Arsenic	A	ND	5.000	3.155	ug/L	
Barium	A	ND	5.000	2.438	ug/L	
Beryllium	A	ND	2.000	0.8151	ug/L	
Cadmium	A	ND	5.000	2.619	ug/L	
Chromium	A	ND	5.000	2.618	ug/L	
Cobalt	A	ND	5.000	2.129	ug/L	
Copper	A	ND	5.000	2.750	ug/L	
Lead	A	ND	5.000	2.000	ug/L	
Molybdenum	A	ND	5.000	2.591	ug/L	
Nickel	A	ND	5.000	2.552	ug/L	
Selenium	A	ND	10.00	5.935	ug/L	
Silver	A	ND	5.000	2.000	ug/L	
Thallium	A	ND	10.00	5.472	ug/L	
Vanadium	A	ND	5.000	2.000	ug/L	
Zinc	A	ND	20.00	12.29	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3977109	4118314	3.55

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 218610 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 90098560035.1 File : met09_sn_6010a Time : 09-MAR-2010 13:16
Cal : 90098560001 Caldate : 09-MAR-2010
Standards: S14041

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	503.9	ug/L	1	20	
Arsenic	A	500.0	504.7	ug/L	1	20	
Barium	A	500.0	481.7	ug/L	-4	20	
Beryllium	A	500.0	496.2	ug/L	-1	20	
Cadmium	A	1000	947.5	ug/L	-5	20	
Chromium	A	500.0	470.4	ug/L	-6	20	
Cobalt	A	500.0	420.9	ug/L	-16	20	
Copper	A	500.0	507.0	ug/L	1	20	
Lead	A	1000	876.3	ug/L	-12	20	
Molybdenum	A	500.0	487.6	ug/L	-2	20	
Nickel	A	1000	856.5	ug/L	-14	20	
Selenium	A	500.0	479.3	ug/L	-4	20	
Silver	A	1000	1041	ug/L	4	20	
Thallium	A	500.0	442.1	ug/L	-12	20	
Vanadium	A	500.0	502.4	ug/L	0	20	
Zinc	A	1000	897.2	ug/L	-10	20	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3977109	3426482	-13.84

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 218610 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 90098560042 File : met09_sn_6010a Time : 09-MAR-2010 13:48
Cal : 90098560001 Caldate : 09-MAR-2010
Standards: S14041

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	502.2	ug/L	0	20	
Arsenic	A	500.0	542.0	ug/L	8	20	
Barium	A	500.0	481.9	ug/L	-4	20	
Beryllium	A	500.0	492.3	ug/L	-2	20	
Cadmium	A	1000	938.8	ug/L	-6	20	
Chromium	A	500.0	466.9	ug/L	-7	20	
Cobalt	A	500.0	420.6	ug/L	-16	20	
Copper	A	500.0	505.6	ug/L	1	20	
Lead	A	1000	874.3	ug/L	-13	20	
Molybdenum	A	500.0	487.9	ug/L	-2	20	
Nickel	A	1000	837.8	ug/L	-16	20	
Selenium	A	500.0	474.5	ug/L	-5	20	
Silver	A	1000	1029	ug/L	3	20	
Thallium	A	500.0	436.2	ug/L	-13	20	
Vanadium	A	500.0	498.5	ug/L	0	20	
Zinc	A	1000	898.3	ug/L	-10	20	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3977109	3440686	-13.49

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 218610 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 90098560046.1 File : met09_sn_6010a Time : 09-MAR-2010 14:08
Cal : 90098560001 Caldate : 09-MAR-2010
Standards: S14098

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	14.387	14.595	5000	4961	ug/L	-1	10	
Arsenic	A	7.9645	7.7436	5000	5276	ug/L	6	10	
Barium	A	89.330	87.316	5000	4911	ug/L	-2	10	
Beryllium	A	4747.0	4790.0	500.0	503.9	ug/L	1	10	
Cadmium	A	154.78	154.79	5000	5083	ug/L	2	10	
Chromium	A	186.87	186.02	5000	4760	ug/L	-5	10	
Cobalt	A	53.278	52.898	5000	4824	ug/L	-4	10	
Copper	A	202.79	196.20	5000	4728	ug/L	-5	10	
Lead	A	38.754	40.382	5000	4911	ug/L	-2	10	
Molybdenum	A	30.371	31.087	5000	5125	ug/L	2	10	
Nickel	A	85.870	86.259	5000	4788	ug/L	-4	10	
Selenium	A	10.580	10.994	5000	5013	ug/L	0	10	
Silver	A	435.07	423.90	1000	955.0	ug/L	-5	10	
Thallium	A	8.2958	7.9464	5000	4966	ug/L	-1	10	
Vanadium	A	221.10	226.03	5000	4897	ug/L	-2	10	
Zinc	A	60.077	58.396	5000	4992	ug/L	0	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3977109	3973255	-0.10

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EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 90098560047.1 File : met09_sn_6010a Time : 09-MAR-2010 14:14
Cal : 90098560001 Caldate : 09-MAR-2010

Analyte	Ch	Quant	IQL	2X MDL	Units	Flags
Antimony	A	ND	10.00	5.859	ug/L	
Arsenic	A	ND	5.000	3.155	ug/L	
Barium	A	ND	5.000	2.438	ug/L	
Beryllium	A	ND	2.000	0.8151	ug/L	
Cadmium	A	ND	5.000	2.619	ug/L	
Chromium	A	ND	5.000	2.618	ug/L	
Cobalt	A	ND	5.000	2.129	ug/L	
Copper	A	ND	5.000	2.750	ug/L	
Lead	A	ND	5.000	2.000	ug/L	
Molybdenum	A	ND	5.000	2.591	ug/L	
Nickel	A	ND	5.000	2.552	ug/L	
Selenium	A	ND	10.00	5.935	ug/L	
Silver	A	ND	5.000	2.000	ug/L	
Thallium	A	ND	10.00	5.472	ug/L	
Vanadium	A	ND	5.000	2.000	ug/L	
Zinc	A	ND	20.00	12.29	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3977109	4200447	5.62

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 218610 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 90098560058 File : met09_sn_6010a Time : 09-MAR-2010 15:15
Cal : 90098560001 Caldate : 09-MAR-2010
Standards: S14098

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	14.387	14.234	5000	4838	ug/L	-3	10	
Arsenic	A	7.9645	7.5782	5000	5164	ug/L	3	10	
Barium	A	89.330	86.446	5000	4862	ug/L	-3	10	
Beryllium	A	4747.0	4742.3	500.0	498.9	ug/L	0	10	
Cadmium	A	154.78	155.24	5000	5098	ug/L	2	10	
Chromium	A	186.87	183.91	5000	4706	ug/L	-6	10	
Cobalt	A	53.278	51.380	5000	4685	ug/L	-6	10	
Copper	A	202.79	191.38	5000	4612	ug/L	-8	10	
Lead	A	38.754	39.435	5000	4795	ug/L	-4	10	
Molybdenum	A	30.371	30.376	5000	5008	ug/L	0	10	
Nickel	A	85.870	85.410	5000	4741	ug/L	-5	10	
Selenium	A	10.580	10.770	5000	4911	ug/L	-2	10	
Silver	A	435.07	413.83	1000	932.3	ug/L	-7	10	
Thallium	A	8.2958	7.7506	5000	4844	ug/L	-3	10	
Vanadium	A	221.10	223.56	5000	4843	ug/L	-3	10	
Zinc	A	60.077	57.141	5000	4885	ug/L	-2	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3977109	4172348	4.91

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 218610 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 90098560060 File : met09_sn_6010a Time : 09-MAR-2010 15:24
Cal : 90098560001 Caldate : 09-MAR-2010

Analyte	Ch	Quant	IQL	2X MDL	Units	Flags
Antimony	A	ND	10.00	5.859	ug/L	
Arsenic	A	ND	5.000	3.155	ug/L	
Barium	A	ND	5.000	2.438	ug/L	
Beryllium	A	ND	2.000	0.8151	ug/L	
Cadmium	A	ND	5.000	2.619	ug/L	
Chromium	A	ND	5.000	2.618	ug/L	
Cobalt	A	ND	5.000	2.129	ug/L	
Copper	A	ND	5.000	2.750	ug/L	
Lead	A	ND	5.000	2.000	ug/L	
Molybdenum	A	ND	5.000	2.591	ug/L	
Nickel	A	ND	5.000	2.552	ug/L	
Selenium	A	ND	10.00	5.935	ug/L	
Silver	A	ND	5.000	2.000	ug/L	
Thallium	A	ND	10.00	5.472	ug/L	
Vanadium	A	ND	5.000	2.000	ug/L	
Zinc	A	ND	20.00	12.29	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3977109	4297355	8.05

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 218610 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 90098560068 File : met09_sn_6010a Time : 09-MAR-2010 16:21
Cal : 90098560001 Caldate : 09-MAR-2010
Standards: S14041

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	509.6	ug/L	2	20	
Arsenic	A	500.0	548.5	ug/L	10	20	
Barium	A	500.0	491.6	ug/L	-2	20	
Beryllium	A	500.0	504.0	ug/L	1	20	
Cadmium	A	1000	1010	ug/L	1	20	
Chromium	A	500.0	477.6	ug/L	-4	20	
Cobalt	A	500.0	424.6	ug/L	-15	20	
Copper	A	500.0	494.5	ug/L	-1	20	
Lead	A	1000	897.6	ug/L	-10	20	
Molybdenum	A	500.0	497.9	ug/L	0	20	
Nickel	A	1000	870.7	ug/L	-13	20	
Selenium	A	500.0	510.6	ug/L	2	20	
Silver	A	1000	1052	ug/L	5	20	
Thallium	A	500.0	449.6	ug/L	-10	20	
Vanadium	A	500.0	510.4	ug/L	2	20	
Zinc	A	1000	924.6	ug/L	-8	20	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3977109	3681368	-7.44

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 218610 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 90098560071 File : met09_sn_6010a Time : 09-MAR-2010 16:37
Cal : 90098560001 Caldate : 09-MAR-2010
Standards: S14098

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	14.387	14.066	5000	4781	ug/L	-4	10	
Arsenic	A	7.9645	7.4806	5000	5097	ug/L	2	10	
Barium	A	89.330	86.612	5000	4871	ug/L	-3	10	
Beryllium	A	4747.0	4730.6	500.0	497.6	ug/L	0	10	
Cadmium	A	154.78	156.95	5000	5154	ug/L	3	10	
Chromium	A	186.87	183.11	5000	4685	ug/L	-6	10	
Cobalt	A	53.278	50.945	5000	4645	ug/L	-7	10	
Copper	A	202.79	188.85	5000	4551	ug/L	-9	10	
Lead	A	38.754	39.033	5000	4747	ug/L	-5	10	
Molybdenum	A	30.371	29.990	5000	4944	ug/L	-1	10	
Nickel	A	85.870	85.424	5000	4741	ug/L	-5	10	
Selenium	A	10.580	10.599	5000	4833	ug/L	-3	10	
Silver	A	435.07	403.44	1000	908.9	ug/L	-9	10	
Thallium	A	8.2958	7.7002	5000	4812	ug/L	-4	10	
Vanadium	A	221.10	222.51	5000	4821	ug/L	-4	10	
Zinc	A	60.077	56.785	5000	4854	ug/L	-3	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3977109	4314954	8.49

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 218610 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 90098560073 File : met09_sn_6010a Time : 09-MAR-2010 16:49
Cal : 90098560001 Caldate : 09-MAR-2010

Analyte	Ch	Quant	IQL	2X MDL	Units	Flags
Antimony	A	ND	10.00	5.859	ug/L	
Arsenic	A	ND	5.000	3.155	ug/L	
Barium	A	ND	5.000	2.438	ug/L	
Beryllium	A	ND	2.000	0.8151	ug/L	
Cadmium	A	ND	5.000	2.619	ug/L	
Chromium	A	ND	5.000	2.618	ug/L	
Cobalt	A	ND	5.000	2.129	ug/L	
Copper	A	ND	5.000	2.750	ug/L	
Lead	A	ND	5.000	2.000	ug/L	
Molybdenum	A	ND	5.000	2.591	ug/L	
Nickel	A	ND	5.000	2.552	ug/L	
Selenium	A	ND	10.00	5.935	ug/L	
Silver	A	ND	5.000	2.000	ug/L	
Thallium	A	ND	10.00	5.472	ug/L	
Vanadium	A	ND	5.000	2.000	ug/L	
Zinc	A	ND	20.00	12.29	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3977109	4480057	12.65

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 218610 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 90098560083 File : met09_sn_6010a Time : 09-MAR-2010 17:47
Cal : 90098560001 Caldate : 09-MAR-2010
Standards: S14041

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	501.1	ug/L	0	20	
Arsenic	A	500.0	546.6	ug/L	9	20	
Barium	A	500.0	492.2	ug/L	-2	20	
Beryllium	A	500.0	503.8	ug/L	1	20	
Cadmium	A	1000	1011	ug/L	1	20	
Chromium	A	500.0	476.8	ug/L	-5	20	
Cobalt	A	500.0	424.9	ug/L	-15	20	
Copper	A	500.0	492.1	ug/L	-2	20	
Lead	A	1000	907.3	ug/L	-9	20	
Molybdenum	A	500.0	499.7	ug/L	0	20	
Nickel	A	1000	870.2	ug/L	-13	20	
Selenium	A	500.0	506.2	ug/L	1	20	
Silver	A	1000	1053	ug/L	5	20	
Thallium	A	500.0	464.5	ug/L	-7	20	
Vanadium	A	500.0	510.4	ug/L	2	20	
Zinc	A	1000	926.2	ug/L	-7	20	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3977109	3678305	-7.51

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 218610 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 90098560084 File : met09_sn_6010a Time : 09-MAR-2010 17:53
Cal : 90098560001 Caldate : 09-MAR-2010
Standards: S14098

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	14.387	13.997	5000	4757	ug/L	-5	10	
Arsenic	A	7.9645	7.4483	5000	5075	ug/L	2	10	
Barium	A	89.330	87.239	5000	4907	ug/L	-2	10	
Beryllium	A	4747.0	4768.1	500.0	501.6	ug/L	0	10	
Cadmium	A	154.78	160.80	5000	5280	ug/L	6	10	
Chromium	A	186.87	184.40	5000	4719	ug/L	-6	10	
Cobalt	A	53.278	50.416	5000	4597	ug/L	-8	10	
Copper	A	202.79	187.07	5000	4508	ug/L	-10	10	
Lead	A	38.754	39.265	5000	4775	ug/L	-5	10	
Molybdenum	A	30.371	30.237	5000	4985	ug/L	0	10	
Nickel	A	85.870	85.835	5000	4764	ug/L	-5	10	
Selenium	A	10.580	10.531	5000	4802	ug/L	-4	10	
Silver	A	435.07	410.60	1000	925.0	ug/L	-7	10	
Thallium	A	8.2958	7.6878	5000	4804	ug/L	-4	10	
Vanadium	A	221.10	224.56	5000	4865	ug/L	-3	10	
Zinc	A	60.077	56.808	5000	4856	ug/L	-3	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3977109	4240944	6.63

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 218610 METALS Filtrate
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 90098560087 File : met09_sn_6010a Time : 09-MAR-2010 18:03
Cal : 90098560001 Caldate : 09-MAR-2010

Analyte	Ch	Quant	IQL	2X MDL	Units	Flags
Antimony	A	ND	10.00	5.859	ug/L	
Arsenic	A	ND	5.000	3.155	ug/L	
Barium	A	ND	5.000	2.438	ug/L	
Beryllium	A	ND	2.000	0.8151	ug/L	
Cadmium	A	ND	5.000	2.619	ug/L	
Chromium	A	ND	5.000	2.618	ug/L	
Cobalt	A	ND	5.000	2.129	ug/L	
Copper	A	ND	5.000	2.750	ug/L	
Lead	A	[3.531]	5.000	2.000	ug/L	!ib
Molybdenum	A	ND	5.000	2.591	ug/L	
Nickel	A	ND	5.000	2.552	ug/L	
Selenium	A	ND	10.00	5.935	ug/L	
Silver	A	ND	5.000	2.000	ug/L	
Thallium	A	ND	10.00	5.472	ug/L	
Vanadium	A	ND	5.000	2.000	ug/L	
Zinc	A	ND	20.00	12.29	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3977109	4441349	11.67

!=warning ib=instrument blank

SAMPLE PREPARATION SUMMARY

Batch # : 160730
Started By : MCB
Method : METHOD
Spike #1 ID : S12746

Prep Date : 08-MAR-2010 23:30
Spike #2 ID : S12747

Analysis : ICAP
Finished By : MCB
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
218557-001		Filtrate	50	50	1	1.0						AL, AS, CD, CR, CU, FE, NI, PB, ZN	
218557-002		Filtrate	50	50	1	1.0						AL, AS, CD, CR, CU, FE, NI, PB, ZN	
218577-002		Filtrate	50	50	1	1.0						AS, BA, NI, SE	
218577-003		Filtrate	50	50	1	1.0						AS, BA, NI, SE	
218577-004		Filtrate	50	50	1	1.0						AS, BA, NI, SE	
218577-005		Filtrate	50	50	1	1.0						AS, BA, NI, SE	
218577-006		Filtrate	50	50	1	1.0						AS, BA, NI, SE	
218577-007		Filtrate	50	50	1	1.0						AS, BA, NI, SE	
218577-008		Filtrate	50	50	1	1.0						AS, BA, NI, SE	
218577-009		Filtrate	50	50	1	1.0						AS, BA, NI, SE	
218577-010		Filtrate	50	50	1	1.0						AS, BA, NI, SE	
218577-011		Filtrate	50	50	1	1.0						AS, BA, NI, SE	
218610-001		Filtrate	50	50	1	1.0						T22/ICP	
218612-002		Filtrate	50	50	1	1.0						T22/ICP	
QC535272	BLANK	Filtrate	50	50	1	1.0							
QC535273	BS	Filtrate	50	50	1	1.0		.5	.5				
QC535274	BSD	Filtrate	50	50	1	1.0		.5	.5				
QC535275	MS	Filtrate	50	50	1	1.0		.5	.5				
QC535276	MSD	Filtrate	50	50	1	1.0		.5	.5				
QC535306	SER	Filtrate	50	50	1	1.0							
QC535307	PDS	Filtrate	50	50	1	1.0							

Reviewed by: AH Date: 03/10/10

Water Digestion for ICP

LIMS Batch #: 160730
Digested by: MCD III
Date Digested: 3/8/10

Digestion Method
- ☐ EPA 3010a for ICP
- ☐ EPA 200.7
- ☒ FILTRATE PREP

Curtis & Tompkins, Ltd.
BK 2995
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Continued From:
Continued On:

Sample #	Container ID	Volume Sample (mL)	Final Volume (mL)	Filtered? (y/n)	Comments
BLANK		50	50	N	
BS					
BSD					
MS-557-001	A				
MSD-557-001					
218557-001					
-002					
218577-002	F				
-003					
-004					
-005					
-006					
-007					
-008					
-009					
-010					
-011					
218610-001	B				
218612-001					

	Reagent ID or LIMS #	Initials / Date
Digestion Tube Lot #	~~2861~~ J92614-281	
.5 mL of spike solution (Std1) was added to all spikes	S12746	MCD III 3/8/10
.5 mL of spike solution (Std2) was added to all spikes	S12747	
Digestion temperature (90-95 degrees C)	N/A	
Digestion started at (time)	11:30AM	
☐ 1:1 HNO3, ☐ concentrated HNO3, added to all samples	414029 #13 AMER	
1:1 HCl added to all samples	G485030	
Digestion ended at (time)	N/A	
☐ filtered thru' Whatman # 541		
Relinquished to ICP group	ICP	

Michael Cisneros III 3/8/10
Prep Chemist Signature / Date

Reviewer Signature / Date

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 840097367

Instrument : MET14 Begun : 03/08/10 14:47
Method : EPA 7470A SOP Version : HG_water_rv12

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	160699	ICALBLK	STD01REP1			03/08/10 14:47	1.0		
002	160699	ICAL	STD02REP1			03/08/10 14:50	1.0	1	
003	160699	ICAL	STD03REP1			03/08/10 14:52	1.0	1	
004	160699	ICAL	STD04REP1			03/08/10 14:54	1.0	1	
005	160699	ICAL	STD05REP1			03/08/10 14:57	1.0	1	
006	160699	ICAL	STD06REP1			03/08/10 15:00	1.0	1	
007	160699	ICV				03/08/10 15:03	1.0	2	
008	160699	ICB				03/08/10 15:05	1.0		
009	160699	BLANK	QC535146	Water	160699	03/08/10 15:27	1.0		
010	160699	BLANK	QC535152	WET Leachate	160699	03/08/10 15:29	1.0		
011	160699	BLANK	QC535155	TCLP Leachate	160699	03/08/10 15:32	1.0		
012	160699	BS	QC535147	Water	160699	03/08/10 15:34	1.0		
013	160699	BSD	QC535148	Water	160699	03/08/10 15:36	1.0		
014	160699	MSS	218616-001	WET Leachate	160699	03/08/10 15:39	1.0		
015	160699	MS	QC535153	WET Leachate	160699	03/08/10 15:41	1.0		
016	160699	MSD	QC535154	WET Leachate	160699	03/08/10 15:43	1.0		
017	160699	CCV				03/08/10 15:45	1.0	3	
018	160699	CCB				03/08/10 15:48	1.0		
019	160699	MSS	218616-001	TCLP Leachate	160699	03/08/10 15:50	1.0		
020	160699	MS	QC535156	TCLP Leachate	160699	03/08/10 15:52	1.0		
021	160699	MSD	QC535157	TCLP Leachate	160699	03/08/10 15:55	1.0		
022	160699	SAMPLE	218610-001	Filtrate	160699	03/08/10 15:57	1.0		
023	160699	MSS	218622-001	Water	160699	03/08/10 15:59	1.0		
024	160699	SAMPLE	218622-002	Water	160699	03/08/10 16:01	1.0		
025	160699	SAMPLE	218622-003	Water	160699	03/08/10 16:03	1.0		
026	160699	SAMPLE	218622-004	Water	160699	03/08/10 16:06	1.0		
027	160699	SAMPLE	218622-005	Water	160699	03/08/10 16:09	1.0		
028	160699	SAMPLE	218622-006	Water	160699	03/08/10 16:11	1.0		
029	160699	CCV				03/08/10 16:14	1.0	3	
030	160699	CCB				03/08/10 16:16	1.0		
031	160699	SAMPLE	218622-007	Water	160699	03/08/10 16:19	1.0		
032	160699	SAMPLE	218622-008	Water	160699	03/08/10 16:21	1.0		
033	160699	SAMPLE	218629-001	Water	160699	03/08/10 16:23	1.0		
034	160699	SAMPLE	218634-001	Filtrate	160699	03/08/10 16:26	1.0		
035	160699	MS	QC535149	Water	160699	03/08/10 17:00	1.0		
036	160699	MSD	QC535150	Water	160699	03/08/10 17:03	1.0		
037	160699	SER	QC535151	Water	160699	03/08/10 17:06	5.0		
038	160699	SAMPLE	218634-002	Filtrate	160699	03/08/10 17:08	1.0		
039	160699	SAMPLE	218634-003	Filtrate	160699	03/08/10 17:11	1.0		
040	160699	SAMPLE	218634-004	Filtrate	160699	03/08/10 17:13	1.0		
041	160699	CCV				03/08/10 17:16	1.0	3	
042	160699	CCB				03/08/10 17:19	1.0		
043	160699	SAMPLE	218634-017	Filtrate	160699	03/08/10 17:21	1.0		
044	160699	SAMPLE	218634-017	Water	160699	03/08/10 17:24	1.0		
045	160699	SAMPLE	218646-007	Filtrate	160699	03/08/10 17:26	1.0		
046	160699	CCV				03/08/10 17:29	1.0	3	
047	160699	CCB				03/08/10 17:31	1.0		

WNH 03/09/10 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 47.

Standards used: 1=S14138 2=S14142 3=S14143

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CURTIS & TOMPKINS INITIAL CALIBRATION FOR 218610 METALS Filtrate: EPA 7470A

Inst : MET14
Calnum : 840097367001
Units : ug/L

Date : 08-MAR-2010 14:47
X Axis : R

Reviewer : ---
Type : WATER

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	160699	840097367002	STD02REP1	08-MAR-2010 14:50	S14138 (500X)
L2	160699	840097367003	STD03REP1	08-MAR-2010 14:52	S14138 (200X)
L3	160699	840097367004	STD04REP1	08-MAR-2010 14:54	S14138 (50X)
L4	160699	840097367005	STD05REP1	08-MAR-2010 14:57	S14138 (20X)
L5	160699	840097367006	STD06REP1	08-MAR-2010 15:00	S14138 (10X)

Analyte	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Mercury	2970.0	2278.0	2155.0	1987.4	1912.4	LINR	-0.1446	5.27E-4		2260.6	1.000	.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Mercury	0.200	-16	0.500	-9	2.000	6	5.000	2	10.00	-1

Instrument amount = a0 + response * a1 + response^2 * a2; LINR=Linear regression

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 218610 METALS Filtrate
EPA 7470A

Inst : MET14
Calnum : 840097367001 Cal Date : 08-MAR-2010 Type : WATER

ICV 840097367007 (08-MAR-2010) stds: S14142

Analyte	Spiked	Quant	Units	%D	Max	Flags
Mercury	5.000	5.290	ug/L	6	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 218610 METALS Filtrate
EPA 7470A

Inst : MET14 IDF : 1.0
Seqnum : 840097367008 File : 160699 Time : 08-MAR-2010 15:05
Cal : 840097367001 Caldate : 08-MAR-2010 Caltype : WATER

Analyte	Quant	IQL	MDL	Units	Flags
Mercury	ND	0.2000	0.03335	ug/L	

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 218610 METALS Filtrate
EPA 7470A

Inst : MET14 IDF : 1.0
Seqnum : 840097367017 File : 160699 Time : 08-MAR-2010 15:45
Cal : 840097367001 Caldate : 08-MAR-2010 Caltype : WATER
Standards: S14143

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	2260.6	1932.6	5.000	4.950	ug/L	-1	20	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 218610 METALS Filtrate
EPA 7470A

Inst : MET14 IDF : 1.0
Seqnum : 840097367018 File : 160699 Time : 08-MAR-2010 15:48
Cal : 840097367001 Caldate : 08-MAR-2010 Caltype : WATER

Analyte	Quant	IQL	MDL	Units	Flags
Mercury	ND	0.2000	0.03335	ug/L	

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 218610 METALS Filtrate
EPA 7470A

Inst : MET14 IDF : 1.0
Seqnum : 840097367029 File : 160699 Time : 08-MAR-2010 16:14
Cal : 840097367001 Caldate : 08-MAR-2010 Caltype : WATER
Standards: S14143

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	2260.6	2000.4	5.000	5.120	ug/L	2	20	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 218610 METALS Filtrate
EPA 7470A

Inst : MET14 IDF : 1.0
Seqnum : 840097367030 File : 160699 Time : 08-MAR-2010 16:16
Cal : 840097367001 Caldate : 08-MAR-2010 Caltype : WATER

Analyte	Quant	IQL	MDL	Units	Flags
Mercury	ND	0.2000	0.03335	ug/L	

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 218610 METALS Filtrate
EPA 7470A

Inst : MET14 IDF : 1.0
Seqnum : 840097367041 File : 160699 Time : 08-MAR-2010 17:16
Cal : 840097367001 Caldate : 08-MAR-2010 Caltype : WATER
Standards: S14143

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	2260.6	1949.6	5.000	4.990	ug/L	0	20	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 218610 METALS Filtrate
EPA 7470A

Inst : MET14 IDF : 1.0
Seqnum : 840097367042 File : 160699 Time : 08-MAR-2010 17:19
Cal : 840097367001 Caldate : 08-MAR-2010 Caltype : WATER

Analyte	Quant	IQL	MDL	Units	Flags
Mercury	ND	0.2000	0.03335	ug/L	

SAMPLE PREPARATION SUMMARY

Batch # : 160699
Started By : WNH
Method : METHOD
Spike #1 ID : S14138

Prep Date : 08-MAR-2010 10:59

Analysis : HG
Finished By : WNH
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
218610-001		Filtrate	50	50	1	1.0						T22/HG	
218616-001		TCLP Leachate	10	50	1	5.0						T22/HG	
218616-001		WET Leachate	10	50	1	5.0						T22/HG	
218622-001		Water	50	50	1	1.0						HG	
218622-002		Water	50	50	1	1.0						HG	
218622-003		Water	50	50	1	1.0						HG	
218622-004		Water	50	50	1	1.0						HG	
218622-005		Water	50	50	1	1.0						HG	
218622-006		Water	50	50	1	1.0						HG	
218622-007		Water	50	50	1	1.0						HG	
218622-008		Water	50	50	1	1.0						HG	
218629-001		Water	50	50	1	1.0						T22/HG	
218634-001		Filtrate	50	50	1	1.0						HG	
218634-002		Filtrate	50	50	1	1.0						HG	
218634-003		Filtrate	50	50	1	1.0						HG	
218634-004		Filtrate	50	50	1	1.0						HG	
218634-017		Filtrate	50	50	1	1.0						HG	
218634-017		Water	50	50	1	1.0						HG	
218646-007		Filtrate	50	50	1	1.0						HG	
QC535146	BLANK	Water	50	50	1	1.0							
QC535147	BS	Water	50	50	1	1.0		1.25					
QC535148	BSD	Water	50	50	1	1.0		1.25					
QC535149	MS	Water	50	50	1	1.0		1.25					
QC535150	MSD	Water	50	50	1	1.0		1.25					
QC535151	SER	Water	50	50	1	1.0							
QC535152	BLANK	WET Leachate	10	50	1	5.0							
QC535153	MS	WET Leachate	10	50	1	5.0		1.25					
QC535154	MSD	WET Leachate	10	50	1	5.0		1.25					
QC535155	BLANK	TCLP Leachate	10	50	1	5.0							
QC535156	MS	TCLP Leachate	10	50	1	5.0		1.25					
QC535157	MSD	TCLP Leachate	10	50	1	5.0		1.25					

Reviewed by: WNH Date: 03/09/10

Water Digestion for Mercury

LIMS Batch #: 160699
Date Digested: 3/8/10

Digestion Method
☑ EPA 7470A/ EPA 245.1
☐ _____

Curtis & Tompkins, Ltd.
BK3002
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Sample #	container ID	Volume Sample (mL)	Final Volume (mL)	Filtered? (y/n)	Comments
218610-001	B	50	50	N	
218622-001	D				
2	C				
3	C				
4	D				
5	C				
6	D				
7	D				
8	D				
218629-001	D				
218634-001	F				Filtrate MSS
2					
3					
4					
17					
218634-007	G				water
218646-007	I				
Blank QC 535146	–				
BS 47	–				
BSD 48	–				
MS 49	F				
MSD 50	F				

	Reagent ID/ LIMS# / Time	Initials / Date
Digestion Tube Lot #	EK09357	3/8/10
1.25 mL of spike solution was added to all spikes	S14138	
ICAL Source LIMS S#	S14140	
ICV / CCV LIMS S#	S14142/S14143	
Digestion Temperature (degrees C)	95°	
Digestion Started at (time)	1059	
concentrated H_2SO_4	G35026	
concentrated HNO_3	H12022	
5% $KMnO_4$	021610	
5% $K_2S_2O_8$	010810	
NaCl.hydroxylamine hydrochloride	022610	
Stannous Chloride	030510	
Digestion Completed at (time)	1259	
☐ filtered thru' 0.45 um syringe filter (lot #)	—	—

3/8/10
Prep Chemist / Date

Continued from page ✓
Continued on page 11

3/8/10
Reviewed by / Date

.td. **Water Digestion for Mercury** Curtis & Tompkins, Ltd.

LIMS Batch #: 160699
Date Digested: 3/8/10

Digestion Method
☑ EPA 7470A/ EPA 245.1
☐ _____

BK3002
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Sample #	container ID	Volume Sample (mL)	Final Volume (mL)	Filtered? (y/n)	Comments
218616-001	—	10	50	N	Wet Leachate
218616-001	—				TCLP Leachate
Blank QC 535152	—				wet leachate
MS 53	—				
MSD 54	—				
Blank 55	—				TCLP leachate
MS 56	—				
MSD 57					

	Reagent ID/ LIMS# / Time	Initials / Date
Digestion Tube Lot #		
_____ mL of spike solution was added to all spikes		
ICAL Source LIMS S#		
ICV / CCV LIMS S#		
Digestion Temperature (degrees C)		
Digestion Started at (time)		
concentrated H_2SO_4		
concentrated HNO_3		
5% $KMnO_4$		
5% $K_2S_2O_8$		
NaCl.hydroxylamine hydrochloride		
Stannous Chloride		
Digestion Completed at (time)		
☐ filtered thru' 0.45 um syringe filter (lot #)		

3/8/10
Prep Chemist / Date

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Continued on page _____

3/8/10
Reviewed by / Date

Laboratory Job Number 218610

ANALYTICAL REPORT

Wet Chemistry

Matrix: Water

Curtis & Tompkins, Ltd.

pH

Lab #:	218610	Location:	Doyle Drive Replacement Project
Client:	Baseline Environmental	Prep:	METHOD
Project#:	Y0239-04.A8	Analysis:	EPA 9040C
Analyte:	pH	Diln Fac:	1.000
Field ID:	CDSM-MW-1;030410	Batch#:	160676
Lab ID:	218610-001	Sampled:	03/04/10 11:35
Matrix:	Water	Received:	03/04/10
Units:	SU	Analyzed:	03/05/10 18:45

Result	RL
7.7 b	1.0

b= See narrative
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

pH

Lab #:	218610	Location:	Doyle Drive Replacement Project
Client:	Baseline Environmental	Prep:	METHOD
Project#:	Y0239-04.A8	Analysis:	EPA 9040C
Analyte:	pH	Units:	SU
Field ID:	CDSM-MW-1;030410	Diln Fac:	1.000
Type:	SDUP	Batch#:	160676
MSS Lab ID:	218610-001	Sampled:	03/04/10 11:35
Lab ID:	QC535061	Received:	03/04/10
Matrix:	Water	Analyzed:	03/05/10 18:45

MSS Result	Result	RL	RPD	Lim
7.670	7.660 b	1.000	0	1

b= See narrative
RL= Reporting Limit
RPD= Relative Percent Difference

Curtis & Tompkins Laboratories Sample Batch Report

Batch Number: 160676
Date Started: 05-MAR-2010
Batched by : Shu Ting Liu

Analysis : PH
Bgroup : N/A
Department : Wet Chemistry

Sample	Type	Client	Matrix	Analyses	Due Date
218610-001		Baseline Environme	Water	PH	11-MAR-2010
QC535061	SDUP of 218610-001		Water	PH	

pH Analysis Benchbook

Curtis & Tompkins, Ltd.

LIMS Batch #: 160676
Matrix: water
Analyst: SR

Date: 3/5/10
Time: 18:45

Benchbook#: **BK3000**
Page: **15**

Method (check one): ☑ Water (EPA 9040c/ SM4500H+B) ☐ Soil (EPA 9045c)

Cal Std-1 ph: 4 LIMS#: ~~5[illegible]~~ 13103 exp 3/11/11
Cal Std-2 ph: 7 LIMS#: 59892
Cal Std-3 ph: 10 LIMS#: 513208

Slope: 100.1
(slope limits: 92 - 102)

Sample #	Container ID	pH (S.U.)	2nd Reading* (water only)	Soil Prep Wt(g)/Vol(mL)	Comments
ICV		7.03			ICV/CCV → 512158
218610-001	A	7.67	7.67		K
SDUP-001	A	7.66	7.67		↓ RPD = 0.130%
CCV		7.04			

3/5/10

SR

* 2nd aliquot must be within 0.1 SU

SR 3/5/10
Analyst / Date

3/11/10
Reviewed by / Date

Curtis & Tompkins, Ltd.

Total Dissolved Solids (TDS)

Lab #:	218610	Location:	Doyle Drive Replacement Project
Client:	Baseline Environmental	Prep:	METHOD
Project#:	Y0239-04.A8	Analysis:	SM2540C
Analyte:	Total Dissolved Solids	Batch#:	160798
Field ID:	CDSM-MW-1;030410	Sampled:	03/04/10
Matrix:	Water	Received:	03/04/10
Units:	mg/L	Prepared:	03/10/10
Diln Fac:	1.000	Analyzed:	03/11/10

Type	Lab ID	Result	RL
SAMPLE	218610-001	980	10
BLANK	QC535547	ND	10

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Total Dissolved Solids (TDS)

Lab #:	218610	Location:	Doyle Drive Replacement Project
Client:	Baseline Environmental	Prep:	METHOD
Project#:	Y0239-04.A8	Analysis:	SM2540C
Analyte:	Total Dissolved Solids	Sampled:	03/03/10
Field ID:	ZZZZZZZZZZ	Received:	03/04/10
Matrix:	Water	Prepared:	03/10/10
Units:	mg/L	Analyzed:	03/11/10
Batch#:	160798		

Type	MSS Lab ID	Lab ID	MSS Result	Spiked	Result	RL	%REC	Limits	RPD	Lim	Diln Fac
BS		QC535548		104.0	90.00		87	75-106			1.000
BSD		QC535549		104.0	98.00		94	75-106	9	15	1.000
SDUP	218613-006	QC535550	632.0		610.0	10.00			4	12	1.000
SDUP	218613-016	QC535551	1,717		1,691	14.29			2	12	1.429

RL= Reporting Limit
RPD= Relative Percent Difference

Curtis & Tompkins Laboratories Sample Batch Report

Batch Number: 160798
Date Started: 10-MAR-2010
Batched by : Shu Ting Liu

Analysis : TDS
Bgroup : N/A
Department : Wet Chemistry

Sample	Type		Client	Matrix	Analyses	Due Date
218610-001			Baseline Environme	Water	TDS	11-MAR-2010
218613-001			Treadwell & Rollo	Water	TDS	16-MAR-2010
218613-002			Treadwell & Rollo	Water	TDS	16-MAR-2010
218613-003			Treadwell & Rollo	Water	TDS	16-MAR-2010
218613-004			Treadwell & Rollo	Water	TDS	16-MAR-2010
218613-005			Treadwell & Rollo	Water	TDS	16-MAR-2010
218613-006			Treadwell & Rollo	Water	TDS	16-MAR-2010
218613-014			Treadwell & Rollo	Water	TDS	16-MAR-2010
218613-015			Treadwell & Rollo	Water	TDS	16-MAR-2010
218613-016			Treadwell & Rollo	Water	TDS	16-MAR-2010
218634-017			Treadwell & Rollo	Water	TDS	17-MAR-2010
218646-005			Treadwell & Rollo	Water	TDS	17-MAR-2010
218646-006			Treadwell & Rollo	Water	TDS	17-MAR-2010
218646-007			Treadwell & Rollo	Water	TDS	17-MAR-2010
218646-008			Treadwell & Rollo	Water	TDS	17-MAR-2010
218646-009			Treadwell & Rollo	Water	TDS	17-MAR-2010
218646-010			Treadwell & Rollo	Water	TDS	17-MAR-2010
218646-011			Treadwell & Rollo	Water	TDS	17-MAR-2010
QC535547	BLANK			Water	TDS	
QC535548	BS			Water	TDS	
QC535549	BSD			Water	TDS	
QC535550	SDUP	of 218613-006		Water	TDS	
QC535551	SDUP	of 218613-016		Water	TDS	

Analysis:	**Total Dissolved Solids**	Analyst:	STL	QC Limits	RPD	Recovery	
Method:	SMWW 2540C / EPA 160.1	Filtration Date:	3/10/10	LCS/ BS/ BSD	15	75 - 106	
Matrix:	Water	Batch #:	160798	MS/ MSD/SDUP	12	65 - 116	
SOP#:	tds_rv 10.doc						

Sample	Sample Vol (mL)	DF (50/vol)	Initial Mass (g)	Constant Mass (g)	Residue Mass (g)	Report (mg/L)	Reporting Limit (mg/L)	Spike Std Conc (mg/L)	Spike Vol. Used (mL)	Spike (mg/L)	Recovery,%	RPD,%
MB	50	1	67.1118	67.1122	0.0004	**ND**	10					
BS	50	1	61.2482	61.2527	0.0045	**90.0**	10	104	50	104	**87**	
BSD	50	1	59.7082	59.7131	0.0049	**98.0**	10	104	50	104	**94**	**8.51**
218613-006	50	1	67.3951	67.4267	0.0316	**632.0**	10					
SDUP	50	1	54.1311	54.1616	0.0305	**610.0**	10					**3.54**
218610-001	50	1	59.1534	59.2025	0.0491	**982.0**	10					
218613-001	50	1	60.8706	60.9030	0.0324	**648.0**	10					
218613-002	50	1	55.6140	55.6309	0.0169	**338.0**	10					
218613-003	40	1.25	67.7509	67.7980	0.0471	**1,177.5**	13					
218613-004	40	1.25	59.2736	59.3267	0.0531	**1,327.5**	13					
218613-005	40	1.25	59.6283	59.6820	0.0537	**1,342.5**	13					
218613-006	50	1	67.3951	67.4267	0.0316	**632.0**	10					
218613-014	50	1	67.5933	67.6182	0.0249	**498.0**	10					
218613-015	35	1.429	58.7486	58.8040	0.0554	**1,582.9**	14					
218613-016	35	1.429	69.8553	69.9154	0.0601	**1,717.1**	14					
218634-017	40	1.25	68.2021	68.2567	0.0566	**1,415.0**	13					
218646-005	50	1	70.5866	70.6095	0.0229	**458.0**	10					
218646-006	50	1	70.3385	70.3727	0.0342	**684.0**	10					
218646-007	50	1	69.1347	69.1656	0.0309	**618.0**	10					
218646-008	50	1	66.7668	66.7865	0.0197	**394.0**	10					
218646-009	50	1	68.6035	68.6350	0.0315	**630.0**	10					
218646-010	50	1	67.7936	67.8230	0.0294	**588.0**	10					
218646-011	50	1	67.8394	67.8635	0.0241	**482.0**	10					

Reviewed by / date: _____

Analysis:	**Total Dissolved Solids**	Analyst:	STL		QC Limits	RPD	Recovery
Method:	SMWW 2540C / EPA 160.1	Filtration Date:	**3/10/10**		LCS/ BS/ BSD	15	75 - 106
Matrix:	Water	Batch #:	**160798**		MS/ MSD/SDUP	12	65 - 116
SOP#:	tds_rv 10.doc						

Sample	Sample Vol (mL)	DF (50/vol)	Initial Mass (g)	Constant Mass (g)	Residue Mass (g)	Report (mg/L)	Reporting Limit (mg/L)	Spike Std Conc (mg/L)	Spike Vol. Used (mL)	Spike (mg/L)	Recovery,%	RPD,%
MB	50	1	67.1118	67.1122	0.0004	**ND**	10					
BS	50	1	61.2482	61.2527	0.0045	**90.0**	10	104	50	104	**87**	
BSD	50	1	59.7082	59.7131	0.0049	**98.0**	10	104	50	104	**94**	**8.51**
218613-016	35	1.429	69.8553	69.9154	0.0601	**1,717.1**	14					
SDUP	35	1.429	60.7738	60.8330	0.0592	**1,691.4**	14					**1.51**
218610-001	50	1	59.1534	59.2025	0.0491	**982.0**	10					
218613-001	50	1	60.8706	60.9030	0.0324	**648.0**	10					
218613-002	50	1	55.6140	55.6309	0.0169	**338.0**	10					
218613-003	40	1.25	67.7509	67.7980	0.0471	**1,177.5**	13					
218613-004	40	1.25	59.2736	59.3267	0.0531	**1,327.5**	13					
218613-005	40	1.25	59.6283	59.6820	0.0537	**1,342.5**	13					
218613-006	50	1	67.3951	67.4267	0.0316	**632.0**	10					
218613-014	50	1	67.5933	67.6182	0.0249	**498.0**	10					
218613-015	35	1.429	58.7486	58.8040	0.0554	**1,582.9**	14					
218613-016	35	1.429	69.8553	69.9154	0.0601	**1,717.1**	14					
218634-017	40	1.25	68.2021	68.2587	0.0566	**1,415.0**	13					
218646-005	50	1	70.5866	70.6095	0.0229	**458.0**	10					
218646-006	50	1	70.3385	70.3727	0.0342	**684.0**	10					
218646-007	50	1	69.1347	69.1656	0.0309	**618.0**	10					
218646-008	50	1	66.7668	66.7865	0.0197	**394.0**	10					
218646-009	50	1	68.6035	68.6350	0.0315	**630.0**	10					
218646-010	50	1	67.7936	67.8230	0.0294	**588.0**	10					
218646-011	50	1	67.8394	67.8635	0.0241	**482.0**	10					

Reviewed by / date: _____

TDS (Total Dissolved Solids)
EPA 160.1 / SMWW 2540C

Curtis & Tompkins, Ltd.

LIMS Batch #: 160798
Filtered by: STL

Prep Date: 3/10/10
Prep Time: 17:30

Benchbook#: **BK2988**
Page: **23**

Filter Mfg/ Lot#: E.G. 755747
Spike Std LIMS#: 514159

Spike Std Conc (mg/L): 104
Spike Std Vol Added (mL): 50

	In	Out	In-2	Out-2	In-3	Out-3
Date:	3/10/10	3/11/10	3/11/10	3/11/10	3/11/10	3/11/10
Time:	18:00	11:05	12:30	13:30	STL	STL
Temp (C):	90°	180°	180°	180°		
Weighed by:		STL		STL		

ple # Container ID	EC Value (uS/cm)	Sample Vol. Filtered (mL)	Dish ID	Dish Wt (g)	1st Dry Wt.(g)	2nd Dry Wt (g)*	3rd Dry Wt (g)*
MB		50	GOSH	67.1118	67.1122	67.1122	
BS			APT	61.2482	61.2526	61.2527	
BSD			PAZ	59.7082	59.7132	59.7131	
218610-001A	1769		BIB	59.1534	59.2024	59.2025	
218613-001A	1197		GIB	60.8706	60.9033	60.9030	
-002A	547		G23	55.6140	55.6306	55.6309	3/11/10
-003A	2386	40	MOE	67.7509	67.7978	67.7980	STL
-004A	2657		MAL	59.2736	59.3267	59.3267	
-005A	2658		PAY	59.6283	59.6820	59.6820	
-006A	1133	50	LAP	67.3951	67.4267	67.4267	
SDUP-006A	1133		G41	54.1311	54.1615	54.1616	
-014A	916		LIP	67.5933	67.6181	67.6182	
-015A	3130	35	PIE	58.7486	58.8043	58.8040	
-016A	3360		GIP	69.8553	69.9158	69.9154	
SDUP-016A	3360		PETE	60.7738	60.8334	60.8330	
218634-017D	2446	40	GLAM	68.2021	68.2584	68.2587	
218646-005A	883	50	GAT	70.5866	70.6098	70.6095	
-006A	1279		GIR	70.3385	70.3730	70.3727	
-007G	1083		LIR	69.1347	69.1655	69.1656	
-008A	648		KLO	66.7668	66.7868	66.7865	
-009A	1151		GPS	68.6035	68.6352	68.6350	
-010B	1483		PEP	67.7836	67.8231	67.8230	
-011B	791		GEM	67.8394	67.8638	67.8635	

Constant weight must be within 0.0005 from previous reading.

3/10/10
Analyst / Date

3/11/10
Reviewed by / Date

Curtis & Tompkins, Ltd.

Turbidity

Lab #:	218610	Location:	Doyle Drive Replacement Project
Client:	Baseline Environmental	Analysis:	SM2130B
Project#:	Y0239-04.A8		
Analyte:	Turbidity	Diln Fac:	1.000
Field ID:	CDSM-MW-1;030410	Batch#:	160677
Lab ID:	218610-001	Sampled:	03/04/10 11:35
Matrix:	Water	Received:	03/04/10
Units:	NTU	Analyzed:	03/05/10 18:50

Result	RL
2.1	0.02

RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Turbidity

Lab #:	218610	Location:	Doyle Drive Replacement Project
Client:	Baseline Environmental	Analysis:	SM2130B
Project#:	Y0239-04.A8		
Analyte:	Turbidity	Units:	NTU
Field ID:	CDSM-MW-1;030410	Diln Fac:	1.000
Type:	SDUP	Batch#:	160677
MSS Lab ID:	218610-001	Sampled:	03/04/10 11:35
Lab ID:	QC535062	Received:	03/04/10
Matrix:	Water	Analyzed:	03/05/10 18:50

MSS Result	Result	RL	RPD	Lim
2.050	2.090	0.02000	2	13

RL= Reporting Limit
RPD= Relative Percent Difference

Curtis & Tompkins Laboratories Sample Batch Report

Batch Number: 160677
Date Started: 05-MAR-2010
Batched by : Shu Ting Liu

Analysis : TURBIDITY
Bgroup : N/A
Department : Wet Chemistry

Sample	Type		Client	Matrix	Analyses	Due Date
218610-001			Baseline Environme	Water	TURBIDITY	11-MAR-2010
QC535062	SDUP	of 218610-001		Water	TURBIDITY	

Analysis:	**Turbidity**	Analyst:	STL
Method:	SMWW 2130B / EPA 180.1	Analysis Date:	**05-Mar-10**
Matrix:	Water	Batch #:	**160677**
SOP#:	turbidity_rv 6.doc		

CALIBRATION VERIFICATION DATA

Sample	Meter Range	Instrument Reading (NTU)	Time (sec)	Report (NTU)	True Value (NTU)	Recovery,%	Limits, %
ICV	1	4.08	10	4.08	4.0	102%	90 - 110
CCV	1	4.05	10	4.05	4.0	101%	90 - 110

Sample & Batch QC	Meter Range	Instrument Reading (NTU)	Instrument Dil'n Factor	Time (sec)	**Report (NTU)**	RPD,%	Reporting Limit (NTU)
218610-1	1	2.05	1	10	**2.05**		0.02
SDUP	1	2.09	1	10	**2.09**	**1.93**	0.02

SDUP RPD Limit (%): 13

Reviewed by / Date: _____

Curtis Tompkins, Ltd.
F:\inorgan\wetstuff\turbidity.xls

page 1 of 1
Rev.4.5, Effective 1/28/08

Turbidity Benchbook | SM 2130B / EPA 180.1 | Curtis & Tompkins, Ltd.

LIMS Batch #: 160677

Date: 3/5/10
Time: 18:50

Benchbook#: BK2989
Page: 15

	Sample #	Container ID	Range	Turbidity (NTU)	Comments
1	ICV		Auto	4.08	
	218610-001	A		2.05	
	SDUP-001	A		2.09	
	CCV			4.05	
5					
10					
15					
20					
25					

Formazin LIMS S#: S12328
Formazin Std NTU: 4000
Vol Std Used (mL): 0.1
Final Vol (mL): 100
ICV/ CCV NTU: 4

3/5/10
Analyst / Date

3/11/10
Reviewed by / Date

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 218611
ANALYTICAL REPORT

Baseline Environmental	Project	: Y0239-04.A8
5900 Hollis Street	Location	: Doyle Drive Replacement Project
Emeryville, CA 94608	Level	: III

Sample ID	Lab ID
CDSM-MW-1;DRUMS-W	218611-001

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

Signature: Desirée N. Tetrault
Project Manager

Date: 03/15/2010

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**218611**
Client:	**Baseline Environmental**
Project:	**Y0239-04.A8**
Location:	**Doyle Drive Replacement Project**
Request Date:	**03/05/10**
Samples Received:	**03/04/10**

This data package contains sample and QC results for one water sample, requested for the above referenced project on 03/05/10. See attached cooler receipt form for any sample receipt problems or discrepancies.

TPH-Purgeables and/or BTXE by GC (EPA 8015B and EPA 8021B):
No analytical problems were encountered.

TPH-Extractables by GC (EPA 8015B):
No analytical problems were encountered.

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

Chain of Custody

Lisa Brooker

From: "Cheri Page" <cheri@baseline-env.com>
To: "'Desiree N. Tetrault'" <desiree.tetrault@ctberk.com>
Sent: Friday, March 05, 2010 11:26 AM
Attach: CDSM COC 3-4-10.pdf
Subject: Doyle CDSM samples collected 3/4/10

Desiree:

Please composite the soil/sludge drums as indicated on the attached, annotated COC.

I understand you received one sample that was not included on the COC – sample CDSM-MW-1;Drum-W. Please analyze this sample for TPHg,d,mo, BTEX, and LUFT 5 metals.

All analyses are standard turn-around.

Thanks!

Respectfully,
Cheri Page, Senior Geologist
Baseline Environmental Consulting
101 H Street, Suite C
Petaluma, CA 94952
(707) 762-5233

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 218611 Date Received 3/4/10 Number of coolers 1
Client BASELINE Project DOYLE DRIVE

Date Opened 3/4/10 By (print) M. VILLANUEVA (sign) [signature]
Date Logged in ✓ By (print) ✓ (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:

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

☑ Samples Received on ice & cold without a temperature blank

☐ 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 samples in the appropriate containers for indicated tests? _____ YES NO
11. Are sample labels present, in good condition and complete? _____ YES NO
12. Do the sample labels agree with custody papers? _____ YES NO
13. Was sufficient amount of sample sent for tests requested? _____ YES NO
14. Are the samples appropriately preserved? _____ YES NO N/A
15. Are bubbles > 6mm absent in VOA samples? _____ YES NO N/A
16. Was the client contacted concerning this sample delivery? _____ YES NO
   If YES, Who was called? _____ By _____ Date: _____

COMMENTS
NO COC RECD FOR THIS SAMPLE ID# CDSM-MW-1; DRUMS-W
3/4/10 12:30
6 VOAs W/ HCL
1 UNP 500ML POLY
4 UNP 500ML AMB

SOP Volume: Client Services
Section: 1.1.2
Page: 1 of 1

Rev. 6 Number 1 of 3
Effective: 23 July 2008
Z:\qc\forms\checklists\Cooler Receipt Checklist_rv6.doc

Laboratory Job Number 218611

ANALYTICAL REPORT

TPH-Purgeables and/or BTXE by GC

Matrix: Water

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	218611	Location:	Doyle Drive Replacement Project
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y0239-04.A8		
Field ID:	CDSM-MW-1;DRUMS-W	Batch#:	160763
Matrix:	Water	Sampled:	03/04/10
Units:	ug/L	Received:	03/04/10
Diln Fac:	1.000	Analyzed:	03/09/10

Type: SAMPLE Lab ID: 218611-001

Analyte	Result	RL	Analysis
Gasoline C7-C12	ND	50	EPA 8015B
Benzene	ND	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	ND	0.50	EPA 8021B
m,p-Xylenes	ND	0.50	EPA 8021B
o-Xylene	ND	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	104	48-162	EPA 8015B
Bromofluorobenzene (FID)	109	52-158	EPA 8015B
Trifluorotoluene (PID)	104	21-180	EPA 8021B
Bromofluorobenzene (PID)	108	26-167	EPA 8021B

Type: BLANK Lab ID: QC535412

Analyte	Result	RL	Analysis
Gasoline C7-C12	ND	50	EPA 8015B
Benzene	ND	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	ND	0.50	EPA 8021B
m,p-Xylenes	ND	0.50	EPA 8021B
o-Xylene	ND	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	97	48-162	EPA 8015B
Bromofluorobenzene (FID)	96	52-158	EPA 8015B
Trifluorotoluene (PID)	101	21-180	EPA 8021B
Bromofluorobenzene (PID)	98	26-167	EPA 8021B

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	218611	Location:	Doyle Drive Replacement Project
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y0239-04.A8	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC535413	Batch#:	160763
Matrix:	Water	Analyzed:	03/09/10
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	1,098	110	73-121

Surrogate	%REC	Limits
Trifluorotoluene (FID)	120	48-162
Bromofluorobenzene (FID)	104	52-158

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	218611	Location:	Doyle Drive Replacement Project
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y0239-04.A8	Analysis:	EPA 8015B
Field ID:	CDSM-MW-1;DRUMS-W	Batch#:	160763
MSS Lab ID:	218611-001	Sampled:	03/04/10
Matrix:	Water	Received:	03/04/10
Units:	ug/L	Analyzed:	03/09/10
Diln Fac:	1.000		

Type: MS Lab ID: QC535414

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	25.20	2,000	2,461	122	49-129

Surrogate	%REC	Limits
Trifluorotoluene (FID)	128	48-162
Bromofluorobenzene (FID)	113	52-158

Type: MSD Lab ID: QC535415

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	2,496	124	49-129	1	19

Surrogate	%REC	Limits
Trifluorotoluene (FID)	128	48-162
Bromofluorobenzene (FID)	113	52-158

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	218611	Location:	Doyle Drive Replacement Project
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y0239-04.A8	Analysis:	EPA 8021B
Matrix:	Water	Batch#:	160763
Units:	ug/L	Analyzed:	03/09/10
Diln Fac:	1.000		

Type: BS Lab ID: QC535416

Analyte	Spiked	Result	%REC	Limits
Benzene	10.00	8.906	89	69-121
Toluene	10.00	8.698	87	64-132
Ethylbenzene	10.00	8.529	85	64-136
m,p-Xylenes	10.00	8.683	87	63-138
o-Xylene	10.00	8.744	87	64-135

Surrogate	%REC	Limits
Trifluorotoluene (PID)	95	21-180
Bromofluorobenzene (PID)	99	26-167

Type: BSD Lab ID: QC535417

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Benzene	10.00	9.464	95	69-121	6	24
Toluene	10.00	9.728	97	64-132	11	27
Ethylbenzene	10.00	9.584	96	64-136	12	27
m,p-Xylenes	10.00	9.757	98	63-138	12	32
o-Xylene	10.00	9.886	99	64-135	12	27

Surrogate	%REC	Limits
Trifluorotoluene (PID)	104	21-180
Bromofluorobenzene (PID)	107	26-167

RPD= Relative Percent Difference

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 218611 GCVOA Water: EPA 8021B

Inst : GC07
Calnum : 320086916001
Units : ng

Name : GC07 mbtxe ical 060
Date : 01-MAR-2010 16:14
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	060_008	320086916008	BTXE_1	01-MAR-2010 16:14	S13361 (1000X), S13951 (5000X)
L2	060_009	320086916009	MBTXE_2	01-MAR-2010 16:50	S13360 (1250X), S13951 (5000X)
L3	060_010	320086916010	MBTXE_3	01-MAR-2010 17:26	S13360 (500X), S13951 (5000X)
L4	060_011	320086916011	MBTXE_4	01-MAR-2010 18:02	S13360 (125X), S13951 (5000X)
L5	060_012	320086916012	MBTXE_5	01-MAR-2010 18:39	S13359 (1000X), S13951 (5000X)
L6	060_013	320086916013	MBTXE_6	01-MAR-2010 19:15	S13359 (500X), S13951 (5000X)
L7	060_014	320086916014	MBTXE_7	01-MAR-2010 19:51	S13359 (250X), S13951 (5000X)
L8	060_015	320086916015	MTBE_7	01-MAR-2010 20:27	S13362 (500X), S13951 (5000X)

Analyte	Ch	L1	L2	L3	L4	L5	L6	L7	L8	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
Benzene	B	12563	13464	12910	12958	10802	10615	10615		AVRG		8.34E-5		11990	10	0.995	20	
Toluene	B	13888	12910	12202	12096	10248	10068	10122		AVRG		8.59E-5		11648	13	0.995	20	
Ethylbenzene	B	10184	10402	10090	10134	8752.5	8715.0	8764.7		AVRG		1.04E-4		9577.5	8	0.995	20	
m,p-Xylenes	B	13816	13573	12994	12855	10986	10603	10692		AVRG		8.19E-5		12217	12	0.995	20	
o-Xylene	B	10597	11066	10570	10891	9354.6	9198.7	9254.7		AVRG		9.87E-5		10133	8	0.995	20	
Benzene	C	2754.8	1939.4	1832.1	2100.2	1859.4	1900.8	1968.3		AVRG		4.88E-4		2050.7	16	0.995	20	
Toluene	C	1729.6	1606.5	1638.5	1931.6	1784.8	1814.8	1890.9		AVRG		5.65E-4		1770.9	7	0.995	20	
Ethylbenzene	C	1490.0	1343.0	1373.2	1589.5	1526.3	1553.6	1621.4		AVRG		6.67E-4		1499.6	7	0.995	20	
m,p-Xylenes	C	1215.2	1791.7	1683.7	2039.6	1914.7	1942.5	2024.9		AVRG		5.55E-4		1801.8	16	0.995	20	
o-Xylene	C	1405.6	1871.7	1510.0	1732.2	1639.3	1674.1	1735.3		AVRG		6.05E-4		1652.6	9	0.995	20	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D
Benzene	B	2.500	5	10.00	12	25.00	8	100.0	8	500.0	-10	1000	-11	2000	-11		
Toluene	B	2.500	19	10.00	11	25.00	5	100.0	4	500.0	-12	1000	-14	2000	-13		
Ethylbenzene	B	2.500	6	10.00	9	25.00	5	100.0	6	500.0	-9	1000	-9	2000	-8		
m,p-Xylenes	B	2.500	13	10.00	11	25.00	6	100.0	5	500.0	-10	1000	-13	2000	-12		
o-Xylene	B	2.500	5	10.00	9	25.00	4	100.0	7	500.0	-8	1000	-9	2000	-9		
Benzene	C	2.500	**34**	10.00	-5	25.00	-11	100.0	2	500.0	-9	1000	-7	2000	-4		
Toluene	C	2.500	-2	10.00	-9	25.00	-7	100.0	9	500.0	1	1000	2	2000	7		
Ethylbenzene	C	2.500	-1	10.00	-10	25.00	-8	100.0	6	500.0	2	1000	4	2000	8		
m,p-Xylenes	C	2.500	**-33**	10.00	-1	25.00	-7	100.0	13	500.0	6	1000	8	2000	12		
o-Xylene	C	2.500	-15	10.00	13	25.00	-9	100.0	5	500.0	-1	1000	1	2000	5		

RFW 03/02/10 [Ethylbenzene C]: Separated from coeluting peak for Ch. C in BTXE_1 (060_008).

RFW 03/02/10 : Corrected automatically drawn baseline for Ch. C in BTXE_1 (060_008).

RFW 03/02/10 [Benzene C]: Separated from coeluting peak for Ch. C in MBTXE_2 (060_009).

RFW 03/02/10 : Corrected automatically drawn baseline for Ch. C in MBTXE_2 (060_009).

RFW 03/02/10 : Corrected automatically drawn baseline for Ch. C in MBTXE_3 (060_010).

RFW 03/02/10 [MTBE B]: Separated from coeluting peak for Ch. B in MTBE_7 (060_015).

RFW 03/02/10 : MTBE NOT passing either channel.

Analyst: RFW Date: 03/02/10 Reviewer: EAH Date: 03/02/10

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 218611 GCVOA Water
EPA 8021B

Inst : GC07 Name : GC07 mbtxe ical 060
Calnum : 320086916001 Cal Date : 01-MAR-2010

ICV 320086916017 (060_017 01-MAR-2010) stds: S13323 (1000X), S13951 (5000X)

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Benzene	B	100.0	94.06	ng	-6	15	
Toluene	B	100.0	89.90	ng	-10	15	
Ethylbenzene	B	100.0	92.22	ng	-8	15	
m,p-Xylenes	B	200.0	178.3	ng	-11	15	
o-Xylene	B	100.0	93.92	ng	-6	15	
Benzene	C	100.0	85.71	ng	-14	15	
Toluene	C	100.0	95.24	ng	-5	15	
Ethylbenzene	C	100.0	95.42	ng	-5	15	
m,p-Xylenes	C	200.0	203.4	ng	2	15	
o-Xylene	C	100.0	99.94	ng	0	15	

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 218611 GCVOA Water: EPA 8015B

Inst : GC07
Calnum : 320086916002
Units : ng

Name : GC07 tvh ical 060
Date : 02-MAR-2010 00:03
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	060_021	320086916021	TVH_14	02-MAR-2010 00:03	S13781 (1000X), S13951 (5000X)
L2	060_022	320086916022	TVH_15	02-MAR-2010 00:39	S13780 (1000X), S13951 (5000X)
L3	060_023	320086916023	TVH_16	02-MAR-2010 01:15	S13779 (1000X), S13951 (5000X)
L4	060_024	320086916024	TVH_17	02-MAR-2010 01:51	S13778 (2000X), S13951 (5000X)
L5	060_025	320086916025	TVH_18	02-MAR-2010 02:27	S13778 (1000X), S13951 (5000X)

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
Gasoline C7-C12	A	3780.6	2616.8	2500.3	2563.5	2565.0	AVRG		3.56E-4		2805.2	19	0.995	20	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Gasoline C7-C12	A	250.0	**35**	2500	-7	10000	-11	25000	-9	50000	-9

RFW 03/02/10 : Separated from coeluting peak in TVH_16 (060_023). Trifluorotoluene, channel A.

RFW 03/02/10 : Separated from coeluting peak in TVH_17 (060_024). Trifluorotoluene, channel A.

RFW 03/02/10 : Separated from coeluting peak in TVH_18 (060_025). Trifluorotoluene, channel A.

RFW 03/02/10 : Corrected automatically drawn baseline in TVH_17 (060_024).[Channel A]

RFW 03/02/10 : Corrected automatically drawn baseline in TVH_18 (060_025).[Channel A]

Analyst: RFW Date: 03/02/10 Reviewer: EAH Date: 03/02/10

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 218611 GCVOA Water
EPA 8015B

Inst : GC07 Name : GC07 tvh ical 060
Calnum : 320086916002 Cal Date : 02-MAR-2010

ICV 320086916027 (060_027 02-MAR-2010) stds: S13661 (1000X), S13951 (5000X)

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Gasoline C7-C12	A	10000	9470	ng	-5	15	

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 218611 GCVOA Water: EPA 8015B / EPA 8021B

Inst : GC07
Calnum : 320097004001
Units : ng

Name : GC07_surr_ical_067
Date : 09-MAR-2010 05:04
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	067_025	320097004025	SURROGATE_1	09-MAR-2010 05:04	S13951 (5000X)
L2	067_026	320097004026	SURROGATE_2	09-MAR-2010 05:40	S13951 (5000X)
L3	067_027	320097004027	SURROGATE_3	09-MAR-2010 06:16	S13951 (5000X)
L4	067_028	320097004028	SURROGATE_4	09-MAR-2010 06:52	S13951 (5000X)
L5	067_029	320097004029	SURROGATE_5	09-MAR-2010 07:28	S13951 (5000X)

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
Trifluorotoluene (FID)	A	3541.7	3566.4	3664.5	3415.9	3541.0	AVRG		2.82E-4		3545.9	2	0.995	20	
Bromofluorobenzene (FID)	A	2514.1	2463.8	2579.9	2374.7	2444.2	AVRG		4.04E-4		2475.3	3	0.995	20	
Trifluorotoluene (PID)	B	3927.0	3824.8	3893.6	3715.3	3790.7	AVRG		2.61E-4		3830.3	2	0.995	20	
Bromofluorobenzene (PID)	B	8942.6	8767.9	9075.9	8486.5	8655.0	AVRG		1.14E-4		8785.6	3	0.995	20	
Trifluorotoluene (PID)	C	665.86	612.92	621.60	596.63	612.33	AVRG		0.00161		621.87	4	0.995	20	
Bromofluorobenzene (PID)	C	1545.6	1517.9	1525.7	1437.5	1473.5	AVRG		6.67E-4		1500.1	3	0.995	20	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Trifluorotoluene (FID)	A	450.0	0	450.0	1	450.0	3	450.0	-4	450.0	0
Bromofluorobenzene (FID)	A	450.0	2	450.0	0	450.0	4	450.0	-4	450.0	-1
Trifluorotoluene (PID)	B	450.0	3	450.0	0	450.0	2	450.0	-3	450.0	-1
Bromofluorobenzene (PID)	B	450.0	2	450.0	0	450.0	3	450.0	-3	450.0	-1
Trifluorotoluene (PID)	C	450.0	7	450.0	-1	450.0	0	450.0	-4	450.0	-2
Bromofluorobenzene (PID)	C	450.0	3	450.0	1	450.0	2	450.0	-4	450.0	-2

JR 03/09/10 [Bromofluorobenzene (PID) B]: Separated from coeluting peak in SURROGATE_1 (067_025).

Analyst: JR Date: 03/09/10 Reviewer: EAH Date: 03/10/10

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS SPIKE USER REPORT FOR 218611 GCVOA Water
EPA 8015B / EPA 8021B

Inst : GC07 Run Name : QC535416 IDF : 1.0
Seqnum : 320098670002.2 File : 068_002 Time : 09-MAR-2010 13:06
Standards: S14090 (2000X), S13951 (5000X)

Analyte	Ch	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Benzene	B	320086916001	01-MAR-2010	11990	10678	50.00	44.53	ng	-11	15	u
Benzene	C	320086916001	01-MAR-2010	2050.7	1552.1	50.00	37.84	ng	**-24**	15	c- ***
Toluene	B	320086916001	01-MAR-2010	11648	10132	50.00	43.49	ng	-13	15	u
Toluene	C	320086916001	01-MAR-2010	1770.9	1448.7	50.00	40.90	ng	**-18**	15	c- ***
Ethylbenzene	B	320086916001	01-MAR-2010	9577.5	8168.4	50.00	42.64	ng	-15	15	u
Ethylbenzene	C	320086916001	01-MAR-2010	1499.6	1184.6	50.00	39.50	ng	**-21**	15	c- ***
m,p-Xylenes	B	320086916001	01-MAR-2010	12217	10608	50.00	43.42	ng	-13	15	u
m,p-Xylenes	C	320086916001	01-MAR-2010	1801.8	1489.0	50.00	41.32	ng	**-17**	15	c- ***
o-Xylene	B	320086916001	01-MAR-2010	10133	8860.2	50.00	43.72	ng	-13	15	u
o-Xylene	C	320086916001	01-MAR-2010	1652.6	1273.9	50.00	38.54	ng	**-23**	15	c- ***
Trifluorotoluene (FID)	A	320097004001	09-MAR-2010	3545.9	3385.5	450.0	429.6	ng	-5	15	
Bromofluorobenzene (FID)	A	320097004001	09-MAR-2010	2475.3	2410.5	450.0	438.2	ng	-3	15	
Trifluorotoluene (PID)	B	320097004001	09-MAR-2010	3830.3	3623.3	450.0	425.7	ng	-5	15	u
Trifluorotoluene (PID)	C	320097004001	09-MAR-2010	621.87	564.47	450.0	408.5	ng	-9	15	
Bromofluorobenzene (PID)	B	320097004001	09-MAR-2010	8785.6	8676.3	450.0	444.4	ng	-1	15	u
Bromofluorobenzene (PID)	C	320097004001	09-MAR-2010	1500.1	1436.3	450.0	430.9	ng	-4	15	

JR 03/10/10 [Toluene B]: Separated from coeluting peak. [general version]

JR 03/10/10 : Corrected automatically drawn baseline for Ch. C. [general version]

JR 03/10/10 [MTBE C]: Separated from coeluting peak. [general version]

JR 03/10/10 [Benzene C]: Separated from coeluting peak. [general version]

JR 03/10/10 [Toluene C]: Separated from coeluting peak. [general version]

JR 03/10/10 [Bromofluorobenzene (PID) C]: Separated from coeluting peak. [general version]

Analyst: JR Date: 03/10/10 Reviewer: EAH Date: 03/11/10

-=low bias c=CCV u=use

CURTIS & TOMPKINS SPIKE USER REPORT FOR 218611 GCVOA Water
EPA 8015B / EPA 8021B

Inst : GC07 Run Name : QC535413 IDF : 1.0
Seqnum : 320098670006.2 File : 068_006 Time : 09-MAR-2010 16:11
Standards: S14154 (2000X), S13951 (5000X)

Analyte	Ch	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Gasoline C7-C12	A	320086916002	02-MAR-2010	2805.2	3081.3	5000	5492	ng	10	15	u
Trifluorotoluene (FID)	A	320097004001	09-MAR-2010	3545.9	4254.9	450.0	540.0	ng	**20**	15	c+ u
Bromofluorobenzene (FID)	A	320097004001	09-MAR-2010	2475.3	2565.4	450.0	466.4	ng	4	15	u
Trifluorotoluene (PID)	C	320097004001	09-MAR-2010	621.87	725.34	450.0	524.9	ng	**17**	15	c+
Trifluorotoluene (PID)	B	320097004001	09-MAR-2010	3830.3	4380.7	450.0	514.7	ng	14	15	
Bromofluorobenzene (PID)	C	320097004001	09-MAR-2010	1500.1	1509.8	450.0	452.9	ng	1	15	
Bromofluorobenzene (PID)	B	320097004001	09-MAR-2010	8785.6	9219.6	450.0	472.2	ng	5	15	

JR 03/10/10 [Trifluorotoluene (FID) A]: Passes control limits. [general version]

JR 03/10/10 : PID surrogates are not applicable. [general version]

Analyst: JR Date: 03/10/10 Reviewer: EAH Date: 03/11/10

+=high bias c=CCV u=use

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 218611 GCVOA Water
EPA 8015B / EPA 8021B

Inst : GC07 Run Name : BTXE IDF : 1.0
Seqnum : 320098670014.1 File : 068_014 Time : 09-MAR-2010 22:15
Standards: S14090 (1000X), S13951 (5000X)

Analyte	Ch	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Trifluorotoluene (FID)	A	320097004001	09-MAR-2010	3545.9	3669.0	450.0	465.6	ng	3	15	
Bromofluorobenzene (FID)	A	320097004001	09-MAR-2010	2475.3	2674.4	450.0	486.2	ng	8	15	
Benzene	B	320086916001	01-MAR-2010	11990	13843	100.0	115.5	ng	15	15	
Toluene	B	320086916001	01-MAR-2010	11648	12856	100.0	110.4	ng	10	15	
Ethylbenzene	B	320086916001	01-MAR-2010	9577.5	10607	100.0	110.7	ng	11	15	
m,p-Xylenes	B	320086916001	01-MAR-2010	12217	14006	100.0	114.6	ng	15	15	
o-Xylene	B	320086916001	01-MAR-2010	10133	11556	100.0	114.0	ng	14	15	
Trifluorotoluene (PID)	B	320097004001	09-MAR-2010	3830.3	3985.0	450.0	468.2	ng	4	15	
Bromofluorobenzene (PID)	B	320097004001	09-MAR-2010	8785.6	9456.6	450.0	484.4	ng	8	15	
Benzene	C	320086916001	01-MAR-2010	2050.7	2102.5	100.0	102.5	ng	3	15	
Toluene	C	320086916001	01-MAR-2010	1770.9	1927.4	100.0	108.8	ng	9	15	
Ethylbenzene	C	320086916001	01-MAR-2010	1499.6	1657.1	100.0	110.5	ng	11	15	
m,p-Xylenes	C	320086916001	01-MAR-2010	1801.8	2107.3	100.0	117.0	ng	**17**	15	c+ ***
o-Xylene	C	320086916001	01-MAR-2010	1652.6	1771.8	100.0	107.2	ng	7	15	
Trifluorotoluene (PID)	C	320097004001	09-MAR-2010	621.87	618.75	450.0	447.7	ng	-1	15	
Bromofluorobenzene (PID)	C	320097004001	09-MAR-2010	1500.1	1585.8	450.0	475.7	ng	6	15	

JR 03/10/10 : Corrected automatically drawn baseline for Ch. B.

JR 03/10/10 [Benzene B]: Separated from coeluting peak.

JR 03/10/10 : Corrected automatically drawn baseline for Ch. C.

Analyst: JR Date: 03/10/10 Reviewer: EAH Date: 03/11/10

+=high bias c=CCV

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 218611 GCVOA Water
EPA 8015B / EPA 8021B

Inst : GC07 Run Name : TVH IDF : 1.0
Seqnum : 320098670017.1 File : 068_017 Time : 10-MAR-2010 00:02
Standards: S14154 (1000X), S13951 (5000X)

Analyte	Ch	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Gasoline C7-C12	A	320086916002	02-MAR-2010	2805.2	3229.3	10000	11510	ng	15	15	
Trifluorotoluene (FID)	A	320097004001	09-MAR-2010	3545.9	4596.5	450.0	583.3	ng	**30**	15	c+
Bromofluorobenzene (FID)	A	320097004001	09-MAR-2010	2475.3	2721.9	450.0	494.8	ng	10	15	
Trifluorotoluene (PID)	B	320097004001	09-MAR-2010	3830.3	4844.7	450.0	569.2	ng	**26**	15	c+
Bromofluorobenzene (PID)	B	320097004001	09-MAR-2010	8785.6	9439.7	450.0	483.5	ng	7	15	
Trifluorotoluene (PID)	C	320097004001	09-MAR-2010	621.87	804.22	450.0	582.0	ng	**29**	15	c+
Bromofluorobenzene (PID)	C	320097004001	09-MAR-2010	1500.1	1555.9	450.0	466.8	ng	4	15	

JR 03/10/10 [Trifluorotoluene (FID) A]: Separated from coeluting peak.

Analyst: JR Date: 03/10/10 Reviewer: EAH Date: 03/11/10

+=high bias c=CCV

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 320086916

Instrument : GC07 Begun : 03/01/10 08:36
Method : EPA 8015B, EPA 8021B SOP Version : TVH_BTXE_rv14

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	060_001	X	IB			03/01/10 08:36	1.0	1	
002	060_002	X	CMARK			03/01/10 09:14	1.0	2 1	
003	060_003	CCV	BTXE			03/01/10 09:50	1.0	3 1	
004	060_004	CCV	TVH			03/01/10 10:26	1.0	4 1	
005	060_005	CCV	BTXE			03/01/10 11:02	1.0	3 1	
006	060_006	X	IB			03/01/10 15:02	1.0	1	
007	060_007	IB	CALIB			03/01/10 15:38	1.0	1	
008	060_008	ICAL	BTXE_1			03/01/10 16:14	1.0	5 1	
009	060_009	ICAL	MBTXE_2			03/01/10 16:50	1.0	6 1	
010	060_010	ICAL	MBTXE_3			03/01/10 17:26	1.0	6 1	
011	060_011	ICAL	MBTXE_4			03/01/10 18:02	1.0	6 1	
012	060_012	ICAL	MBTXE_5			03/01/10 18:39	1.0	7 1	
013	060_013	ICAL	MBTXE_6			03/01/10 19:15	1.0	7 1	
014	060_014	ICAL	MBTXE_7			03/01/10 19:51	1.0	7 1	
015	060_015	ICAL	MTBE_7			03/01/10 20:27	1.0	8 1	
016	060_016	X	IB			03/01/10 21:03	1.0	1	
017	060_017	ICV	MBTXE			03/01/10 21:39	1.0	9 1	
018	060_018	X	MBTXE			03/01/10 22:15	1.0	9 1	
019	060_019	X	IB			03/01/10 22:51	1.0	1	
020	060_020	IB	CALIB			03/01/10 23:27	1.0	1	
021	060_021	ICAL	TVH_14			03/02/10 00:03	1.0	10 1	
022	060_022	ICAL	TVH_15			03/02/10 00:39	1.0	11 1	
023	060_023	ICAL	TVH_16			03/02/10 01:15	1.0	12 1	
024	060_024	ICAL	TVH_17			03/02/10 01:51	1.0	13 1	
025	060_025	ICAL	TVH_18			03/02/10 02:27	1.0	13 1	
026	060_026	X	IB			03/02/10 03:03	1.0	1	
027	060_027	ICV	TVH			03/02/10 03:39	1.0	14 1	
028	060_028	X	ICV			03/02/10 04:15	1.0	14 1	
029	060_029	X	IB			03/02/10 04:51	1.0	1	
030	060_030	CMARKER				03/02/10 05:27	1.0	2 1	

RFW 03/02/10 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 30.

Analyst: RFW Date: 03/02/10 Reviewer: EAH Date: 03/02/10

Standards used: 1=S13951 2=S13930 3=S13631 4=S13766 5=S13361 6=S13360 7=S13359 8=S13362 9=S13323 10=S13781 11=S13780 12=S13779 13=S13778 14=S13661

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CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 320097004

Instrument : GC07 Begun : 03/08/10 08:44
Method : EPA 8015B, EPA 8021B SOP Version : TVH_BTXE_rv14

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	067_001	X	CMARK			03/08/10 08:44	1.0	1 2	
002	067_002	CCV	BTXE			03/08/10 09:20	1.0	3 2	
003	067_003	CCV	TVH			03/08/10 09:56	1.0	4 2	
004	067_004	CCV	BTXE			03/08/10 10:32	1.0	3 2	
005	067_005	X	IB			03/08/10 13:25	1.0	2	
006	067_006	MSS	218655-002	Soil	160714	03/08/10 17:40	1.0	2	
007	067_007	MS	QC535208	Soil	160714	03/08/10 18:16	1.0	4 2	4:GAS:6-12=51000
008	067_008	MSD	QC535209	Soil	160714	03/08/10 18:52	1.0	4 2	4:GAS:6-12=54000
009	067_009	SAMPLE	218609-006	Soil	160714	03/08/10 19:28	1.0	2	
010	067_010	SAMPLE	218609-007	Soil	160714	03/08/10 20:04	1.0	2	
011	067_011	SAMPLE	218653-001	Soil	160714	03/08/10 20:40	1.0	2	
012	067_012	CCV	BTXE			03/08/10 21:16	1.0	3 2	
013	067_013	CCV	TVH			03/08/10 21:52	1.0	4 2	
014	067_014	CCV	BTXE			03/08/10 22:28	1.0	3 2	
015	067_015	CCV	TVH			03/08/10 23:04	1.0	4 2	
016	067_016	X	CMARK			03/08/10 23:40	1.0	1 2	
017	067_017	SAMPLE	218655-004	Soil	160714	03/09/10 00:16	1.0	2	
018	067_018	SAMPLE	218655-006	Soil	160714	03/09/10 00:52	1.0	2	
019	067_019	SAMPLE	218655-008	Soil	160714	03/09/10 01:28	1.0	2	
020	067_020	SAMPLE	218655-010	Soil	160714	03/09/10 02:04	1.0	2	
021	067_021	CCV	TVH			03/09/10 02:40	1.0	4 2	
022	067_022	CCV	TVH			03/09/10 03:16	1.0	4 2	
023	067_023	X	CMARK			03/09/10 03:52	1.0	1 2	
024	067_024	X	IB			03/09/10 04:28	1.0	2	
025	067_025	ICAL	SURROGATE_1			03/09/10 05:04	1.0	2	
026	067_026	ICAL	SURROGATE_2			03/09/10 05:40	1.0	2	
027	067_027	ICAL	SURROGATE_3			03/09/10 06:16	1.0	2	
028	067_028	ICAL	SURROGATE_4			03/09/10 06:52	1.0	2	
029	067_029	ICAL	SURROGATE_5			03/09/10 07:28	1.0	2	

JR 03/09/10 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 001 through 029.

Analyst: JR Date: 03/09/10 Reviewer: EAH Date: 03/10/10

Standards used: 1=S13930 2=S13951 3=S13631 4=S13766

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CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 320098670

Instrument : GC07 Begun : 03/09/10 12:30
Method : EPA 8015B, EPA 8021B SOP Version : TVH_BTXE_rv14

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	068_001	X	CMARK			03/09/10 12:30	1.0	1 2	
002	068_002	CCV/BS	QC535416	Water	160763	03/09/10 13:06	1.0	3 2	
003	068_003	X	CCV			03/09/10 13:42	1.0	4 2	
004	068_004	BSD	QC535417	Water	160763	03/09/10 14:18	1.0	3 2	
005	068_005	X	CCV			03/09/10 14:58	1.0	4 2	
006	068_006	CCV/LCS	QC535413	Water	160763	03/09/10 16:11	1.0	4 2	
007	068_007	X	IB			03/09/10 16:58	1.0	2	
008	068_008	BLANK	QC535412	Water	160763	03/09/10 18:38	1.0	2	
009	068_009	MSS	218611-001	Water	160763	03/09/10 19:14	1.0	2	
010	068_010	MS	QC535414	Water	160763	03/09/10 19:50	1.0	4 2	
011	068_011	MSD	QC535415	Water	160763	03/09/10 20:26	1.0	4 2	
012	068_012	SAMPLE	218655-011	Water	160763	03/09/10 21:02	1.0	2	
013	068_013	SAMPLE	218655-012	Water	160763	03/09/10 21:38	1.0	2	
014	068_014	CCV	BTXE			03/09/10 22:15	1.0	3 2	
015	068_015	X	CCV			03/09/10 22:51	1.0	4 2	
016	068_016	X	CCV			03/09/10 23:26	1.0	3 2	
017	068_017	CCV	TVH			03/10/10 00:02	1.0	4 2	
018	068_018	X	CMARK			03/10/10 00:38	1.0	1 2	
019	068_019	SAMPLE	218655-013	Water	160763	03/10/10 01:14	1.0	2	7:GAS:7-12=81000
020	068_020	SAMPLE	218655-014	Water	160763	03/10/10 01:50	1.0	2	3:EBZ=5000
021	068_021	SAMPLE	218655-015	Water	160763	03/10/10 02:26	1.0	2	
022	068_022	SAMPLE	218617-017	Water	160763	03/10/10 03:02	1.0	2	
023	068_023	SAMPLE	218617-021	Water	160763	03/10/10 03:38	1.0	2	
024	068_024	SAMPLE	218617-024	Water	160763	03/10/10 04:14	1.0	2	
025	068_025	SAMPLE	218617-028	Water	160763	03/10/10 04:50	1.0	2	
026	068_026	SAMPLE	218617-031	Water	160763	03/10/10 05:26	1.0	2	
027	068_027	SAMPLE	218617-036	Water	160763	03/10/10 06:02	1.0	2	
028	068_028	SAMPLE	218617-039	Water	160763	03/10/10 06:38	1.0	2	
029	068_029	CCV	TVH			03/10/10 07:14	1.0	4 2	

RFW 03/10/10 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 29.

Analyst: JR Date: 03/10/10 Reviewer: EAH Date: 03/11/10

Standards used: 1=S13930 2=S13951 3=S14090 4=S14154

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REPORTING SUMMARY FOR 218611 GCVOA Water

Sample ID	Analyte	Inst ID	Ch	Date & Time
218611-001	Gasoline C7-C12	GC07	A	03/09/10 19:14
218611-001	Benzene	GC07	B	03/09/10 19:14
218611-001	Toluene	GC07	B	03/09/10 19:14
218611-001	Ethylbenzene	GC07	B	03/09/10 19:14
218611-001	m,p-Xylenes	GC07	B	03/09/10 19:14
218611-001	o-Xylene	GC07	B	03/09/10 19:14
218611-001	Trifluorotoluene (FID)	GC07	A	03/09/10 19:14
218611-001	Bromofluorobenzene (FID)	GC07	A	03/09/10 19:14
218611-001	Trifluorotoluene (PID)	GC07	B	03/09/10 19:14
218611-001	Bromofluorobenzene (PID)	GC07	B	03/09/10 19:14
QC535412	Gasoline C7-C12	GC07	A	03/09/10 18:38
QC535412	Benzene	GC07	B	03/09/10 18:38
QC535412	Toluene	GC07	B	03/09/10 18:38
QC535412	Ethylbenzene	GC07	B	03/09/10 18:38
QC535412	m,p-Xylenes	GC07	B	03/09/10 18:38
QC535412	o-Xylene	GC07	B	03/09/10 18:38
QC535412	Trifluorotoluene (FID)	GC07	A	03/09/10 18:38
QC535412	Bromofluorobenzene (FID)	GC07	A	03/09/10 18:38
QC535412	Trifluorotoluene (PID)	GC07	B	03/09/10 18:38
QC535412	Bromofluorobenzene (PID)	GC07	B	03/09/10 18:38
QC535413	Gasoline C7-C12	GC07	A	03/09/10 16:11
QC535413	Trifluorotoluene (FID)	GC07	A	03/09/10 16:11
QC535413	Bromofluorobenzene (FID)	GC07	A	03/09/10 16:11
QC535414	Gasoline C7-C12	GC07	A	03/09/10 19:50
QC535414	Trifluorotoluene (FID)	GC07	A	03/09/10 19:50
QC535414	Bromofluorobenzene (FID)	GC07	A	03/09/10 19:50
QC535415	Gasoline C7-C12	GC07	A	03/09/10 20:26
QC535415	Trifluorotoluene (FID)	GC07	A	03/09/10 20:26
QC535415	Bromofluorobenzene (FID)	GC07	A	03/09/10 20:26
QC535416	Benzene	GC07	B	03/09/10 13:06
QC535416	Toluene	GC07	B	03/09/10 13:06
QC535416	Ethylbenzene	GC07	B	03/09/10 13:06
QC535416	m,p-Xylenes	GC07	B	03/09/10 13:06
QC535416	o-Xylene	GC07	B	03/09/10 13:06
QC535416	Trifluorotoluene (PID)	GC07	B	03/09/10 13:06
QC535416	Bromofluorobenzene (PID)	GC07	B	03/09/10 13:06
QC535417	Benzene	GC07	B	03/09/10 14:18
QC535417	Toluene	GC07	B	03/09/10 14:18
QC535417	Ethylbenzene	GC07	B	03/09/10 14:18
QC535417	m,p-Xylenes	GC07	B	03/09/10 14:18
QC535417	o-Xylene	GC07	B	03/09/10 14:18
QC535417	Trifluorotoluene (PID)	GC07	B	03/09/10 14:18
QC535417	Bromofluorobenzene (PID)	GC07	B	03/09/10 14:18

Laboratory Job Number 218611

ANALYTICAL REPORT

TPH-Extractables by GC

Matrix: Water

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	218611	Location:	Doyle Drive Replacement Project
Client:	Baseline Environmental	Prep:	EPA 3520C
Project#:	Y0239-04.A8	Analysis:	EPA 8015B
Field ID:	CDSM-MW-1;DRUMS-W	Sampled:	03/04/10
Matrix:	Water	Received:	03/04/10
Units:	ug/L	Prepared:	03/08/10
Diln Fac:	1.000	Analyzed:	03/09/10
Batch#:	160711		

Type: SAMPLE Cleanup Method: EPA 3630C
Lab ID: 218611-001

Analyte	Result	RL
Diesel C10-C24	140 Y	50
Motor Oil C24-C36	920	300

Surrogate	%REC	Limits
o-Terphenyl	87	39-150

Type: BLANK Cleanup Method: EPA 3630C
Lab ID: QC535195

Analyte	Result	RL
Diesel C10-C24	ND	50
Motor Oil C24-C36	ND	300

Surrogate	%REC	Limits
o-Terphenyl	82	39-150

Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	218611	Location:	Doyle Drive Replacement Project
Client:	Baseline Environmental	Prep:	EPA 3520C
Project#:	Y0239-04.A8	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	160711
Units:	ug/L	Prepared:	03/08/10
Diln Fac:	1.000	Analyzed:	03/09/10

Type: BS Cleanup Method: EPA 3630C
Lab ID: QC535196

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	1,894	76	34-144

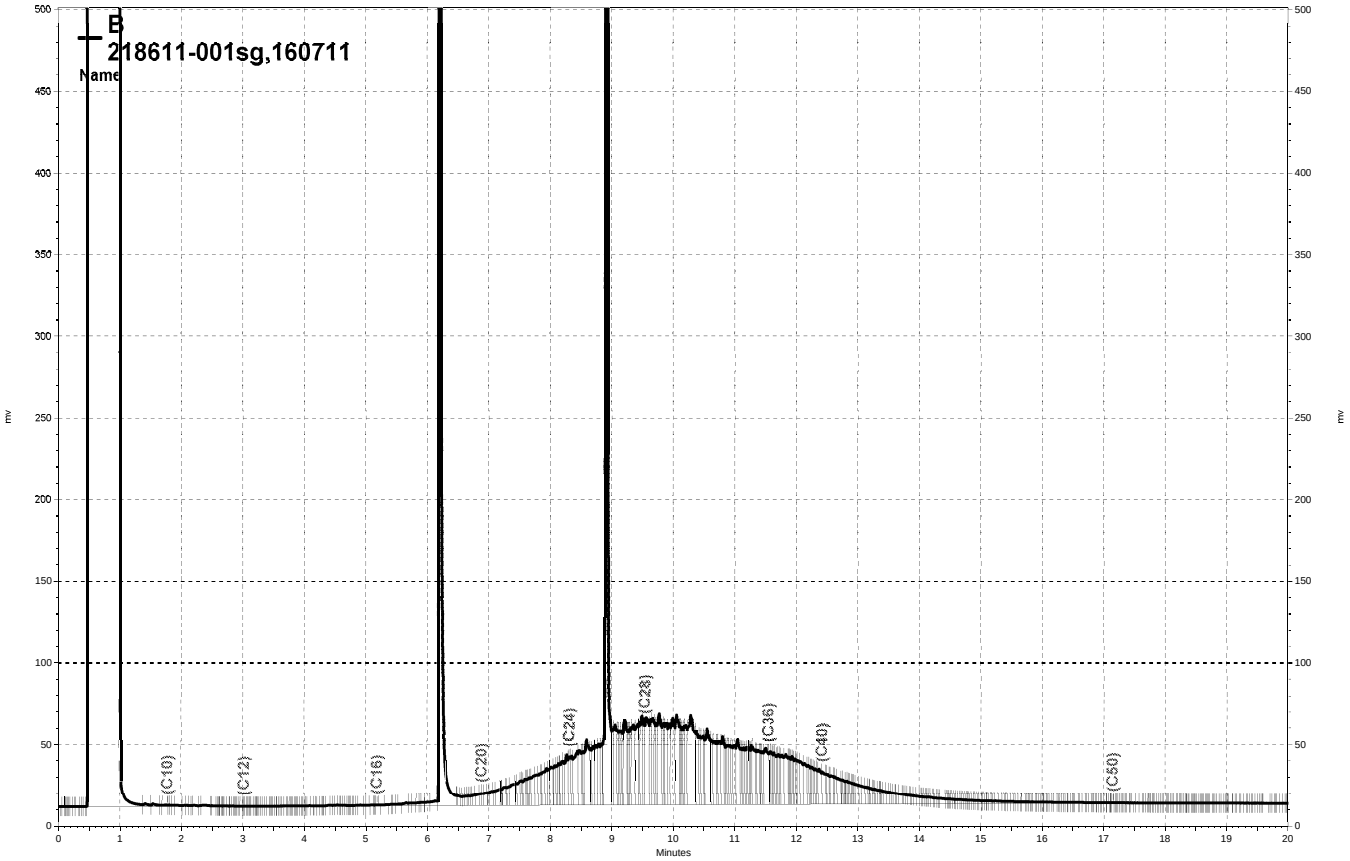
Surrogate	%REC	Limits
o-Terphenyl	82	39-150

Type: BSD Cleanup Method: EPA 3630C
Lab ID: QC535197

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	1,803	72	34-144	5	48

Surrogate	%REC	Limits
o-Terphenyl	79	39-150

RPD= Relative Percent Difference



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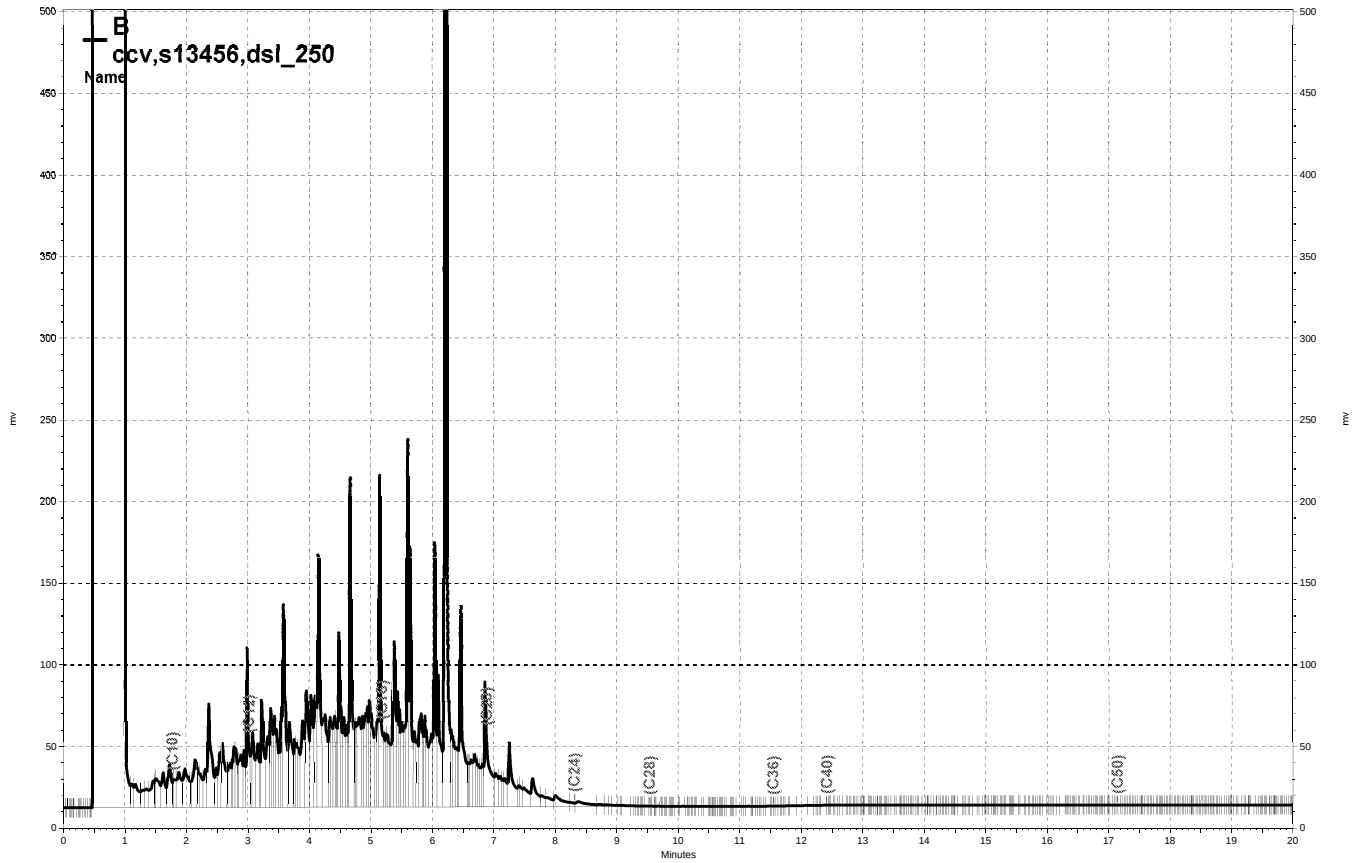

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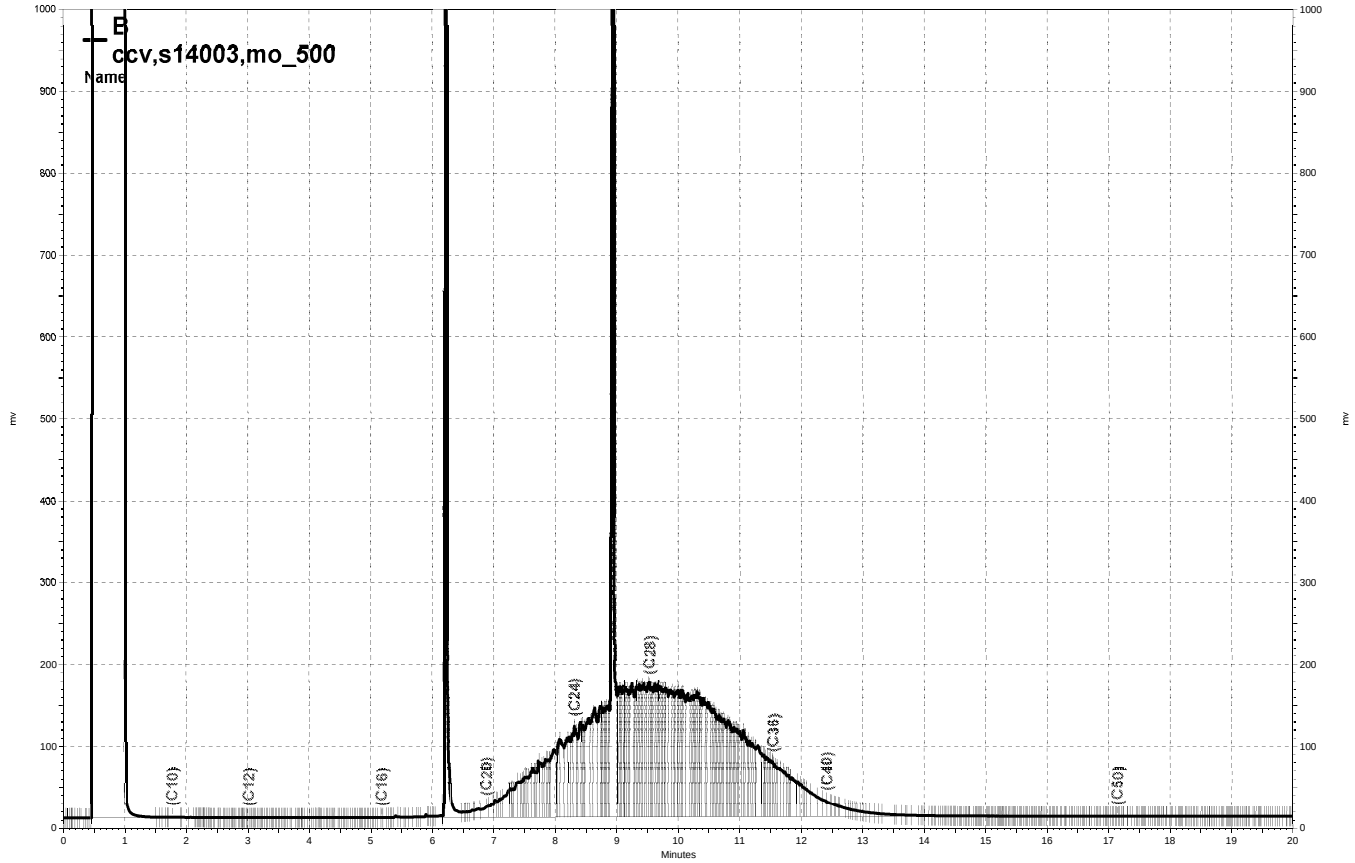

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CURTIS & TOMPKINS INITIAL CALIBRATION FOR 218611 GCSV Water: EPA 8015B

Inst : GC15B
Calnum : 160015122008
Units : mg/L

Name : HEXOTP_010
Date : 10-JAN-2010 13:26
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	010b004	160015122004	HEXOTP_5	10-JAN-2010 13:26	S13690
L2	010b005	160015122005	HEXOTP_10	10-JAN-2010 13:54	S13691
L3	010b006	160015122006	HEXOTP_25	10-JAN-2010 14:21	S13692
L4	010b007	160015122007	HEXOTP_50	10-JAN-2010 14:49	S13693
L5	010b008	160015122008	HEXOTP_100	10-JAN-2010 15:17	S13694
L6	010b009	160015122009	HEXOTP_200	10-JAN-2010 15:45	S13695

Analyte	L1	L2	L3	L4	L5	L6	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
o-Terphenyl	64413	65438	65659	68934	63215	71786	AVRG		1.50E-5		66574	5	0.995	20	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D
o-Terphenyl	5.000	-3	10.00	-2	25.00	-1	50.00	4	100.0	-5	200.0	8

CP 01/12/10 : JDG: Corrected automatically drawn baseline for all ICALS, except for HEXOTP_50.

Analyst: PRW Date: 01/12/10 Reviewer: CP Date: 01/12/10

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 218611 GCSV Water: EPA 8015B

Inst : GC15B
Calnum : 160015122002
Units : mg/L

Name : DSL_010
Date : 10-JAN-2010 16:41
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	010b011	160015122011	DSL_10	10-JAN-2010 16:41	S13230
L2	010b012	160015122012	DSL_100	10-JAN-2010 17:09	S13231
L3	010b013	160015122013	DSL_500	10-JAN-2010 17:37	S13232
L4	010b014	160015122014	DSL_1000	10-JAN-2010 18:05	S13233
L5	010b015	160015122015	DSL_5000	10-JAN-2010 18:33	S13229
L6	010b016	160015122016	DSL_7500	10-JAN-2010 19:01	S13234

Analyte	L1	L2	L3	L4	L5	L6	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
Diesel C10-C24	48716	58455	64114	61585	60274	63717	AVRG		1.68E-5		59477	10	0.995	20	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D
Diesel C10-C24	10.00	-18	100.0	-2	500.0	8	1000	4	5000	1	7500	7

JDG 01/11/10 : Corrected automatically drawn baseline in DSL_10 (010b011).

Analyst: JDG Date: 01/11/10 Reviewer: EAH Date: 01/12/10

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 218611 GCSV Water
EPA 8015B

Inst : GC15B
Calnum : 160015122002

Name : DSL_010
Cal Date : 10-JAN-2010

ICV 160015122018 (010b018 10-JAN-2010) stds: S13457

Analyte	Spiked	Quant	Units	%D	Max	Flags
Diesel C10-C24	500.0	512.2	mg/L	2	15	

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 218611 GCSV Water: EPA 8015B

Inst : GC15B
Calnum : 160015122003
Units : mg/L

Name : MO_010
Date : 10-JAN-2010 21:20
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	010b021	160015122021	MO_50	10-JAN-2010 21:20	S12675
L2	010b022	160015122022	MO_250	10-JAN-2010 21:47	S12676
L3	010b023	160015122023	MO_500	10-JAN-2010 22:15	S12677
L4	010b024	160015122024	MO_1000	10-JAN-2010 22:43	S12678
L5	010b025	160015122025	MO_5000	10-JAN-2010 23:10	S12679
L6	010b026	160015122026	MO_7500	10-JAN-2010 23:38	S12680

Analyte	L1	L2	L3	L4	L5	L6	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
Motor Oil C24-C36	49142	49333	50752	47463	34731	31855	AVRG		2.28E-5		43879	19	0.995	20	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D
Motor Oil C24-C36	50.00	12	250.0	12	500.0	16	1000	8	5000	**-21**	7500	**-27**

JDG 01/11/10 : Manually integrated fuel hump: MO_50,1000, & 7500.

Analyst: JDG Date: 01/11/10 Reviewer: EAH Date: 01/12/10

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 218611 GCSV Water: EPA 8015B

Inst : GC26B
Calnum : 870091792001
Units : mg/L

Name : otphex_064
Date : 04-MAR-2010 19:13
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	064b004	870091792004	HEXOTP_5	04-MAR-2010 19:13	S13690
L2	064b005	870091792005	HEXOTP_10	04-MAR-2010 19:43	S13691
L3	064b006	870091792006	HEXOTP_25	04-MAR-2010 20:12	S13692
L4	064b007	870091792007	HEXOTP_50	04-MAR-2010 20:41	S13693
L5	064b008	870091792008	HEXOTP_100	04-MAR-2010 21:10	S13694
L6	064b009	870091792009	HEXOTP_200	04-MAR-2010 21:39	S13695

Analyte	L1	L2	L3	L4	L5	L6	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
o-Terphenyl	35125	34627	33358	33604	31122	26281	AVRG		3.09E-5		32353	10	0.995	20	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D
o-Terphenyl	5.000	9	10.00	7	25.00	3	50.00	4	100.0	-4	200.0	-19

SFL 03/08/10 : Corrected automatically drawn baseline in all levels.

Analyst: SFL Date: 03/08/10 Reviewer: CP Date: 03/09/10

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 218611 GCSV Water: EPA 8015B

Inst : GC26B
Calnum : 870091792005
Units : mg/L

Name : dsl_064
Date : 04-MAR-2010 22:37
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	064b011	870091792011	DSL_10	04-MAR-2010 22:37	S14114
L2	064b012	870091792012	DSL_100	04-MAR-2010 23:06	S14115
L3	064b013	870091792013	DSL_500	04-MAR-2010 23:35	S14116
L4	064b014	870091792014	DSL_1000	05-MAR-2010 00:04	S14117
L5	064b015	870091792015	DSL_5000	05-MAR-2010 00:33	S14113
L6	064b016	870091792016	DSL_7500	05-MAR-2010 01:01	S14118

Analyte	L1	L2	L3	L4	L5	L6	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
Diesel C10-C24	23511	30825	30028	28308	28194	26570	AVRG		3.58E-5		27906	9	0.995	20	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D
Diesel C10-C24	10.00	-16	100.0	10	500.0	8	1000	1	5000	1	7500	-5

SFL 03/08/10 : corrected automatically drawn baseline for dsl_10

Analyst: SFL Date: 03/08/10 Reviewer: CP Date: 03/09/10

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 218611 GCSV Water
EPA 8015B

Inst : GC26B
Calnum : 870091792005

Name : dsl_064
Cal Date : 04-MAR-2010

ICV 870091792018 (064b018 05-MAR-2010) stds: S14077

Analyte	Spiked	Quant	Units	%D	Max	Flags
Diesel C10-C24	500.0	526.0	mg/L	5	15	

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 218611 GCSV Water: EPA 8015B

Inst : GC26B
Calnum : 870091792002
Units : mg/L

Name : mo_064
Date : 05-MAR-2010 03:25
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	064b021	870091792021	MO_25	05-MAR-2010 03:25	S13804 (2X)
L2	064b022	870091792022	MO_50	05-MAR-2010 03:54	S13804
L3	064b023	870091792023	MO_250	05-MAR-2010 04:22	S13805
L4	064b024	870091792024	MO_500	05-MAR-2010 04:50	S13806
L5	064b025	870091792025	MO_1000	05-MAR-2010 05:19	S13807
L6	064b026	870091792026	MO_2500	05-MAR-2010 05:48	S13808 (2X)

Analyte	L1	L2	L3	L4	L5	L6	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
Motor Oil C24-C36	14941	18429	17299	18162	16927	15284	AVRG		5.94E-5		16840	9	0.995	20	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D
Motor Oil C24-C36	25.00	-11	50.00	9	250.0	3	500.0	8	1000	1	2500	-9

SFL 03/08/10 : corrected automatically drawn baseline for mo_25, mo_250

Analyst: SFL Date: 03/09/10 Reviewer: CP Date: 03/09/10

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 218611 GCSV Water
EPA 8015B

Inst : GC15B Run Name : MO_500 IDF : 1.0
Seqnum : 160098369004 File : 068b004 Time : 09-MAR-2010 08:53
Standards: S14003

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Motor Oil C24-C36	160015122003	10-JAN-2010	43879	50219	500.0	572.2	mg/L	14	15	
o-Terphenyl	160015122008	10-JAN-2010	66574	68485	50.00	51.43	mg/L	3	15	

Analyst: JDG Date: 03/10/10 Reviewer: SFL Date: 03/10/10

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 218611 GCSV Water
EPA 8015B

Inst : GC15B Run Name : DSL_250 IDF : 1.0
Seqnum : 160098369005 File : 068b005 Time : 09-MAR-2010 09:21
Standards: S13456

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C10-C24	160015122002	10-JAN-2010	59477	58862	250.0	247.4	mg/L	-1	15	
o-Terphenyl	160015122008	10-JAN-2010	66574	67800	50.00	50.92	mg/L	2	15	

JDG 03/10/10 : Corrected automatically drawn baseline.

Analyst: JDG Date: 03/10/10 Reviewer: SFL Date: 03/10/10

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 218611 GCSV Water
EPA 8015B

Inst : GC15B Run Name : MO_500 IDF : 1.0
Seqnum : 160098369019 File : 068b019 Time : 09-MAR-2010 22:17
Standards: S14003

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Motor Oil C24-C36	160015122003	10-JAN-2010	43879	47030	500.0	535.9	mg/L	7	15	
o-Terphenyl	160015122008	10-JAN-2010	66574	65204	50.00	48.97	mg/L	-2	15	

Analyst: JDG Date: 03/10/10 Reviewer: SFL Date: 03/10/10

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 218611 GCSV Water
EPA 8015B

Inst : GC15B Run Name : DSL_500 IDF : 1.0
Seqnum : 160098369020 File : 068b020 Time : 09-MAR-2010 22:45
Standards: S14077

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C10-C24	160015122002	10-JAN-2010	59477	56674	500.0	476.4	mg/L	-5	15	
o-Terphenyl	160015122008	10-JAN-2010	66574	64714	50.00	48.60	mg/L	-3	15	

JDG 03/10/10 [o-Terphenyl B]: Corrected automatically drawn baseline.

Analyst: JDG Date: 03/10/10 Reviewer: SFL Date: 03/10/10

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 218611 GCSV Water
EPA 8015B

Inst : GC26B Run Name : DSL_1000 IDF : 1.0
Seqnum : 870098412005 File : 068b005 Time : 09-MAR-2010 10:01
Standards: S13458

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C10-C24	870091792005	04-MAR-2010	27906	29241	1000	1048	mg/L	5	15	
o-Terphenyl	870091792001	04-MAR-2010	32353	34115	50.00	52.72	mg/L	5	15	

SFL 03/09/10 : Corrected automatically drawn baseline.

Analyst: SFL Date: 03/09/10 Reviewer: JDG Date: 03/10/10

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 218611 GCSV Water
EPA 8015B

Inst : GC26B Run Name : MO_500 IDF : 1.0
Seqnum : 870098412006 File : 068b006 Time : 09-MAR-2010 10:30
Standards: S14003

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Motor Oil C24-C36	870091792002	05-MAR-2010	16840	17808	500.0	528.7	mg/L	6	15	
o-Terphenyl	870091792001	04-MAR-2010	32353	32185	50.00	49.74	mg/L	-1	15	

Analyst: SFL Date: 03/10/10 Reviewer: JDG Date: 03/10/10

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 218611 GCSV Water
EPA 8015B

Inst : GC26B Run Name : DSL_500 IDF : 1.0
Seqnum : 870098412017 File : 068b017 Time : 09-MAR-2010 21:50
Standards: S14077

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C10-C24	870091792005	04-MAR-2010	27906	30406	500.0	544.8	mg/L	9	15	
o-Terphenyl	870091792001	04-MAR-2010	32353	32987	50.00	50.98	mg/L	2	15	

SFL 03/10/10 : Corrected automatically drawn baseline.

Analyst: SFL Date: 03/10/10 Reviewer: JDG Date: 03/10/10

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 218611 GCSV Water
EPA 8015B

Inst : GC26B Run Name : MO_500 IDF : 1.0
Seqnum : 870098412018 File : 068b018 Time : 09-MAR-2010 22:18
Standards: S14003

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Motor Oil C24-C36	870091792002	05-MAR-2010	16840	18831	500.0	559.1	mg/L	12	15	
o-Terphenyl	870091792001	04-MAR-2010	32353	33076	50.00	51.12	mg/L	2	15	

Analyst: SFL Date: 03/10/10 Reviewer: JDG Date: 03/10/10

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 160015122

Instrument : GC15B Begun : 01/10/10 12:02
Method : EPA 8015B SOP Version : TEH_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	010b001	X	PRIMER			01/10/10 12:02	1.0		
002	010b002	X	IB			01/10/10 12:30	1.0		
003	010b003	X	IB			01/10/10 12:58	1.0		
004	010b004	ICAL	HEXOTP_5			01/10/10 13:26	1.0	1	
005	010b005	ICAL	HEXOTP_10			01/10/10 13:54	1.0	2	
006	010b006	ICAL	HEXOTP_25			01/10/10 14:21	1.0	3	
007	010b007	ICAL	HEXOTP_50			01/10/10 14:49	1.0	4	
008	010b008	ICAL	HEXOTP_100			01/10/10 15:17	1.0	5	
009	010b009	ICAL	HEXOTP_200			01/10/10 15:45	1.0	6	
010	010b010	IB	CALIB			01/10/10 16:13	1.0		
011	010b011	ICAL	DSL_10			01/10/10 16:41	1.0	7	
012	010b012	ICAL	DSL_100			01/10/10 17:09	1.0	8	
013	010b013	ICAL	DSL_500			01/10/10 17:37	1.0	9	
014	010b014	ICAL	DSL_1000			01/10/10 18:05	1.0	10	
015	010b015	ICAL	DSL_5000			01/10/10 18:33	1.0	11	
016	010b016	ICAL	DSL_7500			01/10/10 19:01	1.0	12	
017	010b017	IB	CALIB			01/10/10 19:29	1.0		
018	010b018	ICV	DSL_500			01/10/10 19:57	1.0	13	
019	010b019	X	ICV			01/10/10 20:24	1.0	13	
020	010b020	IB	CALIB			01/10/10 20:52	1.0		
021	010b021	ICAL	MO_50			01/10/10 21:20	1.0	14	
022	010b022	ICAL	MO_250			01/10/10 21:47	1.0	15	
023	010b023	ICAL	MO_500			01/10/10 22:15	1.0	16	
024	010b024	ICAL	MO_1000			01/10/10 22:43	1.0	17	
025	010b025	ICAL	MO_5000			01/10/10 23:10	1.0	18	
026	010b026	ICAL	MO_7500			01/10/10 23:38	1.0	19	
027	010b027	IB	CALIB			01/11/10 00:06	1.0		
028	010b028	ICAL	JET_10			01/11/10 00:33	1.0	20	
029	010b029	ICAL	JET_100			01/11/10 01:01	1.0	21	
030	010b030	ICAL	JET_500			01/11/10 01:28	1.0	22	
031	010b031	ICAL	JET_1000			01/11/10 01:56	1.0	23	
032	010b032	ICAL	JET_2000			01/11/10 02:24	1.0	24	
033	010b033	ICAL	JET_3000			01/11/10 02:51	1.0	25	
034	010b034	IB	CALIB			01/11/10 03:19	1.0		
035	010b035	ICAL	JP5_10			01/11/10 03:46	1.0	26	
036	010b036	ICAL	JP5_100			01/11/10 04:14	1.0	27	
037	010b037	ICAL	JP5_500			01/11/10 04:42	1.0	28	
038	010b038	ICAL	JP5_1500			01/11/10 05:09	1.0	29	
039	010b039	ICAL	JP5_2500			01/11/10 05:37	1.0	30	
040	010b040	ICAL	JP5_5000			01/11/10 06:05	1.0	31	
041	010b041	IB	CALIB			01/11/10 06:33	1.0		
042	010b042	ICAL	BUNK_50			01/11/10 07:01	1.0	32	
043	010b043	ICAL	BUNK_250			01/11/10 07:28	1.0	33	
044	010b044	ICAL	BUNK_500			01/11/10 07:56	1.0	34	
045	010b045	ICAL	BUNK_1250			01/11/10 08:24	1.0	35	
046	010b046	ICAL	BUNK_2500			01/11/10 08:52	1.0	36	
047	010b047	ICAL	BUNK_5000			01/11/10 09:20	1.0	37	
048	010b048	IB	CALIB			01/11/10 09:48	1.0		
049	010b049	CMARKER	C8_C50			01/11/10 10:16	1.0	38	
050	010b050	IB	CALIB			01/11/10 10:44	1.0		

JDG 01/11/10 : I verified that the vials loaded on the instrument matched the

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 160015122

Instrument : GC15B Begun : 01/10/10 12:02
Method : EPA 8015B SOP Version : TEH_rv13

sequence data entry, for runs 1 through 50.

Standards used: 1=S13690 2=S13691 3=S13692 4=S13693 5=S13694 6=S13695 7=S13230 8=S13231 9=S13232 10=S13233 11=S13229
12=S13234 13=S13457 14=S12675 15=S12676 16=S12677 17=S12678 18=S12679 19=S12680 20=S13618 21=S13619 22=S13620
23=S13621 24=S13622 25=S13623 26=S13175 27=S13176 28=S13177 29=S13178 30=S13179 31=S13174 32=S12707 33=S12708
34=S12709 35=S12710 36=S12711 37=S12706 38=S12636

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 160098369

Instrument : GC15B Begun : 03/09/10 07:29
Method : EPA 8015B SOP Version : TEH_rv13

#	File	Type	Sample ID	P	Matrix	Batch	Analyzed	IDF	Stds Used	
001	068b001	X	PRIMER				03/09/10 07:29	1.0		
002	068b002	X	IB				03/09/10 07:57	1.0		
003	068b003	X	CMARKER				03/09/10 08:25	1.0	1	
004	068b004	CCV	MO_500				03/09/10 08:53	1.0	2	
005	068b005	CCV	DSL_250				03/09/10 09:21	1.0	3	
006	068b006	CCV	JET_250				03/09/10 14:51	1.0	4	
007	068b007	MS	QC535119	S	Soil	160693	03/09/10 16:41	5.0		
008	068b008	MSD	QC535120	S	Soil	160693	03/09/10 17:08	5.0		
009	068b009	X	IB				03/09/10 17:36	1.0		
010	068b010	SAMPLE	218611-001	S	Water	160711	03/09/10 18:04	1.0		
011	068b011	SAMPLE	218646-007	S	Water	160711	03/09/10 18:33	1.0		
012	068b012	SAMPLE	218612-002		Water	160711	03/09/10 19:01	1.0		
013	068b013	SAMPLE	218618-002		Water	160711	03/09/10 19:29	1.0		
014	068b014	SAMPLE	218618-003		Water	160711	03/09/10 19:57	1.0		
015	068b015	SAMPLE	218629-001		Water	160711	03/09/10 20:25	1.0		
016	068b016	SAMPLE	218648-001	S	Water	160711	03/09/10 20:52	1.0		
017	068b017	SAMPLE	218648-002	S	Water	160711	03/09/10 21:21	1.0		
018	068b018	X	CMARKER				03/09/10 21:49	1.0	1	
019	068b019	CCV	MO_500				03/09/10 22:17	1.0	2	
020	068b020	CCV	DSL_500				03/09/10 22:45	1.0	5	
021	068b021	X	CCV				03/09/10 23:13	1.0	2	
022	068b022	X	CCV				03/09/10 23:41	1.0	5	
023	068b023	BLANK	QC535198	S	Water	160712	03/10/10 00:09	1.0		
024	068b024	LCS	QC535199	S	Water	160712	03/10/10 00:37	1.0		
025	068b025	MSS	218613-008	S	Water	160712	03/10/10 01:05	1.0		
026	068b026	MS	QC535200	S	Water	160712	03/10/10 01:33	1.0		
027	068b027	MSD	QC535201	S	Water	160712	03/10/10 02:01	1.0		
028	068b028	X	CMARKER				03/10/10 02:29	1.0	1	
029	068b029	X	MO_500				03/10/10 02:57	1.0	2	
030	068b030	CCV	DSL_1000				03/10/10 03:25	1.0	6	
031	068b031	CCV	MO_500				03/10/10 03:53	1.0	2	
032	068b032	X	CCV				03/10/10 04:21	1.0	6	

JDG 03/10/10 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 32.

Standards used: 1=S13646 2=S14003 3=S13456 4=S13073 5=S14077 6=S13458

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 870091792

Instrument : GC26B Begun : 03/04/10 17:52
Method : EPA 8015B SOP Version : TEH_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	064b001	X	PRIMER			03/04/10 17:52	1.0		
002	064b002	X	IB			03/04/10 18:16	1.0		
003	064b003	IB	CALIB			03/04/10 18:44	1.0		
004	064b004	ICAL	HEXOTP_5			03/04/10 19:13	1.0	1	
005	064b005	ICAL	HEXOTP_10			03/04/10 19:43	1.0	2	
006	064b006	ICAL	HEXOTP_25			03/04/10 20:12	1.0	3	
007	064b007	ICAL	HEXOTP_50			03/04/10 20:41	1.0	4	
008	064b008	ICAL	HEXOTP_100			03/04/10 21:10	1.0	5	
009	064b009	ICAL	HEXOTP_200			03/04/10 21:39	1.0	6	
010	064b010	IB	CALIB			03/04/10 22:08	1.0		
011	064b011	ICAL	DSL_10			03/04/10 22:37	1.0	7	
012	064b012	ICAL	DSL_100			03/04/10 23:06	1.0	8	
013	064b013	ICAL	DSL_500			03/04/10 23:35	1.0	9	
014	064b014	ICAL	DSL_1000			03/05/10 00:04	1.0	10	
015	064b015	ICAL	DSL_5000			03/05/10 00:33	1.0	11	
016	064b016	ICAL	DSL_7500			03/05/10 01:01	1.0	12	
017	064b017	IB	CALIB			03/05/10 01:31	1.0		
018	064b018	ICV	DSL_500			03/05/10 01:59	1.0	13	
019	064b019	X	ICV			03/05/10 02:28	1.0	13	
020	064b020	IB	CALIB			03/05/10 02:56	1.0		
021	064b021	ICAL	MO_25			03/05/10 03:25	1.0	14	
022	064b022	ICAL	MO_50			03/05/10 03:54	1.0	14	
023	064b023	ICAL	MO_250			03/05/10 04:22	1.0	15	
024	064b024	ICAL	MO_500			03/05/10 04:50	1.0	16	
025	064b025	ICAL	MO_1000			03/05/10 05:19	1.0	17	
026	064b026	ICAL	MO_2500			03/05/10 05:48	1.0	18	
027	064b027	IB	CALIB			03/05/10 06:16	1.0		
028	064b028	ICAL	JP5_10			03/05/10 06:45	1.0	19	
029	064b029	ICAL	JP5_100			03/05/10 07:13	1.0	20	
030	064b030	ICAL	JP5_500			03/05/10 07:42	1.0	21	
031	064b031	ICAL	JP5_1500			03/05/10 08:10	1.0	22	
032	064b032	ICAL	JP5_2500			03/05/10 08:38	1.0	23	
033	064b033	ICAL	JP5_5000			03/05/10 09:07	1.0	24	
034	064b034	IB	CALIB			03/05/10 09:36	1.0		
035	064b035	ICAL	JET_10			03/05/10 10:04	1.0	25	
036	064b036	ICAL	JET_100			03/05/10 10:33	1.0	26	
037	064b037	ICAL	JET_500			03/05/10 11:01	1.0	27	
038	064b038	ICAL	JET_1000			03/05/10 11:30	1.0	28	
039	064b039	ICAL	JET_2000			03/05/10 11:58	1.0	29	
040	064b040	ICAL	JET_3000			03/05/10 12:27	1.0	30	
041	064b041	IB	CALIB			03/05/10 12:56	1.0		
042	064b042	CMARKER	C8-C50			03/05/10 13:25	13650		
043	064b043	IB	CALIB			03/05/10 13:54	1.0		

SFL 03/08/10 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 43.

Standards used: 1=S13690 2=S13691 3=S13692 4=S13693 5=S13694 6=S13695 7=S14114 8=S14115 9=S14116 10=S14117 11=S14113 12=S14118 13=S14077 14=S13804 15=S13805 16=S13806 17=S13807 18=S13808 19=S13175 20=S13176 21=S13177 22=S13178 23=S13179 24=S13174 25=S13618 26=S13619 27=S13620 28=S13621 29=S13622 30=S13623

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 870098412

Instrument : GC26B Begun : 03/09/10 08:12
Method : EPA 8015B SOP Version : TEH_rv13

#	File	Type	Sample ID	P	Matrix	Batch	Analyzed	IDF	Stds Used	
001	068b001	X	PRIMER				03/09/10 08:12	1.0		
002	068b002	X	IB				03/09/10 08:36	1.0		
003	068b003	X	IB				03/09/10 09:04	1.0		
004	068b004	X	CMARKER				03/09/10 09:33	1.0	1	
005	068b005	CCV	DSL_1000				03/09/10 10:01	1.0	2	
006	068b006	CCV	MO_500				03/09/10 10:30	1.0	3	
007	068b007	BLANK	QC535195	S	Water	160711	03/09/10 17:09	1.0		
008	068b008	BS	QC535196	S	Water	160711	03/09/10 17:33	1.0		
009	068b009	BSD	QC535197	S	Water	160711	03/09/10 18:01	1.0		
010	068b010	SAMPLE	218592-001	S	Water	160711	03/09/10 18:29	1.0		
011	068b011	SAMPLE	218592-002	S	Water	160711	03/09/10 18:58	1.0		
012	068b012	SAMPLE	218592-003	S	Water	160711	03/09/10 19:27	1.0		
013	068b013	SAMPLE	218592-004	S	Water	160711	03/09/10 19:55	1.0		
014	068b014	SAMPLE	218650-001	S	Water	160711	03/09/10 20:24	1.0		
015	068b015	SAMPLE	218650-002	S	Water	160711	03/09/10 20:52	1.0		
016	068b016	SAMPLE	218650-003	S	Water	160711	03/09/10 21:21	1.0		
017	068b017	CCV	DSL_500				03/09/10 21:50	1.0	4	
018	068b018	CCV	MO_500				03/09/10 22:18	1.0	3	
019	068b019	X	CCV				03/09/10 22:47	1.0	4	
020	068b020	X	CCV				03/09/10 23:16	1.0	3	
021	068b021	SAMPLE	218650-004	S	Water	160711	03/09/10 23:45	1.0		
022	068b022	SAMPLE	218650-005	S	Water	160711	03/10/10 00:13	1.0		
023	068b023	SAMPLE	218617-012		Water	160712	03/10/10 00:42	1.0		
024	068b024	SAMPLE	218617-013		Water	160712	03/10/10 01:10	1.0		
025	068b025	SAMPLE	218617-014		Water	160712	03/10/10 01:39	1.0		
026	068b026	SAMPLE	218613-007	S	Water	160712	03/10/10 02:07	1.0		
027	068b027	SAMPLE	218613-009	S	Water	160712	03/10/10 02:36	1.0		
028	068b028	SAMPLE	218613-011	S	Water	160712	03/10/10 03:05	1.0		
029	068b029	SAMPLE	218613-017	S	Water	160712	03/10/10 03:34	1.0		
030	068b030	X	CMARKER				03/10/10 04:02	1.0	1	
031	068b031	X	DSL_250				03/10/10 04:31	1.0	5	
032	068b032	CCV	MO_500				03/10/10 04:59	1.0	3	
033	068b033	CCV	DSL_250				03/10/10 05:28	1.0	5	
034	068b034	X	CCV				03/10/10 05:56	1.0	3	

SFL 03/10/10 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 34.

Standards used: 1=S13646 2=S13458 3=S14003 4=S14077 5=S13456

SAMPLE PREPARATION SUMMARY

Batch # : 160711
Started By : DJT
Method : 3520C
Spike #1 ID : S13777

Prep Date : 08-MAR-2010 14:15
SOP Version : TEH_3520_rv12
Spike #2 ID : S14101

Analysis : TEH
Finished By : MB2
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
218592-001		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
218592-002		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
218592-003		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
218592-004		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
218611-001		Water	500	2.5	1	0.005	10	.5			3630C	TEHM	
218612-002		Water	500	2.5	1	0.005	10	.5				TEHM	
218618-002		Water	500	2.5	1	0.005	7	.5				TEH	
218618-003		Water	500	2.5	1	0.005	7	.5				TEH	
218629-001		Water	500	2.5	1	0.005	7	.5				TEH	
218646-007		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
218648-001		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
218648-002		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
218648-003		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
218648-004		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
218650-001		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	pink sample
218650-002		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
218650-003		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
218650-004		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
218650-005		Water	500	2.5	1	0.005	5	.5			3630C	TEHM	
QC535195	BLANK	Water	500	2.5	1	0.005		.5			3630C		
QC535196	BS	Water	500	2.5	1	0.005		.5	.5		3630C		
QC535197	BSD	Water	500	2.5	1	0.005		.5	.5		3630C		

Analyst: JDG Date: 03/10/10 Reviewer: SFL Date: 03/10/10

TEH (8015) Water Prep Log Curtis & Tompkins, Ltd.

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LIMS Batch No: 160711
LIMS Analysis: TEH/M
Date Extracted: 3/8/10

Extraction Method:
☐ mod. EPA 3510c sep. funnel
☒ mod. EPA 3520c cont. L/L

Cleanup Method (if needed):
☒ EPA 3630c Silica Gel

Sample #	Container ID	Volume of Sample (mL)	Sample pH	Final Volume (mL)	Cleanup (x if needed)	Comments
218592-001	G	500	7	2.5	X	
002						
003						
004						
218611-001	H		10			
218612-002	G					
218618-002			7			
003						
218629-001	E					
218646-007	N				X	
218648-001	G					
002						
003						
004						
218650-001						Pink Sample
002						
003						
004						
005			5			
MB QC535195	NA		NA			X
BS 6						
BSD 7						
						KAL 3/9/10

	Mfg & Lot# / LIMS # / Time	Date/ Initials
0.5 mL of TEH_SURR was added to all samples	S137770	DJT 3/8/10
0.5 mL of TEH_SP was added to all spikes	S141010A	
pH of all samples adjusted to pH ≤ 2 with H_2SO_4	FS044395	
☒ 3520c: Samples were continually extracted about 450 mL of CH_2Cl_2	EM449338	
Extraction Start Time:	1415	
Extraction End Time:	0815	KCL 3/9/10
☐ 3510c: Samples were extracted 3 times with 60 mL of CH_2Cl_2	NA	MBZ 3/9/10
Extracts filtered through baked, CH2Cl2-rinsed granular Na2SO4	EM442747142	
Concentrated to final volume at temperature (degrees C)	100	
Relinquished to TEH Department	✓	

3/8/10
Extraction Chemist **Date**

Contined from Page 1
Continued on Page 1

3/9/10
Reviewed by **Date**

Curtis & Tompkins, Ltd. **Silica Gel Cleanup** **EPA 3630c**

Prep Chemist: NAV
Cleanup Date: 3/9/10

Benchbook # **BK 2983**
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Sample #	Batch#	Initial Volume (mL)	Final Volume (mL)	Comments
218592-001	160711	1.0	1.0	
-002				
-003				
-004				
218611-001				
218646-007				
218648-001				
-002				
-003				
-004				
218650-001				
-002				
-003				
-004				
-005				
MB QC535195				
LCS NAV 3/9/10 BS 6				
BSD 7				
				KAL 3/9/10

	Mfg & Lot # / Time / Program	Initials / Date
☐ Extracts were cleaned up using C&T assembled — g columns	N/A	NAV 3/9/10
☒ Extracts were cleaned up using 1.0 g cartridges	SP 1476401	
Extracts were eluted with 4.0 mL CH_2Cl_2	EM 49247942	
Concentrated to volumes as noted above	✓	

Continued from page —
Continued on page —

Extraction Chemist / Date 3/9/10

Reviewed by / Date 3/9/10

Laboratory Job Number 218611

ANALYTICAL REPORT

Metals

Matrix: Water

Curtis & Tompkins, Ltd.

California LUFT Metals

Lab #:	218611	Location:	Doyle Drive Replacement Project
Client:	Baseline Environmental	Prep:	EPA 3010A
Project#:	Y0239-04.A8	Analysis:	EPA 6010B
Field ID:	CDSM-MW-1;DRUMS-W	Sampled:	03/04/10
Matrix:	Water	Received:	03/04/10
Units:	ug/L	Prepared:	03/09/10
Diln Fac:	1.000	Analyzed:	03/10/10
Batch#:	160767		

Type: SAMPLE Lab ID: 218611-001

Analyte	Result	RL
Cadmium	ND	5.0
Chromium	58	5.0
Lead	11	5.0
Nickel	59	5.0
Zinc	72	20

Type: BLANK Lab ID: QC535429

Analyte	Result	RL
Cadmium	ND	5.0
Chromium	ND	5.0
Lead	ND	5.0
Nickel	ND	5.0
Zinc	ND	20

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

California LUFT Metals

Lab #:	218611	Location:	Doyle Drive Replacement Project
Client:	Baseline Environmental	Prep:	EPA 3010A
Project#:	Y0239-04.A8	Analysis:	EPA 6010B
Matrix:	Water	Batch#:	160767
Units:	ug/L	Prepared:	03/09/10
Diln Fac:	1.000	Analyzed:	03/10/10

Type: BS Lab ID: QC535430

Analyte	Spiked	Result	%REC	Limits
Cadmium	50.00	50.57	101	83-121
Chromium	200.0	184.4	92	81-116
Lead	100.0	81.85	82	73-124
Nickel	500.0	457.6	92	78-117
Zinc	500.0	475.9	95	79-120

Type: BSD Lab ID: QC535431

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Cadmium	50.00	53.36	107	83-121	5	14
Chromium	200.0	191.9	96	81-116	4	14
Lead	100.0	86.27	86	73-124	5	17
Nickel	500.0	475.1	95	78-117	4	14
Zinc	500.0	492.2	98	79-120	3	16

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

California LUFT Metals

Lab #:	218611	Location:	Doyle Drive Replacement Project
Client:	Baseline Environmental	Prep:	EPA 3010A
Project#:	Y0239-04.A8	Analysis:	EPA 6010B
Field ID:	CDSM-MW-1;DRUMS-W	Batch#:	160767
MSS Lab ID:	218611-001	Sampled:	03/04/10
Matrix:	Water	Received:	03/04/10
Units:	ug/L	Prepared:	03/09/10
Diln Fac:	1.000	Analyzed:	03/10/10

Type: MS Lab ID: QC535432

Analyte	MSS Result	Spiked	Result	%REC	Limits
Cadmium	<1.310	50.00	53.51	107	69-128
Chromium	57.63	200.0	228.1	85	68-122
Lead	11.13	100.0	98.50	87	55-133
Nickel	58.77	500.0	512.3	91	61-125
Zinc	72.25	500.0	551.6	96	58-137

Type: MSD Lab ID: QC535433

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Cadmium	50.00	54.04	108	69-128	1	14
Chromium	200.0	238.9	91	68-122	5	19
Lead	100.0	100.7	90	55-133	2	21
Nickel	500.0	530.8	94	61-125	4	21
Zinc	500.0	566.3	99	58-137	3	25

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

California LUFT Metals

Lab #:	218611	Location:	Doyle Drive Replacement Project
Client:	Baseline Environmental	Prep:	EPA 3010A
Project#:	Y0239-04.A8	Analysis:	EPA 6010B
Field ID:	CDSM-MW-1;DRUMS-W	Diln Fac:	5.000
Type:	Serial Dilution	Batch#:	160767
MSS Lab ID:	218611-001	Sampled:	03/04/10
Lab ID:	QC535434	Received:	03/04/10
Matrix:	Water	Analyzed:	03/10/10
Units:	ug/L		

Analyte	MSS Result	MSS RL	Result	RL	% Diff	Lim
Cadmium	ND	5.000	ND	25.00	NC	10
Chromium	57.63	5.000	52.17	25.00	NC	10
Lead	11.13	5.000	ND	25.00	NC	10
Nickel	58.77	5.000	54.04	25.00	NC	10
Zinc	72.25	20.00	72.05 J	100.0	NC	10

J= Estimated value
NC= Not Calculated
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

California LUFT Metals

Lab #:	218611	Location:	Doyle Drive Replacement Project
Client:	Baseline Environmental	Prep:	EPA 3010A
Project#:	Y0239-04.A8	Analysis:	EPA 6010B
Field ID:	CDSM-MW-1;DRUMS-W	Diln Fac:	1.000
Type:	Post Digest Spike	Batch#:	160767
MSS Lab ID:	218611-001	Sampled:	03/04/10
Lab ID:	QC535435	Received:	03/04/10
Matrix:	Water	Analyzed:	03/10/10
Units:	ug/L		

Analyte	MSS Result	Spiked	Result	%REC	Limits
Cadmium	<1.310	50.00	51.01	102	75-125
Chromium	57.63	200.0	231.5	87	75-125
Lead	11.13	100.0	95.16	84	75-125
Nickel	58.77	500.0	503.5	89	75-125
Zinc	72.25	500.0	535.6	93	75-125

REPORTING SUMMARY FOR 218611 METALS Water
Curtis & Tompkins Laboratories

Lab ID	Inst ID	Analyzed	IDF	CD	CR	PB	NI	ZN
218611-001	MET09	03/10/10 13:03	1.0	+	+	+	+	+
QC535429	MET09	03/10/10 12:33	1.0	+	+	+	+	+
QC535430	MET09	03/10/10 12:38	1.0	+	+	+	+	+
QC535431	MET09	03/10/10 12:58	1.0	+	+	+	+	+
QC535432	MET09	03/10/10 13:09	1.0	+	+	+	+	+
QC535433	MET09	03/10/10 13:15	1.0	+	+	+	+	+
QC535434	MET09	03/10/10 13:22	5.0	+	+	+	+	+
QC535435	MET09	03/10/10 13:26	1.0	+	+	+	+	+

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 90099888

Instrument : MET09 Begun : 03/10/10 08:48
Method : EPA 6010B SOP Version : icp metals_rv9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met09_sn_6010a	ICALBLK				03/10/10 08:48	1.0		
002	met09_sn_6010a	ICAL	CRI5.1			03/10/10 08:53	1.0	1	
003	met09_sn_6010a	ICAL	CS100			03/10/10 08:59	1.0	2	
004	met09_sn_6010a	ICAL	CS1K			03/10/10 09:03	1.0	3	
005	met09_sn_6010a	ICAL	CS10K			03/10/10 09:06	1.0	4	
006	met09_sn_6010a	ICAL	CS100K			03/10/10 09:12	1.0	5	
007	met09_sn_6010a	ICV				03/10/10 09:17	1.0	6	
008	met09_sn_6010a	ICB				03/10/10 09:23	1.0		
009	met09_sn_6010a	ICSA				03/10/10 09:28	1.0	7	10:AL=560000
010	met09_sn_6010a	ICSAB				03/10/10 09:37	1.0	8	5:AL=500000
011	met09_sn_6010a	BLANK	QC535436	Soil	160768	03/10/10 09:43	1.0		
012	met09_sn_6010a	BS	QC535437	Soil	160768	03/10/10 09:48	1.0		
013	met09_sn_6010a	BSD	QC535438	Soil	160768	03/10/10 09:51	1.0		
014	met09_sn_6010a	MSS	218682-001	Soil	160768	03/10/10 09:55	1.0		2:FE=290000
015	met09_sn_6010a	MS	QC535439	Soil	160768	03/10/10 09:59	1.0		
016	met09_sn_6010a	MSD	QC535440	Soil	160768	03/10/10 10:03	1.0		1:FE=350000
017	met09_sn_6010a	SAMPLE	218682-002	Soil	160768	03/10/10 10:06	1.0		2:FE=290000
018	met09_sn_6010a	SAMPLE	218682-003	Soil	160768	03/10/10 10:11	1.0		2:FE=320000
019	met09_sn_6010a	CCV				03/10/10 10:15	1.0	9	
020	met09_sn_6010a	CCB				03/10/10 10:20	1.0		
021	met09_sn_6010a	SAMPLE	218682-004	Soil	160768	03/10/10 10:26	1.0		2:FE=290000
022	met09_sn_6010a	SAMPLE	218682-005	Soil	160768	03/10/10 10:30	1.0		3:FE=300000
023	met09_sn_6010a	SAMPLE	218682-006	Soil	160768	03/10/10 10:35	1.0		3:FE=290000
024	met09_sn_6010a	SAMPLE	218682-007	Soil	160768	03/10/10 10:41	1.0		3:FE=410000
025	met09_sn_6010a	SAMPLE	218682-008	Soil	160768	03/10/10 10:46	1.0		2:FE=250000
026	met09_sn_6010a	SAMPLE	218682-009	Soil	160768	03/10/10 10:50	1.0		2:FE=280000
027	met09_sn_6010a	SAMPLE	218682-010	Soil	160768	03/10/10 10:54	1.0		2:FE=350000
028	met09_sn_6010a	SAMPLE	218682-011	Soil	160768	03/10/10 10:59	1.0		3:FE=320000
029	met09_sn_6010a	SAMPLE	218698-001	Soil	160768	03/10/10 11:03	1.0		3:FE=410000
030	met09_sn_6010a	SAMPLE	218698-002	Soil	160768	03/10/10 11:10	1.0		3:FE=290000
031	met09_sn_6010a	X				03/10/10 11:14	1.0	9	
032	met09_sn_6010a	CCV				03/10/10 11:16	1.0	9	
033	met09_sn_6010a	CCB				03/10/10 11:21	1.0		
034	met09_sn_6010a	SAMPLE	218698-002	Soil	160768	03/10/10 11:27	1.0		3:FE=290000
035	met09_sn_6010a	SAMPLE	218698-001	Soil	160768	03/10/10 11:30	1.0		3:FE=410000
036	met09_sn_6010a	ICSAB				03/10/10 11:38	1.0	8	5:AL=500000
037	met09_sn_6010a	CCV				03/10/10 11:44	1.0	9	
038	met09_sn_6010a	CCB				03/10/10 11:49	1.0		
039	met09_sn_6010a	SAMPLE	218626-001	Fuels	160768	03/10/10 12:00	1.0		1:V=19000
040	met09_sn_6010a	SAMPLE	218665-001	Miscell.	160768	03/10/10 12:04	1.0		1:FE=230000
041	met09_sn_6010a	ICSAB				03/10/10 12:13	1.0	8	5:CA=500000
042	met09_sn_6010a	X	RINSE			03/10/10 12:19	1.0		
043	met09_sn_6010a	SAMPLE	218626-001	Fuels	160768	03/10/10 12:24	1.0		1:V=19000
044	met09_sn_6010a	SAMPLE	218665-001	Miscell.	160768	03/10/10 12:28	1.0		1:FE=230000
045	met09_sn_6010a	BLANK	QC535429	Water	160767	03/10/10 12:33	1.0		
046	met09_sn_6010a	BS	QC535430	Water	160767	03/10/10 12:38	1.0		
047	met09_sn_6010a	CCV				03/10/10 12:42	1.0	9	
048	met09_sn_6010a	CCB				03/10/10 12:48	1.0		
049	met09_sn_6010a	ICSAB				03/10/10 12:53	1.0	8	5:AL=500000
050	met09_sn_6010a	BSD	QC535431	Water	160767	03/10/10 12:58	1.0		
051	met09_sn_6010a	MSS	218611-001	Water	160767	03/10/10 13:03	1.0		1:NA=300000
052	met09_sn_6010a	MS	QC535432	Water	160767	03/10/10 13:09	1.0		1:NA=350000

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 90099888

Instrument : MET09 Begun : 03/10/10 08:48
Method : EPA 6010B SOP Version : icp metals_rv9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met09_sn_6010a	MSD	QC535433	Water	160767	03/10/10 13:15	1.0		1:NA=340000
054	met09_sn_6010a	SER	QC535434	Water	160767	03/10/10 13:22	5.0		
055	met09_sn_6010a	PDS	QC535435	Water	160767	03/10/10 13:26	1.0	10 11	1:NA=310000
056	met09_sn_6010a	SAMPLE	218549-001	Water	160767	03/10/10 13:32	1.0		
057	met09_sn_6010a	SAMPLE	218549-002	Water	160767	03/10/10 13:38	1.0		
058	met09_sn_6010a	SAMPLE	218556-001	Water	160767	03/10/10 13:43	1.0		
059	met09_sn_6010a	CCV				03/10/10 13:48	1.0	9	
060	met09_sn_6010a	CCB				03/10/10 13:54	1.0		
061	met09_sn_6010a	SAMPLE	218556-002	Water	160767	03/10/10 13:59	1.0		
062	met09_sn_6010a	ICSAB				03/10/10 14:04	1.0	8	5:CA=500000
063	met09_sn_6010a	X	RINSE			03/10/10 14:10	1.0		
064	met09_sn_6010a	SAMPLE	218558-001	Water	160767	03/10/10 14:15	1.0		
065	met09_sn_6010a	SAMPLE	218558-002	Water	160767	03/10/10 14:20	1.0		
066	met09_sn_6010a	SAMPLE	218622-001	Water	160767	03/10/10 14:25	1.0		4:CA=400000
067	met09_sn_6010a	SAMPLE	218622-002	Water	160767	03/10/10 14:32	1.0		4:CA=390000
068	met09_sn_6010a	SAMPLE	218622-003	Water	160767	03/10/10 14:38	1.0		3:CA=420000
069	met09_sn_6010a	SAMPLE	218622-004	Water	160767	03/10/10 14:42	1.0		3:CA=550000
070	met09_sn_6010a	SAMPLE	218622-005	Water	160767	03/10/10 14:49	1.0		3:CA=620000
071	met09_sn_6010a	CCV				03/10/10 14:57	1.0	9	
072	met09_sn_6010a	X				03/10/10 15:02	1.0		
073	met09_sn_6010a	CCB				03/10/10 15:06	1.0		
074	met09_sn_6010a	SAMPLE	218622-006	Water	160767	03/10/10 15:11	1.0		2:CA=690000
075	met09_sn_6010a	SAMPLE	218622-007	Water	160767	03/10/10 15:18	1.0		2:CA=1100000
076	met09_sn_6010a	SAMPLE	218622-008	Water	160767	03/10/10 15:26	1.0		3:CA=4600000
077	met09_sn_6010a	SAMPLE	218630-001	Water	160767	03/10/10 15:33	1.0		1:K=3700000
078	met09_sn_6010a	SAMPLE	218679-001	Water	160767	03/10/10 15:39	1.0		2:NA=610000
079	met09_sn_6010a	SAMPLE	218680-001	Water	160767	03/10/10 15:47	1.0		1:CA=210000
080	met09_sn_6010a	SAMPLE	218558-001	Water	160767	03/10/10 15:51	1.0		
081	met09_sn_6010a	SAMPLE	218622-001	Water	160767	03/10/10 15:56	10.0		
082	met09_sn_6010a	SAMPLE	218622-002	Water	160767	03/10/10 16:01	10.0		
083	met09_sn_6010a	SAMPLE	218622-004	Water	160767	03/10/10 16:05	1.0		3:CA=530000
084	met09_sn_6010a	CCV				03/10/10 16:35	1.0	9	
085	met09_sn_6010a	X				03/10/10 16:41	1.0		
086	met09_sn_6010a	X				03/10/10 16:44	1.0		
087	met09_sn_6010a	CCB				03/10/10 16:48	1.0		
088	met09_sn_6010a	ICSAB				03/10/10 16:53	1.0	8	5:CA=470000
089	met09_sn_6010a	SAMPLE	218622-003	Water	160767	03/10/10 16:58	10.0		
090	met09_sn_6010a	SAMPLE	218622-004	Water	160767	03/10/10 17:03	10.0		
091	met09_sn_6010a	SAMPLE	218622-005	Water	160767	03/10/10 17:08	10.0		
092	met09_sn_6010a	ICSAB				03/10/10 17:13	1.0	8	5:CA=470000
093	met09_sn_6010a	CCV				03/10/10 17:17	1.0	9	
094	met09_sn_6010a	X				03/10/10 17:19	1.0	9	
095	met09_sn_6010a	X				03/10/10 17:24	1.0		
096	met09_sn_6010a	CCB				03/10/10 17:27	1.0		

AH 03/11/10 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 96.

Standards used: 1=S13742 2=S13802 3=S13801 4=S13743 5=S13923 6=S14097 7=S14040 8=S14041 9=S14098 10=S12746 11=S12747

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 90099888

Date : 03/10/10 Reference : met09_sn_6010a
Sequence : MET09 03/10/10 Analyzed : 03/10/10 08:53

#	Type	Sample ID	Y A
		ICAL STD	3807908
		LOWER LIMIT	1142372
		UPPER LIMIT	7615817
008	ICB		4036450
009	ICSA		3381215
010	ICSAB		3415490
011	BLANK	QC535436	4096136
012	BS	QC535437	3919867
013	BSD	QC535438	3903289
014	MSS	218682-001	3976602
015	MS	QC535439	3960303
016	MSD	QC535440	3965813
017	SAMPLE	218682-002	4046621
018	SAMPLE	218682-003	3926564
019	CCV		3967818
020	CCB		4104246
021	SAMPLE	218682-004	3951080
022	SAMPLE	218682-005	4020425
023	SAMPLE	218682-006	3928364
024	SAMPLE	218682-007	4021115
025	SAMPLE	218682-008	4003204
026	SAMPLE	218682-009	3979171
027	SAMPLE	218682-010	4104944
028	SAMPLE	218682-011	3947781
029	SAMPLE	218698-001	3889765
030	SAMPLE	218698-002	3957204
032	CCV		4030266
033	CCB		4140022
034	SAMPLE	218698-002	4020448
035	SAMPLE	218698-001	3922348
036	ICSAB		3454045
037	CCV		4025230
038	CCB		4016592
039	SAMPLE	218626-001	4230797
040	SAMPLE	218665-001	3988335
041	ICSAB		3473820
043	SAMPLE	218626-001	4226523
044	SAMPLE	218665-001	4052718
045	BLANK	QC535429	4277613
046	BS	QC535430	4078565
047	CCV		4052388
048	CCB		4222817
049	ICSAB		3525726
050	BSD	QC535431	4106412
051	MSS	218611-001	3936678
052	MS	QC535432	3851362
053	MSD	QC535433	3969465
054	SER	QC535434	4090454
055	PDS	QC535435	3953915
058	SAMPLE	218556-001	4282637
059	CCV		4141778

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 90099888

Date : 03/10/10 Reference : met09_sn_6010a
Sequence : MET09 03/10/10 Analyzed : 03/10/10 08:53

#	Type	Sample ID	Y A
060	CCB		4206219
061	SAMPLE	218556-002	4288738
062	ICSAB		3574018
064	SAMPLE	218558-001	4301759
065	SAMPLE	218558-002	4300460
066	SAMPLE	218622-001	3577459
067	SAMPLE	218622-002	3920794
068	SAMPLE	218622-003	3960582
069	SAMPLE	218622-004	3768627
070	SAMPLE	218622-005	3678164
071	CCV		4229934
073	CCB		4548602
074	SAMPLE	218622-006	3683006
075	SAMPLE	218622-007	3815179
076	SAMPLE	218622-008	3248654
078	SAMPLE	218679-001	3856686
079	SAMPLE	218680-001	4090025
080	SAMPLE	218558-001	4407519
081	SAMPLE	218622-001	4208999
082	SAMPLE	218622-002	4263735
083	SAMPLE	218622-004	3759499
084	CCV		4199843
087	CCB		4273605
088	ICSAB		3637656
089	SAMPLE	218622-003	4179516
090	SAMPLE	218622-004	4045645
091	SAMPLE	218622-005	4231521
092	ICSAB		3679293
093	CCV		4136827
096	CCB		4365283

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 218611 METALS Water: EPA 6010B

Inst : MET09 Reviewer : ---
Calnum : 90099888001 Date : 10-MAR-2010 08:48
Units : ug/L X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met09_sn_6010a	90099888002	CRI5.1	10-MAR-2010 08:53	S13742
L2	met09_sn_6010a	90099888003	CS100	10-MAR-2010 08:59	S13802
L3	met09_sn_6010a	90099888004	CS1K	10-MAR-2010 09:03	S13801
L4	met09_sn_6010a	90099888005	CS10K	10-MAR-2010 09:06	S13743
L5	met09_sn_6010a	90099888006	CS100K	10-MAR-2010 09:12	S13923

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Cadmium	A	138.94	135.24	144.05	132.08		LOR0	0.00000	0.00756		137.58	1.000	0.995	
Chromium	A	138.34	173.86	187.05	179.29		LOR0	0.00000	0.00558		169.64	1.000	0.995	
Lead	A	27.600	35.325	39.780	37.623		LOR0	0.00000	0.02656		35.082	1.000	0.995	
Nickel	A	62.080	74.559	85.974	81.960		LOR0	0.00000	0.01220		76.143	1.000	0.995	
Zinc	A	58.550	51.458	55.075	52.929		LOR0	0.00000	0.01889		54.503	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Cadmium	A	5.000	5	100.0	2	1000	9	10000	0		
Chromium	A	5.000	**-23**	100.0	-3	1000	4	10000	0		
Lead	A	5.000	**-27**	100.0	-6	1000	6	10000	0		
Nickel	A	5.000	**-24**	100.0	-9	1000	5	10000	0		
Zinc	A	20.00	11	100.0	-3	1000	4	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 218611 METALS Water
EPA 6010B

Inst : MET09
Calnum : 90099888001 Cal Date : 10-MAR-2010

ICV 90099888007 (10-MAR-2010) stds: S14097

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Cadmium	A	5000	5183	ug/L	4	10	
Chromium	A	5000	4862	ug/L	-3	10	
Lead	A	5000	4819	ug/L	-4	10	
Nickel	A	5000	4893	ug/L	-2	10	
Zinc	A	5000	5051	ug/L	1	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 218611 METALS Water
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 90099888008 File : met09_sn_6010a Time : 10-MAR-2010 09:23
Cal : 90099888001 Caldate : 10-MAR-2010

Analyte	Ch	Quant	IQL	2X MDL	Units	Flags
Cadmium	A	ND	5.000	2.619	ug/L	
Chromium	A	ND	5.000	2.618	ug/L	
Lead	A	ND	5.000	2.000	ug/L	
Nickel	A	ND	5.000	2.552	ug/L	
Zinc	A	ND	20.00	12.29	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3807908	4036450	6.00

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 218611 METALS Water
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 90099888009 File : met09_sn_6010a Time : 10-MAR-2010 09:28
Cal : 90099888001 Caldate : 10-MAR-2010
Standards: S14040

Analyte	Ch	Quant	IQL	Units	Flags
Cadmium	A	[-1.059]	5.000	ug/L	
Lead	A	[-3.233]	5.000	ug/L	!a-
Zinc	A	[4.134]	20.00	ug/L	

Interferent	Ch	Spiked	Quant	Units	%Rec
Chromium	A	20000	18250	ug/L	91
Copper	A	20000	19870	ug/L	99
Manganese	A	20000	17870	ug/L	89
Nickel	A	20000	16880	ug/L	84
Vanadium	A	20000	19750	ug/L	99
Aluminum	R	500000	557900	ug/L	112
Calcium	R	500000	540300	ug/L	108
Iron	R	200000	210600	ug/L	105
Magnesium	R	500000	548300	ug/L	110
Titanium	R	20000	20730	ug/L	104

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3807908	3381215	-11.21

!=warning -=low bias a=ICSA

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 218611 METALS Water
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 90099888037 File : met09_sn_6010a Time : 10-MAR-2010 11:44
Cal : 90099888001 Caldate : 10-MAR-2010
Standards: S14098

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Cadmium	A	137.58	140.72	5000	5322	ug/L	6	10	
Chromium	A	169.64	174.35	5000	4860	ug/L	-3	10	
Lead	A	35.082	36.712	5000	4876	ug/L	-2	10	
Nickel	A	76.143	80.390	5000	4902	ug/L	-2	10	
Zinc	A	54.503	53.286	5000	5032	ug/L	1	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3807908	4025230	5.71

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 218611 METALS Water
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 90099888038 File : met09_sn_6010a Time : 10-MAR-2010 11:49
Cal : 90099888001 Caldate : 10-MAR-2010

Analyte	Ch	Quant	IQL	2X MDL	Units	Flags
Cadmium	A	ND	5.000	2.619	ug/L	
Chromium	A	ND	5.000	2.618	ug/L	
Lead	A	ND	5.000	2.000	ug/L	
Nickel	A	ND	5.000	2.552	ug/L	
Zinc	A	ND	20.00	12.29	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3807908	4016592	5.48

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 218611 METALS Water
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 90099888041 File : met09_sn_6010a Time : 10-MAR-2010 12:13
Cal : 90099888001 Caldate : 10-MAR-2010
Standards: S14041

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Cadmium	A	1000	1010	ug/L	1	20	
Chromium	A	500.0	487.9	ug/L	-2	20	
Lead	A	1000	911.7	ug/L	-9	20	
Nickel	A	1000	891.8	ug/L	-11	20	
Zinc	A	1000	951.8	ug/L	-5	20	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3807908	3473820	-8.77

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 218611 METALS Water
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 90099888047 File : met09_sn_6010a Time : 10-MAR-2010 12:42
Cal : 90099888001 Caldate : 10-MAR-2010
Standards: S14098

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Cadmium	A	137.58	142.73	5000	5398	ug/L	8	10	
Chromium	A	169.64	172.07	5000	4797	ug/L	-4	10	
Lead	A	35.082	36.879	5000	4898	ug/L	-2	10	
Nickel	A	76.143	79.884	5000	4871	ug/L	-3	10	
Zinc	A	54.503	53.495	5000	5052	ug/L	1	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3807908	4052388	6.42

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 218611 METALS Water
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 90099888048 File : met09_sn_6010a Time : 10-MAR-2010 12:48
Cal : 90099888001 Caldate : 10-MAR-2010

Analyte	Ch	Quant	IQL	2X MDL	Units	Flags
Cadmium	A	ND	5.000	2.619	ug/L	
Chromium	A	ND	5.000	2.618	ug/L	
Lead	A	ND	5.000	2.000	ug/L	
Nickel	A	ND	5.000	2.552	ug/L	
Zinc	A	ND	20.00	12.29	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3807908	4222817	10.90

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 218611 METALS Water
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 90099888049 File : met09_sn_6010a Time : 10-MAR-2010 12:53
Cal : 90099888001 Caldate : 10-MAR-2010
Standards: S14041

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Cadmium	A	1000	1020	ug/L	2	20	
Chromium	A	500.0	487.9	ug/L	-2	20	
Lead	A	1000	904.6	ug/L	-10	20	
Nickel	A	1000	886.4	ug/L	-11	20	
Zinc	A	1000	946.2	ug/L	-5	20	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3807908	3525726	-7.41

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 218611 METALS Water
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 90099888059 File : met09_sn_6010a Time : 10-MAR-2010 13:48
Cal : 90099888001 Caldate : 10-MAR-2010
Standards: S14098

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Cadmium	A	137.58	141.13	5000	5338	ug/L	7	10	
Chromium	A	169.64	171.82	5000	4790	ug/L	-4	10	
Lead	A	35.082	36.654	5000	4868	ug/L	-3	10	
Nickel	A	76.143	79.624	5000	4855	ug/L	-3	10	
Zinc	A	54.503	53.347	5000	5038	ug/L	1	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3807908	4141778	8.77

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 218611 METALS Water
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 90099888060 File : met09_sn_6010a Time : 10-MAR-2010 13:54
Cal : 90099888001 Caldate : 10-MAR-2010

Analyte	Ch	Quant	IQL	2X MDL	Units	Flags
Cadmium	A	ND	5.000	2.619	ug/L	
Chromium	A	ND	5.000	2.618	ug/L	
Lead	A	ND	5.000	2.000	ug/L	
Nickel	A	ND	5.000	2.552	ug/L	
Zinc	A	ND	20.00	12.29	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3807908	4206219	10.46

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 218611 METALS Water
EPA 6010B

Inst : MET09 IDF : 1.0
Seqnum : 90099888062 File : met09_sn_6010a Time : 10-MAR-2010 14:04
Cal : 90099888001 Caldate : 10-MAR-2010
Standards: S14041

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Cadmium	A	1000	1014	ug/L	1	20	
Chromium	A	500.0	485.4	ug/L	-3	20	
Lead	A	1000	897.0	ug/L	-10	20	
Nickel	A	1000	889.7	ug/L	-11	20	
Zinc	A	1000	935.0	ug/L	-6	20	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3807908	3574018	-6.14

SAMPLE PREPARATION SUMMARY

Batch # : 160767
Started By : MCB
Method : 3010A
Spike #1 ID : S12746

Prep Date : 09-MAR-2010 19:30
SOP Version : 3010A_icp_rv9
Spike #2 ID : S12747

Analysis : ICAP
Finished By : MCB
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
218549-001		Water	50	50	1	1.0						FE	
218549-002		Water	50	50	1	1.0						FE	
218556-001		Water	50	50	1	1.0						ZN	
218556-002		Water	50	50	1	1.0						ZN	
218558-001		Water	50	50	1	1.0						AL, AS, CD, CR, CU, FE, NI, PB, ZN	
218558-002		Water	50	50	1	1.0						AL, AS, CD, CR, CU, FE, NI, PB, ZN	
218611-001		Water	50	50	1	1.0						CD, CR, NI, PB, ZN	
218622-001		Water	50	50	1	1.0						AS, CD, CU, FE, MN, NI, PB, SE, ZN	
218622-002		Water	50	50	1	1.0						AS, CD, CU, FE, MN, NI, PB, SE, ZN	
218622-003		Water	50	50	1	1.0						AS, CD, CU, FE, MN, NI, PB, SE, ZN	
218622-004		Water	50	50	1	1.0						AS, CD, CU, FE, MN, NI, PB, SE, ZN	
218622-005		Water	50	50	1	1.0						AS, CD, CU, FE, MN, NI, PB, SE, ZN	
218622-006		Water	50	50	1	1.0						AS, CD, CU, FE, MN, NI, PB, SE, ZN	
218622-007		Water	50	50	1	1.0						AS, CD, CU, FE, MN, NI, PB, SE, ZN	
218622-008		Water	50	50	1	1.0						AS, CD, CU, FE, MN, NI, PB, SE, ZN	
218630-001		Water	50	50	1	1.0						CA	
218679-001		Water	50	50	1	1.0						AG, AS, CD, CR, CU, NI, PB, ZN	
218680-001		Water	50	50	1	1.0						AG, AS, CD, CR, CU, NI, PB, ZN	
QC535429	BLANK	Water	50	50	1	1.0							
QC535430	BS	Water	50	50	1	1.0		.5	.5				
QC535431	BSD	Water	50	50	1	1.0		.5	.5				
QC535432	MS	Water	50	50	1	1.0		.5	.5				
QC535433	MSD	Water	50	50	1	1.0		.5	.5				
QC535434	SER	Water	50	50	1	1.0							
QC535435	PDS	Water	50	50	1	1.0							

Reviewed by: AH Date: 03/11/10

Water Digestion for ICP

Curtis & Tompkins, Ltd.

IMS Batch #: 160767
Digested by: MCBIII
Date Digested: 3/9/10

Digestion Method
☒ EPA 3010a for ICP
☐ EPA 200.7
☐ _____

BK 2995
Page 45
Continued From:
Continued On:

Sample #	Container ID	Volume Sample (mL)	Final Volume (mL)	Filtered? (y/n)	Comments
BLANK		50	50	N	
BS					
BSD					
MS-611-001	G				
MSD-611-001					
218611-001					
218549-001	B				
-002					
218556-001	A				
-002					
218558-001	B				
-002					
218622-001	D				
-002	C				
-003					
-004	D				
-005	C				
-006	D				
-007					
-008					
218630-001	A				
218679-001	F				
218680-001	G				

	Reagent ID or LIMS #	Initials / Date
Digestion Tube Lot #	J92614-261	
.5 mL of spike solution (Std1) was added to all spikes	S12746	MCBIII 3/9/10
.5 mL of spike solution (Std2) was added to all spikes	S12747	
Digestion temperature (90-95 degrees C)	95°C	
Digestion started at (time)	7:30pm	
☐ 1:1 HNO3, ☐ concentrated HNO3, added to all samples	H14024 JABAKER	
1:1 HCl added to all samples	G48030	
Digestion ended at (time)	11:30pm	
☐ filtered thru' Whatman # 541	N/A	
Relinquished to ICP group	ICP	

Michael C Brock III 3/9/10
Prep Chemist Signature / Date

Reviewer Signature / Date

APPENDIX E

LDC DATA VALIDATION REPORT

LABORATORY DATA CONSULTANTS, INC.
601 University Ave., Suite 105, Sacramento, CA 95825 Bus: 916/649-8740 Fax: 916/649-0508

Baseline Environmental Consulting
101 H Street, Suite C
Petaluma, CA 94952
ATTN: Ms. Cheri Page

April 23, 2010

SUBJECT: Report for Presidio Trust-Doyle Drive Replacement Project, San Francisco CA for the Samples Collected During the Period of December 30, 2009 to March 4, 2010.

Dear Ms. Page,

Enclosed is the evaluation of Doyle Drive CDSM Well Sampling analytical data for the three Curtis & Tompkins, Ltd. (C&T) sample delivery groups (SDGs) and analyses listed below. The SDGs are associated with the sampling period of December 30, 2009 to March 4, 2010. Each SDG may not have all of the listed analyses.

LDC Project # 19593:	
SDG #	**Fractions contained in SDGs**
217511 218202 218610	EPA 6010B EPA 7470A EPA 9040C SM 2130B SM 2540C

The data validation was performed in accordance with EPA National Functional Guidelines for Organic and Inorganic Data Review and the project specific control limits provided by the Presidio Trust Base-wide Quality Assurance Project Plan (QAPP, Tetra Tech, 2001). Where specific guidance is not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The following items were evaluated by manual review:

- Holding Times
- Cooler Temperatures
- Initial Calibration
- Continuing Calibration
- Blanks
- Interference Check Samples (Metals only)
- Surrogates (Organics only)
- Matrix Spike/Matrix Spike Duplicates

- Laboratory Control Samples
- Internal Standard Areas
- ICP Serial Dilution (Metals only)
- Reporting Limits

Data validation qualifiers have been appended to the Presidio Trust electronic data deliverables (EDDs). Definitions of the qualifiers and comments used in the EDDs are included in this report and in Appendix B.

Please feel free to contact us at (916) 649-8740, if you have any questions.

Sincerely,

Nanny Bosch

Nanny Bosch
Principal Chemist

Laboratory Data Consultants' Evaluation of Doyle Drive Replacement Project Analytical Data for Samples Collected by BASELINE Environmental Consulting During the Period of December 30, 2009 to March 4, 2010

Prepared for:

BASELINE Environmental Consulting
101 H Street, Suite C
Petaluma, CA 94952

Prepared by:

Laboratory Data Consultants, Inc. (LDC)
601 University Avenue, Suite 105
Sacramento, CA 95825
Sub-Agreement Number: Y0239-04

Reported: April 23, 2010

Nanny Bosch, Principal Chemist
Laboratory Data Consultants, Inc.

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APPENDICES

APPENDIX A DATA VALIDATION REPORTS
APPENDIX B REASONS FOR DATA QUALIFICATION

LIST OF ACRONYMS

CA	**California**
CCV	**Continuing Calibration Verification**
C&T	**Curtis & Tompkins, Ltd.**
ICP	**Inductively Coupled Plasma**
LDC	**Laboratory Data Consultants, Inc.**
MDL	**Method Detection Limit**
MS	**Matrix Spike**
MSD	**Matrix Spike Duplicate**
%D	**Percent Difference**
%R	**Percent Recovery**
QAPP	**Quality Assurance Project Plan**
QA	**Quality Assurance**
QC	**Quality Control**
RL	**Reporting Limit**
RPD	**Relative Percent Difference**
RSD	**Relative Standard Deviation**
SDG	**Sample Delivery Group**
USEPA	**U.S. Environmental Protection Agency**

EXECUTIVE SUMMARY

This report has been prepared by Laboratory Data Consultants, Inc. (LDC) for the Presidio Trust Doyle Drive Replacement project in San Francisco, California (CA). The purpose of this report is to provide the data user with an independent evaluation of the results generated by the laboratories. The laboratory for the project is Curtis & Tompkins, Ltd. (C&T), located in Berkeley, CA. The laboratory is certified in the State of California by the Department of Health Services. Baseline Environmental Consulting, located in Petaluma, CA, collected the samples analyzed for this report.

The field sample data were reviewed for compliance with the Presidio-Wide Quality Assurance Project Plan (QAPP, Tetra Tech, April 2001). Data were reviewed based on the appropriate U.S. Environmental Protection Agency (USEPA) methods referenced (USEPA, 1986), "National Functional Guidelines for Organic Data Review" (USEPA 1999), "National Functional Guidelines for Inorganic Data Review" (USEPA 2004), and the project specific control limits provided in the QAPP or Presidio-approved variances requested by C&T. Where specific guidance is not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The following items were evaluated by manual review:

- Holding Times
- Cooler Temperatures
- Initial Calibration
- Continuing Calibration
- Blanks
- Interference Check Samples (Metals only)
- Matrix Spike/Matrix Spike Duplicates
- Laboratory Control Samples
- Sample Duplicates
- ICP Serial Dilution (Metals only)
- Reporting Limits

Based on review of the analytical data and associated quality control (QC) results, the sample data were assessed to be valid with minor qualifications. A summary of the overall quality of data is as follows:

Selected Metals (EPA Method 6010B)

Overall, sample results for metals analyzed by EPA Method 6010B (Inductively Coupled Plasma (ICP)) met data review criteria and were assessed to be valid with minor qualifications. No sample data for metals in this sampling effort were qualified as rejected and 100% technical completeness was achieved for this analysis.

The metals analysis by EPA Method 6010B was qualified as follows:

- One of three arsenic results was qualified as non-detected (U) due to arsenic detected above the reporting limit in an associated calibration blank. The reporting limit for sample CDSM-MW-1 was raised to 14 ug/L.

Turbidity (SM 2130B)

Overall, sample results for turbidity analyzed by SM 2130B met data review criteria and were assessed to be valid with no qualifications and 100% analytical completeness was achieved for this analysis. No sample data for the above compounds in this sampling effort were qualified as rejected and 100% technical completeness was achieved for this analysis.

Total Dissolved Solids (TDS) (Standard Methods (SM) 2540C)

Overall, sample results for TDS analyzed by SM 2540C met data review criteria and were assessed to be valid with no qualifications and 100% analytical completeness was achieved for this analysis. No sample data for the above compounds in this sampling effort were qualified as rejected and 100% technical completeness was achieved for this analysis.

pH (EPA Method 9040C)

Overall, sample results for pH analyzed by EPA Method 9040C met data review criteria and were assessed to be valid with no qualifications and 100% analytical completeness was achieved for this analysis. No sample data for the above compounds in this sampling effort were qualified as rejected and 100% technical completeness was achieved for this analysis.

1.0 DATA QUALITY

This report covers the three filtrate samples collected between December 30, 2009 and March 4, 2010 and reported in three sample delivery groups (SDGs) by C&T. The samples were analyzed for selected metals by EPA Method 6010B; Turbidity by Standard Methods (SM) 2130B; Total Dissolved Solids (TDS) by SM 2540C; and pH by EPA Method 9040C.

All sample results from the sampling period were subjected to an EPA Level III equivalent review, which comprises an evaluation of Quality Control (QC) results, sample holding times, cooler temperatures, instrument calibration, surrogates, matrix spikes/matrix spike duplicates, laboratory duplicates, laboratory control samples, method blanks, and reporting limits.

Data were reviewed based on the requirements of the appropriate analytical method, National Functional Guidelines for Organic and Inorganic Data Review, and the project specific control limits provided by the QAPP or C&T's variance letter dated October 16, 2008. Where specific guidance is not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

Through the data review process, the data were assigned qualifiers. The qualifiers assigned by LDC are based on a technical assessment of the data and represent outliers from each of the data review components (blank contamination, holding time, etc.). The following are definitions of the data qualifiers that may appear in this report:

Data Qualifier	Definition
U	Indicates the compound or analyte was analyzed for, but not detected at or above the stated limit. The result is considered non-detected (ND) at the reported value. This qualifier is added before any additional qualifiers for all ND results.
UJ	Indicates the compound or analyte was analyzed for, but not detected. The sample detection limit is an estimated value due to QC failure or data limitations.
J+	Indicates the compound or analyte is positively identified, but the reported concentration is an estimate with a positive bias due to QC failure or data limitations.
J	Indicates the compound or analyte is positively identified, but the reported concentration is an estimate due to QC failure or data limitations.
J-	Indicates the compound or analyte is positively identified, but the reported concentration is an estimate with a negative bias due to QC failure or data limitations.
R	Quality control indicates the data is not usable. The presence or absence of the compound or analyte cannot be verified or the reported result is compromised as to be unusable.

Data qualified with the “R” qualifier are considered unusable or rejected. Data qualified with the “J” qualifier are considered estimated. The data user must determine the appropriate use of estimated data.

The data quality assessment is summarized by reporting analytical completeness, which is defined as the percentage of results in the data set that are not qualified. The following equation was used to calculate completeness:

%Analytical Completeness = (Number of unqualified results/Number of reported results) X 100

The analytical completeness, which included all QC parameters, attained for the field samples in the sampling effort is 87.5%.

Technical completeness is defined as the percentage of results in the data set that are not rejected. The following equation was used to calculate technical completeness:

%Technical Completeness = (Number of unrejected results/Number of reported results) X 100

The technical completeness, which included all QC parameters, attained for the field samples in the sampling effort is 100%.

The individual data validation reports for each sample delivery group are presented in Appendix A.

Data qualifier definitions and comments or reasons for qualification used in fields 35 and 36, respectively, of the Presidio format EDDs are included in Appendix B.

Appendix A

LDC Report# 1001-02A4

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Doyle Drive Replacement Project
Collection Date:	December 30, 2009
LDC Report Date:	April 19, 2010
Matrix:	Filtrate
Parameters:	Metals
Validation Level:	EPA Level III Equivalent
Laboratory:	Curtis & Tompkins, Ltd.
Sample Delivery Group (SDG):	217511

Sample Identification

CDSM-MW-1

Introduction

This data review covers one filtrate sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6010B for antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, molybdenum, nickel, selenium, silver, thallium, vanadium, and zinc, and EPA SW 846 Method 7470A for mercury.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (NFG) for Inorganic Data Review (October 2004) as there are no current guidelines for the method stated above. Quality control criteria were taken from the Presidio-Wide Quality Assurance Project Plan (QAPP, Tetra Tech, April 2001) and the appropriate method references.

A qualification summary table is provided at the end of the report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Preservation and Holding Times

All technical holding time requirements were met.

The chain-of-custody records were reviewed for documentation of cooler temperatures. The samples were received intact and cold (on Blue ice) without a temperature blank.

II. Calibration

Initial and continuing calibrations were performed. The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verifications (CCV) were met with the exception of cadmium in the CCV analyzed January 4, 2010 at 12:59 (13% deviation (D)). Since the sample was not detected (ND) for this analyte, no results were qualified based upon this finding.

III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and/or preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
ICB	Arsenic	4.7 ug/L	All Samples in SDG
CCB	Molybdenum Silver	2.737 ug/L 2.58 ug/L	All Samples in SDG

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exception.

Sample	Analyte	Reported Concentration	Modified Final Concentration
CDSM-MW-1	Arsenic	14 ug/L	14 U

IV. ICP Interference Check Sample (ICS) Analysis

An ICP interference check sample was analyzed. The frequency of analysis criterion was met.

The ICP analyses of the ICS solution AB were within ± 20% of the true value for all field samples with the exception of beryllium (+22 %D) and silver (+21 %D) in the ICS AB analyzed on 01/04/2010 at 13:37. Since the associated sample was non-detected (ND) for these analytes, no results were qualified based upon this finding.

V. Matrix Spike and Matrix Spike Duplicate Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. MS/MSD analysis was performed on non-site samples for the EPA 6010B and 7470A analyses. Percent recoveries (%R) and relative percent differences (RPD) were within the QC limits of 75% - 125% and ≤ 20, respectively.

VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were not performed. A MS/MSD pair was analyzed in lieu of MS/DUP.

VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. A blank spike (BS) and blank spike duplicate (BSD) were analyzed instead of a single LCS. Percent recoveries (%R) and relative percent differences (RPD) were within the QC limits of 80% - 120% and ≤ 20, respectively.

VIII. Internal Standard (ICP-MS)

ICP-MS was not utilized in this SDG.

IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

X. ICP Serial Dilution

ICP serial dilution was not performed or analyzed.

XI. Sample Result Verification

Raw data were not evaluated for level III.

XII. Overall Assessment of Data

Data qualification flags have been summarized at the end of the report, if data have been qualified.

XIII. Field Duplicates

No samples were identified as field duplicates.

Presidio Trust – Doyle Drive Project
Metals - Data Qualification Summary - SDG 217511

No samples were qualified due to QA/QC issues.

Presidio Trust – Doyle Drive Project
Metals - Laboratory Blank Data Qualification Summary - SDG 217511

Sample ID	Analyte	Flag	Reason
CDSM-MW-1	Arsenic	U	Analyte detected in ICB

LDC Report# 1001-02A6

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Doyle Drive Replacement Project
Collection Date:	December 30, 2009
LDC Report Date:	April 13, 2010
Matrix:	Filtrate
Parameters:	Total Dissolved Solids
Validation Level:	EPA Level III Equivalent
Laboratory:	Curtis & Tompkins, Ltd.
Sample Delivery Group (SDG):	217511

Sample Identification

CDSM-MW-1

Introduction

This data review covers the one filtrate sample listed on the cover sheet including QC samples, dilutions, and reanalysis as applicable. The analyses were per Standard Method (SM) 2540C for Total Dissolved Solids (TDS). Note that the laboratory substituted this method for the EPA method 160.1 specified in the QAPP.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report, if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custody records were reviewed for documentation of cooler temperatures. The samples were received cold and intact (on Blue ice) without a temperature blank.

II. Calibration

Raw data were not reviewed for this SDG. Therefore, the balance check was not evaluated.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No TDS was found in the method blank.

IV. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) samples were reviewed for each matrix as applicable. The laboratory analyzed and a blank spike (BS) and blank spike duplicate (BSD) sample pair in lieu of MS/MSD. See Section VI.

V. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. The laboratory analyzed and reported a duplicate sample results for sample CDSM-MW-1. The relative percent difference (RPD) was within acceptance criteria.

VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. A BS/BSD sample pair was prepared and analyzed with the project sample batch. Percent recoveries (%R) and RPD were within QC limits.

VII. Sample Result Verification

Raw data were not reviewed for this SDG.

VIII. Overall Assessment of Data

Data flags are summarized at the end of this report, if data has been qualified.

IX. Field Duplicates

No samples were identified as field duplicates. Therefore, this parameter was not evaluated.

X. Field Blanks

No sample was identified as a field blank. Therefore, this parameter was not evaluated.

Doyle Drive Replacement Project
Total Dissolved Solids - Data Qualification Summary - SDG 217511

No Sample Data Qualified in this SDG

Doyle Drive Replacement Project
Total Dissolved Solids - Laboratory Blank Data Qualification Summary - SDG 217511

No Sample Data Qualified in this SDG

LDC Report# 1004-02A4

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Doyle Drive Replacement Project
Collection Date:	February 8, 2010
LDC Report Date:	April 19, 2010
Matrix:	Filtrate
Parameters:	Metals
Validation Level:	EPA Level III Equivalent
Laboratory:	Curtis & Tompkins, Ltd.
Sample Delivery Group (SDG):	218202

Sample Identification

CDSM-MW-1; 020810

Introduction

This data review covers one filtrate sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6010B for antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, molybdenum, nickel, selenium, silver, thallium, vanadium, and zinc, and EPA SW 846 Method 7470A for mercury.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (NFG) for Inorganic Data Review (October 2004) as there are no current guidelines for the method stated above. Quality control criteria were taken from the Presidio-Wide Quality Assurance Project Plan (QAPP, Tetra Tech, April 2001) and the appropriate method references.

A qualification summary table is provided at the end of the report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Preservation and Holding Times

All technical holding time requirements were met.

The chain-of-custody records were reviewed for documentation of cooler temperatures. The samples were received intact and cold (on Blue ice) without a temperature blank.

II. Calibration

Initial and continuing calibrations were performed. The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verifications (CCV) were met. The correlation coefficients (r) for the initial calibration and the percent recoveries (%R) for the initial and continuing calibration verifications were recalculated and verified to within 10%, with the following exceptions:

Date	Lab. Reference/ID	Analyte	%R (Limits)	Associated Samples	Flag	A or P
2/10/10	CCV (17:10)	Copper Silver	-11 (10) -11 (10)	None, sample was reanalyzed 2/11/10	---	---
2/11/10	CCV (16:41)	Arsenic	+11 (10)	CDSM-MW-1; 020810	J (detects)	A

Since arsenic was not detected (ND) in the sample, no results were qualified based upon the above finding.

III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and/or preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
ICB	Arsenic	4.13 ug/L	None, sample was reanalyzed
ICB	Selenium	9.16 ug/L	None, sample was reanalyzed

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks.

IV. ICP Interference Check Sample (ICS) Analysis

An ICP interference check sample was analyzed. The frequency of analysis criterion was met.

The ICP analyses of the ICS solution AB were within ± 20% of the true value for all field samples with the exception of arsenic (-26 % deviation (D)) in the ICS AB analyzed on 02/10/2010 at 19:55. Since the associated sample was reanalyzed for arsenic on 02/11/2010, no results were qualified based upon this finding.

V. Matrix Spike and Matrix Spike Duplicate Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. MS/MSD analysis was performed on a non-site sample for the EPA 6010B and 7470A analyses. Percent recoveries (%R) and relative percent differences (RPD) were within the QC limits of 75% - 125% and ≤ 20, respectively, with the following exceptions.

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
218076-004	Silver Thallium	77 (80-120) 76 (80-120)	84 (80-120) 82 (80-120)	---	None (non-site parent sample)	---

VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were not performed. A MS/MSD pair was analyzed in lieu of MS/DUP.

VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. A blank spike (BS) and blank spike duplicate (BSD) were analyzed instead of a single LCS. Percent recoveries (%R) and relative percent differences (RPD) were within the QC limits of 80% - 120% and ≤ 20, respectively.

VIII. Internal Standard (ICP-MS)

ICP-MS was not utilized in this SDG.

IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

X. ICP Serial Dilution

ICP serial dilution was not performed or analyzed.

XI. Sample Result Verification

Raw data were not evaluated for level III.

XII. Overall Assessment of Data

Data qualification flags have been summarized at the end of the report, if data have been qualified.

XIII. Field Duplicates

No samples were identified as field duplicates.

Presidio Trust – Doyle Drive Project
Metals - Data Qualification Summary - SDG 218202

No samples were qualified due to QA/QC issues.

Presidio Trust – Doyle Drive Project
Metals - Laboratory Blank Data Qualification Summary - SDG 218202

No samples were qualified due to laboratory blank issues.

LDC Report# 1004-02A6

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Doyle Drive Replacement Project
Collection Date:	February 8, 2010
LDC Report Date:	April 19, 2010
Matrix:	Filtrate
Parameters:	Total Dissolved Solids
Validation Level:	EPA Level III Equivalent
Laboratory:	Curtis & Tompkins, Ltd.
Sample Delivery Group (SDG):	218202

Sample Identification

CDSM-MW-1; 020810

Introduction

This data review covers the one filtrate sample listed on the cover sheet including QC samples, dilutions, and reanalysis as applicable. The analyses were per Standard Method (SM) 2540C for Total Dissolved Solids (TDS). Note that the laboratory substituted this method for the EPA method 160.1 specified in the QAPP.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report, if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custody records were reviewed for documentation of cooler temperatures. The samples were received cold and intact (on wet ice) without a temperature blank.

II. Calibration

Raw data were not reviewed for this SDG. Therefore, the balance check was not evaluated.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No TDS was found in the method blank.

IV. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) samples were reviewed for each matrix as applicable. The laboratory analyzed and a blank spike (BS) and blank spike duplicate (BSD) sample pair in lieu of MS/MSD. See Section VI.

V. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. The laboratory analyzed and reported a duplicate sample results for sample CDSM-MW-1; 020810. The relative percent difference (RPD) was within acceptance criteria.

VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. A BS/BSD sample pair was prepared and analyzed with the project sample batch. Percent recoveries (%R) and RPD were within QC limits.

VII. Sample Result Verification

Raw data were not reviewed for this SDG.

VIII. Overall Assessment of Data

Data flags are summarized at the end of this report, if data has been qualified.

IX. Field Duplicates

No samples were identified as field duplicates. Therefore, this parameter was not evaluated.

X. Field Blanks

No sample was identified as a field blank. Therefore, this parameter was not evaluated.

Doyle Drive Replacement Project
Total Dissolved Solids - Data Qualification Summary - SDG 218202

No Sample Data Qualified in this SDG

Doyle Drive Replacement Project
Total Dissolved Solids - Laboratory Blank Data Qualification Summary - SDG 218202

No Sample Data Qualified in this SDG

LDC Report# 1004-03A4

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Doyle Drive Replacement Project
Collection Date:	March 4, 2010
LDC Report Date:	April 19, 2010
Matrix:	Filtrate
Parameters:	Metals
Validation Level:	EPA Level III Equivalent
Laboratory:	Curtis & Tompkins, Ltd.
Sample Delivery Group (SDG):	218610

Sample Identification

CDSM-MW-1; 030410

Introduction

This data review covers one filtrate sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6010B for antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, molybdenum, nickel, selenium, silver, thallium, vanadium, and zinc, and EPA SW 846 Method 7470A for mercury.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (NFG) for Inorganic Data Review (October 2004) as there are no current guidelines for the method stated above. Quality control criteria were taken from the Presidio-Wide Quality Assurance Project Plan (QAPP, Tetra Tech, April 2001) and the appropriate method references.

A qualification summary table is provided at the end of the report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Preservation and Holding Times

All technical holding time requirements were met.

The chain-of-custody records were reviewed for documentation of cooler temperatures. The samples were received intact and cold (on ice) without a temperature blank.

II. Calibration

Initial and continuing calibrations were performed. The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verifications (CCV) were met. The correlation coefficients (r) for the initial calibration and the percent recoveries (%R) for the initial and continuing calibration verifications were recalculated and verified to within 10%.

III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and/or preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
ICB	Lead	3.53 ug/L	CDSM-MW-1; 030410

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks.

IV. ICP Interference Check Sample (ICS) Analysis

An ICP interference check sample was analyzed. The frequency of analysis criterion was met.

The ICP analyses of the ICS solution AB were within $\pm$ 20% of the true value for all field samples.

V. Matrix Spike and Matrix Spike Duplicate Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. MS/MSD analysis was performed on a non-site sample for the EPA 6010B and 7470A analyses. Percent recoveries (%R) and relative percent differences (RPD) were within the QC limits of 75% - 125% and $\leq$ 20, respectively, with the following exceptions.

Spike ID (Associated Samples)	Analyte	%R (Limits)	Flag	A or P
218557-001 Post-Digestion Spike	Silver	69 (75-125)	None (non-site parent sample)	---

VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were not performed. A MS/MSD pair was analyzed in lieu of MS/DUP.

VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. A blank spike (BS) and blank spike duplicate (BSD) were analyzed instead of a single LCS. Percent recoveries (%R) and relative percent differences (RPD) were within the QC limits of 80% - 120% and $\leq$ 20, respectively.

VIII. Internal Standard (ICP-MS)

ICP-MS was not utilized in this SDG.

IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

X. ICP Serial Dilution

ICP serial dilution was not performed or analyzed.

XI. Sample Result Verification

Raw data were not evaluated for level III.

XII. Overall Assessment of Data

Data qualification flags have been summarized at the end of the report, if data have been qualified.

XIII. Field Duplicates

No samples were identified as field duplicates.

Presidio Trust – Doyle Drive Project
Metals - Data Qualification Summary - SDG 218610

No samples were qualified due to QA/QC issues.

Presidio Trust – Doyle Drive Project
Metals - Laboratory Blank Data Qualification Summary - SDG 218610

No samples were qualified due to laboratory blank issues.

LDC Report# 1004-03A6b

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Doyle Drive Replacement Project
Collection Date:	March 4, 2010
LDC Report Date:	April 19, 2010
Matrix:	Filtrate
Parameters:	pH
Validation Level:	EPA level III Equivalent
Laboratory:	Curtis & Tompkins, Ltd.
Sample Delivery Group (SDG):	218610

Sample Identification

CDSM-MW-1; 030410

Introduction

This data review covers one water sample listed on the cover sheet including QC samples, dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 9040C for pH.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report, if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. The samples were received cold and intact (on ice) without a temperature blank.

II. Calibration

a. Initial Calibration

All criteria for the initial calibration were met.

b. Calibration Verification

Calibration verification was performed at the required frequencies.

III. Blanks

Not applicable to this method.

IV. Matrix Spike

A matrix spike (MS) analysis was not required by the method.

V. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Relative percent differences (RPD) were within QC limits.

VI. Laboratory Control Samples

Not applicable to this method.

VII. Sample Result Verification

Raw data were not reviewed for this SDG

VIII. Overall Assessment of Data

Data flags are summarized at the end of this report, if data has been qualified.

IX. Field Duplicates

No samples were identified as field duplicates. Therefore, this parameter was not evaluated.

X. Field Blanks

Not applicable to this method.

Doyle Drive Replacement Project
pH - Data Qualification Summary - SDG 218610

No Sample Data Qualified in this SDG

LDC Report# 1004-03A6

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Doyle Drive Replacement Project
Collection Date:	March 4, 2010
LDC Report Date:	April 19, 2010
Matrix:	Filtrate
Parameters:	Total Dissolved Solids
Validation Level:	EPA Level III Equivalent
Laboratory:	Curtis & Tompkins, Ltd.
Sample Delivery Group (SDG):	218610

Sample Identification

CDSM-MW-1; 030410

Introduction

This data review covers the one filtrate sample listed on the cover sheet including QC samples, dilutions, and reanalysis as applicable. The analyses were per Standard Method (SM) 2540C for Total Dissolved Solids (TDS).

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report, if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custody records were reviewed for documentation of cooler temperatures. The samples were received cold and intact (on ice) without a temperature blank.

II. Calibration

Raw data were not reviewed for this SDG. Therefore, the balance check was not evaluated.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No TDS was found in the method blank.

IV. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) samples were reviewed for each matrix as applicable. The laboratory analyzed and a blank spike (BS) and blank spike duplicate (BSD) sample pair in lieu of MS/MSD. See Section VI.

V. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. The laboratory analyzed and reported a duplicate sample result for a non-site sample. The relative percent difference (RPD) was within acceptance criteria.

VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. A BS/BSD sample pair was prepared and analyzed with the project sample batch. Percent recoveries (%R) and RPD were within QC limits.

VII. Sample Result Verification

Raw data were not reviewed for this SDG.

VIII. Overall Assessment of Data

Data flags are summarized at the end of this report, if data has been qualified.

IX. Field Duplicates

No samples were identified as field duplicates. Therefore, this parameter was not evaluated.

X. Field Blanks

No sample was identified as a field blank. Therefore, this parameter was not evaluated.

Doyle Drive Replacement Project
Total Dissolved Solids - Data Qualification Summary - SDG 218610

No Sample Data Qualified in this SDG

Doyle Drive Replacement Project
Total Dissolved Solids - Laboratory Blank Data Qualification Summary - SDG 218610

No Sample Data Qualified in this SDG

LDC Report# 1004-03A6c

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Doyle Drive Replacement Project
Collection Date:	March 4, 2010
LDC Report Date:	April 19, 2010
Matrix:	Filtrate
Parameters:	Turbidity
Validation Level:	EPA level III Equivalent
Laboratory:	Curtis & Tompkins, Ltd.
Sample Delivery Group (SDG):	218610

Sample Identification

CDSM-MW-1; 030410

Introduction

This data review covers one filtrate sample listed on the cover sheet including QC samples, dilutions and reanalysis as applicable. The analyses were per Standard Method (SM) 2130B for turbidity.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report, if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. The samples were received cold and intact (on ice) without a temperature blank.

II. Calibration

a. Initial Calibration

All criteria for the initial calibration were met.

b. Calibration Verification

Calibration verification was performed at the required frequencies.

III. Blanks

Not applicable to this method.

IV. Matrix Spike

A matrix spike (MS) analysis was not required by the method.

V. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Relative percent differences (RPD) were within QC limits.

VI. Laboratory Control Samples

Not applicable to this method.

VII. Sample Result Verification

Raw data were not reviewed for this SDG

VIII. Overall Assessment of Data

Data flags are summarized at the end of this report, if data has been qualified.

IX. Field Duplicates

No samples were identified as field duplicates. Therefore, this parameter was not evaluated.

X. Field Blanks

Not applicable to this method.

Doyle Drive Replacement Project
Turbidity - Data Qualification Summary - SDG 218610

No Sample Data Qualified in this SDG

Appendix B

Appendix B: Reasons for Qualified Results

Reason Code	Definition
U	Analyte detected above the reporting limit in associated lab method or calibration blank

APPENDIX F

WASTE DISPOSAL MANIFEST

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.

2. Page 1 of 1

3. Document Number 8157

GENERATOR

4. Generator's Name and Mailing Address

Cal Trans D-4/Constr/EA04-163701
111 Grand Ave, 14th Floor
Oakland, CA 94612

Generator's Phone 510-286-5668

5. Transporter Company Name: CLEARWATER ENVIRONMENTAL

6. US EPA ID Number: CAR000007013

7. Transporter Phone: (510) 476-1740

8. Designated Facility Name and Site Address:
ALVISO INDEPENDENT OIL
5002 ARCHER STREET
ALVISO, CA 95002

9. US EPA ID Number: CAL000161743

10. Facility's Phone: (510) 476-1740

11. Waste Shipping Name and Description	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol
a. Non-Hazardous waste (SOLID)	002	DM	1,400	P
b. NON HAZ WASTE (LIQUID)	005	DM	275	G

15. Special Handling Instructions and Additional Information

Wear PPE
Emergency Contact
(510) 476-1740
Attn: Kirk Hayward

Handling Codes for Wastes Listed Above

11a.	11b.

16. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to state or federal regulations for reporting proper disposal of Hazardous Waste.

Printed/Typed Name: X William A. Whiteley PE

Signature: X William A. Whiteley X

Month 3 Day 17 Year 10

TRANSPORTER

17. Transporter Acknowledgement of Receipt of Materials

Printed/Typed Name: Michael H. Yeary

Signature

Month 03 Day 17 Year 10

FACILITY

18. Discrepancy Indication Space

19. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 18.

Printed/Typed Name: Charles Seaton

Signature

Month 3 Day 18 Year 10

WHITE – ORIGINAL (Return to Generator) YELLOW – TSDF (Retain Copy) PINK – TRANSPORTER COPY GOLDENROD – GENERATOR'S COPY

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.

2. Page 1 of 1

3. Document Number 8157

GENERATOR

4. Generator's Name and Mailing Address

Cal Trans D-4/Constr/EA04-163701
111 Grand Ave, 14th Floor
Oakland, CA 94612

Generator's Phone 510-286-5668

5. Transporter Company Name: CLEARWATER ENVIRONMENTAL

6. US EPA ID Number: CAR000007013

7. Transporter Phone: (510) 476-1740

8. Designated Facility Name and Site Address:
ALVISO INDEPENDENT OIL
5002 ARCHER STREET
ALVISO, CA 95002

9. US EPA ID Number: CAL000161743

10. Facility's Phone: (510) 476-1740

11. Waste Shipping Name and Description	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol
a. Non-Hazardous waste (SOLID)	002	DM	1400	P
b. NON HAZ WASTE (LIQUID)	002	DM	275	G

15. Special Handling Instructions and Additional Information

Wear PPE
Emergency Contact
(510) 476-1740
Attn: Kirk Hayward

Handling Codes for Wastes Listed Above

11a.	11b.

16. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to state or federal regulations for reporting proper disposal of Hazardous Waste.

Printed/Typed Name: X William A. Whiteley PE

Signature: X William A. Whiteley X

Month 3 Day 17 Year 10

TRANSPORTER

17. Transporter Acknowledgement of Receipt of Materials

Printed/Typed Name: Michael H. Yeary

Signature:

Month 03 Day 17 Year 10

FACILITY

18. Discrepancy Indication Space

19. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 18.

Printed/Typed Name: Charles Seaton

Signature:

Month 3 Day 18 Year 10

WHITE – ORIGINAL (Return to Generator) YELLOW – TSDF (Retain Copy) PINK – TRANSPORTER COPY GOLDENROD – GENERATOR'S COPY

APPENDIX G

PRESIDIO TRUST
ENVIRONMENTAL STANDARD OPERATING PROCEDURE:
WELL MAINTENANCE AND ABANDONMENT, SOP NO. 006

SOP APPROVAL FORM

THE PRESIDIO TRUST

ENVIRONMENTAL STANDARD OPERATING PROCEDURE

WELL MAINTENANCE AND ABANDONMENT

SOP NO. 006

REVISION NO. 00

Last Reviewed: December 2000

Quality Assurance Approved

12 JAN 01

Date

1.0 BACKGROUND

The physical condition of all monitoring wells should be assessed, and if problems are discerned, proper well maintenance should be conducted. Well maintenance can include well redevelopment, wellhead repair, wellhead security, additional casing extension, and elevation surveying, as necessary. Well redevelopment may be necessary if the well was incorrectly or insufficiently developed after installation or the well was installed in a very low groundwater recharge area. It also may require redevelopment if it has not been pumped in the previous 12 months. If the wellhead has been damaged in any way, the wellhead will need to be repaired and the casing elevation may need resurveying.

Improperly constructed or unused monitoring wells should be properly abandoned (decommissioned) for at least one of the following reasons: (1) to eliminate physical hazards, (2) to prevent groundwater contamination migration or contamination from the ground surface to the water table or between aquifers, (3) to conserve aquifer yield and hydrostatic head, and (4) to prevent mixing of subsurface water. When a decision is made to abandon a monitoring well, the borehole should be abandoned according to specific guidelines. To properly abandon a well, the preferred method is to completely remove the well casing and screen from the borehole, clean out the borehole, and backfill with a cement or bentonite grout, neat cement, or concrete. Another option is to completely fill the entire borehole from the bottom up with grout to within a few (5 or less) feet of ground surface and backfill the uppermost feet with clean fill material. In order to comply with California well abandonment requirements, a permit for monitoring well destruction should be obtained from the City and County of San Francisco, Department of Public Health, Bureau of Environmental Health Management (On-line address: http://www.dph.sf.ca.us/ehs/water/Monitoring_wells/index.htm).

1.1 PURPOSE

This standard operating procedure (SOP) establishes the requirements and procedures for well maintenance and properly abandoning monitoring wells.

1.2 SCOPE

This SOP describes procedures for well maintenance and abandonment.

1.3 DEFINITIONS

Specific Capacity: The yield (pumping rate) of a well per unit drawdown, usually expressed as gallons of water per minute per foot of drawdown (gpm/ft) after a given amount of time has elapsed.

1.4 REFERENCES

American Society for Testing Materials (ASTM). 1992. "Standard Guide for Decommissioning of Ground Water Wells, Vadose Zone Monitoring Devices, Boreholes, and Other Devices for Environmental Activities." D 5299-92. *1993 Annual Book of ASTM Standards*. Philadelphia, Pennsylvania. Pages 1,318 through 1,333.

California Department of Water Resources (DWR). 1981. "Water Well Standards." Bulletin 74-81. December.

DWR. 1991. "California Well Standards." Bulletin 74-90. June.

California Environmental Protection Agency. 1995. "Monitoring Well Design and Construction for Hydrogeologic Characterization." *Guidance Manual for Ground Water Investigations*. July.

U.S. Environmental Protection Agency. 1996. "Environmental Investigations Standard Operating Procedures and Quality Assurance Manual (EISOPQAM)." Region 4 Science and Ecosystem Support Division Enforcement and Investigations Branch. May. Includes 1997 Revisions.

1.5 REQUIREMENTS AND RESOURCES

There are various options available to abandon monitoring wells. The procedures and equipment required are outlined in the following sections for well maintenance and abandonment.

2.0 PROCEDURES

The following sections describe the procedures involved with well maintenance including well redevelopment, well head repair, and well resurveying. The final section describes the procedures for the preferred method for well abandonment at the Presidio.

2.1 WELL REDEVELOPMENT

Well redevelopment should be performed when it is necessary to improve the well yield, remove sediments that have accumulated in the well, and minimize turbidity. Water should be bailed from the monitoring well to remove heavier sediments that may have accumulated at the bottom of the well casing. A surge block (approximately the same diameter as the well casing) should then be inserted into the

casing and used to agitate the well groundwater and cause finer sediments to be drawn from the well filter pack. If the well is dry or is very slow to recharge, then water may have to be introduced to assist in effective surging. Surging should continue for approximately 3 minutes for each foot of screen. Following the first surging period, another period of bailing the well should be performed to remove the dislodged sediments, and a second surging period should be performed. Once the second period of surging is complete and the well has a relatively high yield, a submersible pump should be lowered into the well to purge the water from the well. Pumping should begin at the top of the saturated portion of the well screen and continued to be lowered at 2 foot intervals until the pump is approximately 1 foot from the bottom of the well casing. The water level drawdown and pumping rate should be measured and recorded continuously to calculate specific capacity at each measurement. Purging with the pump should continue until the turbidity is less than or equal to 5 nephelometric turbidity units (NTU) using a turbidity meter. After the turbidity has reached a level of less than or equal to 5 NTUs, repeat the surging and purging until the turbidity meets this level a second time (or 4 hours have elapsed). Finally, specific capacity will be calculated to determine whether well performance criteria have been met.

2.2 WELL HEAD REPAIR

The status of the well head completions, including the condition of well vaults, concrete pads, surface seals and locks and caps should be assessed on an annual basis. The status of the well head integrity and any damage should be recorded and necessary repairs should be implemented. Any debris generated during repair should be treated as construction debris, not investigation derived waste, and disposed of appropriately. All completed repairs should be recorded and reported on.

2.3 WELL RESURVEYING

All monitoring wells should be surveyed upon installation following the requirements stated in SOP No. 013. If existing monitoring wells experience change in the casing elevations during well head repair or other events (such as major earthquakes), they should be resurveyed. If the survey coordinates of existing monitoring wells were found to be measured without following the requirements outlined in SOP No. 013, the wells should be resurveyed.

2.4 WELL ABANDONMENT

A technically sound well abandonment method should be designed based on the site geology, well casing materials, and general condition of the well(s). As previously stated the preferred method for

abandonment will be to completely destroy and remove the well casing and screen from within the borehole. Regardless of the method used, well abandonment should be performed following applicable California regulations (DWR 1981, 1991). This may be accomplished by augering with a hollow-stem auger over the well casing down to the bottom of the borehole, thereby removing the grout and filter pack materials from the hole. The well casing and well screen should then be removed from the borehole with the drill rig. The clean borehole can then be backfilled with the appropriate grout material. The backfill material should be placed into the borehole from the bottom to the top by pressure grouting with the positive displacement method (tremie method). At all times, the opening of the tremie pipe should be submerged several feet below the level of the grout in the borehole.

The top 2 feet of the borehole should be poured with concrete to insure a secure surface seal (plug). If the area has heavy traffic use, and/or the well locations need to be permanently marked, then an asphalt patch should be installed to cover the concrete. The concrete surface plug can also be recessed below ground surface if the potential for construction activities exists.

This abandonment method can be accomplished on small diameter (1- to 4-inch) wells without too much difficulty. With wells having 6-inch or larger diameters, the use of hollow-stem augers for casing removal is very difficult or almost impossible. Instead of trying to ream the borehole with a hollow-stem auger, it is more practical to force a drill stem with a tapered wedge assembly or a solid-stem auger into the well casing and extract it out of the borehole. Wells with little or no grouted annular space or sound well casings can be removed in this manner. However, old wells with badly corroded casings or thickly grouted annular space have a tendency to twist and/or break-off in the borehole. When this occurs, the well will have to be grouted with the remaining casing left in the borehole. The preferred method in this case should be to pressure grout the borehole by placing the tremie tube to the bottom of the well casing, which will be the well screen or the bottom sump area below the well screen. The pressurized grout will be forced out through the well screen into the filter material and up the inside of the well casing sealing holes and breaks that are present. The tremie tube should be retracted slowly as the grout fills the casing. The well casing should be cut off even with the ground surface and filled with concrete to a depth of 2 feet below the surface. If the casing has been broken off below the surface, the grout should be tremied to within 2 feet of the surface and then finished to the ground surface with concrete. The surface pad or specified surface restoration shall then be installed.

A polyvinyl chloride (PVC) well casing may be more difficult to remove from the borehole than a metal casing, because of its brittleness. If the PVC well casing breaks during removal, the borehole should be

cleaned out by using a drag bit or roller cone bit with the mud rotary method to grind the casing into small cuttings that will be lifted out of the borehole by drilling mud. Another method is to use a solid-stem auger with a carbide tooth bit to grind the PVC casing into small cuttings that will be brought to the surface on the rotating flights. After the casing materials have been removed from the borehole, the borehole should be cleaned out and pressure grouted with the approved grouting materials. As previously stated, the borehole should be finished with a concrete surface plug and adequate surface restoration, unless directed otherwise.