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HUNTERS POINT
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Petroleum Hydrocarbon Corrective Action, Fourth Quarter 2012 and Annual Groundwater Monitoring Report, Combined Site, Parcel B, Hunters Point Naval Shipyard, San Francisco, California

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October 2013

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LIST OF ACRONYMS AND ABBREVIATIONS

µg/L	micrograms per liter
AOC	Area of Concern
BTEX	benzene, toluene, ethylbenzene, and xylenes
bgs	below ground surface
BGMP	Basewide Groundwater Monitoring Program
CAA	Corrective Action Area
CAP	Corrective Action Plan
CE^2-Kleinfelder	CE^2-Kleinfelder Joint Venture
ChaduxTt	St. George Chadux and Tetra Tech EM Inc.
COC	contaminant of concern
Combined Site	CAA-21, CAA-22, AOC 46-A, and AOC 46-B
HPNS	Hunters Point Naval Shipyard
IR	Installation Restoration
IT	IT Corporation
ITSI Gilbane	ITSI Gilbane Company (formerly Innovative Technical Solutions, Inc.)
MTBE	methyl tert-butyl ether
NAPL	non-aqueous phase liquid
PAH	polycyclic (polynuclear) aromatic hydrocarbon
Petroleum Program	Petroleum Program Strategy (Shaw, 2007)
PRC	PRC Environmental Management, Inc.
QA	quality assurance
QC	quality control
SAP	Sampling and Analysis Plan
SDG	sample delivery group
SIM	selected ion monitoring
Total TPH	total of all factions of total petroleum hydrocarbons
TPA-CKY JV	TPA-CKY a Joint Venture
TPH	total petroleum hydrocarbons
TPH-gasoline	total petroleum hydrocarbons, gasoline range
TPH-diesel	total petroleum hydrocarbons, diesel range
TPH-motor oil	total petroleum hydrocarbons, motor oil range
TtEMI	Tetra Tech EM, Inc.
USEPA	United States Environmental Protection Agency

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1.0 INTRODUCTION

This report presents results of Fourth Quarter 2012 and annual groundwater monitoring for the Combined Site at Hunters Point Naval Shipyard (HPNS) Parcel B, located in the City of San Francisco, California (see Figure 1 and Figure 2). All 2012 groundwater monitoring events were conducted by ITSI Gilbane Company (ITSI Gilbane) of Walnut Creek, California.

1.1 BACKGROUND

Within HPNS, the Combined Site consists of Corrective Action Area (CAA)-21, CAA-22, Area of Concern (AOC) 46-A, and AOC 46-B in Parcel B. The Combined Site encompasses approximately one acre of land located near the northeastern boundary of Parcel B along the San Francisco Bay margin. It extends approximately 700 feet along the shoreline adjacent to former Piers B and C, and approximately 80 feet inland to Buildings 128 and 130 (Figure 3).

CAA-21 and CAA-22 are associated with contaminated soil and groundwater that resulted from releases of petroleum hydrocarbons from Fuel Lines A, B, or C and from shore activities associated with dock operations at former Piers A, B, and C.

AOC 46-A is associated with former Fuel Line A, and AOC 46-B is associated with former Fuel Line B. Both of these fuel lines connected with the Installation Restoration (IR)-06 tank farm at Parcel C through former Fuel Line C. The fuel lines were used from 1942 to 1974 to convey diesel fuel to Berths 55 and 56 (Pier C, removed in 2011), and both diesel fuel and lubrication oil to Berths 57 and 58 (Pier B, removed in 2011) and Berth 60 (Pier A, removed prior to the 2010 corrective action). The lines also were used to transport waste diesel fuel and waste lubrication oil from the berths back to the tank farm at IR-06 in Parcel C (PRC Environmental Management, Inc. [PRC] et al., 1996).

A series of corrective actions in 1998–1999 (IT Corporation [IT], 2000, and Tetra Tech EM, Inc. [TtEMI], 2002), 2000–2001 (TtEMI, 2002), and 2004 (TPA-CKY a Joint Venture [TPA-CKY JV] 2005) included removal of fuel lines and excavation of contaminated soil at the Combined Site. During the corrective action excavations of 1998 through 2001, soil was removed to depths

of five to ten feet below ground surface (bgs) in most of AOC 46-A and AOC 46-B. Scattered areas in CAA-21 and CAA-22 also were excavated to similar depths at this time. Previously excavated areas falling within CAA-21 and CAA-22 were overexcavated during the 2004 corrective action, during which soil was removed to a depth of 10 feet bgs throughout CAA-21 and CAA-22 and to a depth of 13 feet bgs in a small area to the immediate west of well IR46MW48A. Contaminants of concern (COCs) for the various corrective action excavations included one or more of the following: total petroleum hydrocarbons (TPH)-gasoline, TPH-diesel, TPH-motor oil, polycyclic (polynuclear) aromatic hydrocarbons (PAHs), Aroclor-1260, and metals (St. George Chadux and Tetra Tech EM, Inc. [ChaduxTt], 2008). Areas excavated in 1998 through 2004 are shown in light pink on Figure 3.

Floating non-aqueous phase liquid (NAPL) was observed in groundwater monitoring well IR46MW49A during the scheduled Basewide Groundwater Monitoring Program (BGMP) Second Quarter 2010 sampling event. CE^2-Kleinfelder Joint Venture (CE^2-Kleinfelder) documented NAPL at a thickness of 0.50 foot on April 29, 2010. ITSI Gilbane measured NAPL in well IR46MW49A on October 18, 2010, at a thickness of 0.37 foot (see CE^2-Kleinfelder, 2011, and ITSI, 2010).

In response to the NAPL discovery, a NAPL removal action (excavation) was conducted by ITSI Gilbane in October through December of 2010, centered on well IR46MW49A, near the southeastern corner of Building 130. The final limits of the excavation extended approximately 160 feet along the northeastern side of building 130, with a width of approximately 40 feet and a maximum depth of 17 feet bgs. Approximately 5,229 cubic yards of impacted soil were removed from the excavation and disposed at a licensed soil disposal facility off site. Additionally, a total of approximately 200,660 gallons of impacted groundwater was recycled at the East Bay Municipal Utility District facility. Well IR46MW49A was destroyed during this removal action and was replaced by monitoring well IR46MW56A, which was installed at the location of former well IR46MW49A. Additional details are provided in the Final Post-Construction Summary Report (ITSI Gilbane, 2013c). The 2010 NAPL excavation area is shown in dark pink on Figure 3.

Subsequent to the completion of the NAPL removal excavation and as part of the post-remedial assessment activities, a schedule of groundwater monitoring events was initiated to determine the success of the remedy. The results of groundwater monitoring at the Combined Site in 2011 are summarized in the Fourth Quarter 2011 Groundwater Monitoring Report (ITSI Gilbane, 2013). The First Quarter 2012 groundwater monitoring was performed on March 28, 2012 (ITSI Gilbane, 2013b). Second Quarter 2012 groundwater monitoring was performed on June 27, 2012 (ITSI Gilbane, 2013d), and Third Quarter 2012 groundwater monitoring was performed on September 25, 2012 (ITSI Gilbane, 2013e).

1.2 SITE GEOLOGY AND HYDROGEOLOGY

The City of San Francisco is located in the Coast Ranges Geomorphic Province of California. The city is bounded to the north and east by San Francisco Bay, to the northwest by the Golden Gate strait, to the west by the Pacific Ocean, and to the south by land of the San Francisco Peninsula. Hunters Point Naval Shipyard is located in the southeastern portion of the city, along San Francisco Bay. The shallow geology of Parcel B and the Combined Site is characterized by artificial fill material derived predominantly from local serpentine bedrock and colluvium emplaced at depths up to 70 feet bgs. In the Combined Site area, fill material has been mapped to depths of approximately 25 to 50 feet bgs (PRC et al., 1996). The HPNS shoreline was extended into San Francisco Bay around 1935, mainly with this locally derived fractured bedrock fill–mixed, in places, with alluvium and sandy hydraulic fill. Fill material ranges in size from silt and clay fractions to sand and gravel, and includes boulders up to approximately six feet in diameter.

The hydrogeology of the site has been classified into three groundwater-bearing zones: the shallow-zone A-Aquifer, the intermediate B-Aquifer, and the bedrock water-bearing groundwater zones (PRC et al., 1996). The A-Aquifer and the B-Aquifer are separated by Bay Mud deposits, which are 5 to 60 feet thick under Parcel B and act as a confining layer between the two aquifers. The shallow A-Aquifer groundwater zone occurs primarily within the fill material overlying the Bay Mud. All of the Combined Site groundwater monitoring wells are constructed in the shallow A-Aquifer, within fill material. Five wells (IR46MW56A,

IR46MW57A, IR46MW58A, IR46MW59A, and IR46MW60A) are constructed within the excavation fill of the ITSI Gilbane 2010 remedial excavation. These wells were constructed with pre-packed well screens placed within the clean gravel backfill (from 8 feet bgs to 18 feet bgs) of the remedial excavation. The excavation backfill gravels are overlain by certified-clean Stevens Creek quarry fines (silty sands) from 8 feet bgs to the ground surface. Details of well construction are summarized in Table 1.

2.0 FIELD ACTIVITIES

This section presents a discussion of the field sampling and laboratory analysis methods employed during the Fourth Quarter 2012 monitoring event at the Combined Site. These methods are consistent with those used in the first through third quarters of 2012. Field documentation (Appendix A), laboratory analytical reports (Appendix B), and data validation reports (Appendix C) for all four quarterly monitoring events in 2012 are included in the appendices.

2.1 COMBINED SITE GROUNDWATER MONITORING AND SAMPLING

Fourth Quarter 2012 groundwater monitoring was performed from December 17 through 19, 2012. Eleven wells (IR24MW05A, IR24MW07A, IR24MW28A, IR46MW46A, IR46MW47A, IR46MW48A, IR46MW56A, IR46MW57A, IR46MW58A, IR46MW59A, and IR46MW60A) were sampled during this event. These eleven Combined Site wells, along with well IR46MW61A (located southwest of the Combined Site), were monitored for the presence of floating NAPL and surveyed for depth to groundwater on December 17, 2012. The well locations are shown on Figure 3. The eleven Combined Site wells were purged and sampled using portable or dedicated pressurized-air-operated bladder pumps.

Portable bladder pumps were used in wells IR24MW28A, IR46MW56A, IR46MW57A, IR46MW58A, IR46MW59A, and IR46MW60A. Single-use ¼-inch-diameter polyethylene tubing was attached to each 1-¾-inch-diameter stainless steel portable bladder pump and each pump was lowered to position the pump inlet near the middle of the well screened interval as recorded on existing well construction diagrams (a depth of approximately 15 feet bgs). For the dedicated bladder pumps in wells IR24MW05A, IR24MW07A, IR46MW46A, IR46MW47A, and IR46MW48A, dedicated Teflon-lined polyethylene tubing located in each well casing was used to purge and sample each well. Dedicated pump intake depths are recorded in Table 1.

Purge water physical parameters were stabilized in each well using the low-flow sampling protocol (Puls and Barcelona, 1996) with a flow rate of less than 0.5 liter per minute, and samples were analyzed in accordance with the *Final Addendum to Project Work Plan, Petroleum*

Hydrocarbon Corrective Action, Parcel B, Hunters Point Shipyard, San Francisco, California (ITSI, 2010). Field measurements of stabilization parameters (pH, temperature, conductivity, oxidation-reduction potential, dissolved oxygen, and turbidity) collected during the Fourth Quarter 2012 monitoring event were recorded on field data sheets (copies are included in Appendix A of this report).

Eleven groundwater monitoring wells are sampled in the Parcel B total petroleum hydrocarbon (TPH) Combined Site groundwater sampling regimen (well locations are shown on Figure 3). Only well IR24MW07 was sampled on a quarterly basis during 2012, due to higher than expected concentrations of TPH detected in groundwater samples from this well in 2011. The remaining ten Combined Site wells were sampled only once in 2012, during the Fourth Quarter monitoring event.

Monitoring well groundwater samples collected during the four 2012 monitoring events were analyzed by Curtis and Tompkins Laboratory, of Berkeley, California, for:

- TPH-gasoline by United States Environmental Protection Agency (USEPA) Method 8015B,
- TPH-diesel/motor oil by USEPA Method 8015B,
- Benzene, toluene, ethylbenzene, and xylenes (BTEX) and methyl tert-butyl ether (MTBE) by USEPA Method 8021B, and
- Polycyclic aromatic hydrocarbons (PAHs) by USEPA Method 8270C with selected ion monitoring (SIM).

3.0 GROUNDWATER LEVEL MONITORING DATA

This section summarizes site geologic and hydrologic conditions, and presents the static water level data collected on December 17, 2012. Groundwater level elevations and NAPL thickness (if present) are monitored to document the groundwater flow direction and gradient in the Combined Site area of Parcel B. These measurements are summarized in Table 2.

3.1 COMBINED SITE GROUNDWATER LEVEL MONITORING DATA

Depth-to-water data collected during the Fourth Quarter 2012 monitoring event were recorded on field data sheets, which are presented in Appendix A and summarized in Table 2. On December 17, 2012, all Combined Site well caps were removed and the wells were allowed to equilibrate for at least 15 minutes before groundwater levels were gauged. An interface probe was used to measure NAPL thickness and groundwater depths to the nearest 0.01 foot, and this information was recorded on the field data sheets. NAPL was not detected in any of the twelve wells surveyed. Depth-to-water data were used to calculate the elevation of groundwater in each well, as shown in Table 2. For the Fourth Quarter 2012 event, a groundwater elevation contour map was developed for the shallow-zone groundwater potentiometric surface; the groundwater elevation contours are shown on Figure 3.

3.1.1 Groundwater Flow Patterns

Based on current and historical groundwater-elevation data, groundwater flow directions across the project area in shallow groundwater are variable between the northeast and east, with additional fluctuations in response to tidal conditions. On December 17, 2012, high tide was predicted to occur at HPNS (station ID: 9414358, http://tidesandcurrents.noaa.gov) at approximately 2:37 pm. Groundwater level measurements were collected on December 17, 2012, between 11:15 am and 12:15 pm, during rising tide. Groundwater elevation contours (Figure 3) show the effect of high tide. Groundwater elevations in wells IR24MW07A and IR24MW28A near the quay wall gap (Figure 3) are higher than groundwater elevations in wells IR24MW05A, IR46MW59A, and IR46MW60A further inland. This is consistent with observations made during previous monitoring events at the Combined Site, in which a slight onshore groundwater gradient was found in a narrow strip along the shoreline due to the effect of

rising tide. Generally, groundwater in the area of the Combined Site flows toward the east-northeast along a gradient of about 0.01 feet per foot (or about 1.0%), similar to the groundwater flow direction and gradient observed during previous monitoring events. The occurrence of gradient reversals along the shoreline of the bay during high tide, with an apparent trough between the onshore component and offshore component of groundwater flow, is typical, even though net flow is toward the surface water body.

4.0 GROUNDWATER QUALITY ANALYSIS, FOURTH QUARTER, 2012

Analytical results for all samples collected since the completion of the ITSI Gilbane 2010 remedial action excavation, including results obtained during the First, Second, Third, and Fourth Quarter 2012, are summarized in Table 3. Certified analytical laboratory reports and chain-of-custody documentation for the Fourth Quarter 2012 monitoring event are presented in Appendix B.

4.1 FIELD AND LABORATORY DATA QUALITY EVALUATION

Analytical data were evaluated for accuracy, precision, and completeness based on the field and laboratory quality assurance and quality control (QA/QC) criteria listed on worksheets #12, #28, and #37 of the Sampling and Analysis Plan (SAP; Appendix A of ITSI, 2010). The field QA/QC measures included the collection and analysis of additional samples (duplicates, blanks, and matrix spike samples) as listed on Worksheet #12 of the SAP. Trip blanks were included in all sample shipments when one or more samples were submitted for BTEX and MTBE analysis. MTBE was reported at a concentration of 1.8 µg/L in the trip blank for sample delivery group (SDG) 242032, which included samples collected on December 17 and 18, 2012. As a result, a low-level detection of MTBE in the sample from well IR46MW56A is considered unrepresentative of site groundwater conditions. No detections of BTEX or MTBE were reported in any other trip blanks for the Fourth Quarter 2012 monitoring event.

Field duplicates were collected from wells IR24MW28A and IR46MW47A. Qualitative evaluation of the data indicates good agreement between samples and duplicates for the Fourth Quarter 2012 for all analytes except for MTBE in the sample from well IR24MW28A. MTBE was not detected in the duplicate sample from this well. Details of the qualitative evaluation of the duplicate samples are presented in Appendix C.

Laboratory QA/QC samples included matrix spikes, method blanks, and surrogate recovery checks as listed on Worksheet #28 of the SAP. The analytical results were validated in accordance with Worksheet #36 of the SAP, are of good quality, and meet the project objectives stated in the SAP.

4.2 GROUNDWATER QUALITY DATA

Groundwater analytical data are reported in reference to the Petroleum Program Tier 1 screening criteria for a non-drinking water resource, as shown in Table 3. For well IR24MW07, Total TPH (TTPH) concentrations, which are the combined concentrations of all hydrocarbon fractions analyzed (i.e., TPH as diesel, TPH as gasoline, and TPH as motor oil), exceeded the Petroleum Program Strategy (Petroleum Program; Shaw, 2007) Tier 1 screening criterion concentration of 1,400 micrograms per liter (µg/L) in the Third Quarter 2011 and Fourth Quarter 2011 (ITSI Gilbane, 2013).

4.2.1 Total Petroleum Hydrocarbon Fractions

The following overall results for TPH were reported for the Fourth Quarter 2012 monitoring and sampling event.

- TPH-diesel was detected in six of eleven samples, to a maximum of **530 µg/L** in the sample from well IR24MW07A.
- TPH-motor oil was not detected in any field samples.
- TPH-gasoline was detected only in the sample from well IR46MW58A, at a concentration of 14 J µg/L (where J indicates a laboratory estimated value below the sample quantitation limit but above the method detection limit).
- Total TPH concentrations, where detected, ranged from 28 J µg/L in well IR46MW56A to 530 µg/L in well IR24MW07A. No detectable TPH fractions were reported for five of the eleven wells sampled.

For the Fourth Quarter 2012, concentrations of TPH fractions in the shallow groundwater zone were below Tier 1 screening criteria for TPH in groundwater samples at all eleven Combined Site wells. Data plots of Total TPH concentrations and groundwater elevations versus time for each sampled well are presented on Figure 4.

In the samples taken during the First, Second and Third Quarter 2012 monitoring and sampling events, in which only well IR24MW07A was sampled, total TPH concentrations exceeded or equaled the Tier 1 screening criterion of 1,400 µg/L during in the second and third quarters only, with respective concentrations of 3,400 µg/L and 1,400 µg/L. Total TPH concentrations calculated for well IR24MW07A were comprised only of TPH-diesel detections, except for the

Second Quarter 2012 event, in which a an estimated TPH-motor oil concentration of 170 µg/L also contributed to the calculated value Total TPH.

4.2.2 BTEX Compounds

The following overall results for BTEX compounds and MTBE were reported for the Fourth Quarter 2012 monitoring event:

- MTBE was detected in well IR24MW28A at a trace concentration of 2.1 J µg/L.
- Benzene, ethylbenzene, toluene, and total xylenes were not detected in any groundwater field samples.

For the Fourth Quarter 2012, all detected concentrations of BTEX compounds and MTBE in the shallow groundwater zone were below Tier 1 screening criteria for all eleven Combined Site wells. In the samples taken during the First, Second and Third Quarter 2012, in which only well IR24MW07A was sampled, no BTEX compounds or MTBE were detected above the reporting limit of 0.5 µg/L.

4.2.3 PAH Compounds

The following overall results for PAHs were reported for the Fourth Quarter 2012 monitoring event.

- Trace concentrations of PAHs were detected in three of eleven groundwater field samples. The maximum concentration detected was pyrene at 0.06 J µg/L in well IR46MW56A.

For the Fourth Quarter 2012, concentrations of PAHs in the shallow groundwater zone were below Tier 1 Screening criteria for all eleven Combined Site wells. In the samples taken during the First, Second and Third Quarter 2012, in which only well IR24MW07A was sampled, the only detection of any PAH compound above its reporting limit was pyrene, which was detected at 0.2 µg/L (twice the reporting limit) in during the Third Quarter 2012. This concentration is below the Tier 1 screening criterion for pyrene of 60 µg/L.

5.0 SUMMARY AND CONCLUSIONS

On December 17–19, 2012, ITSI Gilbane personnel conducted groundwater monitoring and sampling at eleven wells of the Combined Site at the Hunters Point Naval Shipyard, Parcel B.

Water-level data were collected from groundwater monitoring wells, and an A-aquifer groundwater elevation map was developed. In general, the groundwater flow direction is toward the east-northeast, with a hydraulic gradient of approximately 0.01 feet per foot. Groundwater elevations near the quay wall gap appear to be influenced by the tides. This is a typical condition that has been observed in previous monitoring events. Groundwater flow is reversed, briefly, immediately along the shoreline due to the effect of rising tide (see Figure 3) , but overall groundwater flow remains toward the bay. Depth-to-water measurements were collected during rising tide conditions for HPNS for this event.

Groundwater samples were analyzed for TPH fractions, BTEX/MTBE, and PAHs. Groundwater analytical results are summarized as follows:

- NAPL was not observed in any of the Combined Site wells in the Fourth Quarter 2012.
- TPH was detected in six of the eleven wells in the sampling program to a maximum reported concentration of **530 µg/L** total TPH (IR24MW07A), which is below the Tier 1 screening criterion of 1,400 µg/L established for the protection of marine ecological receptors. TPH-diesel was the only component of total TPH reported in the field samples with the exception of the sample from well IR46MW58A, where a detection of TPH-gasoline also contributed to the reported concentration of total TPH.
- BTEX/MTBE were not detected above Tier 1 screening criteria in any of the field samples collected from the eleven wells in the Fourth Quarter 2012 sampling regimen.
- PAHs were not detected above Tier 1 screening criteria in any of the field samples collected from the eleven wells in the Fourth Quarter 2012 sampling regimen.

5.1 TRENDS IN GROUNDWATER QUALITY

The long-term trends in groundwater concentrations of total TPH for the Combined Site wells are presented on Figure 5.

Several groundwater source exceedances had been recorded for monitoring well PA24MW03AD (decommissioned in October 1998), and its replacement well PA24MW03AD1 (decommissioned

in March 2001) before the first corrective action was completed in mid-2001. This well was located near the southeastern corner of Building 130, within approximately 15 feet of the current location of monitoring well IR24MW28A. Almost all shallow soils (less than 10 feet bgs) were removed from within the boundaries of CAA-21, CAA-22, AOC 46-A, and AOC 46-B during the 1998–2001 and 2004 corrective actions. The remaining concern upon completion of these corrective actions for shallow soils was the potential impact of petroleum-contaminated deep soils (below 10 feet bgs) that had been left in place.

Analytical results for groundwater monitoring conducted between 1993 and 2003 at the Combined Site showed Total TPH concentrations decreasing to below the Tier 1 ecological risk criterion of 1,400 µg/L, even before the first removal action was completed in 2001. This trend continued in the sampling conducted after the 1998–2001 corrective action was completed; however, groundwater monitoring was discontinued before the start of the 2004 corrective action.

The Parcel B Corrective Action Plan (CAP; Shaw, 2008) concluded that additional groundwater monitoring was needed to document post-remediation conditions at the site. The initial four rounds of post-remediation monitoring conducted in 2008–2009 showed two instances of an exceedance of the Tier 1 ecological risk criterion (1,400 µg/L) in two different wells (IR46MW49A and IR46MW51A) during two different events (Figure 5). In both instances, the groundwater concentrations decreased to below Tier 1 criteria in the subsequent round of sampling. Before a recommendation could be made for further evaluation, NAPL was discovered in well IR46MW49A in April 2010.

A rapid response action was implemented by the Navy in October 2010 to remove the NAPL by excavation and by vacuum skimming. NAPL was observed in the open excavation associated with an underground concrete electrical utility corridor that was left in place during the 1998–2001 and 2004 removal actions. The concrete utility vault and underlying gravel bed may have acted as a trap for small amounts of residual free product. The NAPL discovery well, IR46MW49A, was installed very close to (within ten feet of) the terminus of the concrete utility vault. The concrete utility vault was removed in the area where free product was observed, along

with TPH-impacted deep soils (soils below 10 feet bgs that had been left in place during previous removal actions) to a total depth of 17 feet bgs–the maximum depth that could be attained by the excavator on site.

An additional eight rounds of post-removal action groundwater sampling have been conducted to date, culminating with the Fourth Quarter 2012 monitoring event (Figure 4 and Figure 5). All wells except one (IR24MW07A) remain consistently below Tier 1 ecological risk criteria. No NAPL or Total TPH source exceedances have been recorded since the 2010 NAPL removal action.

6.0 FUTURE WORK

The Navy's proposal for sampling in 2013 is to conduct a full round of sampling (all eleven wells) on a semi-annual basis (i.e., during the Second Quarter and Fourth Quarter 2013 events). The Navy proposes reducing the analyte list to TPH-extractable (diesel and motor oil) only beginning in 2013. Additionally, all eleven Combined Site wells should be gauged to detect the presence of mobile NAPL as well as depth to groundwater on a quarterly basis.

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TABLES

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Table 1:
Well Construction Details;
Combined Site (CAA-21, CAA-22, AOC 46-A, AOC 46-B),
Parcel B, Hunters Point Naval Shipyard, San Francisco, California

Well ID	Date Installed	Well Type	Well Construction	Total Depth	Screened Interval	Dedicated Pump Intate	Comments
		Groundwater		(feet bgs)	(feet bgs)	(feet bgs)	
IR24MW05A	8-Jan-2002	X	4-inch diameter schedule 40 PVC; 0.010" slot	22	7 - 22.5	17.0	Pre-existing well downgradient of NAPL excavation
IR24MW07A	8-Jan-2002	X	4-inch diameter schedule 40 PVC; 0.010" slot	20	5 - 20.5	16.0	Pre-existing well downgradient of NAPL excavation
IR24MW28A	19-Jan-2011	X	4-inch diameter schedule 40 PVC; 0.020" slot	20	8 - 18	NA	"Guard well" at the quay wall gap
IR46MW46A	12-Oct-1995	X	4-inch diameter schedule 40 PVC; 0.010" slot	21.5	6 - 21	16.0	Pre-existing well along Bay margin
IR46MW47A	12-Oct-1995	X	4-inch diameter schedule 40 PVC; 0.010" slot	21.5	6 - 21	15.0	Pre-existing well along Bay margin
IR46MW48A	12-Oct-1995	X	4-inch diameter schedule 40 PVC; 0.010" slot	21.5	6 - 21	14.2	Pre-existing well along Bay margin
IR46MW56A	20-Jan-2011	X	4-inch diameter schedule 40 PVC; 0.020" slot	20	8 - 18	NA	Replacement for NAPL Well (IR46MW49A)
IR46MW57A	20-Jan-2011	X	4-inch diameter schedule 40 PVC; 0.020" slot	20	8 - 18	NA	Within NAPL excavation footprint
IR46MW58A	20-Jan-2011	X	4-inch diameter schedule 40 PVC; 0.020" slot	20	8 - 18	NA	Within NAPL excavation footprint
IR46MW59A	21-Jan-2011	X	4-inch diameter schedule 40 PVC; 0.020" slot	20	8 - 18	NA	Within NAPL excavation footprint
IR46MW60A	21-Jan-2011	X	4-inch diameter schedule 40 PVC; 0.020" slot	20	8 - 18	NA	Within NAPL excavation footprint

NA = Not Applicable
NAPL = Non-aqueous phase liquid
PVC = Polyvinyl chloride
bgs = below ground surface

Table 2:
Post-Corrective Action Groundwater Elevation Monitoring,
Combined Site (CAA-21, CAA-22, AOC 46-A, AOC 46-B), Parcel B, Hunters Point Naval Shipyard,
San Francisco, California

Well Name	Ground Surface Elevation[1] (feet AMSL)	Top of Casing Elevation[1] (feet AMSL)	Water Level Measurement Date	Depth to Floating NAPL[2] (feet BTOC)	Depth to Water (feet BTOC)	Groundwater Elevation[1] (feet AMSL)
IR24MW05A	10.29	10.02	2/23/2011	--	9.03	0.99
	10.29	10.02	5/23/2011	--	9.87	0.15
	10.29	10.02	8/23/2011	--	9.26	0.76
	10.29	10.02	12/5/2011	--	8.40	1.62
	10.29	10.02	3/28/2012	--	8.80	1.22
	10.29	10.02	6/27/2012	--	9.85	0.17
	10.29	10.02	9/25/2012	--	9.66	0.36
	10.29	10.02	12/17/2012	--	9.25	0.77
IR24MW07A	10.10	9.92	2/23/2011	--	9.03	0.89
	10.10	9.92	5/23/2011	--	9.85	0.07
	10.10	9.92	8/23/2011	--	8.88	1.04
	10.10	9.92	12/5/2011	--	8.14	1.78
	10.10	9.92	3/28/2012	--	8.82	1.10
	10.10	9.92	6/27/2012	--	9.56	0.36
	10.10	9.92	9/25/2012	--	9.16	0.76
	10.10	9.92	12/17/2012	--	8.85	1.07
IR24MW28A	10.62	10.42	2/23/2011	--	9.42	1.00
	10.62	10.42	5/23/2011	--	10.37	0.05
	10.62	10.42	8/23/2011	--	8.97	1.45
	10.62	10.42	12/5/2011	--	8.02	2.40
	10.62	10.42	3/28/2012	--	9.31	1.11
	10.62	10.42	6/27/2012	--	10.15	0.27
	10.62	10.42	9/25/2012	--	9.00	1.42
	10.62	10.42	12/17/2012	--	8.80	1.62
IR46MW46A	10.35	9.61	2/23/2011	--	10.41	-0.80
	10.35	9.61	5/23/2011	--	10.28	-0.67
	10.35	9.61	8/23/2011	--	8.52	1.09
	10.35	9.61	12/5/2011	--	7.43	2.18
	10.35	9.61	3/28/2012	--	9.78	-0.17
	10.35	9.61	6/27/2012	--	9.77	-0.16
	10.35	9.61	9/25/2012	--	8.17	1.44
	10.35	9.61	12/17/2012	--	8.00	1.61
IR46MW47A	10.22	9.69	2/23/2011	--	8.86	0.83
	10.22	9.69	5/23/2011	--	9.73	-0.04
	10.22	9.69	8/23/2011	--	8.49	1.20
	10.22	9.69	12/5/2011	--	7.47	2.22
	10.22	9.69	3/28/2012	--	8.91	0.78
	10.22	9.69	6/27/2012	--	9.27	0.42
	10.22	9.69	9/25/2012	--	8.57	1.12
	10.22	9.69	12/17/2012	--	8.20	1.49
IR46MW48A	9.48	8.89	2/23/2011	--	8.11	0.78
	9.48	8.89	5/23/2011	--	9.03	-0.14
	9.48	8.89	8/23/2011	--	7.80	1.09
	9.48	8.89	12/5/2011	--	6.59	2.30
	9.48	8.89	3/28/2012	--	NM	--
	9.48	8.89	6/27/2012	--	8.79	0.10
	9.48	8.89	9/25/2012	--	7.88	1.01
	9.48	8.89	12/17/2012	--	7.50	1.39
IR46MW56A	11.26	10.63	2/23/2011	--	8.99	1.64
	11.26	10.63	5/23/2011	--	9.67	0.96
	11.26	10.63	8/23/2011	--	9.61	1.02
	11.26	10.63	12/5/2011	--	9.35	1.28
	11.26	10.63	3/28/2012	--	8.94	1.69
	11.26	10.63	6/27/2012	--	9.90	0.73
	11.26	10.63	9/25/2012	--	10.10	0.53
	11.26	10.63	12/17/2012	--	9.55	1.08

Table 2 (continued):
Post-Corrective Action Groundwater Elevation Monitoring,
Combined Site (CAA-21, CAA-22, AOC 46-A, AOC 46-B), Parcel B, Hunters Point Naval Shipyard,
San Francisco, California

Well Name	Ground Surface Elevation[1] (feet AMSL)	Top of Casing Elevation[1] (feet AMSL)	Water Level Measurement Date	Depth to Floating NAPL[2] (feet BTOC)	Depth to Water (feet BTOC)	Groundwater Elevation[1] (feet AMSL)
IR46MW57A	10.70	10.36	2/23/2011	--	8.86	1.50
	10.70	10.36	5/23/2011	--	9.53	0.83
	10.70	10.36	8/23/2011	--	9.33	1.03
	10.70	10.36	12/5/2011	--	8.86	1.50
	10.70	10.36	3/28/2012	--	8.74	1.62
	10.70	10.36	6/27/2012	--	12.71	-2.35*
	10.70	10.36	9/25/2012	--	9.85	0.51
	10.70	10.36	12/17/2012	--	9.30	1.06
IR46MW58A	11.29	10.96	2/23/2011	--	9.31	1.65
	11.29	10.96	5/23/2011	--	9.96	1.00
	11.29	10.96	8/23/2011	--	9.94	1.02
	11.29	10.96	12/5/2011	--	9.40	1.56
	11.29	10.96	3/28/2012	--	9.27	1.69
	11.29	10.96	6/27/2012	--	10.25	0.71
	11.29	10.96	9/25/2012	--	10.40	0.56
	11.29	10.96	12/17/2012	--	9.86	1.10
IR46MW59A	10.64	10.22	2/23/2011	--	8.72	1.50
	10.64	10.22	5/23/2011	--	9.63	0.59
	10.64	10.22	8/23/2011	--	9.20	1.02
	10.64	10.22	12/5/2011	--	8.69	1.53
	10.64	10.22	3/28/2012	--	8.67	1.55
	10.64	10.22	6/27/2012	--	9.65	0.57
	10.64	10.22	9/25/2012	--	9.76	0.46
	10.64	10.22	12/17/2012	--	9.22	1.00
IR46MW60A	10.52	9.96	2/23/2011	--	5.52	4.44
	10.52	9.96	5/23/2011	--	9.22	0.74
	10.52	9.96	8/23/2011	--	8.94	1.02
	10.52	9.96	12/5/2011	--	8.41	1.55
	10.52	9.96	3/28/2012	--	8.44	1.52
	10.52	9.96	6/27/2012	--	9.40	0.56
	10.52	9.96	9/25/2012	--	9.50	0.46
	10.52	9.96	12/17/2012	--	9.00	0.96
IR46MW61A	10.52	10.20	2/23/2011	--	6.86	3.34
	10.52	10.20	5/23/2011	--	7.51	2.69
	10.52	10.20	8/23/2011	--	8.16	2.04
	10.52	10.20	12/5/2011	--	7.59	2.61
	10.52	10.20	3/28/2012	--	6.78	3.42
	10.52	10.20	6/27/2012	--	8.10	2.10
	10.52	10.20	9/25/2012	--	8.28	1.92
	10.52	10.20	12/17/2012	--	6.90	3.30

NOTES:

[1] Benchmark elevation datum = National Geodetic Vertical Datum of 1929 (NGVD29).

[2] -- indicates floating NAPL not detected

* This value is considered anomalous and is excluded from the dataset used to determine groundwater elevation contours (Figure 1)

ACRONYMS:

AMSL = above mean sea level

BTOC = below top of casing

NAPL = non-aqueous phase liquid

NM = Not monitored, inaccessible

Table 3:
Groundwater Analytical Results,
Combined Site (CAA-21, CAA-22, AOC 46-A, AOC 46-B),
Parcel B, Hunters Point Naval Shipyard, San Francisco, California

Site/AOC	Point ID	Sample ID	Sample Collection Date	Well Screen Interval (feet bgs)	Chemicals of Potential Concern (µg/L – groundwater)												
					Total Petroleum Hydrocarbons				Volatile Organic Compounds					Polycyclic Aromatic Hydrocarbons			
					Total TPH	Gasoline Range Organics	Diesel Range Organics	Motor Oil Range Organics	Benzene	Ethylbenzene	Methyl tert-Butyl Ether (MTBE)	Toluene	Xylenes, Total	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) anthracene
Groundwater - Tier 1 Screening Criteria					1,400 µg/L	na	na	na	477 µg/L	86 µg/L	8,000 µg/L	5,000 µg/L	91,700 µg/L	710 µg/L	60 µg/L	43 µg/L	60 µg/L
Combined Site	IR24MW05A	IR24MW05A-121912	12/19/2012	7 - 22	**35**	50 U	**35 J**	300 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ
Combined Site	IR24MW05A	IR24MW05A-120511	12/05/2011	7 - 22	**24**	50 U	**24 J**	300 U	0.5 UJ	0.5 UJ	2 UJ	0.5 UJ	**0.11 J**	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR24MW05A	IR24MW05A-082511	08/25/2011	7 - 22	**46**	50 U	**46 J**	300 U	**0.06 J**	0.5 U	2 U	0.5 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR24MW05A	IR24MW05A-052411	05/24/2011	7 - 22	-	50 U	50 U	300 U	0.5 U	0.5 U	2 U	0.5 U	0.5 UJ	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR24MW05A	IR24MW05A-022311	02/23/2011	7 - 22	**41**	**18 J**	**23 J**	300 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR24MW07A	IR24MW07A-121912	12/19/2012	5 - 20	**530**	50 U	**530**	300 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR24MW07A	IR24MW07A-092512	09/25/2012	5 - 20	**1,400**	50 U	**1,400**	300 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR24MW07A	IR24MW07A-062712	06/27/2012	5 - 20	**3,400**	50 U	**3,200**	**170 J**	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.09 U	0.09 U	0.09 U	0.09 U
Combined Site	IR24MW07A	IR24MW07A-032812	03/28/2012	5 - 20	**600**	50 U	**600**	300 U	0.5 U	0.5 U	2 U	0.5 U	**0.068 J**	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR24MW07A	IR24MW07A-120611	12/06/2011	5 - 20	**2,900**	50 U	**2,800 J**	**140 J**	0.5 U	0.5 U	2 U	0.5 U	**0.1 J**	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR24MW07A	IR24MW07A-082411	08/24/2011	5 - 20	**7,800**	50 UJ	**7,600**	**220 J**	0.5 U	0.5 U	2 U	0.5 U	**0.13 J**	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR24MW07A	IR24MW07A-052411	05/24/2011	5 - 20	**780**	50 U	**780 J**	300 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR24MW07A	IR24MW07A-022311	02/23/2011	5 - 20	**590**	50 U	**590**	300 U	0.5 U	0.5 U	**1 J**	0.5 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR24MW28A	IR24MW28A-121912	12/19/2012	8 - 18	**32**	50 U	**32 J**	300 U	0.5 U	0.5 U	**2.1 J**	0.5 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR24MW28A	IR24MW28A-120611	12/06/2011	8 - 18	-	50 U	50 U	300 U	0.5 U	0.5 U	2 U	0.5 U	**0.1 J**	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR24MW28A	IR24MW28A-082511	08/25/2011	8 - 18	**69**	50 U	**69 J**	300 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	**0.02 J**	0.1 U	**0.03 J**	0.1 U
Combined Site	IR24MW28A	IR24MW28A-052411	05/24/2011	8 - 18	**84**	50 U	**84 J**	300 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.1 U	0.1 U	**0.03 J**	0.1 U
Combined Site	IR24MW28A	IR24MW028A-022311	02/23/2011	8 - 18	**36**	50 U	**36 J**	300 U	0.5 U	0.5 U	**1.1 J**	0.5 U	0.5 U	**0.03 J**	0.1 U	0.1 U	0.1 U
Combined Site	IR46MW46A	IR46MW46A-121812	12/18/2012	6 - 21	-	50 U	50 U	300 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR46MW46A	IR46MW46A-120711	12/07/2011	6 - 21	-	50 U	50 U	300 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR46MW46A	IR46MW46A-082411	08/24/2011	6 - 21	**13**	50 U	**13 J**	300 UJ	0.5 U	0.5 U	2 U	0.5 U	**0.12 J**	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR46MW46A	IR46MW46A-052311	05/23/2011	6 - 21	-	50 U	50 U	300 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR46MW46A	IR46MW46A-022311	02/23/2011	6 - 21	-	50 U	50 U	300 U	0.5 U	0.5 U	**1.8 J**	0.5 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR46MW47A	IR46MW47A-121812	12/18/2012	6 - 21	-	50 U	50 U	300 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR46MW47A	IR46MW47A-120711	12/07/2011	6 - 21	-	50 U	50 U	300 U	0.5 U	0.5 U	2 U	0.5 U	**0.053 J**	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR46MW47A	IR46MW47A-082911	08/29/2011	6 - 21	**29**	50 U	**29 J**	300 U	**0.06 J**	**0.082 J**	2 U	0.5 UJ	**0.14 J**	0.09 U	0.09 U	0.09 U	0.09 U
Combined Site	IR46MW47A	IR46MW47A-052311	05/23/2011	6 - 21	-	50 U	50 U	300 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR46MW47A	IR46MW47A-022311	02/23/2011	6 - 21	-	50 U	50 U	300 U	0.5 U	0.5 U	**1.2 J**	0.5 U	0.5 U	0.09 U	0.09 U	0.09 U	0.09 U
Combined Site	IR46MW48A	IR46MW48A-121912	12/19/2012	6 - 21	-	50 U	50 U	300 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR46MW48A	IR46MW48A-120611	12/06/2011	6 - 21	-	50 U	50 U	300 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR46MW48A	IR46MW48A-082411	08/24/2011	6 - 21	**16**	50 U	**16 J**	300 UJ	0.5 U	0.5 U	2 U	0.5 U	**0.13 J**	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR46MW48A	IR46MW48A-052311	05/23/2011	6 - 21	**18**	50 U	**18 J**	300 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR46MW48A	IR46MW48A-022311	02/23/2011	6 - 21	-	50 U	50 U	300 U	0.5 U	0.5 U	**1.3 J**	0.5 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR46MW56A	IR46MW56A-121712	12/17/2012	8 - 18	**28**	50 U	**28 J**	300 U	0.5 U	0.5 U	2.2 U	0.5 U	0.5 U	0.09 U	0.09 U	0.09 U	0.09 U
Combined Site	IR46MW56A	IR46MW56A-120511	12/05/2011	8 - 18	**36**	50 U	**36 J**	300 U	0.5 UJ	0.5 UJ	2 UJ	0.5 UJ	0.5 UJ	**0.03 J**	0.1 U	0.1 U	0.1 U
Combined Site	IR46MW56A	IR46MW56A-082911	08/29/2011	8 - 18	**94**	50 U	**94 J**	300 U	0.5 U	0.5 U	2 U	0.5 UJ	**0.2 J**	**0.08 J**	0.1 U	**0.03 J**	0.1 U
Combined Site	IR46MW56A	IR46MW56A-052311	05/23/2011	8 - 18	**110**	50 U	**110 J**	300 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	**0.1**	0.09 U	**0.03 J**	0.09 U
Combined Site	IR46MW56A	IR46MW56A-022411	02/24/2011	8 - 18	**150**	**27 J**	**120 J**	300 U	0.5 U	0.5 U	4.5 U	0.5 U	0.5 U	**0.3**	0.1 U	**0.02 J**	0.1 U
Combined Site	IR46MW57A	IR46MW57A-121812	12/18/2012	8 - 18	-	50 U	50 U	300 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.09 U	0.09 U	0.09 U	0.09 U
Combined Site	IR46MW57A	IR46MW57A-120511	12/05/2011	8 - 18	**22**	50 U	**22 J**	300 U	0.5 UJ	0.5 UJ	2 UJ	0.5 UJ	0.5 UJ	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR46MW57A	IR46MW57A-082911	08/29/2011	8 - 18	**28**	50 U	**28 J**	300 U	**0.11 J**	0.5 U	2 U	0.5 UJ	**0.17 J**	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR46MW57A	IR46MW57A-052311	05/23/2011	8 - 18	-	50 U	50 U	300 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR46MW57A	IR46MW57A-022411	02/24/2011	8 - 18	**27**	50 U	**27 J**	300 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U

See Notes following table

Table 3:
Groundwater Analytical Results,
Combined Site (CAA-21, CAA-22, AOC 46-A, AOC 46-B),
Parcel B, Hunters Point Naval Shipyard, San Francisco, California

Site/AOC	Point ID	Sample ID	Sample Collection Date	Well Screen Interval (feet bgs)	Chemicals of Potential Concern (µg/L – groundwater)												
					Polycyclic Aromatic Hydrocarbons												
					Benzo(a)pyrene	Benzo(b) fluoranthene	Benzo(g,h,i) perylene	Benzo(k) fluoranthene	Chrysene	Dibenz(a,h) anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	2-Methyl–naphthalene	Naphthalene	Phenanthrene	Pyrene
Groundwater - Tier 1 Screening Criteria					60 µg/L	60 µg/L	60 µg/L	60 µg/L	60 µg/L	60 µg/L	16 µg/L	60 µg/L	60 µg/L	26,000 µg/L	470 µg/L	60 µg/L	60 µg/L
Combined Site	IR24MW05A	IR24MW05A-121912	12/19/2012	7 - 22	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ
Combined Site	IR24MW05A	IR24MW05A-120511	12/05/2011	7 - 22	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR24MW05A	IR24MW05A-082511	08/25/2011	7 - 22	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR24MW05A	IR24MW05A-052411	05/24/2011	7 - 22	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	**0.02 J**
Combined Site	IR24MW05A	IR24MW05A-022311	02/23/2011	7 - 22	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR24MW07A	IR24MW07A-121912	12/19/2012	5 - 20	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	**0.05 J**
Combined Site	IR24MW07A	IR24MW07A-092512	09/25/2012	5 - 20	0.1 U	**0.03 J**	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	**0.2**
Combined Site	IR24MW07A	IR24MW07A-062712	06/27/2012	5 - 20	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	**0.09 J**
Combined Site	IR24MW07A	IR24MW07A-032812	03/28/2012	5 - 20	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	**0.06 J**
Combined Site	IR24MW07A	IR24MW07A-120611	12/06/2011	5 - 20	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	**0.2 J**
Combined Site	IR24MW07A	IR24MW07A-082411	08/24/2011	5 - 20	0.1 U	**0.02 J**	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	**0.1**
Combined Site	IR24MW07A	IR24MW07A-052411	05/24/2011	5 - 20	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	**0.1 J**
Combined Site	IR24MW07A	IR24MW07A-022311	02/23/2011	5 - 20	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	**0.05 J**
Combined Site	IR24MW28A	IR24MW28A-121912	12/19/2012	8 - 18	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	**0.02 J**	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	**0.03 J**
Combined Site	IR24MW28A	IR24MW28A-120611	12/06/2011	8 - 18	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	**0.04 J**	0.1 U	0.1 U	0.1 U	**0.03 J**	**0.03 J**	**0.05 J**
Combined Site	IR24MW28A	IR24MW28A-082511	08/25/2011	8 - 18	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	**0.06 J**	0.1 U	0.1 U	0.1 U	**0.05 J**	**0.08 J**	**0.04 J**
Combined Site	IR24MW28A	IR24MW28A-052411	05/24/2011	8 - 18	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	**0.05 J**	0.1 U	0.1 U	0.1 U	**0.03 J**	**0.08 J**	**0.08 J**
Combined Site	IR24MW28A	IR24MW028A-022311	02/23/2011	8 - 18	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	**0.05 J**	**0.03 J**	0.1 U	**0.02 J**	**0.06 J**	**0.09 J**	**0.04 J**
Combined Site	IR46MW46A	IR46MW46A-121812	12/18/2012	6 - 21	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR46MW46A	IR46MW46A-120711	12/07/2011	6 - 21	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR46MW46A	IR46MW46A-082411	08/24/2011	6 - 21	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR46MW46A	IR46MW46A-052311	05/23/2011	6 - 21	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 UJ
Combined Site	IR46MW46A	IR46MW46A-022311	02/23/2011	6 - 21	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR46MW47A	IR46MW47A-121812	12/18/2012	6 - 21	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR46MW47A	IR46MW47A-120711	12/07/2011	6 - 21	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR46MW47A	IR46MW47A-082911	08/29/2011	6 - 21	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U
Combined Site	IR46MW47A	IR46MW47A-052311	05/23/2011	6 - 21	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 UJ
Combined Site	IR46MW47A	IR46MW47A-022311	02/23/2011	6 - 21	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U
Combined Site	IR46MW48A	IR46MW48A-121912	12/19/2012	6 - 21	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR46MW48A	IR46MW48A-120611	12/06/2011	6 - 21	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR46MW48A	IR46MW48A-082411	08/24/2011	6 - 21	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR46MW48A	IR46MW48A-052311	05/23/2011	6 - 21	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 UJ
Combined Site	IR46MW48A	IR46MW48A-022311	02/23/2011	6 - 21	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR46MW56A	IR46MW56A-121712	12/17/2012	8 - 18	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	**0.06 J**
Combined Site	IR46MW56A	IR46MW56A-120511	12/05/2011	8 - 18	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	**0.04 J**	0.1 U	0.1 U	0.1 U	**0.02 J**	0.1 U	**0.06 J**
Combined Site	IR46MW56A	IR46MW56A-082911	08/29/2011	8 - 18	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	**0.07 J**	**0.05 J**	0.1 U	0.1 U	**0.04 J**	0.1 U	**0.07 J**
Combined Site	IR46MW56A	IR46MW56A-052311	05/23/2011	8 - 18	0.09 U	0.09 U	0.09 UJ	0.09 U	0.09 U	0.09 UJ	**0.07 J**	**0.2**	0.09 UJ	0.09 U	**0.04 J**	**0.3**	**0.09**
Combined Site	IR46MW56A	IR46MW56A-022411	02/24/2011	8 - 18	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	**0.08 J**	**0.6**	0.1 U	**0.1**	**0.1**	**0.6**	**0.06 J**
Combined Site	IR46MW57A	IR46MW57A-121812	12/18/2012	8 - 18	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U
Combined Site	IR46MW57A	IR46MW57A-120511	12/05/2011	8 - 18	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR46MW57A	IR46MW57A-082911	08/29/2011	8 - 18	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR46MW57A	IR46MW57A-052311	05/23/2011	8 - 18	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 UJ
Combined Site	IR46MW57A	IR46MW57A-022411	02/24/2011	8 - 18	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U

See Notes following table

Table 3:
Groundwater Analytical Results,
Combined Site (CAA-21, CAA-22, AOC 46-A, AOC 46-B),
Parcel B, Hunters Point Naval Shipyard, San Francisco, California

Site/AOC	Point ID	Sample ID	Sample Collection Date	Well Screen Interval (feet bgs)	Chemicals of Potential Concern (µg/L – groundwater)												
					Total Petroleum Hydrocarbons				Volatile Organic Compounds					Polycyclic Aromatic Hydrocarbons			
					Total TPH	Gasoline Range Organics	Diesel Range Organics	Motor Oil Range Organics	Benzene	Ethylbenzene	Methyl tert-Butyl Ether (MTBE)	Toluene	Xylenes, Total	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) anthracene
Groundwater - Tier 1 Screening Criteria					1,400 µg/L	na	na	na	477 µg/L	86 µg/L	8,000 µg/L	5,000 µg/L	91,700 µg/L	710 µg/L	60 µg/L	43 µg/L	60 µg/L
Combined Site	IR46MW58A	IR46MW58A-121712	12/17/2012	8 - 18	**37**	**14 J**	**23 J**	300 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.09 U	0.09 U	0.09 U	0.09 U
Combined Site	IR46MW58A	IR46MW58A-120511	12/05/2011	8 - 18	**28**	50 U	**28 J**	300 U	0.5 UJ	0.5 UJ	2 UJ	0.5 UJ	0.5 UJ	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR46MW58A	IR46MW58A-083011	08/30/2011	8 - 18	**46**	50 U	**46 J**	300 U	0.5 U	0.5 U	2 U	0.5 U	**0.055 J**	0.1 U	0.1 U	0.1 U	0.1 UJ
Combined Site	IR46MW58A	IR46MW58A-052411	05/24/2011	8 - 18	**70**	50 U	**70 J**	300 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	**0.04 J**	0.1 U	0.1 U	0.1 U
Combined Site	IR46MW58A	IR46MW58A-022311	02/23/2011	8 - 18	**190**	**43 J**	**150 J**	300 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	**0.2**	0.1 U	0.1 U	0.1 U
Combined Site	IR46MW59A	IR46MW59A-121812	12/18/2012	8 - 18	**29**	50 U	**29 J**	300 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.09 U	0.09 U	0.09 U	0.09 U
Combined Site	IR46MW59A	IR46MW59A-120611	12/06/2011	8 - 18	-	50 U	50 U	300 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR46MW59A	IR46MW59A-083011	08/30/2011	8 - 18	**14**	50 U	**14 J**	300 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR46MW59A	IR46MW59A-052311	05/23/2011	8 - 18	-	50 U	50 U	300 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR46MW59A	IR46MW59A-022411	02/24/2011	8 - 18	**12**	50 U	**12 J**	300 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR46MW60A	IR46MW60A-121812	12/18/2012	8 - 18	-	50 U	50 U	300 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR46MW60A	IR46MW60A-120611	12/06/2011	8 - 18	-	50 U	50 U	300 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR46MW60A	IR46MW60A-083011	08/30/2011	8 - 18	**84**	50 U	**84**	300 U	0.5 U	0.5 U	2 U	0.5 U	**0.21 J**	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR46MW60A	IR46MW60A-052311	05/23/2011	8 - 18	**29**	50 U	**29 J**	300 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR46MW60A	IR46MW60A-022411	02/24/2011	8 - 18	**25**	50 U	**25 J**	300 U	0.5 U	0.5 U	2 U	0.5 U	**0.069 J**	0.1 U	0.1 U	0.1 U	0.1 U

See Notes following table

Table 3:
Groundwater Analytical Results,
Combined Site (CAA-21, CAA-22, AOC 46-A, AOC 46-B),
Parcel B, Hunters Point Naval Shipyard, San Francisco, California

Site/AOC	Point ID	Sample ID	Sample Collection Date	Well Screen Interval (feet bgs)	Chemicals of Potential Concern (µg/L – groundwater)												
					Polycyclic Aromatic Hydrocarbons												
					Benzo(a)pyrene	Benzo(b) fluoranthene	Benzo(g,h,i) perylene	Benzo(k) fluoranthene	Chrysene	Dibenz(a,h) anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	2-Methyl–naphthalene	Naphthalene	Phenanthrene	Pyrene
Groundwater - Tier 1 Screening Criteria					60 µg/L	60 µg/L	60 µg/L	60 µg/L	60 µg/L	60 µg/L	16 µg/L	60 µg/L	60 µg/L	26,000 µg/L	470 µg/L	60 µg/L	60 µg/L
Combined Site	IR46MW58A	IR46MW58A-121712	12/17/2012	8 - 18	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U
Combined Site	IR46MW58A	IR46MW58A-120511	12/05/2011	8 - 18	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR46MW58A	IR46MW58A-083011	08/30/2011	8 - 18	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 U	0.1 U	0.1 UJ	0.1 U	**0.02 J**	0.1 U	0.1 U
Combined Site	IR46MW58A	IR46MW58A-052411	05/24/2011	8 - 18	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 UJ	**0.03 J**	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 U	**0.05 J**
Combined Site	IR46MW58A	IR46MW58A-022311	02/23/2011	8 - 18	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	**0.03 J**	**0.1**	0.1 U	0.1 U	**0.06 J**	**0.3**	**0.02 J**
Combined Site	IR46MW59A	IR46MW59A-121812	12/18/2012	8 - 18	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U
Combined Site	IR46MW59A	IR46MW59A-120611	12/06/2011	8 - 18	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR46MW59A	IR46MW59A-083011	08/30/2011	8 - 18	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR46MW59A	IR46MW59A-052311	05/23/2011	8 - 18	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	**0.02 J**
Combined Site	IR46MW59A	IR46MW59A-022411	02/24/2011	8 - 18	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR46MW60A	IR46MW60A-121812	12/18/2012	8 - 18	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR46MW60A	IR46MW60A-120611	12/06/2011	8 - 18	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	**0.03 J**	0.1 U	0.1 U
Combined Site	IR46MW60A	IR46MW60A-083011	08/30/2011	8 - 18	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Combined Site	IR46MW60A	IR46MW60A-052311	05/23/2011	8 - 18	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 UJ
Combined Site	IR46MW60A	IR46MW60A-022411	02/24/2011	8 - 18	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U

See Notes following table

Notes for Analytical Results Table

Abbreviations:	
µg/L	micrograms per liter (applies to groundwater concentrations)
bgs	below ground surface
NA	data not available
na	not applicable
unk	unknown
TPH	total petroleum hydrocarbons ("Total TPH" is the sum of TPH as gasoline range, diesel range, and motor oil range fractions.)
Tier 1 Screening Criteria	Petroleum Program Tier 1 Screening Criteria[1] for the residential, non-drinking water resource land reuse scenario is used for the initial screening evaluation.
Highlighting:	
-	Indicates none of the three Total TPH fractions were detected.
<Value>	No Highlighting -- Compound was not detected.
<Value>	**Boldfaced** -- Compound was detected at a concentration below Tier 1 Screening Criteria.[1]
<Value>	**Boldfaced** -- Compound was detected at a concentration equal to or above Tier 1 Screening Criteria.[1]
<Value>	**Boldfaced** -- Compound was detected at a concentration equal to or above the Total TPH Source Criteria (3,500 mg/kg in soil; 20,000 µg/L in groundwater).
Data Qualifiers[2] (in body of table):	
U	"Analysis was performed, but the analyte was not detected above the reported sample quantitation limit."
J	"The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample."
UJ	"The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte."
R	"The sample result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified."
References:	
[1]	Shaw Environmental, Inc., 2007, *Final New Preliminary Screening Criteria and Petroleum Program Strategy, Hunters Point Shipyard* , *San Francisco, California* . December 21.
[2]	U.S. Environmental Protection Agency, 2002, *Guidance on Environmental Data Verification and Data Validation, EPA QA/G-8.* November (see Appendix C, Example 2). (accessed at http://www.epa.gov/quality/qs-docs/g8-final.pdf, Dec. 29, 2009).

NOTE: Not all items in the above list will appear on each table.

FIGURES

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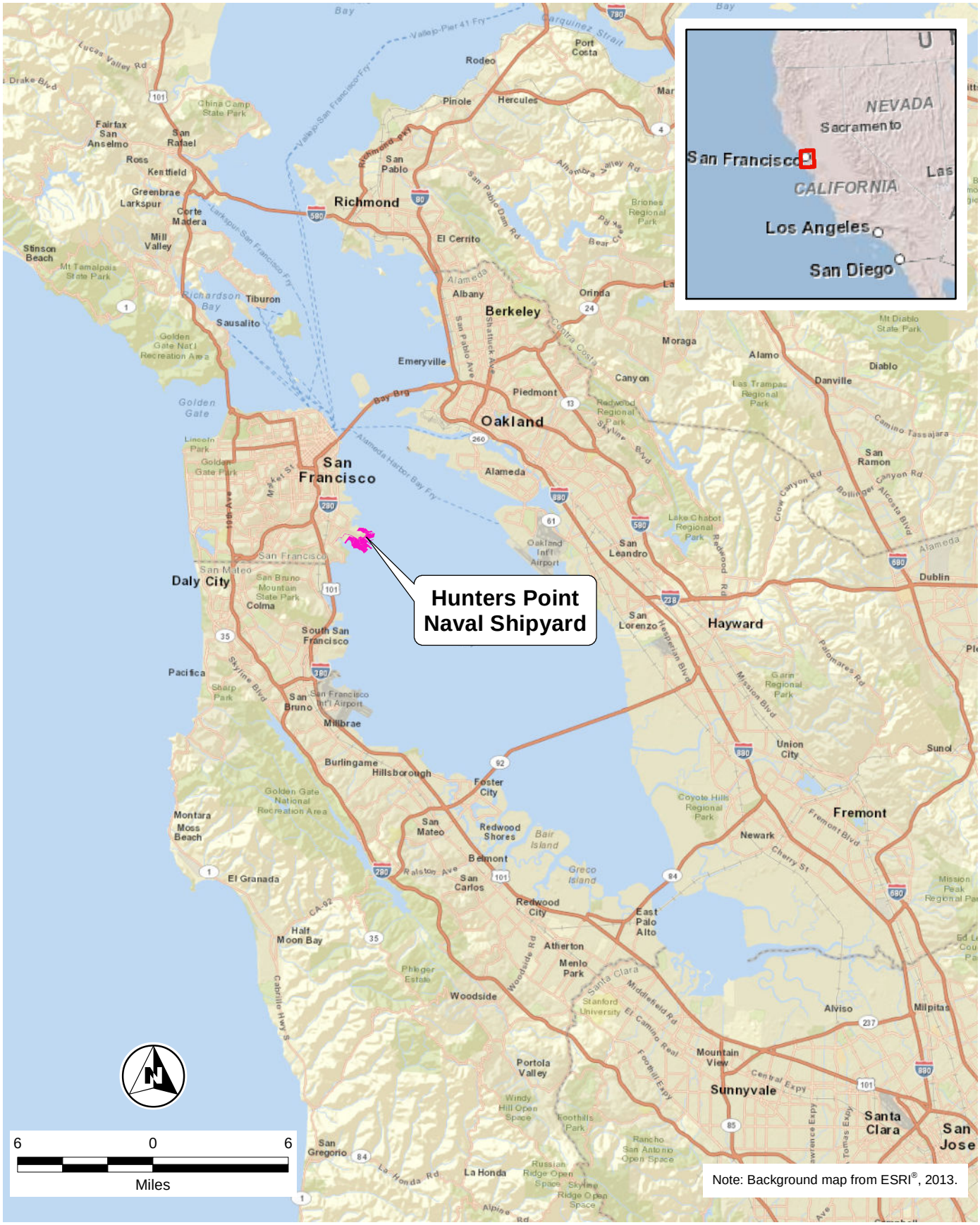

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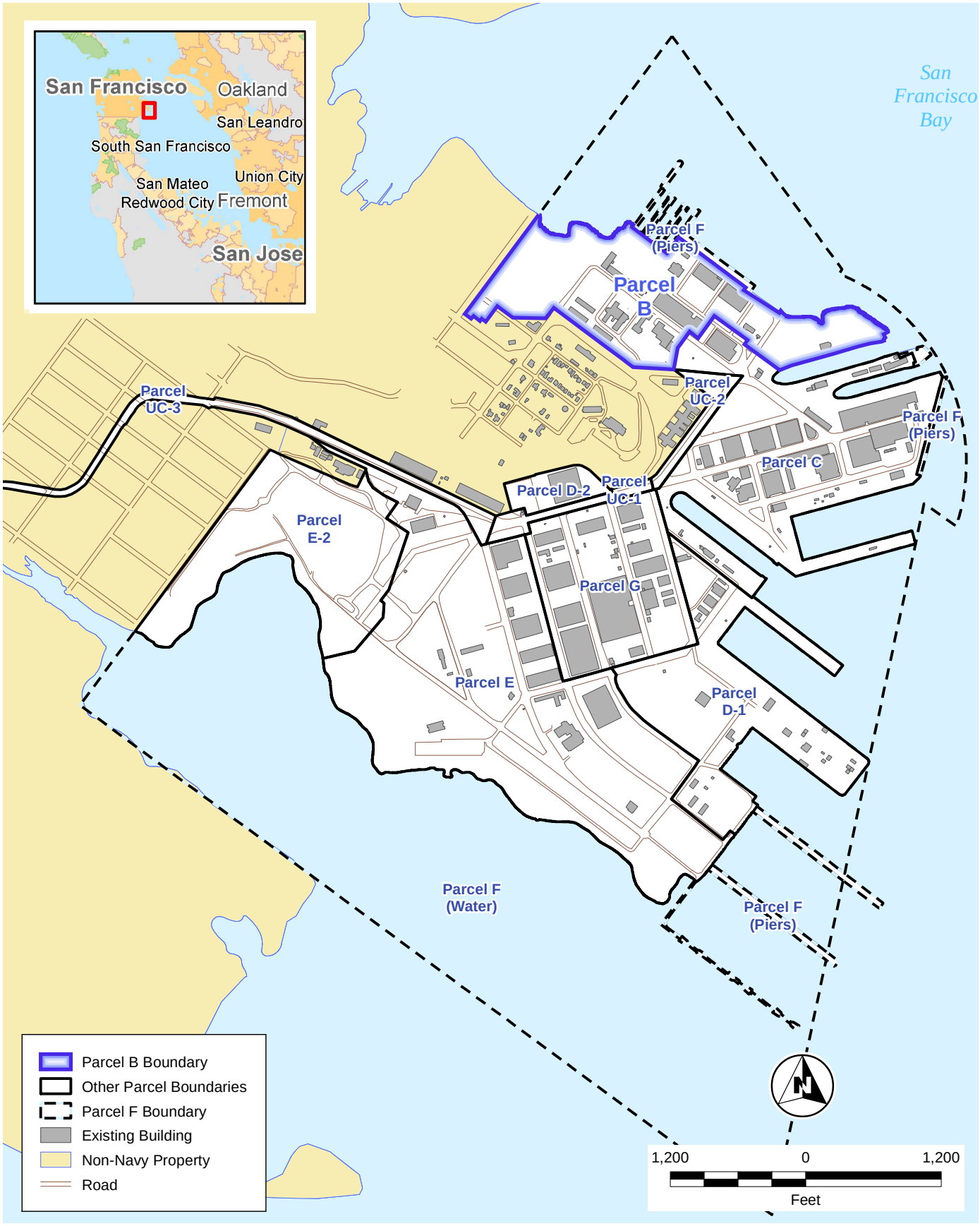
Hunters Point Naval Shipyard
San Francisco, California

FIGURE 1
Site Location Map

G:\ArcGIS\Navy\HPS\PROJECTS\NAPL Removal\HPS_in_Bay_Area.mxd 2/20/2013 [16:11 PM] JPARTSCH, ITSI



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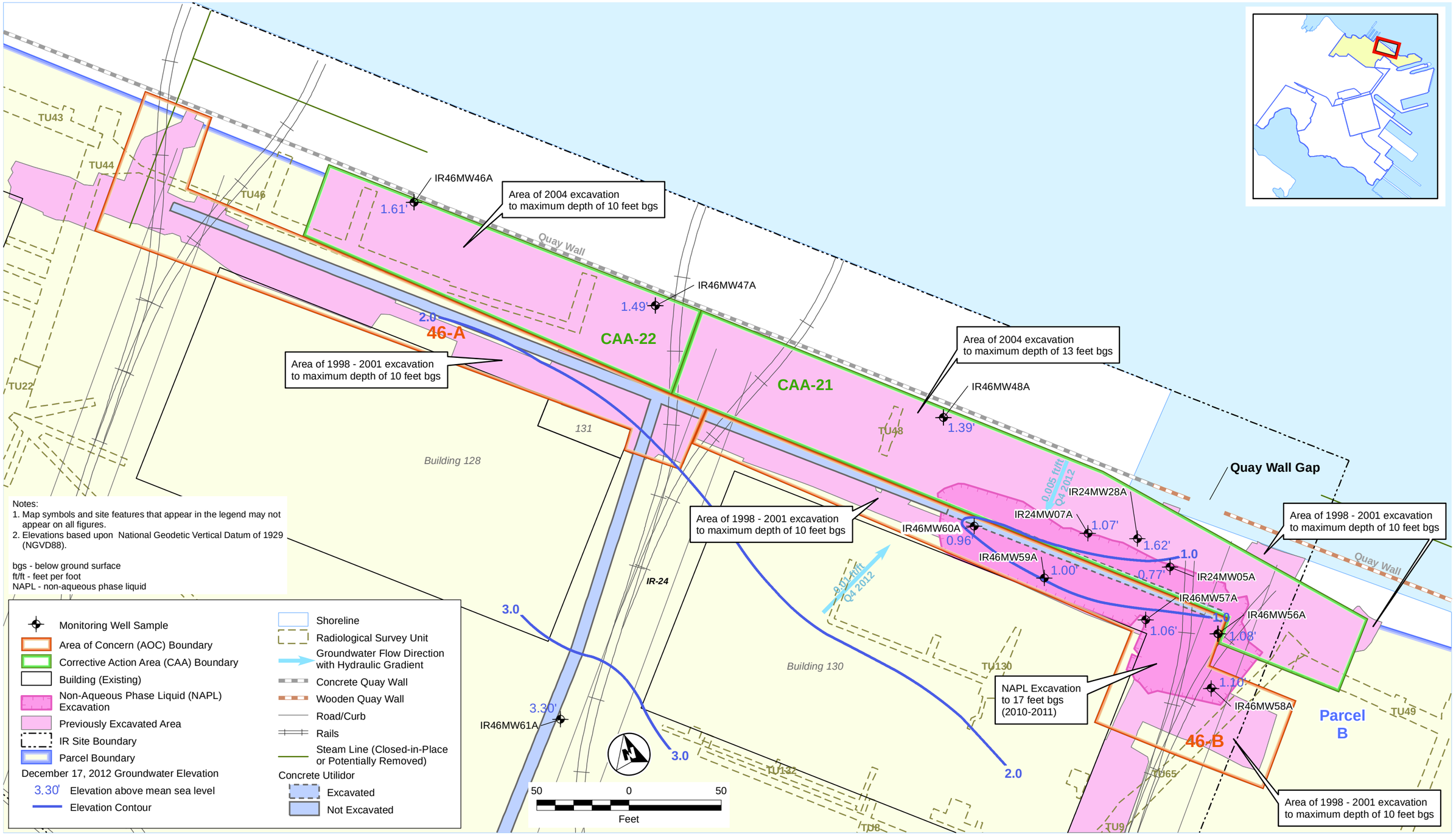
Petroleum Hydrocarbon Corrective Action
Hunters Point Naval Shipyard
San Francisco, California

FIGURE 2
Parcel B
Vicinity Map
Hunters Point Naval Shipyard

G:\ArcGIS\Navy\HPS\PROJECTS\Parcel_B\Parcels_B_Vicinity.mxd 9/17/2013 [16:32 PM] JPARTSCH, ITSI



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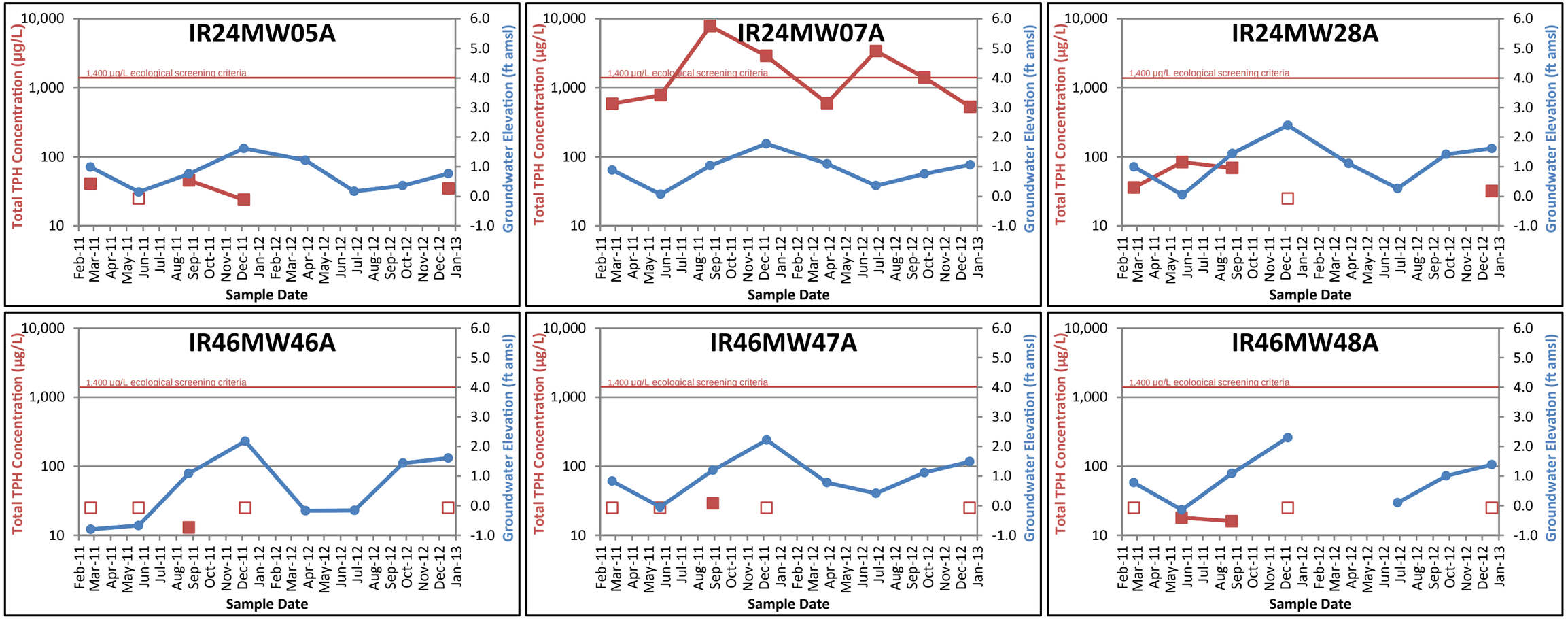
Petroleum Hydrocarbon Corrective Action
Parcel B
Hunters Point Naval Shipyard
San Francisco, California

FIGURE 3
Groundwater Elevation Map,
December 17, 2012
CAA-21, CAA-22, AOC 46-A, and AOC 46-B

G:\ArcGIS\Navy\HPS\PROJECTS\NAPL Removal\PostedData\GW\CombinedSite_Contours_Q4_2012.mxd 3/12/2013 [13:10 PM] JPARTSCH, ITSI



Notes:

Groundwater sample with detected total TPH, includes estimated concentrations below reporting limit

Groundwater sample with total TPH, not detected, (shown as 1/2 of the laboratory reporting limit for TPH-diesel)

Groundwater elevation in well in feet above mean sea level (National Geodetic Vertical Datum of 1929)

ft amsl = feet above mean sea level

Total TPH = Total of all fractions of Total Petroleum Hydrocarbons

µg/L = micrograms per liter

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Parcel B
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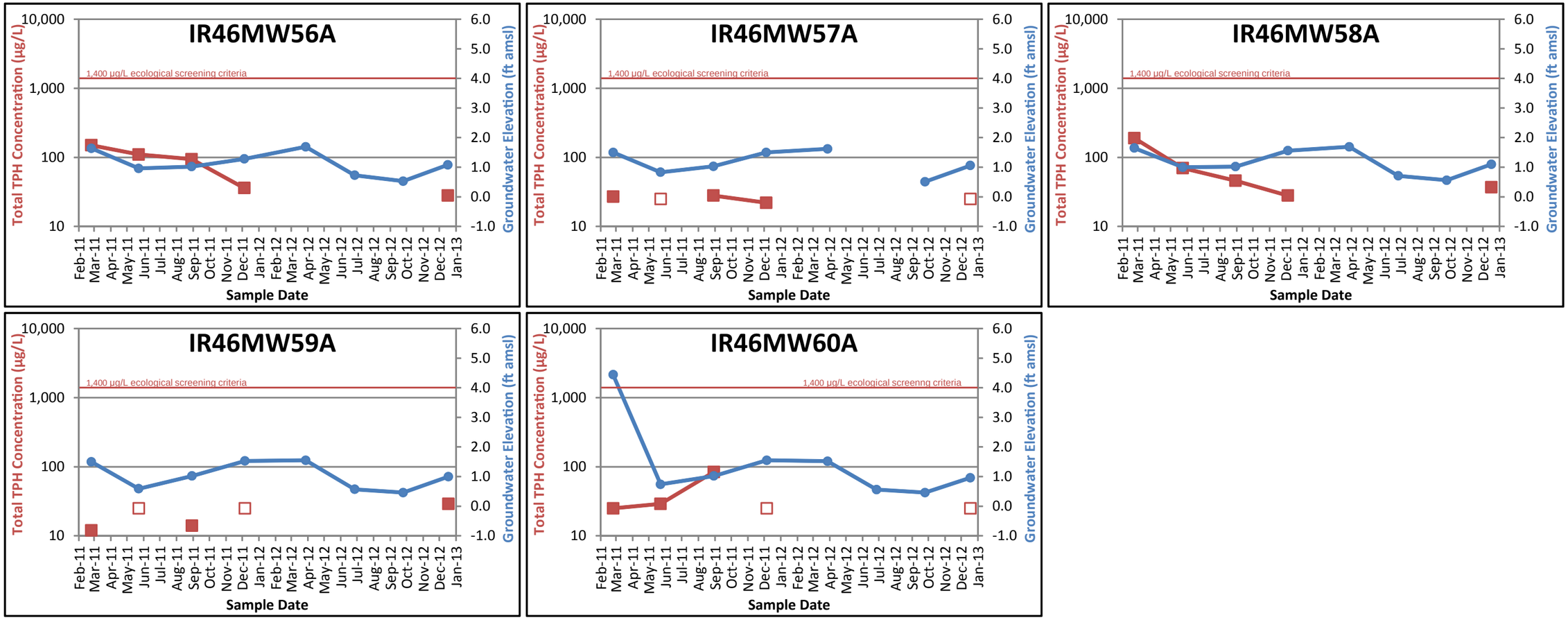
San Francisco, California

FIGURE 4
Total TPH Concentrations and
Groundwater Elevations vs. Time
CAA-21, CAA-22, AOC-46A, and AOC-46B

P:\07193.0000 NAVFAC SW - PBSB EMAC\07193.0002 - NAPL Corr Action\7.0 Graphics\Site GW Trends Q4_2012_pg1.ai



Notes:

- Groundwater sample with detected total TPH, includes estimated concentrations below reporting limit
- Groundwater sample with total TPH, not detected, (shown as 1/2 of the laboratory reporting limit for TPH-diesel)
- Groundwater elevation in well in feet above mean sea level (National Geodetic Vertical Datum of 1929)

ft amsl = feet above mean sea level

Total TPH = Total of all fractions of Total Petroleum Hydrocarbons

µg/L = micrograms per liter

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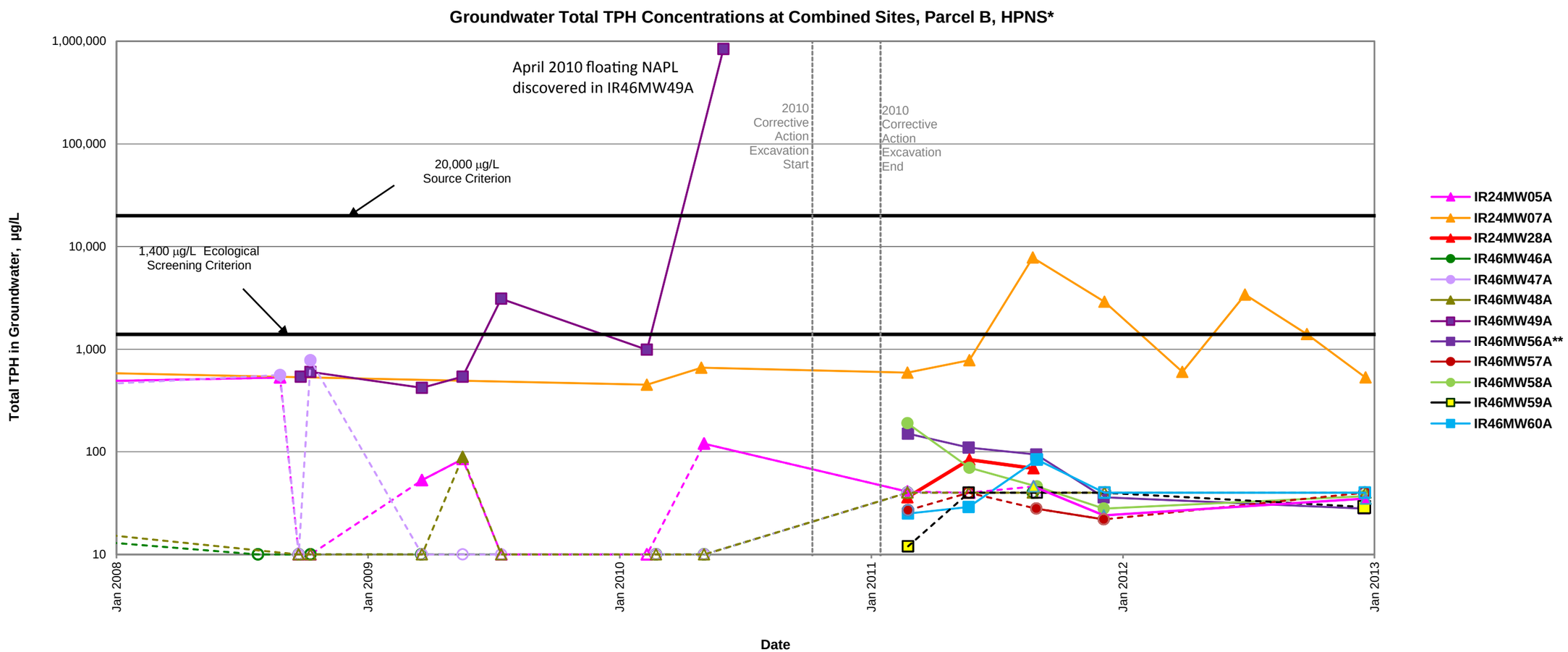
Petroleum Hydrocarbon Corrective Action
Parcel B
Hunters Point Naval Shipyard
San Francisco, California

FIGURE 4 (continued)
Total TPH Concentrations and
Groundwater Elevations vs. Time
CAA-21, CAA-22, AOC-46A, and AOC-46B

P:\07193.0000 NAVFAC SW - PBSB EMAC\07193.0002 - NAPL Corr Action\7.0 Graphics\Site GW trends\Q4_2012_ v7 pg2.ai



NOTES

* A hollow symbol joined to the series by a broken line indicates TPH was not detected in the sample. The value reported is the sum of method detection limit values for all TPH fractions analyzed (the maximum concentration of total TPH that may exist without being detected in the sample).

* IR46MW56A is the replacement well for IR46MW49A removed during corrective action.

ug/L: micrograms per Liter
NAPL: non-aqueous phase liquid
TPH: total petroleum hydrocarbons
Total TPH: total of all TPH fractions analyzed (i.e. diesel, gasoline, and motor oil)

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Petroleum Hydrocarbon Corrective Action
Parcel B
Hunters Point Naval Shipyard
San Francisco, California

FIGURE 5
Total TPH in Groundwater from All Wells, Combined Site

P:\07193.0000 NAVFAC SW - PBSB EMAC\07193.0002 - NAPL Corr Action\7.0 Graphics\Site TPH_GW All Wells_Q4_2012.ai

APPENDIX A

FIELD FORMS FOR GROUNDWATER SAMPLING AND WATER LEVEL SURVEY

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MONITORING WELL WATER LEVEL MEASUREMENT FORM

Project Name and Location: HPNS Parcel B GW Monitoring - Winter 2012, San Francisco, CA

Project No.: 07193.0002

Measured By: J. Partsch / T. Olmstead

Date(s): 28 MAR 2012

Monitoring Well I.D.	Depth to NAPL (feet)	Depth to Water (feet)	Depth to Bottom (feet)	Time	Comments/ Observations
1R46MW58A	NA	9.27	Not Measured	0847	opened @ 0751 hrs PID = 0.0
1R46MW56A	NA	8.94	Not Measured	0848	opened @ 0752 hrs PID = 0.1
1R46MW57A	NA	8.74	Not Measured	0846	opened @ 0753 hrs PID = 0.0
1R24MW05A	NA	8.80	Not Measured	0850	opened @ 0755 hrs PID = 0.1
1R24MW28A	NA	9.31	Not Measured	0852	opened @ ~~0851~~ 0759 hrs PID = 1.0 NOTE FUEL ODOR
1R24MW07A	NA	8.82	Not Measured	0849	opened @ 0801 hrs PID = 0.1
1R46MW48A	NA	—	—	—	flooded, not opened see picture
1R46MW47A*	NA	8.91	Not Measured	0840	opened @ 0806 hrs PID = 0.0
1R46MW46A*	NA	9.78	Not Measured	0837	opened @ 0808 hrs PID = 0.0
1R46MW61A	NA	6.78	Not Measured	0834	opened @ 0811 hrs PID = 0.1
1R46MW60A	NA	8.44	Not Measured	0843	opened @ 0815 hrs PID = 0.1
1R46MW59A	NA	8.67	Not Measured	0845	opened @ 0816 hrs PID = 0.0

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*depth to water was measured from top edge of multi-port wellhead, NOT from TOC - Where was well elevation surveyed from?

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Sheet 1 of 1

Low-Flow Groundwater Purge and Sample Log

Project Name: HPNS Parcel B GW Monitor Project No.: 07193.0002

Well No./ Location ID: 1R24MW07A Tested By: JP/TO Date: 28 Mar. 2012

Measuring Point Description: TOC (marked on North) Static Water Level (ft.): 9.21

Total Well Depth (ft.): 20 Screen Interval (ft.): 5-20 Sample Depth (ft.): 16 ft

Water Level Measurement Method: Solinst Model 122 interface meter (100' tape)

Purge Method: bladder pump Sample Method: bladder pump

Time Start Purge: 0839 Field Filter (micron): 1.0 / 0.45 / 0.1 / Other: NA

Time End Purge: 0929 Time Sampled: 0939

Volume Purged (L): ~8.0 L Calculated Flow Rate (L/min): 0.159

Sample ID: 1R24MW07A-032812

Comments: time of probe readout incorrect, add 26 min to all times listed on this form for correction
10.01' depth to water after sampling

Time	Temp. (°C)	pH	EC (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	DTW (ft.)
0839	15.01	6.77	36.34	7.75	-12.4	937	9.21
0844	15.03	6.85	36.27	4.12	-95.6	610	9.30
0849	15.00	6.90	36.19	3.01	-133.7	340	9.37
0854	14.98	6.91	36.13	1.91	-169.3	340	9.48
0859	15.03	6.89	36.09	1.71	-171.3	83.3	9.51
0904	15.42	6.89	36.06	1.54	-178.0	53.0	9.56
0909	15.41	6.90	36.07	1.74	-191.8	30.8	9.60
0914	15.41	6.90	36.09	1.71	-191.1	21.2	9.64
0919	15.10	6.88	36.06	1.40	-191.9	19.6	9.71
0924	15.20	6.87	36.04	1.24	-194.0	14.7	9.74
0929	15.37	6.88	36.03	1.15	-195.4	10.1	9.79

9:03 = 9:29

J Partner 3/28

Version 031610r1

jhess:Documents:Desktop Files:Desktop Stuff:New SOPs:Low-flow Purge Log 031610r1.doc

MONITORING WELL WATER LEVEL MEASUREMENT FORM

Project Name and Location: Spring 2012 NAPL Hunters Point Shipyard

Project No.: 07193.0002

Measured By: TR / KT

Date(s): 6/27/12

Monitoring Well I.D.	Depth to NAPL (feet)	Depth to Water (feet)	Depth to Bottom (feet)	Time	Comments/ Observations PID ppm
1R46MW47A	–	9.27	not measured	1024	0.0
1R46MW46A	–	9.77		1030	0.0
1R46MW61A	–	8.10		1040	0.0
1R46MW48A	–	8.79		1050	0.0
1R46MW07A	–	9.56		1055	0.0
1R46MW59A	–	9.65		1102	0.0
1R46MW60A	–	9.40		1105	0.0
1R46MW58A	–	10.25		1110	0.1
1R46MW56A	–	9.90		1115	0.0
1R46MW05A	–	9.85		1120	0.0
1R24MW28A	–	10.15		1122	0.0
1R24MW57A	–	12.71		1125	0.0

Equipment used:
Solinst O/W Interface meter

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Low-Flow Groundwater Purge and Sample Log

Project Name: Spring 2012 NAPL Project No.: 07193.0002

Well No./ Location ID: IR24MW07A Tested By: TR / KT Date: 6-27-12

Measuring Point Description: TOC Static Water Level (ft.): 9.96

Total Well Depth (ft.): 20 Screen Interval (ft.): 5-20 Sample Depth (ft.): 16

Water Level Measurement Method: Solinst

Purge Method: ded bladder pump Sample Method: ded bladder pump

Time Start Purge: 1135 Field Filter (micron): 1.0 / 0.45 / 0.1 / Other: NA

Time End Purge: 1215 Time Sampled: 1225

Volume Purged (L): 8.0 L Calculated Flow Rate (L/min): 200 ml/min. or .200 L

Sample ID: IR24MW07A-062712

Comments: Trip blank TB-062712 @ 900 am

Time	Temp. (°C) ±1	pH ±.1	EC ±3% (mS/cm)	DO ±.3 (mg/L)	ORP ±10 (mV)	Turbidity (NTU)	DTW (ft.)
1135	18.06	7.00	31.00	2.50	-220.1	13.92	10.10
1140	18.06	7.02	30.75	0.86	-230.4	12.04	10.19
1145	17.91	7.05	30.60	0.52	-236.1	11.52	10.30
1150	17.84	7.06	30.51	0.41	-239.2	6.84	10.46
1155	17.84	7.06	30.44	0.38	-244.3	4.60	10.51
1200	17.88	7.04	30.40	0.36	-246.0	4.09	10.54
1205	17.90	7.02	30.35	0.33	-245.8	3.81	10.58
1210	17.93	7.03	30.30	0.32	-246.1	2.55	10.59
1215	17.95	7.03	30.29	0.30	-248.3	2.05	10.60

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MONITORING WELL WATER LEVEL MEASUREMENT FORM

Project Name and Location: Fall 2012 GW Sampling Parcel B

Project No.: 07193.0002

Measured By: TR / TO

Date(s): 9/25/12

Monitoring Well I.D.	Depth to NAPL (feet)	Depth to Water (feet)	Depth to Bottom (feet)	Time	Comments/ Observations
IR24 MW05A	Ø	9.66'	22.00'	08:30	0.1 ppm on PID
IR24 MW28A	Ø	9.00'	20.00'	08:29	0.6 ppm on PID
IR24 MW07A	Ø	9.16'	18.05'	08:28	0.6 ppm on PID
IR46 MW48A	Ø	7.88'	21.20'	08:27	0.5 ppm on PID
IR46 MW47A	Ø	8.57'	20.74'	08:26	0.0 ppm on PID
IR46 MW46A	Ø	8.17'	20.82'	08:25	0.3 ppm on PID
IR46 MW58A	Ø	10.40'	19.80'	08:35	0.8 ppm on PID
IR46 MW56A	Ø	10.10'	19.85'	08:31	0.3 ppm on PID
IR46 MW57A	Ø	9.85'	20.00'	08:32	0.6 ppm on PID
IR46 MW59A	Ø	9.76'	19.70'	08:33	0.7 ppm on PID
IR46 MW61A	Ø	8.28	15.00'	08:37	1.1 ppm on PID
IR46 MW60A	Ø	9.50'	19.65'	08:34	0.8 ppm on PID
all 4" wells					
* Note					
IR46 MW38A	Ø	8.81	21.00		2" well

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Low-Flow Groundwater Purge and Sample Log

Project Name: Fall 2012 NAPL GW Sampling Parcel B Project No.: 07193.0002

Well No./ Location ID: 1R24MW07A Tested By: TR/TO Date: 9/25/12

Measuring Point Description: TOC Static Water Level (ft.): 08.77

Total Well Depth (ft.): 20 Screen Interval (ft.): 5-20 Sample Depth (ft.): 16

Water Level Measurement Method: solinst

Purge Method: ded bladder pump Sample Method: ded bladder pump

Time Start Purge: 0920 Field Filter (micron): 1.0 / 0.45 / 0.1 / Other: NA

Time End Purge: 1010 Time Sampled: 1015

Volume Purged (L): 10 Liters Calculated Flow Rate (L/min): 200 ml/min

Sample ID: 1R24MW07A-092512

Comments: Trip Blank TB-092512 @ 0700

Turbidity hi maybe due to drilling soil boring the week before. Sheen in water.

Time	Temp. (°C) ±1	pH ±0.1	±3% EC (mS/cm)	±0.3 DO (mg/L)	ORP ±10 (mV)	Turbidity (NTU)	DTW (ft.)
0920	17.35	7.09	28.26	0.45	-207.0	556	8.98
0925	17.34	7.11	28.31	0.42	-216.2	497	9.04
0930	17.34	7.12	28.36	0.36	-234.4	459	9.09
0935	17.37	7.13	28.41	0.36	-260.1	257	9.09
0940	17.40	7.13	28.42	0.40	-282.0	64.3	9.09
0945	17.50	7.13	28.47	0.43	-286.3	60.8	9.09
0950	17.50	7.13	28.52	0.46	-294.9	57.9	9.09
0955	17.49	7.12	28.48	0.49	-302.8	46.7	9.09
1000	17.53	7.11	28.49	0.53	-301.6	37.2	9.09
1005	17.57	7.11	28.51	0.56	-300.9	34.9	9.09
1010	17.58	7.11	28.50	0.58	-300.9	25.7	9.09

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MONITORING WELL WATER LEVEL MEASUREMENT FORM

Project Name and Location: HPS Parcel B GW Fall 2012

Project No.: 97193 002

Measured By: MP / KT

Date(s): 12/17/12

Monitoring Well I.D.	Depth to NAPL (feet)	Depth to Water (feet)	Depth to Bottom (feet)	Time	Comments/ Observations
1R46MW61A	0	6.90	15.00	1115	0.0 ppm on PID
1R46MW59A	0	9.22	19.70	1130	0.0 ppm
1R46MW60A	0	9.00	19.65	1135	0.0 ppm
1R46MW57A	0	9.30	20.00	1140	0.0 ppm
1R46MW58A	0	9.86	19.80	1145	0.0 ppm
1R46MW56A	0	9.55	19.85	1147	0.0 ppm
1R24MW05A	0	9.25	22.0	1150	0.0 ppm
1R24MW28A	0	8.80	20.00	1152	0.0 ppm
1R24MW07A	0	8.85	15.05	1155	0.0 ppm
1R46MW46A	0	8.00	20.82	1200	0.0 ppm
1R46MW47A	0	8.20	20.74	1210	0.0 ppm
1R46MW48A	0	7.50	21.20	1215	0.0 ppm

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Sheet 1 of 1

Low-Flow Groundwater Purge and Sample Log

Project Name: Hunters Point Parcel B GW Project No.: 02193.002

Well No./ Location ID: 1R46MW58A Tested By: MP/KT Date: 12/17/12

Measuring Point Description: TOC Static Water Level (ft.): 9.71

Total Well Depth (ft.): 19.80 Screen Interval (ft.): 5-20 Sample Depth (ft.):

Water Level Measurement Method: Solinst

Purge Method: air bladder Sample Method: low flow

Time Start Purge: 1335 Field Filter (micron): 1.0 / 0.45 / 0.1 / Other:

Time End Purge: 1400 Time Sampled: 1400

Volume Purged (L): 4.5 Calculated Flow Rate (L/min): ~~3.8~~ 0.3

Sample ID: 1R46MW58A-121712

Comments: trip blank TB-121712

Time	Temp. (°C)	pH	EC (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	DTW (ft.)
1335	18.00	7.06	20.81	~~7.34~~ 6.31	41.9	-1.2	9.71
1340	18.07	7.07	20.94	5.48	40.6	-1.7	9.71
1345	18.07	7.07	20.92	5.48	40.6	-1.7	9.71
1350	18.07	7.07	20.92	5.48	40.6	-1.7	9.69

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Sheet 1 of 1

Low-Flow Groundwater Purge and Sample Log

Project Name: Hunters Point Parcel B Project No.: 02193-002

Well No./ Location ID: 1R46MW56A Tested By: MP / KT Date: 12/17/12

Measuring Point Description: TOC Static Water Level (ft.): 9.15

Total Well Depth (ft.): 19.85 Screen Interval (ft.): 5-20 Sample Depth (ft.): 15

Water Level Measurement Method: Solonist

Purge Method: air bladder Sample Method: low flow

Time Start Purge: 1445 Field Filter (micron): 1.0 / 0.45 / 0.1 / Other: _____

Time End Purge: 1515 Time Sampled: 1530

Volume Purged (L): 9 Calculated Flow Rate (L/min): 0.3

Sample ID: 1R46MW56A-121712 1530

Comments:

Time	Temp. (°C)	pH	EC (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	DTW (ft.)
1445	17.50	7.14	21.60	2.54	-26.9	-1.8	~~9.8~~ 9.11
1450	17.49	7.08	21.70	1.38	-36.0	-1.7	9.11
1455	17.49	7.10	21.82	1.50	-39.8	-1.5	9.11
1500	17.49	7.11	20.2	1.28	-39.7	-1.4	9.11
1505	17.43	7.10	21.98	2.14	-38.7	-1.6	9.11
1510	17.43	7.09	22.03	2.17	-37.6	-1.7	9.11
1515	17.43	7.09	22.05	2.22	-37.6	-1.9	9.11

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Low-Flow Groundwater Purge and Sample Log

Project Name: PARKER B GW FALL 2012 Project No.: 07193.002

Well No./ Location ID: IR46MW57A Tested By: MP/KT Date: 12/18/12

Measuring Point Description: TOC Static Water Level (ft.): 8.80

Total Well Depth (ft.): 20.0 Screen Interval (ft.): 5-20 Sample Depth (ft.): 15

Water Level Measurement Method: solinist

Purge Method: bladder pump Sample Method: low flow

Time Start Purge: 810 Field Filter (micron): 1.0 / 0.45 / 0.1 / Other: _____

Time End Purge: 845 Time Sampled: 845

Volume Purged (L): 14 Calculated Flow Rate (L/min): 0.4

Sample ID: IR46MW57A-121812

Comments:

Time	Temp. (°C)	pH	EC (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	DTW (ft.)
810	16.93	4.47	18.54	2.13	17.1	11.1	8.80
815	16.90	4.45	18.63	2.13	25.8	7.6	8.81
820	16.81	4.45	18.65	2.11	10.5	8.6	8.81
825	17.00	4.44	18.79	2.22	-36.0	8.6	8.85
830	17.10	4.45	18.85	2.05	-45.0	4.9	8.85
833	17.09	4.46	18.87	2.07	-44.7	4.5	8.85
836	17.09	4.45	18.88	2.07	-44.0	4.2	8.85

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Low-Flow Groundwater Purge and Sample Log

Project Name: PARCG B GW
Project No.: 07193.002
Well No./ Location ID: 1R46MW59A
Tested By: MP/KT
Date: 12/18/12

Measuring Point Description: TOC
Static Water Level (ft.): 8.90
Total Well Depth (ft.): 19.6
Screen Interval (ft.): 7.6
Sample Depth (ft.): 15
Water Level Measurement Method: Solinist
Purge Method: bladder pump
Sample Method: low flow
Time Start Purge: 925
Field Filter (micron): 1.0 / 0.45 / 0.1 / Other:
Time End Purge: 945
Time Sampled: 945
Volume Purged (L): 7.6
Calculated Flow Rate (L/min): 0.38
Sample ID: 1R46MW59A-121812
Comments:

Time	Temp. (°C)	pH	EC (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	DTW (ft.)
925	14.91	4.65	18.59	4.43	44.3	-1.3	8.90
930	15.25	4.60	18.72	3.58	50.2	0.0	~~8.90~~ 9.01
935	15.31	4.57	18.73	3.57	52.0	0.1	9.01
940	15.37	4.55	18.73	3.56	55.3	-0.1	9.01
~~955~~							

Version 031610r1

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Sheet 1 of 1

Low-Flow Groundwater Purge and Sample Log

Project Name: Hunters Point Parcel B GW Project No.: 07193.0002

Well No./ Location ID: 1R46MW60A Tested By: MP/KT Date: 12/18/12

Measuring Point Description: TOC Static Water Level (ft.): 9.0

Total Well Depth (ft.): 12.82 Screen Interval (ft.): 5-20 Sample Depth (ft.): 15

Water Level Measurement Method: Solinst

Purge Method: bladder pump Sample Method: low flow

Time Start Purge: 1025 Field Filter (micron): 1.0 / 0.45 / 0.1 / Other: _____

Time End Purge: 1100 Time Sampled: 1100

Volume Purged (L): 12 Calculated Flow Rate (L/min): 0.4

Sample ID: 1R46MW60A - 121812 MS/MSD

Comments:

Time	Temp. (°C)	pH	EC (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	DTW (ft.)
1025	15.35	4.56	20.14	5.35	-37.9	4.0	9.00
1030	15.91	4.57	20.15	1.94	-42.3	4.8	9.00
1035	15.74	4.56	19.98	2.66	-30.1	4.2	9.04
1040	15.64	4.56	19.80	3.29	-17.7	1.2	9.06
1045	15.74	4.53	19.67	3.80	-4.8	0.6	9.06
1048	15.55	4.55	19.60	4.02	-2.1	0.8	9.06
1051	15.48	4.55	19.56	4.10	4.7	0.9	9.06
1054	15.51	4.57	19.55	4.24	5.7	1.0	9.06

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Sheet 1 of 1

Low-Flow Groundwater Purge and Sample Log

Project Name: Hunters Point Parcel B GW Project No.: 07193.002

Well No./ Location ID: IR46MW46A Tested By: MP/RT Date: 12/18/12

Measuring Point Description: TOC Static Water Level (ft.): 8.85

Total Well Depth (ft.): 20.82 Screen Interval (ft.): 5-20 Sample Depth (ft.): 14.2

Water Level Measurement Method: solinist

Purge Method: bladder pump Sample Method: slow purge low flow

Time Start Purge: 1315 Field Filter (micron): 1.0 / 0.45 / 0.1 / Other: _____

Time End Purge: 1335 Time Sampled: 1335

Volume Purged (L): 8.4 Calculated Flow Rate (L/min): 0.42

Sample ID: IR46MW46A-121812

Comments: MS/MSD

Time	Temp. (°C)	pH	EC (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	DTW (ft.)
1315	15.83	4.33	24.85	5.52	71.6	-2.3	8.85
1320	15.82	4.37	24.45	5.48	72.8	-2.5	8.85
1325	15.64	4.41	23.57	5.94	76.7	-2.4	8.85
1330	15.61	4.41	23.20	6.10	76.8	-2.6	8.85

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Innovative Technical Solutions, Inc.

Sheet 1 of 1

Low-Flow Groundwater Purge and Sample Log

Project Name: HPS Parcel B GW Project No.: 5193.0002

Well No./ Location ID: 1R46MW47A Tested By: MP/KT Date: 12/18/12

Measuring Point Description: TOC Static Water Level (ft.): 7.96

Total Well Depth (ft.): 20.5 Screen Interval (ft.): 5-20 Sample Depth (ft.): 15

Water Level Measurement Method: Solinist

Purge Method: bladder pump Sample Method: low flow

Time Start Purge: 1430 Field Filter (micron): 1.0 / 0.45 / 0.1 / Other: ____

Time End Purge: 1451 Time Sampled: 1500

Volume Purged (L): 8.6 Calculated Flow Rate (L/min): 0.41

Sample ID: 1R46MW47A-121812 / 1R99MW47A-121812

Comments: NA

Time	Temp. (°C)	pH	EC (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	DTW (ft.)
1430	16.28	4.86	7.76	3.94	40.8	-2.1	7.96
1435	16.34	4.86	7.56	3.38	42.5	-2.3	7.96
1440	16.40	4.87	7.37	1.72	37.5	-2.0	7.95
1445	16.42	4.85	7.21	0.86	28.3	-2.2	7.95
1448	16.42	4.84	7.22	0.67	20.0	-2.3	7.95
1451	16.43	4.83	7.21	0.69	18.9	-2.2	7.95

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Innovative Technical Solutions, Inc.

Low-Flow Groundwater Purge and Sample Log

Project Name: Hunters Point Parcel B GW Project No.: 07193.002

Well No./ Location ID: 1R46MW48A Tested By: MP/KT Date: 12/19/12

Measuring Point Description: TOC Static Water Level (ft.): 8.35

Total Well Depth (ft.): 21.2 Screen Interval (ft.): 5-20 Sample Depth (ft.): 14.2

Water Level Measurement Method: solinist

Purge Method: bladder pump Sample Method: low flow

Time Start Purge: 755 Field Filter (micron): 1.0 / 0.45 / 0.1 / Other: _____

Time End Purge: 825 Time Sampled: 830

Volume Purged (L): _____ Calculated Flow Rate (L/min): 0.4

Sample ID: 1R46MW48A-121912

Comments:

Time	Temp. (°C)	pH	EC (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	DTW (ft.)
755	15.05	7.47	5.694	4.71	158	4.6	8.35
800	15.61	8.10	6.275	0.69	-93.2	0.1	8.54
805	16.01	8.01	9.668	0.35	-140.3	-1.2	8.56
810	16.07	7.79	17.090	0.29	-152.0	-1.8	8.56
815	16.08	7.66	20.120	0.27	-149.0	-1.9	8.60
820	16.12	7.63	20.890	0.27	-147.1	-2.0	8.68
825	16.18	7.56	20.981	0.28	-144.1	-2.1	8.68

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Sheet 1 of 1

Low-Flow Groundwater Purge and Sample Log

Project Name: Hunters Point Parcel B GW Project No.: 07193.002

Well No./ Location ID: IR24MW07A Tested By: Date: 12/19/12

Measuring Point Description: TOC Static Water Level (ft.): 8.98

Total Well Depth (ft.): 18.05 Screen Interval (ft.): 5-20 Sample Depth (ft.):

Water Level Measurement Method: solinist

Purge Method: bladder pump Sample Method: low flow

Time Start Purge: 855 Field Filter (micron): 1.0 / 0.45 / 0.1 / Other:

Time End Purge: 945 Time Sampled: 950

Volume Purged (L): 17 Calculated Flow Rate (L/min): 0.34

Sample ID: IR24MW07A-121912

Comments:

Time	Temp. (°C)	pH	EC (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	DTW (ft.)
855	15.21	7.81	24.56	4.76	-166.0	394.0	8.98
900	15.98	7.84	24.99	0.87	-197.0	211.7	8.98
905	16.09	7.85	24.99	0.59	-208.0	163.9	9.48
910	16.27	7.00	24.97	0.26	-227.4	67.2	9.48
915	16.51	7.99	24.90	0.09	-240.6	28.1	9.72
920	16.65	7.84	24.88	-0.12	-251.1	19.2	9.72
925	16.75	7.84	24.85	-0.06	-255.3	3.5	9.72
930	16.74	7.81	24.82	-0.10	-256.3	2.9	9.85
935	16.78	7.80	24.81	-0.03	-253.0	2.2	9.35
940	16.72	7.81	24.78	-0.19	-259.0	2.2	9.85
945	16.70	7.65	24.84	-0.25	-262.8	2.1	9.85

Version 031610r1

Innovative Technical Solutions, Inc.

Sheet 1 of 1

Low-Flow Groundwater Purge and Sample Log

Project Name: Hunters Point Parcel B GW Project No.: 07193-0002

Well No./ Location ID: 1R24MW05A Tested By: MP/KT Date: 12/19/12

Measuring Point Description: TOC Static Water Level (ft.): 10.05

Total Well Depth (ft.): 22 Screen Interval (ft.): 5-20 Sample Depth (ft.): 15

Water Level Measurement Method: Solinst

Purge Method: bladder pump Sample Method: low flow

Time Start Purge: 1230 Field Filter (micron): 1.0 / 0.45 / 0.1 / Other: _____

Time End Purge: 1300 Time Sampled: 1305

Volume Purged (L): 9 Calculated Flow Rate (L/min): 0.3

Sample ID: 1R24MW05A-121912

Comments:

Time	Temp. (°C)	pH	EC (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	DTW (ft.)
1230	17.14	6.99	31.51	-1.44	-259.0	21.0	10.05
1235	17.24	6.98	31.48	-2.05	-260.2	27.1	10.80
1240	17.22	6.92	31.45	-0.02	-250.0	30.2	10.80
1245	17.12	6.92	31.44	-2.07	-249.2	31.5	11.25
1250	17.25	6.94	31.50	-1.53	-263.7	31.7	11.60
1255	17.31	6.93	31.60	-1.87	-262.1	32.5	11.72
1300	17.32	6.91	31.60	-1.85	-265.0	33.7	11.80

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Innovative Technical Solutions, Inc.

Sheet 1 of 1

Low-Flow Groundwater Purge and Sample Log

Project Name: Paval B GW HPS Project No.: 07193.0002

Well No./ Location ID: 1R24MW28A Tested By: MP/KT Date: 12/19/12

Measuring Point Description: TOC Static Water Level (ft.): 9.82

Total Well Depth (ft.): ~~14.8~~ 20.00 Screen Interval (ft.): 78-14.8 Sample Depth (ft.): 75.0

Water Level Measurement Method: Solinst

Purge Method: bladder pump Sample Method: low flow

Time Start Purge: 1345 Field Filter (micron): 1.0 / 0.45 / 0.1 / Other: ____

Time End Purge: 1410 Time Sampled: 1410/1415

Volume Purged (L): 8.5 Calculated Flow Rate (L/min): 0.34

Sample ID: 1R24MW28A - 121912 / 1R99MW28A - 121912

Comments:

Time	Temp. (°C)	pH	EC (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	DTW (ft.)
1345	17.61	6.80	27.30	-1.06	-231.0	0.3	9.82
1350	17.47	6.78	27.15	-1.45	-238.0	0.8	9.80
1355	17.70	6.80	27.11	-1.10	-251.4	3.0	9.71
1400	17.54	6.78	27.03	-1.22	-252.9	3.2	9.72
1405	17.50	6.78	27.00	-1.01	-251.3	3.5	9.72

Version 031610r1

APPENDIX B

CERTIFIED ANALYTICAL REPORTS AND

CHAIN-OF-CUSTODY DOCUMENTATION

Due to large size, this appendix is provided on CD only

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Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

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

Laboratory Job Number 235203
ANALYTICAL REPORT

Innovative Technical Solutions,Inc.	Project : 07193.0002
2730 Shadelands Drive	Location : Hunters Point Naval Shipyard Winter
Walnut Creek, CA 94598	Level : III

Sample ID	Lab ID
TB-032812	235203-001
IR24MW07A-032812	235203-002

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

Signature: _____ Date: 04/04/2012
Project Manager

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**235203**
Client:	**Innovative Technical Solutions,Inc.**
Project:	**07193.0002**
Location:	**Hunters Point Naval Shipyard Winter**
Request Date:	**03/28/12**
Samples Received:	**03/28/12**

This data package contains sample and QC results for two water samples, requested for the above referenced project on 03/28/12. See attached cooler receipt form for any sample receipt problems or discrepancies.

TPH-Purgeables and/or BTXE by GC (EPA 8015B and EPA 8021B):
Toluene and gasoline C6-C12 were detected between the MDL and the RL in the method blank for batch 185054; these analytes were not detected in samples at or above the RL.

No other analytical problems were encountered.

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

Semivolatile Organics by GC/MS SIM (EPA 8270C-SIM):
No analytical problems were encountered.

Chain of Custody

235203

007030

ITSI
2730 Shadelands Drive, Suite 100
Walnut Creek, California 94598
(925) 946-3100 (925) 256-8998 (fax)

07193.0002

Local Address: ITSI
Hunters Point Naval Shipyard
San Francisco CA

Chain-Of-Custody

Project Name and Number: HPNS Parcel B TPH Winter 2012
Laboratory Name: C & T Labs
Date: 3-28-12
Project Manager: Ken Leonard
Address: Berkeley CA
Contact Name: Mike Dahlquist
Page: 1 of 1
Site Location: Hunters Point Naval Shipyard Winter 2012
Phone: 510-204-2225

Analysis:

	Sample I.D.	Date	Time	Sample Depth	No. of Containers	Sample Matrix	TPH-D/MO	PAH	TPH-G	BTEX/MTBE		Special Instructions/Comments
							Preservative: N/A	N/A	HCL	HCL		
							Container Type: 1L	1L	VOA	VOA		
1	TB-032812	3-28-12	07:00	N/A	6	W	—	—	3	3	—	
2	IR24MW07A-032812	3-28-12	10:05	16'	10	W	2	2	3	3	—	

Sampled By: Jonathan Partsch/Tony Olmstead
Signature: [signature]
Special Instructions: Level 3 validation
Send Results to: (w/fax #) rflynn@itsi.com
Turnaround Time: Std.

Sampler: Tony Olmstead [signature]

Relinquished By/Affiliation:	Date:	Time:	Received By/Affiliation:	Date:	Time:
Tony Olmstead/[signature]	3-28-12	12:35	[signature]	3-28-12	12:31

Courier/Airbill No.:

cold & in'ack

Original – Laboratory Yellow – Field/Office

Graphics/Stationery/chain_custody0408.ai

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 235203 Date Received 3/28/12 Number of coolers 1
Client ITSI Project 07193.0002

Date Opened 3/28/12 By (print) I CHOY (sign) [signature]
Date Logged in ↓ By (print) ↓ (sign) ↓

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

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

   ☒ Bubble Wrap ☐ Foam blocks ☐ Bags ☐ None
   ☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels
7. Temperature documentation: * Notify PM if temperature exceeds 6°C

   Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C) 3.3°C

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

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

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

COMMENTS

_____
_____
_____
_____
_____
_____

Rev 10, 11/11

Laboratory Job Number 235203

ANALYTICAL REPORT

TPH-Purgeables and/or BTXE by GC

Matrix: Water

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	235203	Location:	Hunters Point Naval Shipyard Winter
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 5030B
Project#:	07193.0002		

Field ID:	TB-032812	Batch#:	185054
Lab ID:	235203-001	Sampled:	03/28/12
Matrix:	Water	Received:	03/28/12
Units:	ug/L	Analyzed:	03/29/12
Diln Fac:	1.000		

Analyte	Result	RL	MDL	Analysis
Gasoline C6-C12	7.8 J	50	5.6	EPA 8015B
MTBE	ND	2.0	0.45	EPA 8021B
Benzene	ND	0.50	0.082	EPA 8021B
Toluene	0.070 J	0.50	0.042	EPA 8021B
Ethylbenzene	ND	0.50	0.050	EPA 8021B
Xylene (total)	ND	0.50		EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	94	76-121	EPA 8015B
Bromofluorobenzene (PID)	108	70-125	EPA 8021B

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	235203	Location:	Hunters Point Naval Shipyard Winter
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 5030B
Project#:	07193.0002		

Field ID:	IR24MW07A-032812	Batch#:	185054
Lab ID:	235203-002	Sampled:	03/28/12
Matrix:	Water	Received:	03/28/12
Units:	ug/L	Analyzed:	03/29/12
Diln Fac:	1.000		

Analyte	Result	RL	MDL	Analysis
Gasoline C6-C12	19 J Y	50	5.6	EPA 8015B
MTBE	ND	2.0	0.45	EPA 8021B
Benzene	ND	0.50	0.082	EPA 8021B
Toluene	0.054 J	0.50	0.042	EPA 8021B
Ethylbenzene	ND	0.50	0.050	EPA 8021B
Xylene (total)	0.068 C J	0.50		EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	99	76-121	EPA 8015B
Bromofluorobenzene (PID)	112	70-125	EPA 8021B

C= Presence confirmed, but RPD between columns exceeds 40%
J= Estimated value
Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	235203	Location:	Hunters Point Naval Shipyard Winter
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 5030B
Project#:	07193.0002	Analysis:	EPA 8021B
Matrix:	Water	Batch#:	185054
Units:	ug/L	Analyzed:	03/29/12
Diln Fac:	1.000		

Type: BS Lab ID: QC633716

Analyte	Spiked	Result	%REC	Limits
MTBE	10.00	9.031	90	70-130
Benzene	10.00	11.26	113	70-130
Toluene	10.00	10.72	107	70-130
Ethylbenzene	10.00	10.59	106	70-130

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	105	70-125

Type: BSD Lab ID: QC633717

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	10.00	10.38	104	70-130	14	20
Benzene	10.00	11.03	110	70-130	2	20
Toluene	10.00	10.60	106	70-130	1	20
Ethylbenzene	10.00	10.59	106	70-130	0	20

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	103	70-125

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	235203	Location:	Hunters Point Naval Shipyard Winter
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 5030B
Project#:	07193.0002	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC633718	Batch#:	185054
Matrix:	Water	Analyzed:	03/29/12
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C6-C12	1,000	955.9	96	65-135

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	95	76-121

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	235203	Location:	Hunters Point Naval Shipyard Winter
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 5030B
Project#:	07193.0002		
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC633719	Batch#:	185054
Matrix:	Water	Analyzed:	03/29/12
Units:	ug/L		

Analyte	Result	RL	MDL	Analysis
Gasoline C6-C12	7.2 J	50	5.6	EPA 8015B
MTBE	ND	2.0	0.45	EPA 8021B
Benzene	ND	0.50	0.082	EPA 8021B
Toluene	0.090 J	0.50	0.042	EPA 8021B
Ethylbenzene	ND	0.50	0.050	EPA 8021B
Xylene (total)	ND	0.50		EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	89	76-121	EPA 8015B
Bromofluorobenzene (PID)	101	70-125	EPA 8021B

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	235203	Location:	Hunters Point Naval Shipyard Winter
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 5030B
Project#:	07193.0002	Analysis:	EPA 8015B
Field ID:	IR24MW07A-032812	Batch#:	185054
MSS Lab ID:	235203-002	Sampled:	03/28/12
Matrix:	Water	Received:	03/28/12
Units:	ug/L	Analyzed:	03/29/12
Diln Fac:	1.000		

Type: MS Lab ID: QC633720

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C6-C12	18.77	2,000	1,777	88	65-135

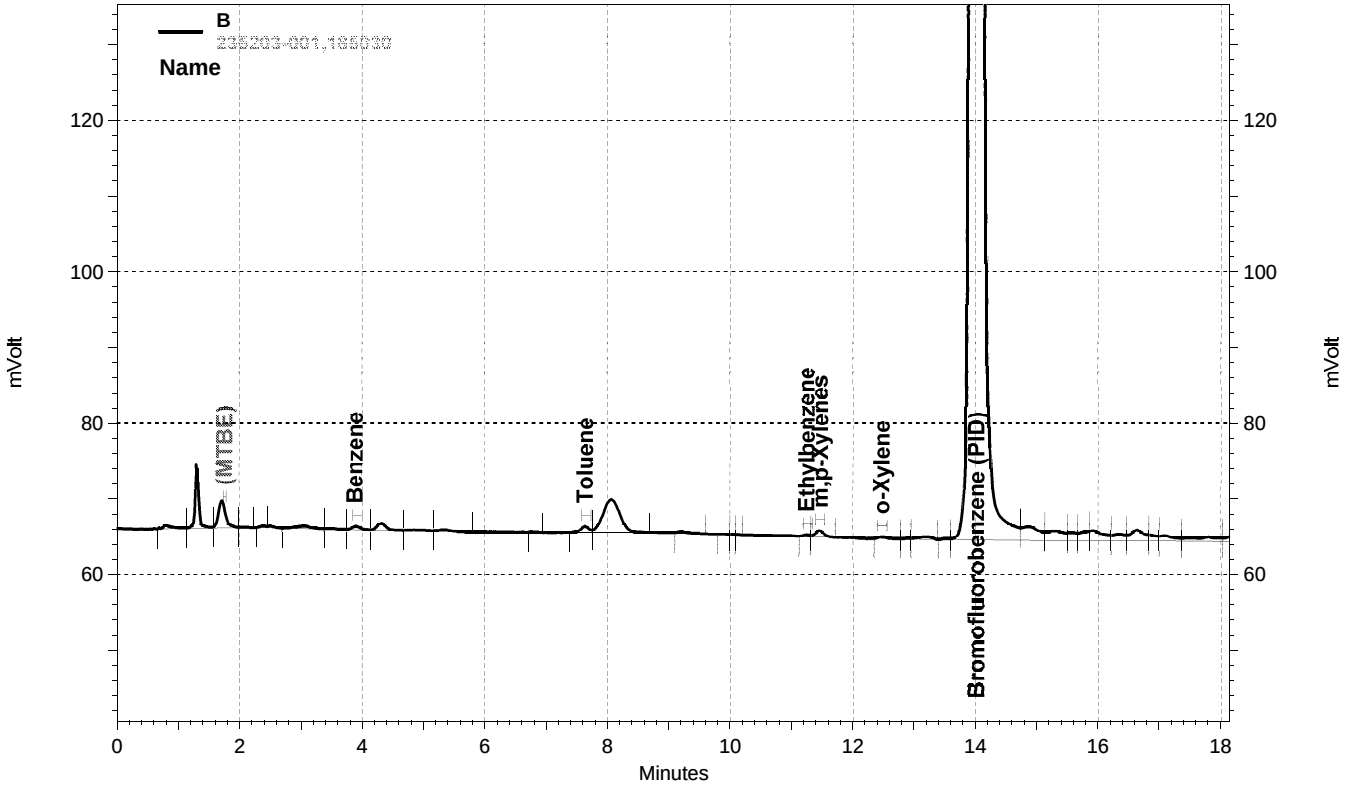
Surrogate	%REC	Limits
Bromofluorobenzene (FID)	99	76-121

Type: MSD Lab ID: QC633721

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C6-C12	2,000	1,818	90	65-135	2	20

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	103	76-121

RPD= Relative Percent Difference



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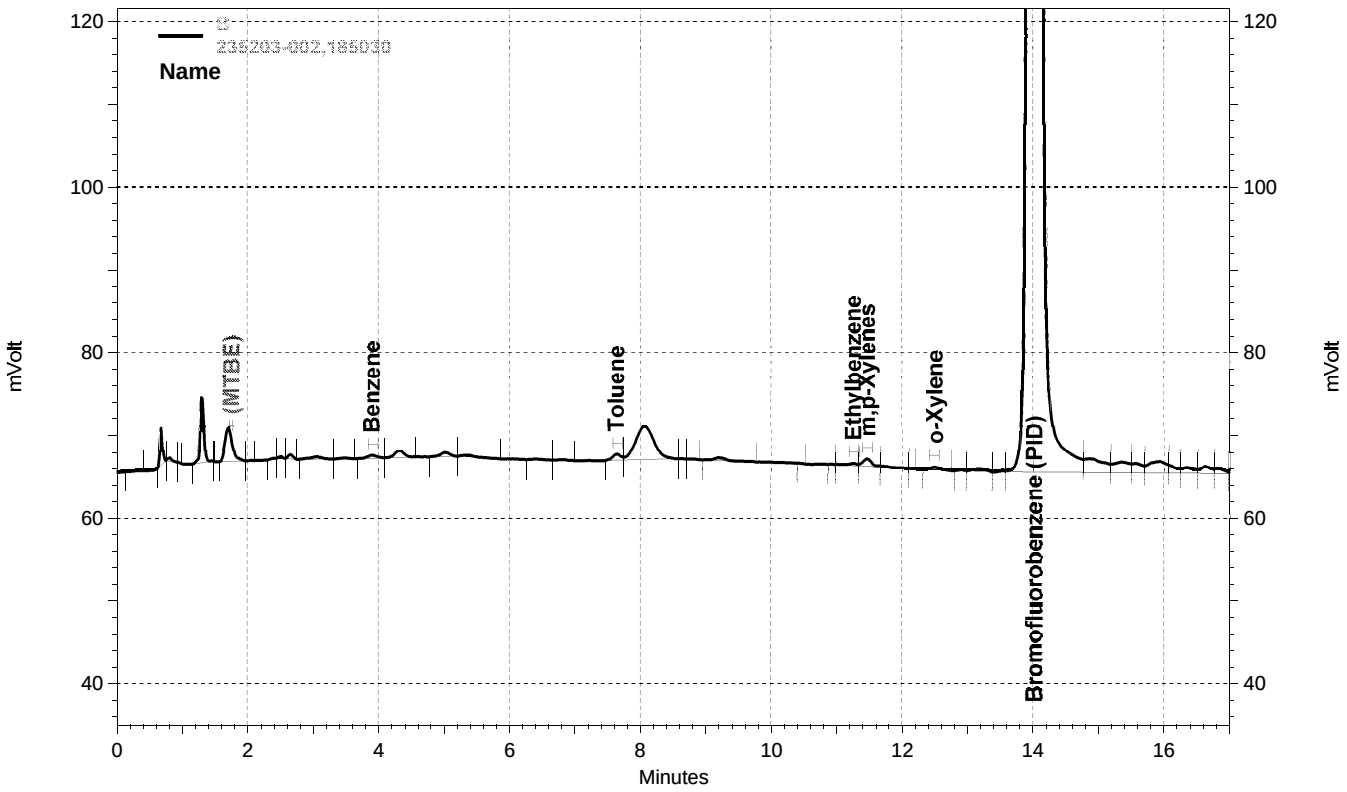

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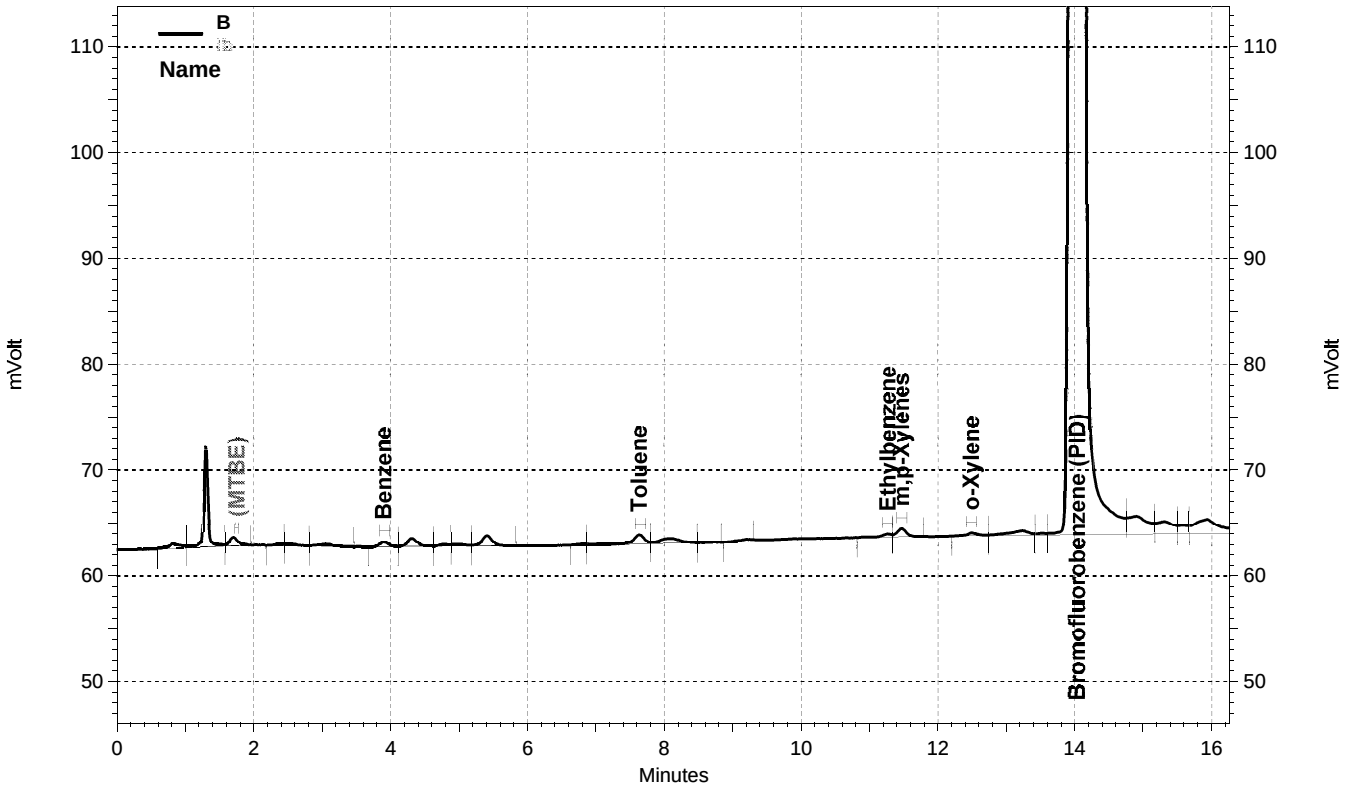

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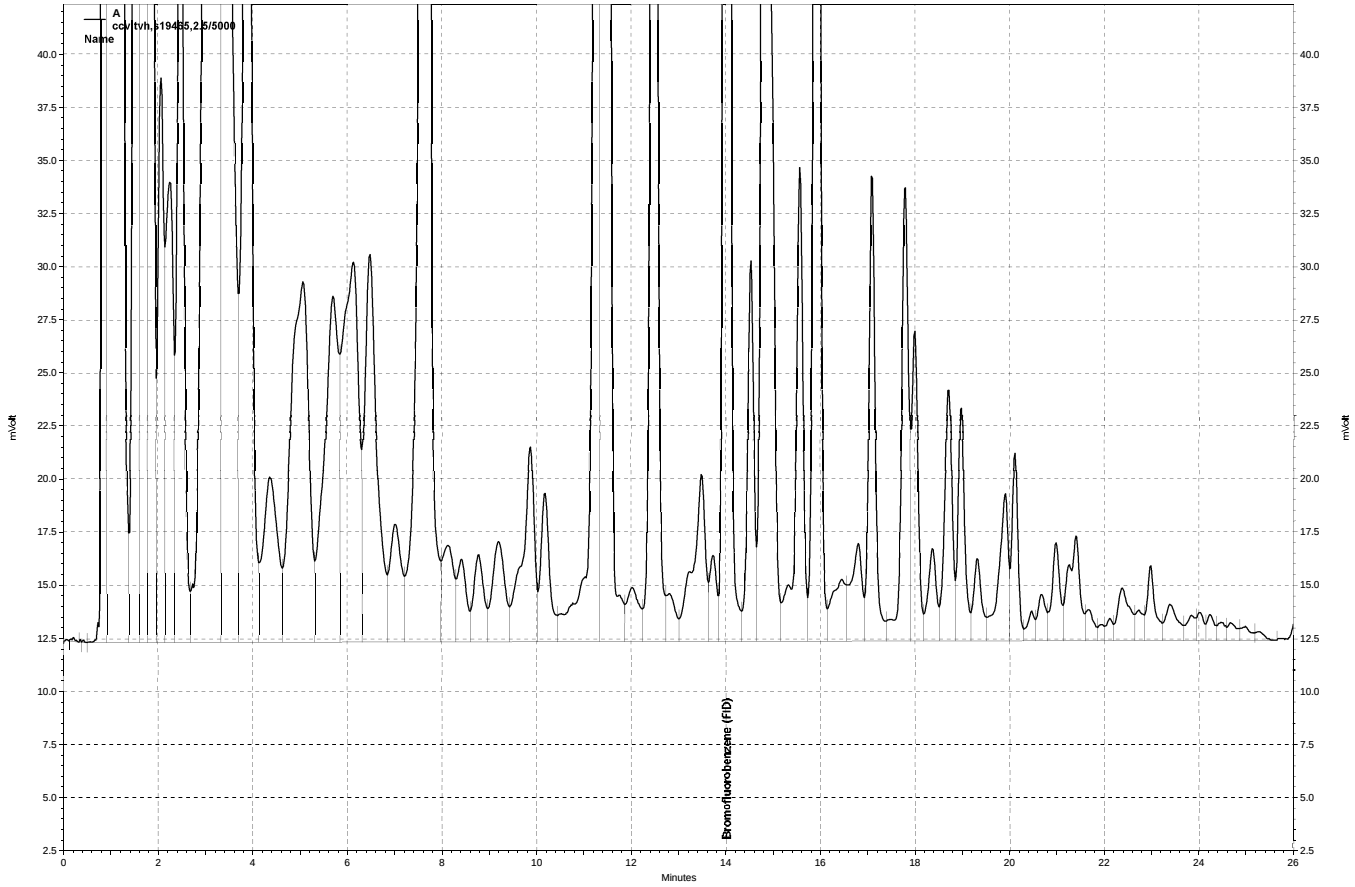

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CURTIS & TOMPKINS INITIAL CALIBRATION FOR 235203 GCVOA Water: EPA 8015B

Inst : GC19
Calnum : 341463461001
Units : ng

Name : tvh/bfb_321
Date : 17-NOV-2011 20:59
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	321_002	341463461002	TVH_14	17-NOV-2011 20:59	S18040 (1000X), S18479 (5000X)
L2	321_003	341463461003	TVH_15	17-NOV-2011 21:37	S18039 (1000X), S18479 (5000X)
L3	321_004	341463461004	TVH_16	17-NOV-2011 22:14	S18038 (1000X), S18479 (5000X)
L4	321_005	341463461005	TVH_17	17-NOV-2011 22:52	S18037 (2000X), S18479 (5000X)
L5	321_006	341463461006	TVH_18	17-NOV-2011 23:29	S18037 (1000X), S18479 (5000X)

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
Gasoline C6-C12	A	4337.8	3186.0	3183.7	3148.8	3139.9	AVRG		2.94E-4		3399.2	15	0.995	20	
Bromofluorobenzene (FID)	A	1513.7	1571.0	1575.6	1638.5	1832.5	AVRG		6.15E-4		1626.3	8	0.995	20	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Gasoline C6-C12	A	250.00	**28**	2500.0	-6	10000	-6	25000	-7	50000	-8
Bromofluorobenzene (FID)	A	900.00	-7	900.00	-3	900.00	-3	900.00	1	900.00	13

CRD 11/18/11 : Corrected automatically drawn baseline in multiple levels.

Analyst: CRD Date: 11/18/11 Reviewer: TDL Date: 11/18/11

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

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 235203 GCVOA Water
EPA 8015B

Inst : GC19 Name : tvh/bfb_321
Calnum : 341463461001 Cal Date : 17-NOV-2011

ICV 341463461009 (321_009 18-NOV-2011) stds: S18041 (1000X), S18479 (5000X)

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Gasoline C6-C12	A	10000	9631	ng	-4	15	

Analyst: CRD Date: 11/18/11 Reviewer: TDL Date: 11/18/11

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 235203 GCVOA Water: EPA 8021B

Inst : GC19
Calnum : 342025630002
Units : ng

Name : mbtxe/bfb_017window
Date : 17-JAN-2012 23:33
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	017_008	342025630008	BTXE_1	17-JAN-2012 23:33	S18577 (1000X), S19047 (5000X)
L2	017_009	342025630009	MBTXE_2	18-JAN-2012 00:11	S18576 (1250X), S19047 (5000X)
L3	017_010	342025630010	MBTXE_3	18-JAN-2012 00:49	S18576 (500X), S19047 (5000X)
L4	017_011	342025630011	MBTXE_4	18-JAN-2012 01:26	S18576 (125X), S19047 (5000X)
L5	017_012	342025630012	MBTXE_5	18-JAN-2012 02:04	S18575 (1000X), S19047 (5000X)
L6	017_013	342025630013	MBTXE_6	18-JAN-2012 02:42	S18575 (500X), S19047 (5000X)
L7	017_014	342025630014	MBTXE_7	18-JAN-2012 03:19	S18575 (250X), S19047 (5000X)
L8	017_015	342025630015	MTBE_7	18-JAN-2012 03:57	S18578 (500X), S19047 (5000X)

Analyte	Ch	L1	L2	L3	L4	L5	L6	L7	L8	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
MTBE	B		7233.1	6917.5	6686.1	6820.6	7008.6	6751.7	6299.6	AVRG		1.47E-4		6816.7	4	0.995	20	
Benzene	B	23406	23776	23066	23103	23781	24093	23729		AVRG		4.24E-5		23565	2	0.995	20	
Toluene	B	26542	22950	22221	22454	22379	22609	22199		AVRG		4.34E-5		23051	7	0.995	20	
Ethylbenzene	B	22165	20148	19851	20181	19539	20463	19705		AVRG		4.93E-5		20293	4	0.995	20	
m,p-Xylenes	B	29352	24781	23657	24438	23528	22891	22964		AVRG		4.08E-5		24516	9	0.995	20	
o-Xylene	B	22093	20325	19796	20579	19638	19865	19598		AVRG		4.93E-5		20271	4	0.995	20	
Bromofluorobenzene (PID)	B	12536	12557	12390	12953	12926	13264	13342	12724	AVRG		7.79E-5		12836	3	0.995	20	
MTBE	C		1369.8	833.16	1121.5	1329.6	1465.3	1467.7	1393.2	AVRG		7.79E-4		1282.9	18	0.995	20	
Benzene	C	4213.2	3421.8	3632.4	4445.2	5174.4	5381.2	5397.4		AVRG		2.21E-4		4523.7	18	0.995	20	
Toluene	C	3265.6	3360.0	3636.4	4416.4	4912.2	5100.6	5147.7		AVRG		2.35E-4		4262.7	19	0.995	20	
Ethylbenzene	C	3226.0	2739.5	3260.3	4059.8	4428.6	4610.7	4653.8		AVRG		2.59E-4		3854.1	20	0.995	20	
m,p-Xylenes	C	3888.0	3407.1	3829.8	4746.7	5067.0	5275.5	5338.9		AVRG		2.22E-4		4507.6	17	0.995	20	
o-Xylene	C	3811.2	2820.4	3118.1	3988.7	4341.5	4572.6	4631.1		AVRG		2.57E-4		3897.6	18	0.995	20	
Bromofluorobenzene (PID)	C	2618.9	2625.5	2588.3	2715.3	2736.8	2878.8	2938.8	2777.8	AVRG		3.66E-4		2735.0	5	0.995	20	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D
MTBE	B			10.000	6	25.000	1	100.00	-2	500.00	0	1000.0	3	2000.0	-1	5000.0	-8
Benzene	B	2.5000	-1	10.000	1	25.000	-2	100.00	-2	500.00	1	1000.0	2	2000.0	1		
Toluene	B	2.5000	15	10.000	0	25.000	-4	100.00	-3	500.00	-3	1000.0	-2	2000.0	-4		
Ethylbenzene	B	2.5000	9	10.000	-1	25.000	-2	100.00	-1	500.00	-4	1000.0	1	2000.0	-3		
m,p-Xylenes	B	2.5000	20	10.000	1	25.000	-4	100.00	0	500.00	-4	1000.0	-7	2000.0	-6		
o-Xylene	B	2.5000	9	10.000	0	25.000	-2	100.00	2	500.00	-3	1000.0	-2	2000.0	-3		
Bromofluorobenzene (PID)	B	900.00	-2	900.00	-2	900.00	-3	900.00	1	900.00	1	900.00	3	900.00	4	900.00	-1
MTBE	C			10.000	7	25.000	**-35**	100.00	-13	500.00	4	1000.0	14	2000.0	14	5000.0	9
Benzene	C	2.5000	-7	10.000	**-24**	25.000	-20	100.00	-2	500.00	14	1000.0	19	2000.0	19		
Toluene	C	2.5000	**-23**	10.000	**-21**	25.000	-15	100.00	4	500.00	15	1000.0	20	2000.0	**21**		
Ethylbenzene	C	2.5000	-16	10.000	**-29**	25.000	-15	100.00	5	500.00	15	1000.0	20	2000.0	**21**		
m,p-Xylenes	C	2.5000	-14	10.000	**-24**	25.000	-15	100.00	5	500.00	12	1000.0	17	2000.0	18		
o-Xylene	C	2.5000	-2	10.000	**-28**	25.000	-20	100.00	2	500.00	11	1000.0	17	2000.0	19		
Bromofluorobenzene (PID)	C	900.00	-4	900.00	-4	900.00	-5	900.00	-1	900.00	0	900.00	5	900.00	7	900.00	2

CRD 02/03/12 : Corrected automatically drawn baseline for Ch. B in multiple levels.

Analyst: CRD Date: 02/03/12 Reviewer: EAH Date: 02/03/12

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

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 235203 GCVOA Water
EPA 8021B

Inst : GC19 Name : mbtxe/bfb_017window
Calnum : 342025630002 Cal Date : 17-JAN-2012

ICV 342025630017 (017_017 18-JAN-2012) stds: S18712 (1000X), S19047 (5000X)

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
MTBE	B	100.0	109.9	ng	10	15	
Benzene	B	100.0	105.0	ng	5	15	
Toluene	B	100.0	99.21	ng	-1	15	
Ethylbenzene	B	100.0	95.10	ng	-5	15	
m,p-Xylenes	B	200.0	192.9	ng	-4	15	
o-Xylene	B	100.0	99.04	ng	-1	15	
MTBE	C	100.0	103.6	ng	4	15	
Benzene	C	100.0	110.3	ng	10	15	
Toluene	C	100.0	110.1	ng	10	15	
Ethylbenzene	C	100.0	107.8	ng	8	15	
m,p-Xylenes	C	200.0	224.8	ng	12	15	
o-Xylene	C	100.0	103.1	ng	3	15	

Analyst: CRD Date: 02/03/12 Reviewer: EAH Date: 02/03/12

CURTIS & TOMPKINS SPIKE USER REPORT FOR 235203 GCVOA Water
EPA 8021B

Inst : GC19 Run Name : QC633716 IDF : 1.0
Seqnum : 342128663002.6 File : 089_002 Time : 29-MAR-2012 09:00
Cal : 342025630002 Caldate : 17-JAN-2012
Standards: S19372 (2000X), S19047 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
MTBE	C	1282.9	1158.6	50.00	45.16	ng	-10	15	u
MTBE	B	6816.7	8083.9	50.00	59.29	ng	**19**	15	c+ ***
Benzene	B	23565	26528	50.00	56.29	ng	13	15	u
Benzene	C	4523.7	4561.1	50.00	50.41	ng	1	15	
Toluene	B	23051	24708	50.00	53.60	ng	7	15	u
Toluene	C	4262.7	4312.9	50.00	50.59	ng	1	15	
Ethylbenzene	B	20293	21492	50.00	52.95	ng	6	15	u
Ethylbenzene	C	3854.1	3788.2	50.00	49.14	ng	-2	15	
m,p-Xylenes	B	24516	26059	50.00	53.15	ng	6	15	u
m,p-Xylenes	C	4507.6	4444.9	50.00	49.30	ng	-1	15	
o-Xylene	B	20271	21628	50.00	53.35	ng	7	15	u
o-Xylene	C	3897.6	3708.4	50.00	47.57	ng	-5	15	
Bromofluorobenzene (PID)	B	12836	13419	900.0	940.9	ng	5	15	u
Bromofluorobenzene (PID)	C	2735.0	2701.6	900.0	889.0	ng	-1	15	

RP 03/30/12 : Corrected automatically drawn baseline for Ch. B. [general version]

EAH 04/04/12 : 3/29/12 12:19CRDFix SequenceCCV/BS GC19 089_002 QC633716 (Batch 185054, v0) [general version]

RP: 03/30/12 * CRD: 04/04/12 EAH: 04/04/12

+=high bias c=CCV u=use

CURTIS & TOMPKINS SPIKE USER REPORT FOR 235203 GCVOA Water
EPA 8015B

Inst : GC19 Run Name : QC633718 IDF : 1.0
Seqnum : 342128663003.1 File : 089_003 Time : 29-MAR-2012 09:38
Cal : 341463461001 Caldate : 17-NOV-2011
Standards: S19465 (2000X), S19047 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Gasoline C6-C12	A	3399.2	3249.3	5000	4780	ng	-4	15	u
Bromofluorobenzene (FID)	A	1626.3	1539.9	900.0	852.2	ng	-5	15	u

EAH 04/04/12 : 03/29/12 12:19CRDFix SequenceCCV/LCS GC19 089_003 QC633718 (Batch 185054, v0) [general version]

Analyst: RP Date: 03/30/12 Reviewer: EAH Date: 04/04/12

u=use

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 235203 GCVOA Water
EPA 8021B

Inst : GC19 Run Name : BTXE IDF : 1.0
Seqnum : 342128663010 File : 089_010 Time : 29-MAR-2012 15:08
Cal : 342025630002 Caldate : 17-JAN-2012
Standards: S19372 (1000X), S19047 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
MTBE	B	6816.7	7953.7	100.0	116.7	ng	**17**	15	c+ ***
Benzene	B	23565	25834	100.0	109.6	ng	10	15	
Toluene	B	23051	23920	100.0	103.8	ng	4	15	
Ethylbenzene	B	20293	20975	100.0	103.4	ng	3	15	
m,p-Xylenes	B	24516	24355	100.0	99.35	ng	-1	15	
o-Xylene	B	20271	20757	100.0	102.4	ng	2	15	
Bromofluorobenzene (PID)	B	12836	13497	900.0	946.3	ng	5	15	
MTBE	C	1282.9	1393.9	100.0	108.7	ng	9	15	
Benzene	C	4523.7	5199.8	100.0	114.9	ng	15	15	
Toluene	C	4262.7	4818.5	100.0	113.0	ng	13	15	
Ethylbenzene	C	3854.1	4204.0	100.0	109.1	ng	9	15	
m,p-Xylenes	C	4507.6	4846.5	100.0	107.5	ng	8	15	
o-Xylene	C	3897.6	4112.0	100.0	105.5	ng	6	15	
Bromofluorobenzene (PID)	C	2735.0	2846.1	900.0	936.6	ng	4	15	

RP 03/30/12 : Corrected automatically drawn baseline for Ch. B.

RP: 03/30/12 TW: 03/30/12 EAH: 04/04/12

+=high bias c=CCV

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 235203 GCVOA Water
EPA 8015B

Inst : GC19 Run Name : TVH IDF : 1.0
Seqnum : 342128663011 File : 089_011 Time : 29-MAR-2012 16:01
Cal : 341463461001 Caldate : 17-NOV-2011
Standards: S19465 (1000X), S19047 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Gasoline C6-C12	A	3399.2	3137.7	10000	9231	ng	-8	15	
Bromofluorobenzene (FID)	A	1626.3	1609.9	900.0	890.9	ng	-1	15	

RP: 03/30/12 TW: 03/30/12 EAH: 04/04/12

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 341463461

Instrument : GC19 Begun : 11/17/11 20:21
Method : EPA 8015B, EPA 8021B SOP Version : TVH_BTXE_rv14

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	321_001	IB	CALIB			11/17/11 20:21	1.0	1	
002	321_002	ICAL	TVH_14			11/17/11 20:59	1.0	2 1	
003	321_003	ICAL	TVH_15			11/17/11 21:37	1.0	3 1	
004	321_004	ICAL	TVH_16			11/17/11 22:14	1.0	4 1	
005	321_005	ICAL	TVH_17			11/17/11 22:52	1.0	5 1	
006	321_006	ICAL	TVH_18			11/17/11 23:29	1.0	5 1	
007	321_007	X	IB			11/18/11 00:07	1.0	1	
008	321_008	X	ICV			11/18/11 00:45	1.0	6 1	
009	321_009	ICV	TVH			11/18/11 01:22	1.0	6 1	
010	321_010	CMARKER				11/18/11 02:00	1.0	7 1	

TDL 12/23/11 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 10.

Analyst: CRD Date: 11/18/11 Reviewer: TDL Date: 11/18/11

Standards used: 1=S18479 2=S18040 3=S18039 4=S18038 5=S18037 6=S18041 7=S18378

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CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 342025630

Instrument : GC19 Begun : 01/17/12 19:10
Method : EPA 8015B, EPA 8021B SOP Version : TVH_BTXE_rv14

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	017_001	X	IB			01/17/12 19:10	1.0	1	
002	017_002	X	IB			01/17/12 19:48	1.0	1	
003	017_003	X	IB			01/17/12 20:25	1.0	1	
004	017_004	X	IB			01/17/12 21:03	1.0	1	
005	017_005	X	IB			01/17/12 21:41	1.0	1	
006	017_006	X	IB			01/17/12 22:18	1.0	1	
007	017_007	IB	CALIB			01/17/12 22:56	1.0	1	
008	017_008	ICAL	BTXE_1			01/17/12 23:33	1.0	2 1	
009	017_009	ICAL	MBTXE_2			01/18/12 00:11	1.0	3 1	
010	017_010	ICAL	MBTXE_3			01/18/12 00:49	1.0	3 1	
011	017_011	ICAL	MBTXE_4			01/18/12 01:26	1.0	3 1	
012	017_012	ICAL	MBTXE_5			01/18/12 02:04	1.0	4 1	
013	017_013	ICAL	MBTXE_6			01/18/12 02:42	1.0	4 1	
014	017_014	ICAL	MBTXE_7			01/18/12 03:19	1.0	4 1	
015	017_015	ICAL	MTBE_7			01/18/12 03:57	1.0	5 1	
016	017_016	X	IB			01/18/12 04:34	1.0	1	
017	017_017	ICV	MBTXE			01/18/12 05:12	1.0	6 1	
018	017_018	X	ICV			01/18/12 05:49	1.0	6 1	

Analyst: CRD Date: 01/19/12 Reviewer: EAH Date: 01/19/12

Standards used: 1=S19047 2=S18577 3=S18576 4=S18575 5=S18578 6=S18712

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CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 342128663

Instrument : GC19 Begun : 03/29/12 08:23
Method : EPA 8015B, EPA 8021B SOP Version : TVH_BTXE_rv14

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	089_001	X	CMARK			03/29/12 08:23	1.0	1 2	
002	089_002	CCV/BS	QC633716	Water	185054	03/29/12 09:00	1.0	3 2	
003	089_003	CCV/LCS	QC633718	Water	185054	03/29/12 09:38	1.0	4 2	
004	089_004	BSD	QC633717	Water	185054	03/29/12 10:16	1.0	3 2	
005	089_005	BLANK	QC633719	Water	185054	03/29/12 11:33	1.0	2	
006	089_006	SAMPLE	235203-001	Water	185054	03/29/12 12:37	1.0	2	
007	089_007	MSS	235203-002	Water	185054	03/29/12 13:15	1.0	2	
008	089_008	MS	QC633720	Water	185054	03/29/12 13:52	1.0	4 2	
009	089_009	MSD	QC633721	Water	185054	03/29/12 14:30	1.0	4 2	
010	089_010	CCV	BTXE			03/29/12 15:08	1.0	3 2	
011	089_011	CCV	TVH			03/29/12 16:01	1.0	4 2	
012	089_012	X	CMARK			03/29/12 16:39	1.0	1 2	
013	089_013	SAMPLE	235218-006	Water	185054	03/29/12 19:13	1.0	2	
014	089_014	SAMPLE	235220-006	Water	185054	03/29/12 19:51	1.0	2	
015	089_015	SAMPLE	235222-006	Water	185054	03/29/12 20:28	1.0	2	
016	089_016	SAMPLE	235223-006	Water	185054	03/29/12 21:06	1.0	2	
017	089_017	CCV	BTXE			03/29/12 21:43	1.0	3 2	

RP 03/30/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 17.

RP 03/30/12 : Sample IDs were corrected and narrated from files 089_013 to 089_016.

Analyst: RP Date: 03/30/12 Reviewer: TW Date: 03/30/12

Standards used: 1=S19081 2=S19047 3=S19372 4=S19465

REPORTING SUMMARY FOR 235203 GCVOA Water

Sample ID	Analyte	Inst ID	Ch	Date & Time
235203-001	Gasoline C6-C12	GC19	A	03/29/12 12:37
235203-001	MTBE	GC19	C	03/29/12 12:37
235203-001	Benzene	GC19	B	03/29/12 12:37
235203-001	Toluene	GC19	B	03/29/12 12:37
235203-001	Ethylbenzene	GC19	B	03/29/12 12:37
235203-001	Bromofluorobenzene (FID)	GC19	A	03/29/12 12:37
235203-001	Bromofluorobenzene (PID)	GC19	B	03/29/12 12:37
235203-001	Xylene (total)	GC19	B	03/29/12 12:37
235203-002	Gasoline C6-C12	GC19	A	03/29/12 13:15
235203-002	MTBE	GC19	C	03/29/12 13:15
235203-002	Benzene	GC19	B	03/29/12 13:15
235203-002	Toluene	GC19	B	03/29/12 13:15
235203-002	Ethylbenzene	GC19	B	03/29/12 13:15
235203-002	Bromofluorobenzene (FID)	GC19	A	03/29/12 13:15
235203-002	Bromofluorobenzene (PID)	GC19	B	03/29/12 13:15
235203-002	Xylene (total)	GC19	B	03/29/12 13:15
QC633716	MTBE	GC19	C	03/29/12 09:00
QC633716	Benzene	GC19	B	03/29/12 09:00
QC633716	Toluene	GC19	B	03/29/12 09:00
QC633716	Ethylbenzene	GC19	B	03/29/12 09:00
QC633716	Bromofluorobenzene (PID)	GC19	B	03/29/12 09:00
QC633717	MTBE	GC19	C	03/29/12 10:16
QC633717	Benzene	GC19	B	03/29/12 10:16
QC633717	Toluene	GC19	B	03/29/12 10:16
QC633717	Ethylbenzene	GC19	B	03/29/12 10:16
QC633717	Bromofluorobenzene (PID)	GC19	B	03/29/12 10:16
QC633718	Gasoline C6-C12	GC19	A	03/29/12 09:38
QC633718	Bromofluorobenzene (FID)	GC19	A	03/29/12 09:38
QC633719	Gasoline C6-C12	GC19	A	03/29/12 11:33
QC633719	MTBE	GC19	C	03/29/12 11:33
QC633719	Benzene	GC19	B	03/29/12 11:33
QC633719	Toluene	GC19	B	03/29/12 11:33
QC633719	Ethylbenzene	GC19	B	03/29/12 11:33
QC633719	Bromofluorobenzene (FID)	GC19	A	03/29/12 11:33
QC633719	Bromofluorobenzene (PID)	GC19	B	03/29/12 11:33
QC633719	Xylene (total)	GC19	B	03/29/12 11:33
QC633720	Gasoline C6-C12	GC19	A	03/29/12 13:52
QC633720	Bromofluorobenzene (FID)	GC19	A	03/29/12 13:52
QC633721	Gasoline C6-C12	GC19	A	03/29/12 14:30
QC633721	Bromofluorobenzene (FID)	GC19	A	03/29/12 14:30

Case Narrative Addendum: Manual Integrations for 235203 GCVOA (Water)

For MSS 235203-002 (GC19_089_007):
Corrected automatically drawn baseline for Ch. B.
Corrected automatically drawn baseline for Ch. A.

For CCV BTXE (GC19_089_010):
Corrected automatically drawn baseline for Ch. B.

For CCV/BS QC633716 (GC19_089_002):
Corrected automatically drawn baseline for Ch. B.

For MSD QC633721 (GC19_089_009):
Corrected automatically drawn baseline for Ch. A for dup.

For Calibration GC19 (341463461001):
Corrected automatically drawn baseline in multiple levels.

For Calibration GC19 (342025630002):
Corrected automatically drawn baseline for Ch. B in multiple levels.

Lower Values Reported for 235203 GCVOA Water
Curtis & Tompkins Laboratories

Type	Sample ID	Analyte	Ch	Primary	Ch	Confirm	Inst	Analyzed
SAMPLE	235203-001	Toluene	B	0.07032	C	0.07221	GC19	03/29/12 12:37
BLANK	QC633719	Toluene	B	0.08959	C	0.1121	GC19	03/29/12 11:33

Laboratory Job Number 235203

ANALYTICAL REPORT

TPH-Extractables by GC

Matrix: Water

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	235203	Location:	Hunters Point Naval Shipyard Winter
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	07193.0002	Analysis:	EPA 8015B
Field ID:	IR24MW07A-032812	Sampled:	03/28/12
Matrix:	Water	Received:	03/28/12
Units:	ug/L	Prepared:	04/01/12
Diln Fac:	1.000	Analyzed:	04/02/12
Batch#:	185110		

Type: SAMPLE Cleanup Method: EPA 3630C
Lab ID: 235203-002

Analyte	Result	RL	MDL
Diesel C12-C24	600	50	8.9
Motor Oil C24-C36	ND	300	82

Surrogate	%REC	Limits
o-Terphenyl	91	61-129

Type: BLANK Cleanup Method: EPA 3630C
Lab ID: QC633923

Analyte	Result	RL	MDL
Diesel C12-C24	ND	50	8.9
Motor Oil C24-C36	ND	300	82

Surrogate	%REC	Limits
o-Terphenyl	98	61-129

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	235203	Location:	Hunters Point Naval Shipyard Winter
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	07193.0002	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	185110
Units:	ug/L	Prepared:	04/01/12
Diln Fac:	1.000	Analyzed:	04/02/12

Type: BS Cleanup Method: EPA 3630C
Lab ID: QC633924

Analyte	Spiked	Result	%REC	Limits
Diesel C12-C24	2,500	2,397	96	65-135

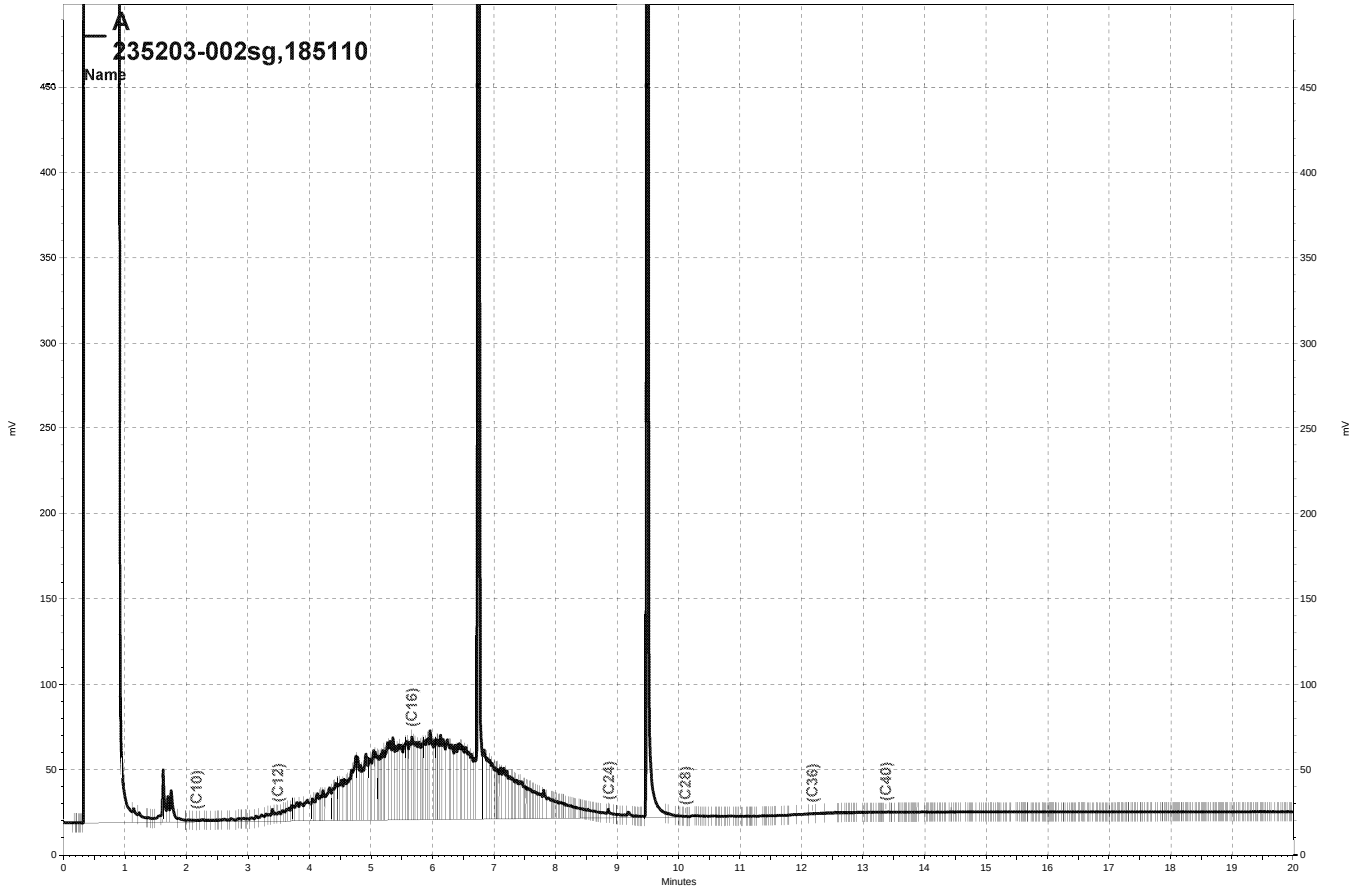
Surrogate	%REC	Limits
o-Terphenyl	105	61-129

Type: BSD Cleanup Method: EPA 3630C
Lab ID: QC633925

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C12-C24	2,500	2,196	88	65-135	9	20

Surrogate	%REC	Limits
o-Terphenyl	99	61-129

RPD= Relative Percent Difference



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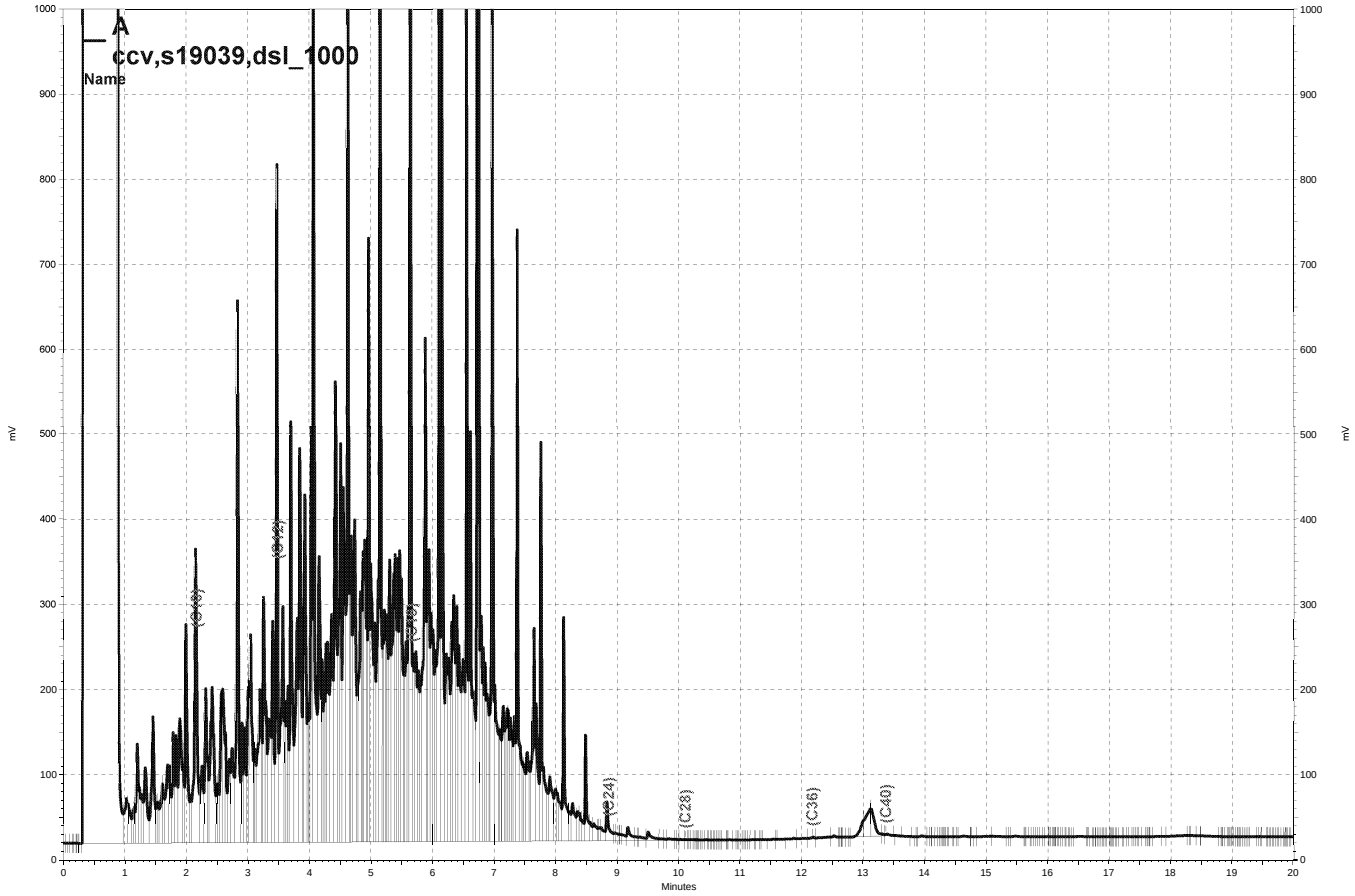

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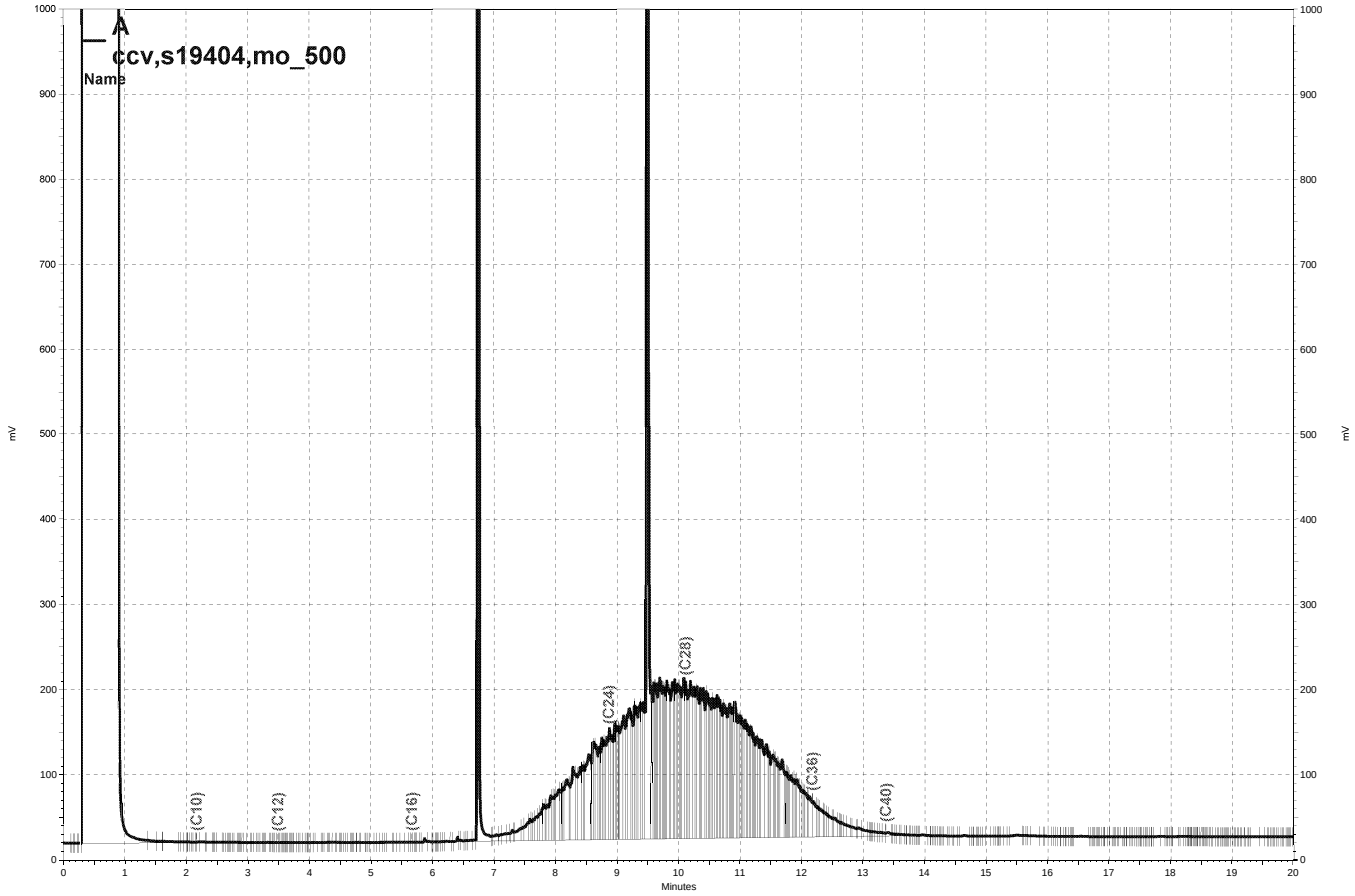

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CURTIS & TOMPKINS INITIAL CALIBRATION FOR 235203 GCSV Water: EPA 8015B

Inst : GC17A
Calnum : 172088347001
Units : mg/L

Name : OTP-HEX_061
Date : 01-MAR-2012 17:15
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	061a009	172088347009	HEXOTP_5	01-MAR-2012 17:15	S19347
L2	061a010	172088347010	HEXOTP_10	01-MAR-2012 17:42	S19348
L3	061a011	172088347011	HEXOTP_25	01-MAR-2012 18:10	S19349
L4	061a012	172088347012	HEXOTP_50	01-MAR-2012 18:38	S19350
L5	061a013	172088347013	HEXOTP_100	01-MAR-2012 19:06	S19351
L6	061a014	172088347014	HEXOTP_200	01-MAR-2012 19:33	S19352

Analyte	L1	L2	L3	L4	L5	L6	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
o-Terphenyl	83676	84162	83556	85178	86117	87308	AVRG		1.18E-5		85000	2	0.995	20	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D
o-Terphenyl	5.0000	-2	10.000	-1	25.000	-2	50.000	0	100.00	1	200.00	3

JDG 03/02/12 : Corrected automatically drawn baseline in multiple levels.

Analyst: JDG Date: 03/02/12 Reviewer: CP Date: 03/02/12

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

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 235203 GCSV Water: EPA 8015B

Inst : GC17A
Calnum : 172088347002
Units : mg/L

Name : DIESEL_061
Date : 01-MAR-2012 20:28
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	061a016	172088347016	DSL_10	01-MAR-2012 20:28	S18701
L2	061a017	172088347017	DSL_100	01-MAR-2012 20:56	S18700
L3	061a018	172088347018	DSL_500	01-MAR-2012 21:24	S18699
L4	061a019	172088347019	DSL_1000	01-MAR-2012 21:51	S18698
L5	061a020	172088347020	DSL_5000	01-MAR-2012 22:19	S18696
L6	061a021	172088347021	DSL_7500	01-MAR-2012 22:47	S18697

Analyte	L1	L2	L3	L4	L5	L6	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
Diesel C12-C24	45015	69225	73914	69433	72158	68729	AVRG		1.51E-5		66412	16	0.995	20	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D
Diesel C12-C24	10.000	**-32**	100.00	4	500.00	11	1000.0	5	5000.0	9	7500.0	3

JDG 03/02/12 : Manually integrated fuel hump in DSL_10 (061a016).

Analyst: JDG Date: 03/02/12 Reviewer: EAH Date: 03/02/12

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

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 235203 GCSV Water
EPA 8015B

Inst : GC17A
Calnum : 172088347002

Name : DIESEL_061
Cal Date : 01-MAR-2012

ICV 172088347023 (061a023 01-MAR-2012) stds: S19038

Analyte	Spiked	Quant	Units	%D	Max	Flags
Diesel C12-C24	500.0	462.9	mg/L	-7	15	

Analyst: JDG Date: 03/02/12 Reviewer: EAH Date: 03/02/12

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 235203 GCSV Water: EPA 8015B

Inst : GC17A
Calnum : 172088347003
Units : mg/L

Name : MOTOR OIL_061
Date : 02-MAR-2012 01:04
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	061a026	172088347026	MO_25	02-MAR-2012 01:04	S19106
L2	061a027	172088347027	MO_50	02-MAR-2012 01:32	S18660
L3	061a028	172088347028	MO_250	02-MAR-2012 01:59	S18661
L4	061a029	172088347029	MO_500	02-MAR-2012 02:27	S18662
L5	061a030	172088347030	MO_1000	02-MAR-2012 02:54	S18663
L6	061a031	172088347031	MO_2500	02-MAR-2012 03:21	S19116 (2X)
L7	061a032	172088347032	MO_5000	02-MAR-2012 03:49	S19116

Analyte	L1	L2	L3	L4	L5	L6	L7	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
Motor Oil C24-C36	57749	53680	57116	57391	58986	53090	53355	AVRG		1.79E-5		55909	4	0.995	20	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D
Motor Oil C24-C36	25.000	3	50.000	-4	250.00	2	500.00	3	1000.0	6	2500.0	-5	5000.0	-5

JDG 03/02/12 : Corrected automatically drawn baseline in multiple levels.

Analyst: JDG Date: 03/02/12 Reviewer: EAH Date: 03/02/12

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

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 235203 GCSV Water
EPA 8015B

Inst : GC17A Run Name : DSL_1000 IDF : 1.0
Seqnum : 172134357003 File : 093a003 Time : 02-APR-2012 08:12
Standards: S19039

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C12-C24	172088347002	01-MAR-2012	66412	67690	1000	1019	mg/L	2	15	
o-Terphenyl	172088347001	01-MAR-2012	85000	94891	50.00	55.82	mg/L	12	15	

JDG 04/02/12 : Corrected automatically drawn baseline.

Analyst: JDG Date: 04/02/12 Reviewer: SFL Date: 04/03/12

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 235203 GCSV Water
EPA 8015B

Inst : GC17A Run Name : MO_500 IDF : 1.0
Seqnum : 172134357004 File : 093a004 Time : 02-APR-2012 08:40
Standards: S19404

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Motor Oil C24-C36	172088347003	02-MAR-2012	55909	52946	500.0	473.5	mg/L	-5	15	
o-Terphenyl	172088347001	01-MAR-2012	85000	91180	50.00	53.64	mg/L	7	15	

JDG 04/02/12 : Manually integrated fuel hump.

Analyst: JDG Date: 04/02/12 Reviewer: SFL Date: 04/03/12

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 235203 GCSV Water
EPA 8015B

Inst : GC17A Run Name : DSL_500 IDF : 1.0
Seqnum : 172134357020 File : 093a020 Time : 02-APR-2012 20:01
Standards: S19492

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C12-C24	172088347002	01-MAR-2012	66412	61469	500.0	462.8	mg/L	-7	15	
o-Terphenyl	172088347001	01-MAR-2012	85000	83659	50.00	49.21	mg/L	-2	15	

JDG 04/03/12 : Corrected automatically drawn baseline.

Analyst: JDG Date: 04/03/12 Reviewer: SFL Date: 04/03/12

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 235203 GCSV Water
EPA 8015B

Inst : GC17A Run Name : MO_500 IDF : 1.0
Seqnum : 172134357021 File : 093a021 Time : 02-APR-2012 20:29
Standards: S19533

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Motor Oil C24-C36	172088347003	02-MAR-2012	55909	53508	500.0	478.5	mg/L	-4	15	
o-Terphenyl	172088347001	01-MAR-2012	85000	92387	50.00	54.35	mg/L	9	15	

JDG 04/03/12 : Corrected automatically drawn baseline.

Analyst: JDG Date: 04/03/12 Reviewer: SFL Date: 04/03/12

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 172088347

Instrument : GC17A Begun : 03/01/12 08:27
Method : EPA 8015B SOP Version : TEH_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	061a001	X	IB			03/01/12 08:27	1.0		
002	061a002	X	IB			03/01/12 08:34	1.0		
003	061a003	X	CMARKER			03/01/12 09:01	1.0	1	
004	061a004	X	DSL_250			03/01/12 09:29	1.0	2	
005	061a005	X	MO_500			03/01/12 09:57	1.0	3	
006	061a006	X	CMARKER			03/01/12 15:24	1.0	1	
007	061a007	X	IB			03/01/12 16:19	1.0		
008	061a008	IB	CALIB			03/01/12 16:47	1.0		
009	061a009	ICAL	HEXOTP_5			03/01/12 17:15	1.0	4	
010	061a010	ICAL	HEXOTP_10			03/01/12 17:42	1.0	5	
011	061a011	ICAL	HEXOTP_25			03/01/12 18:10	1.0	6	
012	061a012	ICAL	HEXOTP_50			03/01/12 18:38	1.0	7	
013	061a013	ICAL	HEXOTP_100			03/01/12 19:06	1.0	8	
014	061a014	ICAL	HEXOTP_200			03/01/12 19:33	1.0	9	
015	061a015	IB	CALIB			03/01/12 20:01	1.0		
016	061a016	ICAL	DSL_10			03/01/12 20:28	1.0	10	
017	061a017	ICAL	DSL_100			03/01/12 20:56	1.0	11	
018	061a018	ICAL	DSL_500			03/01/12 21:24	1.0	12	
019	061a019	ICAL	DSL_1000			03/01/12 21:51	1.0	13	
020	061a020	ICAL	DSL_5000			03/01/12 22:19	1.0	14	
021	061a021	ICAL	DSL_7500			03/01/12 22:47	1.0	15	
022	061a022	IB	CALIB			03/01/12 23:14	1.0		
023	061a023	ICV	DSL_500			03/01/12 23:42	1.0	16	
024	061a024	X	ICV			03/02/12 00:09	1.0	16	
025	061a025	IB	CALIB			03/02/12 00:37	1.0		
026	061a026	ICAL	MO_25			03/02/12 01:04	1.0	17	
027	061a027	ICAL	MO_50			03/02/12 01:32	1.0	18	
028	061a028	ICAL	MO_250			03/02/12 01:59	1.0	19	
029	061a029	ICAL	MO_500			03/02/12 02:27	1.0	20	
030	061a030	ICAL	MO_1000			03/02/12 02:54	1.0	21	
031	061a031	ICAL	MO_2500			03/02/12 03:21	1.0	22	
032	061a032	ICAL	MO_5000			03/02/12 03:49	1.0	22	
033	061a033	IB	CALIB			03/02/12 04:16	1.0		
034	061a034	CMARKER	C8-C50			03/02/12 04:44	1.0	1	
035	061a035	IB	CALIB			03/02/12 05:11	1.0		

JDG 03/02/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 35.

Standards used: 1=S19156 2=S19037 3=S19036 4=S19347 5=S19348 6=S19349 7=S19350 8=S19351 9=S19352 10=S18701 11=S18700 12=S18699 13=S18698 14=S18696 15=S18697 16=S19038 17=S19106 18=S18660 19=S18661 20=S18662 21=S18663 22=S19116

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 172134357

Instrument : GC17A Begun : 04/02/12 07:17
Method : EPA 8015B SOP Version : TEH_rv13

#	File	Type	Sample ID	P	Matrix	Batch	Analyzed	IDF	Stds Used	
001	093a001	X	IB				04/02/12 07:17	1.0		
002	093a002	X	CMARKER				04/02/12 07:45	1.0	1	
003	093a003	CCV	DSL_1000				04/02/12 08:12	1.0	2	
004	093a004	CCV	MO_500				04/02/12 08:40	1.0	3	
005	093a005	CCV	KERO_250				04/02/12 10:22	1.0	4	
006	093a006	BLANK	QC633923	S	Water	185110	04/02/12 13:29	1.0		
007	093a007	BS	QC633924	S	Water	185110	04/02/12 13:56	1.0		
008	093a008	BSD	QC633925	S	Water	185110	04/02/12 14:24	1.0		
009	093a009	SAMPLE	235232-001	S	Water	185110	04/02/12 14:53	1.0		
010	093a010	SAMPLE	235232-002	S	Water	185110	04/02/12 15:21	1.0		
011	093a011	SAMPLE	235232-003	S	Water	185110	04/02/12 15:49	1.0		
012	093a012	SAMPLE	235232-004	S	Water	185110	04/02/12 16:17	1.0		
013	093a013	SAMPLE	235232-005	S	Water	185110	04/02/12 16:45	1.0		
014	093a014	SAMPLE	235232-006	S	Water	185110	04/02/12 17:13	1.0		
015	093a015	SAMPLE	235232-007	S	Water	185110	04/02/12 17:41	1.0		
016	093a016	SAMPLE	235232-008	S	Water	185110	04/02/12 18:09	1.0		
017	093a017	SAMPLE	235203-002	S	Water	185110	04/02/12 18:37	1.0		
018	093a018	SAMPLE	235239-001	S	Water	185110	04/02/12 19:05	1.0		
019	093a019	X	CMARKER				04/02/12 19:33	1.0	1	
020	093a020	CCV	DSL_500				04/02/12 20:01	1.0	5	
021	093a021	CCV	MO_500				04/02/12 20:29	1.0	6	
022	093a022	CCV	KERO_250				04/02/12 20:56	1.0	4	
023	093a023	SAMPLE	235239-002	S	Water	185110	04/02/12 21:24	1.0		
024	093a024	SAMPLE	235239-003	S	Water	185110	04/02/12 21:52	1.0		
025	093a025	SAMPLE	235239-004	S	Water	185110	04/02/12 22:19	1.0		
026	093a026	SAMPLE	235239-005	S	Water	185110	04/02/12 22:47	1.0		
027	093a027	SAMPLE	235239-006	S	Water	185110	04/02/12 23:14	1.0		
028	093a028	SAMPLE	235239-007	S	Water	185110	04/02/12 23:42	1.0		
029	093a029	SAMPLE	235239-008	S	Water	185110	04/03/12 00:09	1.0		
030	093a030	SAMPLE	235239-009	S	Water	185110	04/03/12 00:37	1.0		
031	093a031	SAMPLE	235239-010	S	Water	185110	04/03/12 01:05	1.0		
032	093a032	SAMPLE	235239-011	S	Water	185110	04/03/12 01:32	1.0		
033	093a033	CCV	DSL_1000				04/03/12 02:00	1.0	2	
034	093a034	CCV	MO_500				04/03/12 02:27	1.0	3	
035	093a035	CCV	KERO_250				04/03/12 02:55	1.0	4	

JDG 04/03/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 35.

Standards used: 1=S19156 2=S19039 3=S19404 4=S19567 5=S19492 6=S19533

SAMPLE PREPARATION SUMMARY

Batch # : 185110
Started By : JPE
Method : 3520C
Spike #1 ID : S19402

Prep Date : 01-APR-2012 17:45
SOP Version : TEH_3520_rv12
Spike #2 ID : S19080

Analysis : TEH
Finished By : CGL
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
235203-002		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
235232-001		Water	500	2.5	1	0.005	7	1			3630C	TEH	poss 2x surr.
235232-002		Water	500	2.5	1	0.005	7	.5			3630C	TEH	
235232-003		Water	500	2.5	1	0.005	7	.5			3630C	TEH	
235232-004		Water	500	2.5	1	0.005	7	.5			3630C	TEH	
235232-005		Water	500	2.5	1	0.005	7	.5			3630C	TEH	
235232-006		Water	500	2.5	1	0.005	7	.5			3630C	TEH	
235232-007		Water	500	2.5	1	0.005	7	.5			3630C	TEH	
235232-008		Water	500	2.5	1	0.005	7	.5			3630C	TEH	
235239-001		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
235239-002		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
235239-003		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
235239-004		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
235239-005		Water	500	2.5	1	0.005	5	.5			3630C	TEHM	
235239-006		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
235239-007		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
235239-008		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
235239-009		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
235239-010		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
235239-011		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
QC633923	BLANK	Water	500	2.5	1	0.005		.5			3630C		
QC633924	BS	Water	500	2.5	1	0.005		.5	.5		3630C		
QC633925	BSD	Water	500	2.5	1	0.005		.5	.5		3630C		

JDG 04/03/12 : Matrix spikes were not performed for this analysis in batch 185110 due to insufficient sample amount.

Analyst: JDG Date: 04/03/12 Reviewer: SFL Date: 04/03/12

TEH (8015) Water Prep Log Curtis & Tompkins, Ltd.

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LIMS Batch No: 185110
LIMS Analysis: TEH/M
Date Extracted: 4/1/12

Extraction Method:
☒ 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
235203-002	I	☒ 500 ☐	☒ 7 ☐	☒ 2.5 ☐	X	☒ ≤2pH	
235232-001	W	☒ 500 ☐	☒ 7 ☐	☒ 2.5 ☐	X	☒ ≤2pH	possible 2x surrogate
-002	G	☒ 500 ☐	☒ 7 ☐	☒ 2.5 ☐		☒ ≤2pH	
-003	N	☒ 500 ☐	☒ 7 ☐	☒ 2.5 ☐		☒ ≤2pH	
-004	G	☒ 500 ☐	☒ 7 ☐	☒ 2.5 ☐		☒ ≤2pH	
-005	N	☒ 500 ☐	☒ 7 ☐	☒ 2.5 ☐		☒ ≤2pH	
-006	G	☒ 500 ☐	☒ 7 ☐	☒ 2.5 ☐		☒ ≤2pH	
-007	N	☒ 500 ☐	☒ 7 ☐	☒ 2.5 ☐		☒ ≤2pH	
-008	G	☒ 500 ☐	☒ 7 ☐	☒ 2.5 ☐		☒ ≤2pH	
235239-001	P	☒ 500 ☐	☒ 7 ☐	☒ 2.5 ☐	X	☒ ≤2pH	
-002		☒ 500 ☐	☒ 7 ☐	☒ 2.5 ☐		☒ ≤2pH	
-003		☒ 500 ☐	☒ 7 ☐	☒ 2.5 ☐		☒ ≤2pH	
-004		☒ 500 ☐	☒ 7 ☐	☒ 2.5 ☐		☒ ≤2pH	
-005		☒ 500 ☐	☐ 7 ☒ 5	☒ 2.5 ☐		☒ ≤2pH	
-006		☒ 500 ☐	☒ 7 ☐	☒ 2.5 ☐		☒ ≤2pH	
-007		☒ 500 ☐	☒ 7 ☐	☒ 2.5 ☐		☒ ≤2pH	
-008		☒ 500 ☐	☒ 7 ☐	☒ 2.5 ☐		☒ ≤2pH	
-009		☒ 500 ☐	☒ 7 ☐	☒ 2.5 ☐		☒ ≤2pH	
-010		☒ 500 ☐	☒ 7 ☐	☒ 2.5 ☐		☒ ≤2pH	
-011		☒ 500 ☐	☒ 7 ☐	☒ 2.5 ☐		☒ ≤2pH	
MB QL633923	NA	☒ 500 ☐	☐ 7 ☒ NA	☒ 2.5 ☐	X	☒ ≤2pH	
BS 24		☒ 500 ☐	☐ 7 ☒	☒ 2.5 ☐		☒ ≤2pH	
BSD 25		☒ 500 ☐	☐ 7 ☒	☒ 2.5 ☐		☒ ≤2pH	
		☐ 500 ☐	☐ 7 ☐	☐ 2.5 ☐		☐ ≤2pH	4/3/12

	Mfg & Lot# / LIMS # / Time	Date/ Initials
0.5 mL of TEH_SURR was added to all samples	S194022	JRE 4/1/12
0.5 mL of TEH_SP was added to all spikes	S19080A	
pH of all samples adjusted to pH ≤ 2 with H_2SO_4	FS112470	
☒ 3520c: Samples were continually extracted about 450 mL of CH_2Cl_2	EMS1322	
Extraction Start Time:	~~11:45~~ 4/1/12 11:45	
Extraction End Time:	11:45	4/2/12
☐ 3510c: Samples were extracted 3 times with 60 mL of CH_2Cl_2	NA	
Extracts filtered through baked, CH2Cl2-rinsed granular Na2SO4	EM1416501	
Concentrated to final volume at temperature (degrees C)	100	
Relinquished to TEH Department	Y	

4/1/12
Extraction Chemist **Date**

Contined from Page ____
Continued on Page ____

4/3/12
Reviewed by **Date**

Curtis & Tompkins, Ltd. **Silica Gel Cleanup** **EPA 3630c**

Prep Chemist: CSS
Cleanup Date: 4/2/12

Benchbook # **BK3290**
Page 83

Sample #	Batch#	Initial Volume (mL)	Final Volume (mL)	Comments
235232-001	185110	☑ 1.0 ☐	☑ 1.0 ☐	
-002		☑ 1.0 ☐	☑ 1.0 ☐	
-003		☑ 1.0 ☐	☑ 1.0 ☐	
-004		☑ 1.0 ☐	☑ 1.0 ☐	
-005		☑ 1.0 ☐	☑ 1.0 ☐	
-006		☑ 1.0 ☐	☑ 1.0 ☐	
-007		☑ 1.0 ☐	☑ 1.0 ☐	
-008		☑ 1.0 ☐	☑ 1.0 ☐	
MB QC 633923		☑ 1.0 ☐	☑ 1.0 ☐	
BS 4		☑ 1.0 ☐	☑ 1.0 ☐	
BSD 5		☑ 1.0 ☐	☑ 1.0 ☐	
235203-002		☑ 1.0 ☐	☑ 1.0 ☐	
235239-001		☑ 1.0 ☐	☑ 1.0 ☐	
2		☑ 1.0 ☐	☑ 1.0 ☐	
3		☑ 1.0 ☐	☑ 1.0 ☐	
4		☑ 1.0 ☐	☑ 1.0 ☐	
5		☑ 1.0 ☐	☑ 1.0 ☐	
6		☑ 1.0 ☐	☑ 1.0 ☐	
7		☑ 1.0 ☐	☑ 1.0 ☐	
8		☑ 1.0 ☐	☑ 1.0 ☐	
9		☑ 1.0 ☐	☑ 1.0 ☐	
10		☑ 1.0 ☐	☑ 1.0 ☐	
11		☑ 1.0 ☐	☑ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	4/3/12

	Mfg & Lot # / Time / Program	Initials / Date
☐ Extracts were cleaned up using C&T assembled ___ g columns	NA	CSS 4/2/12
☒ Extracts were cleaned up using 1.0 g cartridges	SP3129401	↓
Extracts were eluted with 4.0 mL CH_2Cl_2	EM51322	
Concentrated to volumes as noted above		

4/2/12
Extraction Chemist / Date

Continued from page ___
Continued on page ___

4/3/12
Reviewed by / Date

Case Narrative Addendum: Manual Integrations for 235203 GCSV (Water)

For CCV DSL_1000 (GC17A 093a003):
Corrected automatically drawn baseline.

For CCV DSL_500 (GC17A 093a020):
Corrected automatically drawn baseline.

For CCV MO_500 (GC17A 093a004):
Manually integrated fuel hump.

For CCV MO_500 (GC17A 093a021):
Corrected automatically drawn baseline.

For BLANK QC633923 (GC17A 093a006):
Corrected automatically drawn baseline.

For BSD QC633925 (GC17A 093a008):
Corrected automatically drawn baseline for spike & dup.

For Calibration GC17A (172088347001):
Corrected automatically drawn baseline in multiple levels.

For Calibration GC17A (172088347002):
Manually integrated fuel hump in DSL_10 (061a016).

For ICV DSL_500 (GC17A 061a023):
Corrected automatically drawn baseline.

For Calibration GC17A (172088347003):
Corrected automatically drawn baseline in multiple levels.

Laboratory Job Number 235203

ANALYTICAL REPORT

Semivolatile Organics by GC/MS SIM

Matrix: Water

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS SIM

Lab #:	235203	Location:	Hunters Point Naval Shipyard Winter
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	07193.0002	Analysis:	EPA 8270C-SIM
Field ID:	IR24MW07A-032812	Batch#:	184989
Lab ID:	235203-002	Sampled:	03/28/12
Matrix:	Water	Received:	03/28/12
Units:	ug/L	Prepared:	03/28/12
Diln Fac:	1.000	Analyzed:	03/29/12

Analyte	Result	RL	MDL
Naphthalene	ND	0.1	0.02
1-Methylnaphthalene	ND	0.1	0.02
2-Methylnaphthalene	ND	0.1	0.02
Acenaphthylene	ND	0.1	0.02
Acenaphthene	ND	0.1	0.02
Fluorene	ND	0.1	0.02
Phenanthrene	ND	0.1	0.02
Anthracene	ND	0.1	0.02
Fluoranthene	ND	0.1	0.02
Pyrene	0.06 J	0.1	0.02
Benzo(a)anthracene	ND	0.1	0.02
Chrysene	ND	0.1	0.02
Benzo(b)fluoranthene	ND	0.1	0.02
Benzo(k)fluoranthene	ND	0.1	0.02
Benzo(a)pyrene	ND	0.1	0.02
Indeno(1,2,3-cd)pyrene	ND	0.1	0.02
Dibenz(a,h)anthracene	ND	0.1	0.02
Benzo(g,h,i)perylene	ND	0.1	0.02

Surrogate	%REC	Limits
Nitrobenzene-d5	86	41-126
2-Fluorobiphenyl	77	48-120
Terphenyl-d14	60	28-120

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS SIM

Lab #:	235203	Location:	Hunters Point Naval Shipyard Winter
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	07193.0002	Analysis:	EPA 8270C-SIM
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC633464	Batch#:	184989
Matrix:	Water	Prepared:	03/27/12
Units:	ug/L	Analyzed:	03/28/12

Analyte	Result	RL	MDL
Naphthalene	ND	0.1	0.02
1-Methylnaphthalene	ND	0.1	0.02
2-Methylnaphthalene	ND	0.1	0.02
Acenaphthylene	ND	0.1	0.02
Acenaphthene	ND	0.1	0.02
Fluorene	ND	0.1	0.02
Phenanthrene	ND	0.1	0.02
Anthracene	ND	0.1	0.02
Fluoranthene	ND	0.1	0.02
Pyrene	ND	0.1	0.02
Benzo(a)anthracene	ND	0.1	0.02
Chrysene	ND	0.1	0.02
Benzo(b)fluoranthene	ND	0.1	0.02
Benzo(k)fluoranthene	ND	0.1	0.02
Benzo(a)pyrene	ND	0.1	0.02
Indeno(1,2,3-cd)pyrene	ND	0.1	0.02
Dibenz(a,h)anthracene	ND	0.1	0.02
Benzo(g,h,i)perylene	ND	0.1	0.02

Surrogate	%REC	Limits
Nitrobenzene-d5	79	41-126
2-Fluorobiphenyl	84	48-120
Terphenyl-d14	85	28-120

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS SIM

Lab #:	235203	Location:	Hunters Point Naval Shipyard Winter
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	07193.0002	Analysis:	EPA 8270C-SIM
Matrix:	Water	Batch#:	184989
Units:	ug/L	Prepared:	03/27/12
Diln Fac:	1.000	Analyzed:	03/28/12

Type: BS Lab ID: QC633465

Analyte	Spiked	Result	%REC	Limits
Naphthalene	1.000	0.8980	90	40-115
1-Methylnaphthalene	1.000	0.9438	94	40-115
2-Methylnaphthalene	1.000	0.9125	91	40-115
Acenaphthylene	1.000	0.6761	68	40-115
Acenaphthene	1.000	0.8187	82	40-115
Fluorene	1.000	0.8199	82	40-115
Phenanthrene	1.000	0.8245	82	40-115
Anthracene	1.000	0.7239	72	40-115
Fluoranthene	1.000	0.8147	81	40-115
Pyrene	1.000	0.7568	76	40-115
Benzo(a)anthracene	1.000	0.7306	73	40-115
Chrysene	1.000	0.8110	81	40-115
Benzo(b)fluoranthene	1.000	0.7776	78	40-115
Benzo(k)fluoranthene	1.000	0.7991	80	40-115
Benzo(a)pyrene	1.000	0.7183	72	40-115
Indeno(1,2,3-cd)pyrene	1.000	0.6729	67	40-115
Dibenz(a,h)anthracene	1.000	0.6685	67	40-115
Benzo(g,h,i)perylene	1.000	0.7593	76	40-115

Surrogate	%REC	Limits
Nitrobenzene-d5	92	41-126
2-Fluorobiphenyl	82	48-120
Terphenyl-d14	79	28-120

Type: BSD Lab ID: QC633466

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Naphthalene	1.000	0.9127	91	40-115	2	20
1-Methylnaphthalene	1.000	0.9586	96	40-115	2	20
2-Methylnaphthalene	1.000	0.9173	92	40-115	1	20
Acenaphthylene	1.000	0.6695	67	40-115	1	20
Acenaphthene	1.000	0.8244	82	40-115	1	20
Fluorene	1.000	0.8176	82	40-115	0	20
Phenanthrene	1.000	0.8454	85	40-115	3	20
Anthracene	1.000	0.7327	73	40-115	1	20
Fluoranthene	1.000	0.8378	84	40-115	3	20
Pyrene	1.000	0.7638	76	40-115	1	20
Benzo(a)anthracene	1.000	0.7370	74	40-115	1	20
Chrysene	1.000	0.8193	82	40-115	1	20
Benzo(b)fluoranthene	1.000	0.8227	82	40-115	6	20
Benzo(k)fluoranthene	1.000	0.7561	76	40-115	6	20
Benzo(a)pyrene	1.000	0.7185	72	40-115	0	20
Indeno(1,2,3-cd)pyrene	1.000	0.6932	69	40-115	3	20
Dibenz(a,h)anthracene	1.000	0.6846	68	40-115	2	20
Benzo(g,h,i)perylene	1.000	0.7778	78	40-115	2	20

Surrogate	%REC	Limits
Nitrobenzene-d5	89	41-126
2-Fluorobiphenyl	83	48-120
Terphenyl-d14	79	28-120

RPD= Relative Percent Difference

CURTIS & TOMPKINS DFTPP TUNE FOR 235203 MSSIM Water
EPA 8270C

Inst : MSBNA03 Run Name : DFTPP/PEM IDF : 1.0
Seqnum : 522015045004 File : vaa04 Time : 10-JAN-2012 11:46

Standards: S18710

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	96661	42.03	
68	< 2% of mass 69	0	0.00	
69		128247	100.00	
70	< 2% of mass 69	0	0.00	
127	40% - 60% of mass 198	119248	51.85	
197	< 1% of mass 198	0	0.00	
198		229973	100.00	
199	5% - 9% of mass 198	15630	6.80	
275	10% - 30% of mass 198	59669	25.95	
365	> 1% of mass 198	6729	2.93	
441	Present, < mass 443	29898	88.98	
442	> 40% and < 100% of mass 198	168501	73.27	
443	17% - 23% of mass 442	33602	19.94	

Analyst: KMH Date: 01/10/12 Reviewer: LW Date: 01/10/12

CURTIS & TOMPKINS DFTPP TUNE FOR 235203 MSSIM Water
EPA 8270C

Inst : MSBNA03 Run Name : DFTPP/PEM IDF : 1.0
Seqnum : 522127430001 File : vcs01 Time : 28-MAR-2012 11:50

Standards: S19354

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	97788	37.59	
68	< 2% of mass 69	0	0.00	
69		105024	100.00	
70	< 2% of mass 69	643	0.61	
127	40% - 60% of mass 198	132288	50.85	
197	< 1% of mass 198	0	0.00	
198		260160	100.00	
199	5% - 9% of mass 198	18192	6.99	
275	10% - 30% of mass 198	72181	27.74	
365	> 1% of mass 198	7052	2.71	
441	Present, < mass 443	27010	80.59	
442	> 40% and < 100% of mass 198	172424	66.28	
443	17% - 23% of mass 442	33514	19.44	

Analyst: KMH Date: 03/28/12 Reviewer: LLH Date: 03/29/12

CURTIS & TOMPKINS DFTPP TUNE FOR 235203 MSSIM Water
EPA 8270C

Inst : MSBNA03 Run Name : DFTPP/PEM IDF : 1.0
Seqnum : 522128928001 File : vct01 Time : 29-MAR-2012 12:48

Standards: S19354

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	105261	38.87	
68	< 2% of mass 69	0	0.00	
69		111265	100.00	
70	< 2% of mass 69	405	0.36	
127	40% - 60% of mass 198	137864	50.91	
197	< 1% of mass 198	0	0.00	
198		270826	100.00	
199	5% - 9% of mass 198	18644	6.88	
275	10% - 30% of mass 198	72888	26.91	
365	> 1% of mass 198	7416	2.74	
441	Present, < mass 443	26850	79.26	
442	> 40% and < 100% of mass 198	172290	63.62	
443	17% - 23% of mass 442	33877	19.66	

Analyst: LLH Date: 03/29/12 Reviewer: LW Date: 03/30/12

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 235203 MSSIM Water: EPA 8270C-SIM

Inst : MSBNA03
Calnum : 522015045001
Units : ug/mL

Name : 3PAHSIM
Date : 10-JAN-2012 12:04
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	vaa05	522015045005	ICAL	10-JAN-2012 12:04	S18371
L2	vaa06	522015045006	ICAL	10-JAN-2012 12:36	S18372
L3	vaa07	522015045007	ICAL	10-JAN-2012 13:11	S18373
L4	vaa08	522015045008	ICAL	10-JAN-2012 13:46	S18374
L5	vaa09	522015045009	ICAL	10-JAN-2012 14:19	S18375
L6	vaa10	522015045010	ICAL	10-JAN-2012 14:51	S18376
L7	vaa11	522015045011	ICAL	10-JAN-2012 15:25	S18377

Analyte	L1	L2	L3	L4	L5	L6	L7	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Naphthalene	0.9760	0.9902	0.9652	0.9514	0.9317	0.9062	0.8748	AVRG		1.06136		0.9422	4	15	0.05	0.99	
2-Methylnaphthalene	0.6878	0.7041	0.6764	0.6507	0.6374	0.6187	0.6009	AVRG		1.52972		0.6537	6	15	0.05	0.99	
1-Methylnaphthalene	0.7094	0.7062	0.6632	0.6417	0.6251	0.6047	0.5841	AVRG		1.54378		0.6478	7	15	0.05	0.99	
Acenaphthylene	1.8893	1.8737	1.7963	1.7245	1.7159	1.6840	1.6335	AVRG		0.56831		1.7596	5	15	0.05	0.99	
Acenaphthene	1.0204	1.0534	0.9926	0.9637	0.9622	0.9521	0.9522	AVRG		1.01499		0.9852	4	15	0.05	0.99	
Fluorene	1.3151	1.3208	1.2149	1.1536	1.1523	1.1295	1.1486	AVRG		0.82990		1.2050	7	15	0.05	0.99	
Phenanthrene	1.0350	1.0438	0.9248	0.9092	0.8941	0.8742	0.8615	AVRG		1.06993		0.9346	8	15	0.05	0.99	
Anthracene	1.0279	0.9956	0.8976	0.8747	0.8678	0.8492	0.8208	AVRG		1.10521		0.9048	9	15	0.05	0.99	
Fluoranthene	1.3163	1.3026	1.1614	1.1249	1.0842	1.0358	1.0038	AVRG		0.87184		1.1470	11	15	0.05	0.99	
Pyrene	1.4680	1.4032	1.2429	1.2100	1.2042	1.1798	1.1534	AVRG		0.78993		1.2659	10	15	0.05	0.99	
Benzo(a)anthracene	1.3166	1.2673	1.1197	1.1127	1.1025	1.0846	1.0505	AVRG		0.86915		1.1505	9	15	0.05	0.99	
Chrysene	1.1678	1.1565	1.0373	1.0220	1.0279	1.0156	0.9880	AVRG		0.94401		1.0593	7	15	0.05	0.99	
Benzo(b)fluoranthene	1.3510	1.3591	1.1619	1.1379	1.1924	1.2029	1.1966	AVRG		0.81378		1.2288	7	15	0.05	0.99	
Benzo(k)fluoranthene	1.3580	1.2896	1.1603	1.1246	1.1839	1.2067	1.2025	AVRG		0.82106		1.2179	7	15	0.05	0.99	
Benzo(a)pyrene	1.2264	1.1898	1.0700	1.0628	1.0996	1.1360	1.1295	AVRG		0.88449		1.1306	5	15	0.05	0.99	
Indeno(1,2,3-cd)pyrene	1.1767	1.3457	1.0561	1.0606	1.0976	1.1663	1.1712	AVRG		0.86697		1.1534	9	15	0.05	0.99	
Dibenz(a,h)anthracene	0.9471	1.0749	0.8422	0.8590	0.8865	0.9707	0.9992	AVRG		1.06388		0.9400	9	15	0.05	0.99	
Benzo(g,h,i)perylene	1.0144	1.0019	0.9070	0.9162	0.9064	0.9032	0.8674	AVRG		1.07419		0.9309	6	15	0.05	0.99	
Nitrobenzene-d5	0.2117	0.2063	0.2065	0.2081	0.2170	0.2464	0.2598	AVRG		4.49946		0.2222	10	15	0.05	0.99	
2-Fluorobiphenyl	1.4726	1.4965	1.4403	1.3797	1.3414	1.3072	1.2692	AVRG		0.72114		1.3867	6	15	0.05	0.99	
Terphenyl-d14	0.9031	0.8705	0.7779	0.7629	0.7685	0.7610	0.7492	AVRG		1.25153		0.7990	8	15	0.05	0.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D
Naphthalene	0.1000	4	0.2000	5	0.5000	2	1.0000	1	2.0000	-1	5.0000	-4	10.000	-7
2-Methylnaphthalene	0.1000	5	0.2000	8	0.5000	3	1.0000	0	2.0000	-2	5.0000	-5	10.000	-8
1-Methylnaphthalene	0.1000	10	0.2000	9	0.5000	2	1.0000	-1	2.0000	-3	5.0000	-7	10.000	-10
Acenaphthylene	0.1000	7	0.2000	6	0.5000	2	1.0000	-2	2.0000	-2	5.0000	-4	10.000	-7
Acenaphthene	0.1000	4	0.2000	7	0.5000	1	1.0000	-2	2.0000	-2	5.0000	-3	10.000	-3
Fluorene	0.1000	9	0.2000	10	0.5000	1	1.0000	-4	2.0000	-4	5.0000	-6	10.000	-5
Phenanthrene	0.1000	11	0.2000	12	0.5000	-1	1.0000	-3	2.0000	-4	5.0000	-6	10.000	-8
Anthracene	0.1000	14	0.2000	10	0.5000	-1	1.0000	-3	2.0000	-4	5.0000	-6	10.000	-9
Fluoranthene	0.1000	15	0.2000	14	0.5000	1	1.0000	-2	2.0000	-5	5.0000	-10	10.000	-12
Pyrene	0.1000	16	0.2000	11	0.5000	-2	1.0000	-4	2.0000	-5	5.0000	-7	10.000	-9
Benzo(a)anthracene	0.1000	14	0.2000	10	0.5000	-3	1.0000	-3	2.0000	-4	5.0000	-6	10.000	-9
Chrysene	0.1000	10	0.2000	9	0.5000	-2	1.0000	-4	2.0000	-3	5.0000	-4	10.000	-7
Benzo(b)fluoranthene	0.1000	10	0.2000	11	0.5000	-5	1.0000	-7	2.0000	-3	5.0000	-2	10.000	-3
Benzo(k)fluoranthene	0.1000	12	0.2000	6	0.5000	-5	1.0000	-8	2.0000	-3	5.0000	-1	10.000	-1
Benzo(a)pyrene	0.1000	8	0.2000	5	0.5000	-5	1.0000	-6	2.0000	-3	5.0000	0	10.000	0
Indeno(1,2,3-cd)pyrene	0.1000	2	0.2000	17	0.5000	-8	1.0000	-8	2.0000	-5	5.0000	1	10.000	2
Dibenz(a,h)anthracene	0.1000	1	0.2000	14	0.5000	-10	1.0000	-9	2.0000	-6	5.0000	3	10.000	6
Benzo(g,h,i)perylene	0.1000	9	0.2000	8	0.5000	-3	1.0000	-2	2.0000	-3	5.0000	-3	10.000	-7
Nitrobenzene-d5	0.1000	-5	0.2000	-7	0.5000	-7	1.0000	-6	2.0000	-2	5.0000	11	10.000	17
2-Fluorobiphenyl	0.1000	6	0.2000	8	0.5000	4	1.0000	-1	2.0000	-3	5.0000	-6	10.000	-8
Terphenyl-d14	0.1000	13	0.2000	9	0.5000	-3	1.0000	-5	2.0000	-4	5.0000	-5	10.000	-6

KMH 01/10/12 [1,4-Dioxane]: Corrected automatically drawn baseline in multiple levels.

Analyst: KMH Date: 01/10/12 Reviewer: LW Date: 01/10/12

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

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 235203 MSSIM Water
EPA 8270C-SIM

Inst : MSBNA03 Name : 3PAHSIM
Calnum : 522015045001 Cal Date : 10-JAN-2012

ICV 522015045012 (vaa12 10-JAN-2012) stds: S18731

Analyte	Spiked	Quant	Units	%D	Max	Flags
Naphthalene	1.000	1.029	ug/mL	3	30	
2-Methylnaphthalene	1.000	1.039	ug/mL	4	30	
1-Methylnaphthalene	1.000	1.016	ug/mL	2	30	
Acenaphthylene	1.000	0.9961	ug/mL	0	30	
Acenaphthene	1.000	0.9931	ug/mL	-1	20	
Fluorene	1.000	0.9706	ug/mL	-3	30	
Phenanthrene	1.000	0.9972	ug/mL	0	30	
Anthracene	1.000	0.9931	ug/mL	-1	30	
Fluoranthene	1.000	0.9853	ug/mL	-1	20	
Pyrene	1.000	0.9524	ug/mL	-5	30	
Benzo(a)anthracene	1.000	0.9250	ug/mL	-7	30	
Chrysene	1.000	0.9833	ug/mL	-2	30	
Benzo(b)fluoranthene	1.000	0.9882	ug/mL	-1	30	
Benzo(k)fluoranthene	1.000	0.9610	ug/mL	-4	30	
Benzo(a)pyrene	1.000	0.8524	ug/mL	-15	20	
Indeno(1,2,3-cd)pyrene	1.000	0.9908	ug/mL	-1	30	
Dibenz(a,h)anthracene	1.000	0.9634	ug/mL	-4	30	
Benzo(g,h,i)perylene	1.000	1.045	ug/mL	5	30	

Analyst: KMH Date: 01/10/12 Reviewer: LW Date: 01/10/12

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 235203 MSSIM Water
EPA 8270C-SIM

Inst : MSBNA03 Run Name : PAHDIOX IDF : 1.0
Seqnum : 522127430003 File : vcs03 Time : 28-MAR-2012 12:40
Cal : 522015045001 Caldate : 10-JAN-2012
Standards: S19473

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Naphthalene	0.9422	1.0008	0.5000	0.5311	ug/mL	6	30	0.0500	
2-Methylnaphthalene	0.6537	0.6991	0.5000	0.5347	ug/mL	7	30	0.0500	
1-Methylnaphthalene	0.6478	0.7205	0.5000	0.5562	ug/mL	11	30	0.0500	
Acenaphthylene	1.7596	1.4250	0.5000	0.4049	ug/mL	-19	30	0.0500	
Acenaphthene	0.9852	0.9784	0.5000	0.4965	ug/mL	-1	20	0.0500	
Fluorene	1.2050	1.1668	0.5000	0.4842	ug/mL	-3	30	0.0500	
Phenanthrene	0.9346	0.9371	0.5000	0.5013	ug/mL	0	30	0.0500	
Anthracene	0.9048	0.8535	0.5000	0.4717	ug/mL	-6	30	0.0500	m
Fluoranthene	1.1470	1.1713	0.5000	0.5106	ug/mL	2	20	0.0500	
Pyrene	1.2659	1.1918	0.5000	0.4707	ug/mL	-6	30	0.0500	
Benzo(a)anthracene	1.1505	0.9956	0.5000	0.4326	ug/mL	-13	30	0.0500	
Chrysene	1.0593	1.0752	0.5000	0.5075	ug/mL	2	30	0.0500	
Benzo(b)fluoranthene	1.2288	1.2029	0.5000	0.4894	ug/mL	-2	30	0.0500	
Benzo(k)fluoranthene	1.2179	1.1859	0.5000	0.4868	ug/mL	-3	30	0.0500	m
Benzo(a)pyrene	1.1306	1.0395	0.5000	0.4597	ug/mL	-8	20	0.0500	
Indeno(1,2,3-cd)pyrene	1.1534	1.0082	0.5000	0.4370	ug/mL	-13	30	0.0500	
Dibenz(a,h)anthracene	0.9400	0.7739	0.5000	0.4117	ug/mL	-18	30	0.0500	
Benzo(g,h,i)perylene	0.9309	0.8806	0.5000	0.4730	ug/mL	-5	30	0.0500	
Nitrobenzene-d5	0.2222	0.2181	0.5000	0.4908	ug/mL	-2	30	0.0500	m
2-Fluorobiphenyl	1.3867	1.3607	0.5000	0.4906	ug/mL	-2	30	0.0500	
Terphenyl-d14	0.7990	0.7491	0.5000	0.4687	ug/mL	-6	30	0.0500	

KMH 03/28/12 [1,4-Dioxane]: Corrected automatically drawn baseline.

KMH 03/28/12 [Nitrobenzene-d5]: Corrected automatically drawn baseline.

KMH 03/28/12 [Anthracene]: Corrected automatically drawn baseline.

KMH 03/28/12 [Benzo(k)fluoranthene]: Corrected automatically drawn baseline.

Analyst: KMH Date: 03/28/12 Reviewer: LLH Date: 03/29/12

m=manual integration

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 235203 MSSIM Water
EPA 8270C-SIM

Inst : MSBNA03 Run Name : PAHDIOX IDF : 1.0
Seqnum : 522128928003 File : vct03 Time : 29-MAR-2012 13:33
Cal : 522015045001 Caldate : 10-JAN-2012
Standards: S19474

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Naphthalene	0.9422	1.0090	1.000	1.071	ug/mL	7	30	0.0500	
2-Methylnaphthalene	0.6537	0.6992	1.000	1.070	ug/mL	7	30	0.0500	
1-Methylnaphthalene	0.6478	0.7190	1.000	1.110	ug/mL	11	30	0.0500	
Acenaphthylene	1.7596	1.4182	1.000	0.8060	ug/mL	-19	30	0.0500	
Acenaphthene	0.9852	0.9828	1.000	0.9976	ug/mL	0	20	0.0500	
Fluorene	1.2050	1.1469	1.000	0.9518	ug/mL	-5	30	0.0500	
Phenanthrene	0.9346	0.9316	1.000	0.9968	ug/mL	0	30	0.0500	
Anthracene	0.9048	0.8520	1.000	0.9416	ug/mL	-6	30	0.0500	m
Fluoranthene	1.1470	1.1811	1.000	1.030	ug/mL	3	20	0.0500	
Pyrene	1.2659	1.1716	1.000	0.9255	ug/mL	-7	30	0.0500	
Benzo(a)anthracene	1.1505	1.0093	1.000	0.8772	ug/mL	-12	30	0.0500	
Chrysene	1.0593	1.0703	1.000	1.010	ug/mL	1	30	0.0500	
Benzo(b)fluoranthene	1.2288	1.2157	1.000	0.9893	ug/mL	-1	30	0.0500	
Benzo(k)fluoranthene	1.2179	1.2036	1.000	0.9882	ug/mL	-1	30	0.0500	
Benzo(a)pyrene	1.1306	1.0708	1.000	0.9471	ug/mL	-5	20	0.0500	
Indeno(1,2,3-cd)pyrene	1.1534	1.0334	1.000	0.8959	ug/mL	-10	30	0.0500	
Dibenz(a,h)anthracene	0.9400	0.8032	1.000	0.8545	ug/mL	-15	30	0.0500	
Benzo(g,h,i)perylene	0.9309	0.8900	1.000	0.9561	ug/mL	-4	30	0.0500	
Nitrobenzene-d5	0.2222	0.2064	1.000	0.9287	ug/mL	-7	30	0.0500	
2-Fluorobiphenyl	1.3867	1.3595	1.000	0.9804	ug/mL	-2	30	0.0500	
Terphenyl-d14	0.7990	0.7411	1.000	0.9275	ug/mL	-7	30	0.0500	

LLH 03/29/12 [Anthracene]: Corrected automatically drawn baseline.

Analyst: LLH Date: 03/29/12 Reviewer: LW Date: 03/30/12

m=manual integration

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 522127430

Date : 03/28/12
Sequence : MSBNA03 vcs

Reference : vcs03
Analyzed : 03/28/12 12:40

#	Type	Sample ID	DCBZ14D4	RT	NAPHD8	RT	ACEND10	RT	PHEND10	RT	CHYD12	RT	PERYD12	RT
		CCV+CCV/BS+CCV/LCS+ICV+ICV/BS+ICV/CCV+ICV/LCS+RCCV STD	22021	7.36	75786	8.98	51937	11.28	98973	13.23	97893	16.67	74232	18.40
		LOWER LIMIT	11011	6.86	37893	8.48	25969	10.78	49487	12.73	48947	16.17	37116	17.90
		UPPER LIMIT	44042	7.86	151572	9.48	103874	11.78	197946	13.73	195786	17.17	148464	18.90
003	CCV	PAHDIOX	22021	7.36	75786	8.98	51937	11.28	98973	13.23	97893	16.67	74232	18.40
007	BLANK	QC633464	21714	7.36	75905	8.98	52445	11.28	100545	13.23	97706	16.67	76202	18.40
008	BS	QC633465	22574	7.36	75649	8.98	52468	11.28	102280	13.23	104004	16.67	79621	18.40
009	BSD	QC633466	21346	7.36	72644	8.98	49999	11.28	96111	13.23	99843	16.67	74379	18.40
010	SAMPLE	235069-010	20716	7.36	71379	8.98	50933	11.28	96649	13.23	74994	16.67	63893	18.40
011	SAMPLE	235069-013	20481	7.36	70865	8.98	51060	11.28	95689	13.23	85933	16.67	67403	18.40
012	SAMPLE	235069-014	21080	7.36	72265	8.98	52267	11.28	98190	13.22	85479	16.67	68681	18.40

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 522128928

Date : 03/29/12
Sequence : MSBNA03 vct

Reference : vct03
Analyzed : 03/29/12 13:33

#	Type	Sample ID	DCBZ14D4	RT	NAPHD8	RT	ACEND10	RT	PHEND10	RT	CHYD12	RT	PERYD12	RT
		CCV+CCV/BS+CCV/LCS+ICV+ICV/BS+ICV/CCV+ICV/LCS+RCCV STD	22280	7.36	76493	8.98	51594	11.28	98081	13.23	98957	16.67	75926	18.40
		LOWER LIMIT	11140	6.86	38247	8.48	25797	10.78	49041	12.73	49479	16.17	37963	17.90
		UPPER LIMIT	44560	7.86	152986	9.48	103188	11.78	196162	13.73	197914	17.17	151852	18.90
003	CCV	PAHDIOX	22280	7.36	76493	8.98	51594	11.28	98081	13.23	98957	16.67	75926	18.40
004	SAMPLE	235203-002	21236	7.36	70075	8.98	42249	11.28	61206	13.23	60991	16.68	56427	18.40

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 522015045

Instrument : MSBNA03 Begun : 01/10/12 10:45
Method : EPA 8270C, EPA 8270C-SIM SOP Version : 8270-SIM_rv0, bna_rv.9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	vaa01	TUN	DFTPP/PEM			01/10/12 10:45	1.0	1	t
002	vaa02	TUN	DFTPP/PEM			01/10/12 10:58	1.0	1	t
003	vaa03	TUN	DFTPP/PEM			01/10/12 11:27	1.0	1	
004	vaa04	TUN	DFTPP/PEM			01/10/12 11:46	1.0	1	
005	vaa05	ICAL	ICAL			01/10/12 12:04	1.0	2	
006	vaa06	ICAL	ICAL			01/10/12 12:36	1.0	3	
007	vaa07	ICAL	ICAL			01/10/12 13:11	1.0	4	
008	vaa08	ICAL	ICAL			01/10/12 13:46	1.0	5	
009	vaa09	ICAL	ICAL			01/10/12 14:19	1.0	6	
010	vaa10	ICAL	ICAL			01/10/12 14:51	1.0	7	
011	vaa11	ICAL	ICAL			01/10/12 15:25	1.0	8	
012	vaa12	ICV	ICV			01/10/12 15:57	1.0	9	

KMH 01/10/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 12.

Standards used: 1=S18710 2=S18371 3=S18372 4=S18373 5=S18374 6=S18375 7=S18376 8=S18377 9=S18731

Flags used: t=tune failure

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 522127430

Instrument : MSBNA03 Begun : 03/28/12 11:50
Method : EPA 8270C, EPA 8270C-SIM, GC/MS SIM SOP Version : 8270-SIM_rv0, OPP_rv

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	vcs01	TUN	DFTPP/PEM			03/28/12 11:50	1.0	1	
002	vcs02	CCV	OPP			03/28/12 12:12	1.0	2	
003	vcs03	CCV	PAHDIOX			03/28/12 12:40	1.0	3	
004	vcs04	CHECK	SURRCHECK			03/28/12 13:13	1.0	4 5	
005	vcs05	CHECK	SPIKECHECK			03/28/12 13:41	1.0	6 5	8:NAPROP=27
006	vcs06	BLANK	QC633464	Water	184989	03/28/12 14:59	1.0	5	
007	vcs07	BLANK	QC633464	Water	184989	03/28/12 15:27	1.0	5	
008	vcs08	BS	QC633465	Water	184989	03/28/12 15:59	1.0	5	
009	vcs09	BSD	QC633466	Water	184989	03/28/12 16:32	1.0	5	
010	vcs10	SAMPLE	235069-010	Water	184989	03/28/12 17:05	1.0	5	
011	vcs11	SAMPLE	235069-013	Water	184989	03/28/12 17:38	1.0	5	
012	vcs12	SAMPLE	235069-014	Water	184989	03/28/12 18:11	1.0	5	

LLH 03/29/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 001 through 012.

Standards used: 1=S19354 2=S19378 3=S19473 4=S19543 5=S19355 6=S19542

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 522128928

Instrument : MSBNA03 Begun : 03/29/12 12:48
Method : EPA 8270C, EPA 8270C-SIM, GC/MS SIM SOP Version : 8270-SIM_rv0, OPP_rv

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	vct01	TUN	DFTPP/PEM			03/29/12 12:48	1.0	1	
002	vct02	CCV	OPP			03/29/12 13:05	1.0	2	
003	vct03	CCV	PAHDIOX			03/29/12 13:33	1.0	3	
004	vct04	SAMPLE	235203-002	Water	184989	03/29/12 14:30	1.0	4	
005	vct05	BLANK	QC633762	Water	185067	03/29/12 18:17	1.0	4	
006	vct06	BS	QC633763	Water	185067	03/29/12 18:46	1.0	4	
007	vct07	BSD	QC633764	Water	185067	03/29/12 19:15	1.0	4	
008	vct08	SAMPLE	235162-001	Water	185067	03/29/12 19:45	1.0	4	

LLH 03/29/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 001 through 004.

LLH 03/30/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 001 through 008.

Standards used: 1=S19354 2=S19377 3=S19474 4=S19355

SAMPLE PREPARATION SUMMARY

Batch # : 184989 Analysis : 8270-SIM
Started By : DJT Prep Date : 27-MAR-2012 17:00 Finished By : RDG
Method : 3520C SOP Version : 8270_SIM_rv1 Units : mL
Spike #1 ID : S18774 Spike #2 ID : S18775

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
235069-010		Water	1050	1	1	0.0009524	7	1				8270-SIM	re-x
235069-013		Water	1060	1	1	0.0009434	7	1				8270-SIM	re-x
235069-014		Water	1060	1	1	0.0009434	7	1				8270-SIM	re-x
235203-002		Water	1000	1	1	0.001	7	1				8270-SIM	Prepped 28-MAR-2012 16:50
QC633464	BLANK	Water	1000	1	1	0.001		1				8270-SIM	
QC633465	BS	Water	1000	1	1	0.001		1	1			8270-SIM	
QC633466	BSD	Water	1000	1	1	0.001		1	1			8270-SIM	

LLH 03/29/12 : Matrix spikes were not performed for this analysis in batch 184989 due to insufficient sample amount.

Analyst: LLH Date: 03/29/12 Reviewer: LW Date: 03/29/12

LIMS Batch No: 184989
LIMS Analysis: 8270-SIM
Date Extracted: 3/27/12

Extraction Method:
☒ EPA 3520c cont. L/L
☐ ____________

Sample #	Container ID	Volume of Sample (mL)	Sample pH	Final Volume (mL)	Confirmed pH ≤2	Comments
235069-010	I	1050	☒7 ☐	☑1.0 ☐	☒ ≤2	RE-X
↓ 013	D	1060	☒7 ☐	☑1.0 ☐	☒ ≤2	↓
↓ 014	F	1060	☒7 ☐	☑1.0 ☐	☒ ≤2	↓
MB QC633464	NA	1000	☐7 ☐NA	☑1.0 ☐	☒ ≤2	
BS ↓ 5	↓	1000	☐7 ☐ ↓	☑1.0 ☐	☒ ≤2	
BSD ↓ 6	↓	1000	☐7 ☐ ↓	☑1.0 ☐	☒ ≤2	
235703-002	G	1000	☒7 ☐	☑1.0 ☐	☒ ≤2	* ADDED BY JPE 3/28/12 @ 16:50
			☐7 ☐	☐ 1.0 ☐	☐ ≤2	
			☐7 ☐	☐ 1.0 ☐	☐ ≤2	
			☐7 ☐	☐ 1.0 ☐	☐ ≤2	
			☐7 ☐	☐ 1.0 ☐	☐ ≤2	
			☐7 ☐	☐ 1.0 ☐	☐ ≤2	
			☐7 ☐	☐ 1.0 ☐	☐ ≤2	
			☐7 ☐	☐ 1.0 ☐	☐ ≤2	
			☐7 ☐	☐ 1.0 ☐	☐ ≤2	
			☐7 ☐	☐ 1.0 ☐	☐ ≤2	
			☐7 ☐	☐ 1.0 ☐	☐ ≤2	
			☐7 ☐	☐ 1.0 ☐	☐ ≤2	
			☐7 ☐	☐ 1.0 ☐	☐ ≤2	
			☐7 ☐	☐ 1.0 ☐	☐ ≤2	
			☐7 ☐	☐ 1.0 ☐	☐ ≤2	
			☐7 ☐	☐ 1.0 ☐	☐ ≤2	
			☐7 ☐	☐ 1.0 ☐	☐ ≤2	
			☐7 ☐	☐ 1.0 ☐	☐ ≤2	UH 3/29/12

	Lot# / LIMS # / Time	Date/ Initials
1.0 mL of surrogate solution was added to all samples	S18774B	JPE 3/27/12
1.0 mL of matrix spiking solution was added to all spikes	S18775C	
pH of all samples adjusted to pH ≤ 2 with H_2SO_4	FS112470	
Cont. L/L extracted with 450mL of CH_2Cl_2	EM51322	
Extraction Start Time:	17:00 / * 16:50	↓
Extraction End Time:	1145 / * 10:50	DDC 3/28/12
pH of all samples adjusted to pH ≥ 11 with 10 N NaOH	NA	PVG 3/28/12
Extraction Start Time:		
Extraction End Time:		
Extracts filtered through baked, CH2Cl2-rinsed granular Na2SO4	EM1911581	
Concentrated to final volume at temperature (degrees C)	70	
Relinquished to BNA department	✓	↓

[signature] 3/27/12
Extraction Chemist **Date**

Contined from Page ____
Continued on Page ____

UH 3/29/12
Reviewed by **Date**

Case Narrative Addendum: Manual Integrations for 235203 MSSIM (Water)

For CCV PAHDIOX (MSBNA03 vcs03):
Anthracene: Corrected automatically drawn baseline.
Benzo(k)fluoranthene: Corrected automatically drawn baseline.
1,4-Dioxane: Corrected automatically drawn baseline.
Nitrobenzene-d5: Corrected automatically drawn baseline.

For CCV PAHDIOX (MSBNA03 vct03):
Anthracene: Corrected automatically drawn baseline.

For BSD QC633466 (MSBNA03 vcs09):
Benzo(k)fluoranthene: Corrected automatically drawn baseline for dup.
1,4-Dioxane: Corrected automatically drawn baseline for spike & dup.

For Calibration MSBNA03 (522015045001):
1,4-Dioxane: Corrected automatically drawn baseline in multiple levels.

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Analytical Laboratories, Since 1878

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

Laboratory Job Number 237507
ANALYTICAL REPORT

Innovative Technical Solutions,Inc.	Project	: 07193.0002
2730 Shadelands Drive	Location	: Hunters Ponit Naval Shipyard
Walnut Creek, CA 94598	Level	: III

Sample ID	Lab ID
TB-062712	237507-001
IR24MW07A-062712	237507-002

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: 07/09/2012

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**237507**
Client:	**Innovative Technical Solutions,Inc.**
Project:	**07193.0002**
Location:	**Hunters Ponit Naval Shipyard**
Request Date:	**06/27/12**
Samples Received:	**06/27/12**

This data package contains sample and QC results for two water samples, requested for the above referenced project on 06/27/12. See attached cooler receipt form for any sample receipt problems or discrepancies.

TPH-Purgeables and/or BTXE by GC (EPA 8015B and EPA 8021B):
Gasoline C6-C12 was detected between the MDL and the RL in the method blank for batch 188192; this analyte was not detected in samples at or above the RL.

No other analytical problems were encountered.

TPH-Extractables by GC (EPA 8015B):
High surrogate recovery was observed for o-terphenyl in the method blank for batch 188066; no target analytes were detected in the sample.

No other analytical problems were encountered.

Semivolatile Organics by GC/MS SIM (EPA 8270C-SIM):
Naphthalene was detected between the MDL and the RL in the method blank for batch 188059; this analyte was not detected in the sample at or above the RL.

No other analytical problems were encountered.

Chain of Custody

124080

237597 004005

Innovative Technical Solutions, Inc.
2730 Shadelands Drive, Suite 100
Walnut Creek, California 94598
(925) 946-3100 – (925) 256-8998 (fax)

Local Address: ITSI HPNS, SF, CA

Chain-Of-Custody

Project Name and Number: Spring 2012 NAPL 07193.0002
Project Manager: Ken Leonard
Site Location: Hunters Point Naval Shipyard.

Laboratory Name: C & T
Address: 2323 5th St. Berkeley, CA
Contact Name: Mike Dahlquist
Phone: 510-204-2225

Date: 6/27/12
Page: 1 of 1

temp Blank inside Cooler

	Sample I.D.	Date	Time	Sample Depth	No. of Containers	Sample Matrix	TPH-G	BTEX/MTBE	TPH-D/MO	PAH						Special Instructions/Comments
	Preservative:						HCL	HCL	NA	NA						
	Container Type:						VOA	VOA	1HCL/1HCL							
1	TB-062712	6/27/12	0900	—	2	W	X	X								
2	1R24MW07A-062712	6/27/12	1225	—	10	W	X	X	X	X						Level 3

Sampled By: TR / KT
Signature: Teresa Ruha
Special Instructions: Level 3

Send Results to: (w/fax #) rflynn@itsi.com
Turnaround Time: Standard

Sampler: TR / KT

Courier/Airbill No.: ITSI dropped off at C&T Lab.

Relinquished By/Affiliation:	Date:	Time:	Received By/Affiliation:	Date:	Time:
Teresa Ruha	6/27/12	1330	[illegible]	6/27/12	1330
[illegible]	6/27/12	1348	Pat [illegible]	6/27/12	1348

Original – Laboratory Yellow – Field/Office

Graphics/Stationery/chain_custody1004.ai

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 2375Ø7 Date Received 6/27/12 Number of coolers 1
Client ITOI Project Spring 2012 NAPL Ø7193.0002

Date Opened 6/27/12 By (print) CRM (sign) [illegible]
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 2 Name B Date 6/27/12
2B. Were custody seals intact upon arrival? _____ (YES) NO N/A
3. Were custody papers dry and intact when received? _____ (YES) NO
4. Were custody papers filled out properly (ink, signed, etc)? _____ (YES) NO
5. Is the project identifiable from custody papers? (If so fill out top of form) (YES) NO
6. Indicate the packing in cooler: (if other, describe) _____

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

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

Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C) 2.4

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

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

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

COMMENTS

_____
_____
_____
_____
_____
_____

Rev 10, 11/11

Laboratory Job Number 237507

ANALYTICAL REPORT

TPH-Purgeables and/or BTXE by GC

Matrix: Water

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	237507	Location:	Hunters Ponit Naval Shipyard
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 5030B
Project#:	07193.0002		
Field ID:	TB-062712	Diln Fac:	1.000
Lab ID:	237507-001	Sampled:	06/27/12
Matrix:	Water	Received:	06/27/12
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Analyzed	Analysis
Gasoline C6-C12	16 J	50	12	188192	07/04/12	EPA 8015B
MTBE	ND	2.0	0.45	188229	07/05/12	EPA 8021B
Benzene	ND	0.50	0.10	188192	07/04/12	EPA 8021B
Toluene	ND	0.50	0.10	188192	07/04/12	EPA 8021B
Ethylbenzene	ND	0.50	0.10	188192	07/04/12	EPA 8021B
m,p-Xylenes	0.30 J	0.50	0.10	188192	07/04/12	EPA 8021B
o-Xylene	ND	0.50	0.10	188192	07/04/12	EPA 8021B
Xylene (total)	0.30 J	0.50		188192	07/04/12	EPA 8021B

Surrogate	%REC	Limits	Batch#	Analyzed	Analysis
Bromofluorobenzene (FID)	91	76-121	188192	07/04/12	EPA 8015B
Bromofluorobenzene (PID)	101	70-125	188192	07/04/12	EPA 8021B

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	237507	Location:	Hunters Ponit Naval Shipyard
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 5030B
Project#:	07193.0002		
Field ID:	IR24MW07A-062712	Diln Fac:	1.000
Lab ID:	237507-002	Sampled:	06/27/12
Matrix:	Water	Received:	06/27/12
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Analyzed	Analysis
Gasoline C6-C12	13 J	50	12	188192	07/04/12	EPA 8015B
MTBE	ND	2.0	0.45	188229	07/05/12	EPA 8021B
Benzene	ND	0.50	0.10	188192	07/04/12	EPA 8021B
Toluene	ND	0.50	0.10	188192	07/04/12	EPA 8021B
Ethylbenzene	ND	0.50	0.10	188192	07/04/12	EPA 8021B
m,p-Xylenes	ND	0.50	0.10	188192	07/04/12	EPA 8021B
o-Xylene	ND	0.50	0.10	188192	07/04/12	EPA 8021B
Xylene (total)	ND	0.50		188192	07/04/12	EPA 8021B

Surrogate	%REC	Limits	Batch#	Analyzed	Analysis
Bromofluorobenzene (FID)	95	76-121	188192	07/04/12	EPA 8015B
Bromofluorobenzene (PID)	107	70-125	188192	07/04/12	EPA 8021B

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	237507	Location:	Hunters Ponit Naval Shipyard
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 5030B
Project#:	07193.0002	Analysis:	EPA 8021B
Matrix:	Water	Batch#:	188192
Units:	ug/L	Analyzed:	07/03/12
Diln Fac:	1.000		

Type: BS Lab ID: QC646573

Analyte	Spiked	Result	%REC	Limits
Benzene	10.00	10.06	101	70-130
Toluene	10.00	9.940	99	70-130
Ethylbenzene	10.00	9.868	99	70-130
m,p-Xylenes	10.00	9.729	97	70-130
o-Xylene	10.00	9.886	99	70-130

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	95	70-125

Type: BSD Lab ID: QC646574

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Benzene	10.00	10.64	106	70-130	6	20
Toluene	10.00	10.34	103	70-130	4	20
Ethylbenzene	10.00	10.49	105	70-130	6	20
m,p-Xylenes	10.00	10.10	101	70-130	4	20
o-Xylene	10.00	10.38	104	70-130	5	20

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	97	70-125

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	237507	Location:	Hunters Ponit Naval Shipyard
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 5030B
Project#:	07193.0002	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC646575	Batch#:	188192
Matrix:	Water	Analyzed:	07/03/12
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C6-C12	1,000	942.8	94	65-135

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	89	76-121

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	237507	Location:	Hunters Ponit Naval Shipyard
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 5030B
Project#:	07193.0002		
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC646576	Batch#:	188192
Matrix:	Water	Analyzed:	07/04/12
Units:	ug/L		

Analyte	Result	RL	MDL	Analysis
Gasoline C6-C12	17 J	50	12	EPA 8015B
Benzene	ND	0.50	0.10	EPA 8021B
Toluene	ND	0.50	0.10	EPA 8021B
Ethylbenzene	ND	0.50	0.10	EPA 8021B
m,p-Xylenes	ND	0.50	0.10	EPA 8021B
o-Xylene	ND	0.50	0.10	EPA 8021B
Xylene (total)	ND	0.50		EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	83	76-121	EPA 8015B
Bromofluorobenzene (PID)	94	70-125	EPA 8021B

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	237507	Location:	Hunters Ponit Naval Shipyard
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 5030B
Project#:	07193.0002	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	188192
MSS Lab ID:	237592-001	Sampled:	06/28/12
Matrix:	Water	Received:	06/29/12
Units:	ug/L	Analyzed:	07/04/12
Diln Fac:	1.000		

Type: MS Lab ID: QC646577

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C6-C12	27.27	2,000	1,916	94	65-135

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	98	76-121

Type: MSD Lab ID: QC646578

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C6-C12	2,000	1,809	89	65-135	6	20

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	96	76-121

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	237507	Location:	Hunters Ponit Naval Shipyard
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 5030B
Project#:	07193.0002	Analysis:	EPA 8021B
Matrix:	Water	Batch#:	188229
Units:	ug/L	Analyzed:	07/05/12
Diln Fac:	1.000		

Type: BS Lab ID: QC646727

Analyte	Spiked	Result	%REC	Limits
MTBE	10.00	9.396	94	70-130

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	81	70-125

Type: BSD Lab ID: QC646728

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	10.00	10.29	103	70-130	9	20

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	98	70-125

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

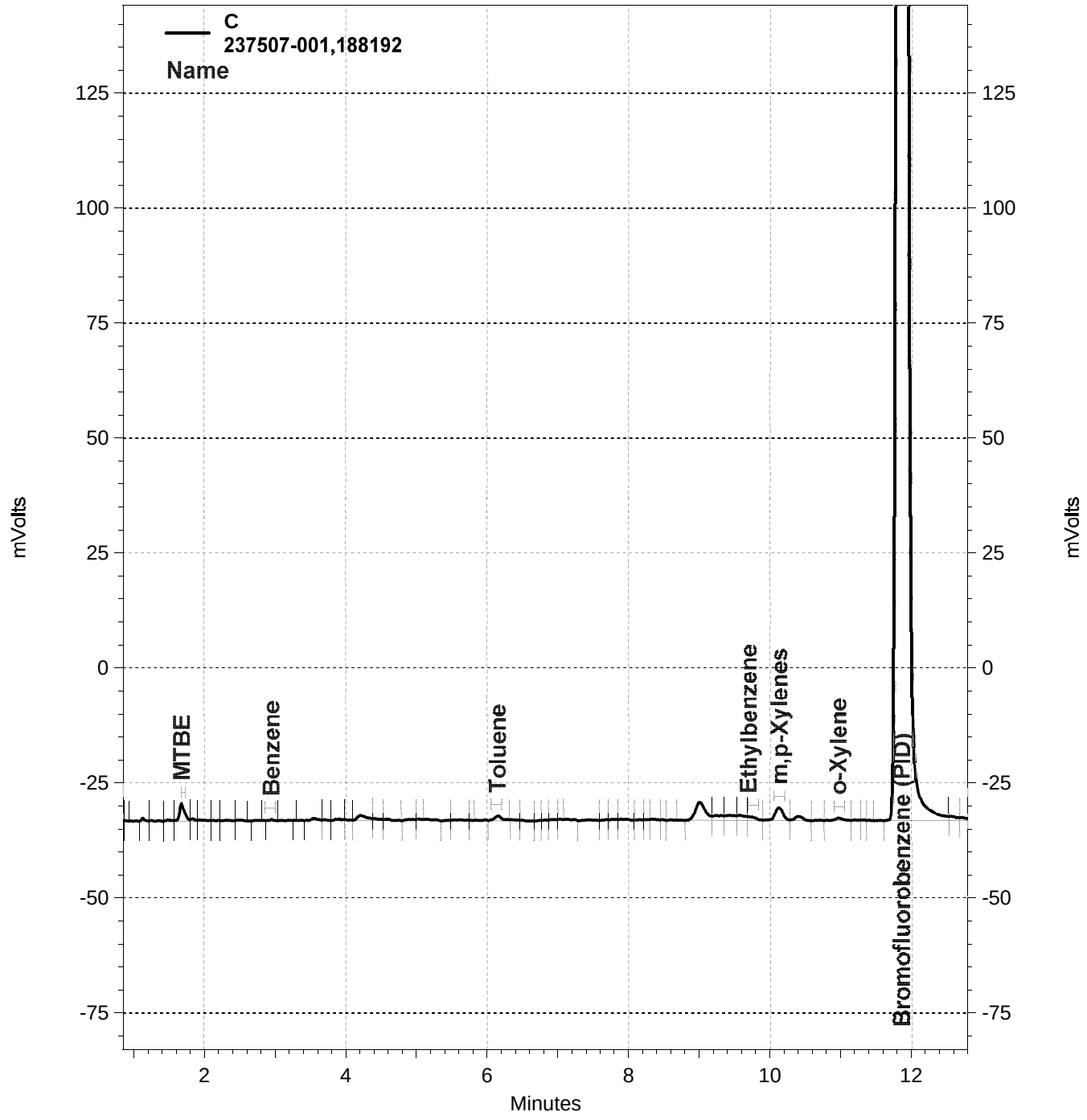
Curtis & Tompkins Laboratories Analytical Report

Lab #:	237507	Location:	Hunters Ponit Naval Shipyard
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 5030B
Project#:	07193.0002		
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC646730	Batch#:	188229
Matrix:	Water	Analyzed:	07/05/12
Units:	ug/L		

Analyte	Result	RL	MDL	Analysis
MTBE	ND	2.0	0.45	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	86	76-121	EPA 8015B
Bromofluorobenzene (PID)	92	70-125	EPA 8021B

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit



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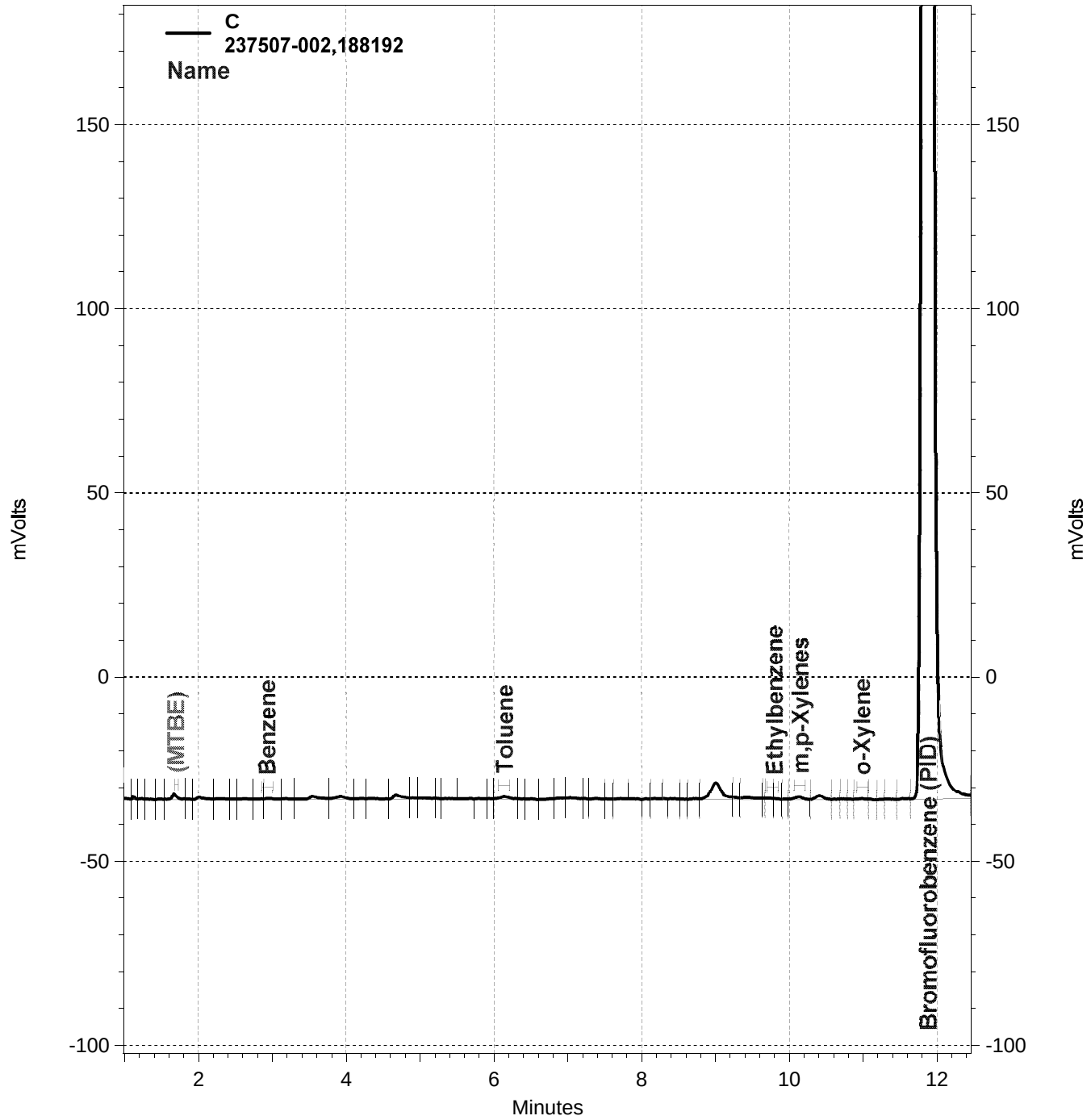

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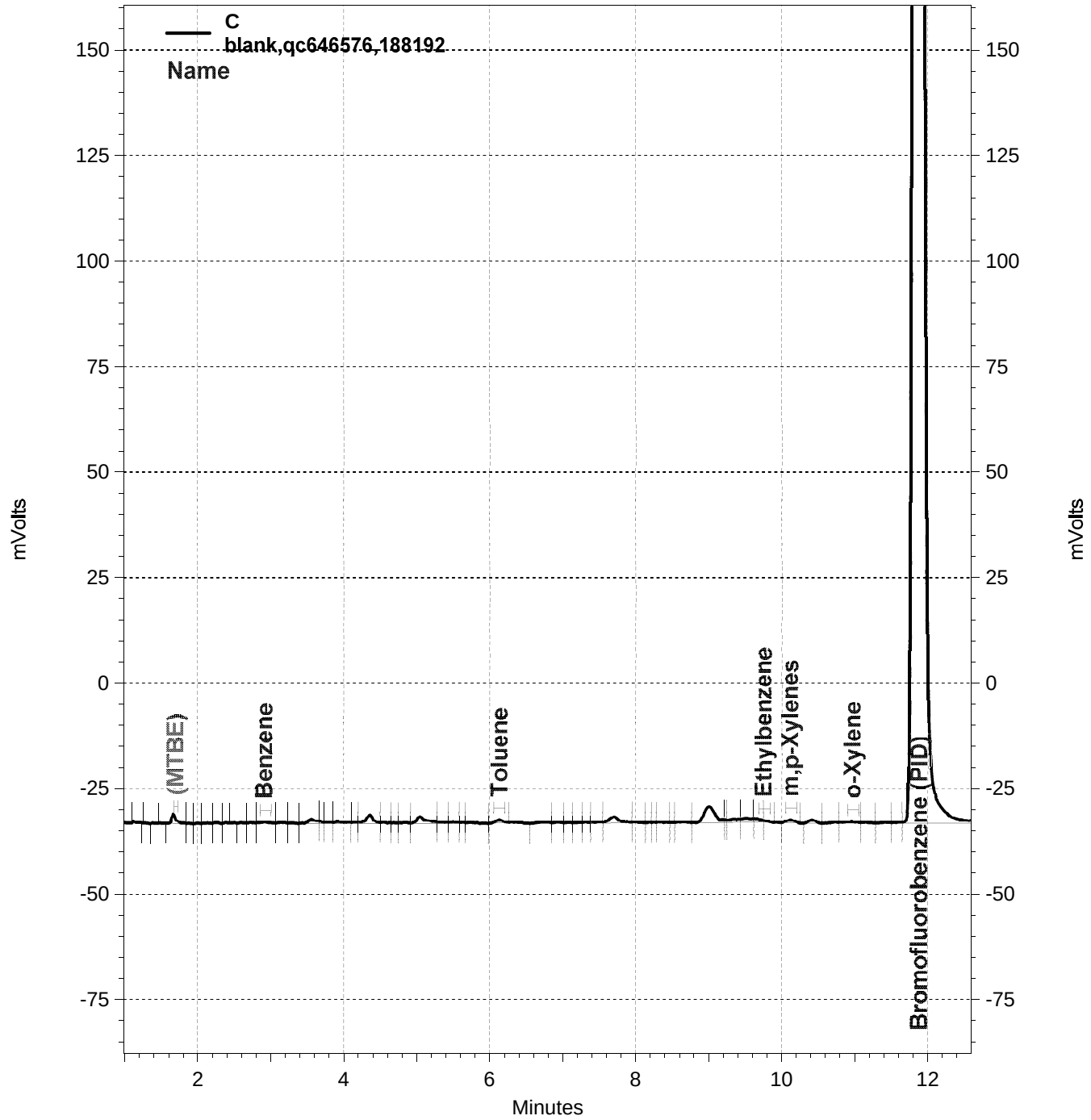

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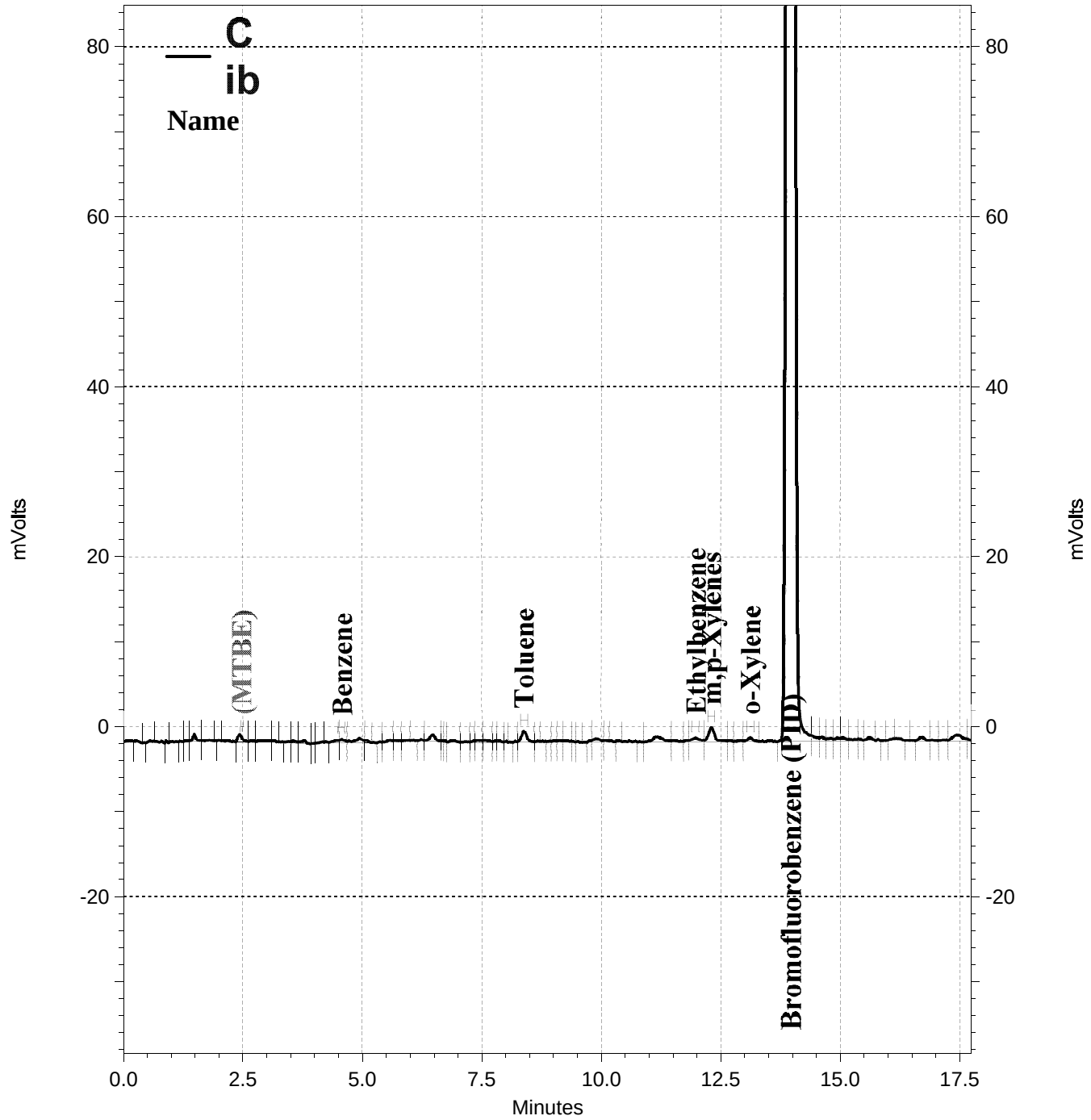

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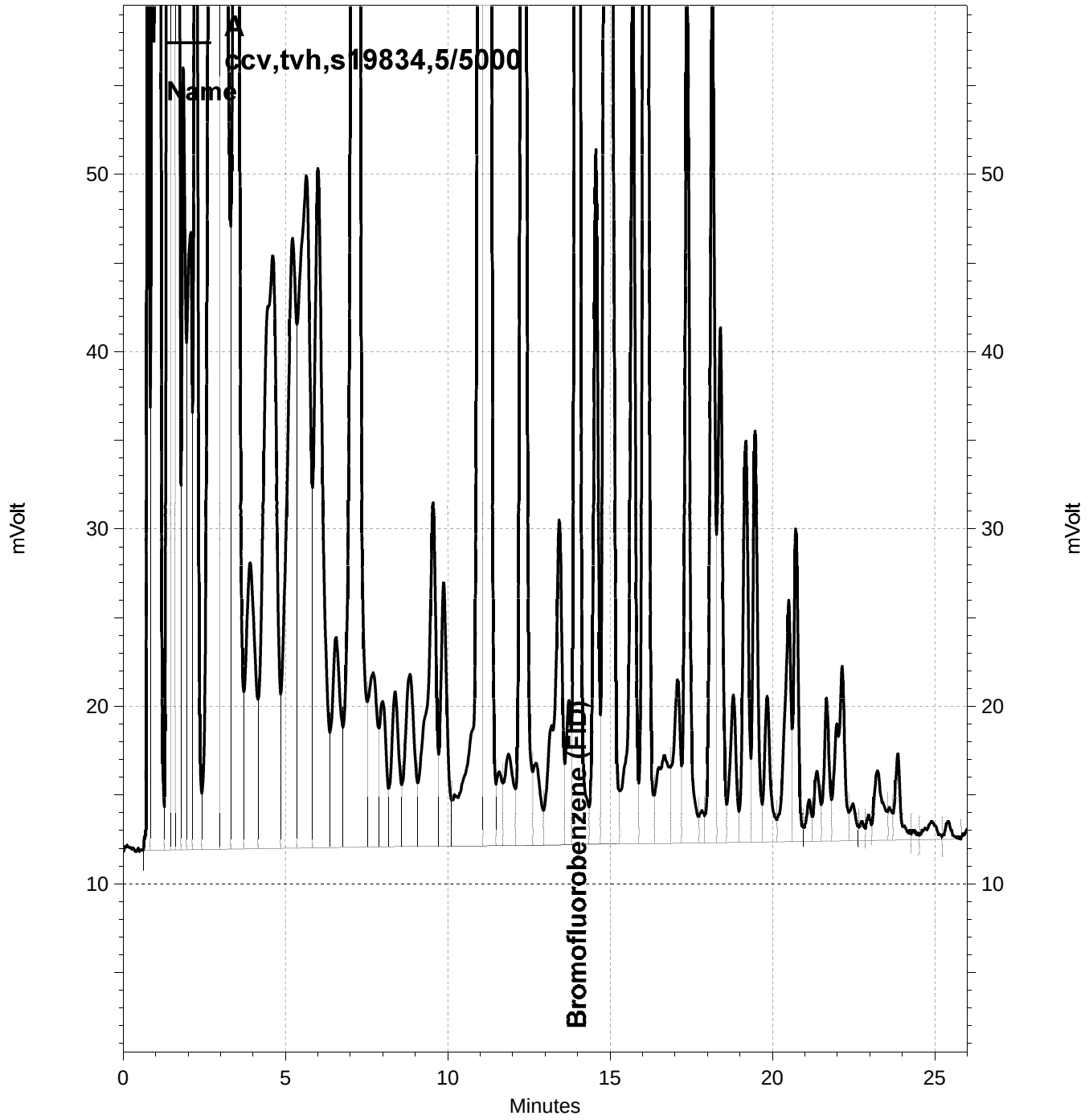

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CURTIS & TOMPKINS INITIAL CALIBRATION FOR 237507 GCVOA Water: EPA 8015B

Inst : GC05
Calnum : 312167703001
Units : ng

Name : tvh/bfb_116
Date : 25-APR-2012 22:52
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	116_012	312167703012	TVH_14	25-APR-2012 22:52	S19489 (1000X), S19637 (5000X)
L2	116_013	312167703013	TVH_15	25-APR-2012 23:30	S19488 (1000X), S19637 (5000X)
L3	116_014	312167703014	TVH_16	26-APR-2012 00:08	S19487 (1000X), S19637 (5000X)
L4	116_015	312167703015	TVH_17	26-APR-2012 00:45	S19466 (2000X), S19637 (5000X)
L5	116_016	312167703016	TVH_18	26-APR-2012 01:23	S19466 (1000X), S19637 (5000X)

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
Gasoline C6-C12	A	4769.9	3375.9	3284.6	3576.8	3817.0	AVRG		2.66E-4		3764.8	16	0.995	20	
Bromofluorobenzene (FID)	A	2412.9	2463.4	2540.4	2629.9	2845.6	AVRG		3.88E-4		2578.4	7	0.995	20	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Gasoline C6-C12	A	250.00	**27**	2500.0	-10	10000	-13	25000	-5	50000	1
Bromofluorobenzene (FID)	A	900.00	-6	900.00	-4	900.00	-1	900.00	2	900.00	10

RP 04/26/12 [Bromofluorobenzene (FID) A]: Separated from coeluting peak in TVH_15 (116_013).

RP 04/26/12 [Bromofluorobenzene (FID) A]: Separated from coeluting peak in TVH_16 (116_014).

RP 04/26/12 : ICAL and ICV passes. OK to run TVH on GC05

Analyst: RP Date: 04/26/12 Reviewer: EAH Date: 04/26/12

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

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 237507 GCVOA Water
EPA 8015B

Inst : GC05 Name : tvh/bfb_116
Calnum : 312167703001 Cal Date : 25-APR-2012

ICV 312167703018 (116_018 26-APR-2012) stds: S19608 (1000X), S19637 (5000X)

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Gasoline C6-C12	A	10000	10340	ng	3	15	

Analyst: RP Date: 04/26/12 Reviewer: EAH Date: 05/07/12

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 237507 GCVOA Water: EPA 8021B

Inst : GC05
Calnum : 312177789001
Units : ng

Name : mbtxe/bfb_123
Date : 02-MAY-2012 21:52
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	123_009	312177789009	BTXE_1	02-MAY-2012 21:52	S19371 (1000X), S19637 (5000X)
L2	123_010	312177789010	MBTXE_2	02-MAY-2012 22:30	S19370 (1250X), S19637 (5000X)
L3	123_011	312177789011	MBTXE_3	02-MAY-2012 23:08	S19370 (500X), S19637 (5000X)
L4	123_012	312177789012	MBTXE_4	02-MAY-2012 23:45	S19370 (125X), S19637 (5000X)
L5	123_013	312177789013	MBTXE_5	03-MAY-2012 00:23	S19369 (1000X), S19637 (5000X)
L6	123_014	312177789014	MBTXE_6	03-MAY-2012 01:01	S19369 (500X), S19637 (5000X)
L7	123_015	312177789015	MBTXE_7	03-MAY-2012 01:38	S19369 (250X), S19637 (5000X)
L8	123_016	312177789016	MTBE_7	03-MAY-2012 02:16	S19756 (500X), S19637 (5000X)

Analyte	Ch	L1	L2	L3	L4	L5	L6	L7	L8	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
MTBE	B		582.30	481.44	442.25	421.70	435.19	432.67	409.33	AVRG		0.00218		457.84	13	0.995	20	
Benzene	B	3981.2	3814.3	3734.4	3704.0	3507.8	3626.6	3666.1		AVRG		2.69E-4		3719.2	4	0.995	20	
Toluene	B	4800.8	3719.8	3469.0	3517.1	3310.1	3432.2	3464.0		AVRG		2.72E-4		3673.3	14	0.995	20	
Ethylbenzene	B	3612.8	3197.7	2999.4	3154.0	2970.5	3001.6	3108.4		AVRG		3.18E-4		3149.2	7	0.995	20	
m,p-Xylenes	B	4934.4	3916.0	3667.8	3651.0	3354.6	3581.1	3539.1		AVRG		2.63E-4		3806.3	14	0.995	20	
o-Xylene	B	3645.2	3400.0	3086.3	3154.1	2953.2	3064.7	3091.4		AVRG		3.13E-4		3199.3	7	0.995	20	
Bromofluorobenzene (PID)	B	2472.5	2497.0	2483.5	2539.3	2536.3	2618.4	2604.0	2454.3	AVRG		3.96E-4		2525.6	2	0.995	20	
MTBE	C		1464.7	1288.7	1427.4	1687.3	1766.9	1724.2	1633.4	AVRG		6.37E-4		1570.4	11	0.995	20	
Benzene	C	15122	16523	16987	18422	17382	17718	17715		AVRG		5.84E-5		17124	6	0.995	20	
Toluene	C	16478	15200	15794	17015	16123	16674	16844		AVRG		6.13E-5		16304	4	0.995	20	
Ethylbenzene	C	12977	13164	13284	14980	14280	14864	15031		AVRG		7.10E-5		14083	7	0.995	20	
m,p-Xylenes	C	19014	15539	15432	17141	16467	17243	17578		AVRG		5.91E-5		16916	7	0.995	20	
o-Xylene	C	14157	13319	13259	14748	14262	14971	15263		AVRG		7.00E-5		14283	5	0.995	20	
Bromofluorobenzene (PID)	C	12379	12515	12446	12732	12649	13080	13082	12717	AVRG		7.87E-5		12700	2	0.995	20	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D
MTBE	B			10.000	**27**	25.000	5	100.00	-3	500.00	-8	1000.0	-5	2000.0	-5	5000.0	-11
Benzene	B	2.5000	7	10.000	3	25.000	0	100.00	0	500.00	-6	1000.0	-2	2000.0	-1		
Toluene	B	2.5000	**31**	10.000	1	25.000	-6	100.00	-4	500.00	-10	1000.0	-7	2000.0	-6		
Ethylbenzene	B	2.5000	15	10.000	2	25.000	-5	100.00	0	500.00	-6	1000.0	-5	2000.0	-1		
m,p-Xylenes	B	2.5000	**30**	10.000	3	25.000	-4	100.00	-4	500.00	-12	1000.0	-6	2000.0	-7		
o-Xylene	B	2.5000	14	10.000	6	25.000	-4	100.00	-1	500.00	-8	1000.0	-4	2000.0	-3		
Bromofluorobenzene (PID)	B	900.00	-2	900.00	-1	900.00	-2	900.00	1	900.00	0	900.00	4	900.00	3	900.00	-3
MTBE	C			10.000	-7	25.000	-18	100.00	-9	500.00	7	1000.0	13	2000.0	10	5000.0	4
Benzene	C	2.5000	-12	10.000	-4	25.000	-1	100.00	8	500.00	2	1000.0	3	2000.0	3		
Toluene	C	2.5000	1	10.000	-7	25.000	-3	100.00	4	500.00	-1	1000.0	2	2000.0	3		
Ethylbenzene	C	2.5000	-8	10.000	-7	25.000	-6	100.00	6	500.00	1	1000.0	6	2000.0	7		
m,p-Xylenes	C	2.5000	12	10.000	-8	25.000	-9	100.00	1	500.00	-3	1000.0	2	2000.0	4		
o-Xylene	C	2.5000	-1	10.000	-7	25.000	-7	100.00	3	500.00	0	1000.0	5	2000.0	7		
Bromofluorobenzene (PID)	C	900.00	-3	900.00	-1	900.00	-2	900.00	0	900.00	0	900.00	3	900.00	3	900.00	0

CRD 05/03/12 : Corrected automatically drawn baseline for Ch. C in multiple levels.

CRD 05/03/12 : Corrected automatically drawn baseline for Ch. B in BTXE_1 (123_009).

Analyst: CRD Date: 05/03/12 Reviewer: EAH Date: 05/03/12

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

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 237507 GCVOA Water
EPA 8021B

Inst : GC05 Name : mbtxe/bfb_123
Calnum : 312177789001 Cal Date : 02-MAY-2012

ICV 312177789018 (123_018 03-MAY-2012) stds: S19455 (1000X), S19637 (5000X)

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
MTBE	B	100.0	105.5	ng	6	15	
Benzene	B	100.0	98.97	ng	-1	15	
Toluene	B	100.0	91.80	ng	-8	15	
Ethylbenzene	B	100.0	92.53	ng	-7	15	
m,p-Xylenes	B	200.0	184.0	ng	-8	15	
o-Xylene	B	100.0	93.94	ng	-6	15	
MTBE	C	100.0	104.8	ng	5	15	
Benzene	C	100.0	111.4	ng	11	15	
Toluene	C	100.0	103.5	ng	3	15	
Ethylbenzene	C	100.0	104.0	ng	4	15	
m,p-Xylenes	C	200.0	201.6	ng	1	15	
o-Xylene	C	100.0	99.74	ng	0	15	

Analyst: CRD Date: 05/03/12 Reviewer: EAH Date: 05/03/12

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 237507 GCVOA Water: EPA 8015B

Inst : GC19
Calnum : 342266910005
Units : ng

Name : tvh/bfb_185
Date : 03-JUL-2012 15:20
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	185_009	342266910009	TVH_14	03-JUL-2012 15:20	S19489 (1000X), S19637 (5000X)
L2	185_010	342266910010	TVH_15	03-JUL-2012 16:11	S19488 (1000X), S19637 (5000X)
L3	185_011	342266910011	TVH_16	03-JUL-2012 17:20	S19487 (1000X), S19637 (5000X)
L4	185_012	342266910012	TVH_17	03-JUL-2012 18:16	S19466 (2000X), S19637 (5000X)
L5	185_013	342266910013	TVH_18	03-JUL-2012 18:53	S19466 (1000X), S19637 (5000X)

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
Gasoline C6-C12	A	3935.3	2596.8	2633.3	3045.9	2877.6	AVRG		3.31E-4		3017.8	18	0.995	20	
Bromofluorobenzene (FID)	A	1228.7	1503.8	1425.2	1594.3	1667.7	AVRG		6.74E-4		1483.9	11	0.995	20	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Gasoline C6-C12	A	250.00	**30**	2500.0	-14	10000	-13	25000	1	50000	-5
Bromofluorobenzene (FID)	A	900.00	-17	900.00	1	900.00	-4	900.00	7	900.00	12

CRD 07/06/12 [Bromofluorobenzene (FID) A]: Separated from coeluting peak in TVH_14 (185_009).

Analyst: CRD Date: 07/06/12 Reviewer: EAH Date: 07/06/12

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

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 237507 GCVOA Water
EPA 8015B

Inst : GC19 Name : tvh/bfb_185
Calnum : 342266910005 Cal Date : 03-JUL-2012

ICV 342266910015 (185_015 03-JUL-2012) stds: S19608 (1000X), S19637 (5000X)

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Gasoline C6-C12	A	10000	9488	ng	-5	15	

Analyst: CRD Date: 07/06/12 Reviewer: EAH Date: 07/06/12

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 237507 GCVOA Water: EPA 8021B

Inst : GC19
Calnum : 342266910004
Units : ng

Name : mbtxe/tvh_185
Date : 03-JUL-2012 22:39
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	185_019	342266910019	BTXE_1	03-JUL-2012 22:39	S20257 (1000X), S19637 (5000X)
L2	185_020	342266910020	MBTXE_2	03-JUL-2012 23:16	S20256 (1250X), S19637 (5000X)
L3	185_021	342266910021	MBTXE_3	03-JUL-2012 23:54	S20256 (500X), S19637 (5000X)
L4	185_022	342266910022	MBTXE_4	04-JUL-2012 00:31	S20256 (125X), S19637 (5000X)
L5	185_023	342266910023	MBTXE_5	04-JUL-2012 01:09	S20255 (1000X), S19637 (5000X)
L6	185_024	342266910024	MBTXE_6	04-JUL-2012 01:47	S20255 (500X), S19637 (5000X)
L7	185_025	342266910025	MBTXE_7	04-JUL-2012 02:24	S20255 (250X), S19637 (5000X)
L8	185_026	342266910026	MTBE_7	04-JUL-2012 03:02	S19756 (500X), S19637 (5000X)

Analyte	Ch	L1	L2	L3	L4	L5	L6	L7	L8	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
MTBE	B		599.60	568.76	450.48	419.54	416.17	397.70	391.93	AVRG		0.00216		463.45	18	0.995	20	
Benzene	B	1508.4	1414.9	1349.2	1484.8	1368.6	1364.6	1343.5		AVRG		7.12E-4		1404.8	5	0.995	20	
Toluene	B	2251.6	1533.9	1402.7	1401.3	1289.8	1287.0	1253.2		AVRG		6.72E-4		1488.5	**24**	0.995	20	rsd ***
Ethylbenzene	B	1608.0	1222.7	1083.2	1226.9	1145.3	1143.8	1103.0		AVRG		8.20E-4		1219.0	15	0.995	20	
m,p-Xylenes	B	2841.2	1586.6	1358.6	1496.4	1317.3	1306.5	1329.9		AVRG		6.23E-4		1605.2	**35**	0.995	20	rsd ***
o-Xylene	B	1698.0	1148.1	1083.2	1194.2	1104.0	1104.4	1098.8		AVRG		8.30E-4		1204.4	18	0.995	20	
Bromofluorobenzene (PID)	B	718.76	703.36	697.29	702.54	538.77	717.12	566.26	677.92	AVRG		0.00150		665.25	11	0.995	20	
MTBE	C		4168.5	4010.2	4651.7	5224.5	5450.5	5276.1	5199.9	AVRG		2.06E-4		4854.5	12	0.995	20	
Benzene	C	11916	13292	14231	17895	17647	17992	18031		AVRG		6.31E-5		15858	17	0.995	20	
Toluene	C	17272	13758	14155	17239	16707	17014	17141		AVRG		6.18E-5		16184	9	0.995	20	
Ethylbenzene	C	10537	10822	11951	15356	15101	15429	15507		AVRG		7.39E-5		13529	17	0.995	20	
m,p-Xylenes	C	20090	14593	14765	18054	17447	17903	18045		AVRG		5.79E-5		17271	11	0.995	20	
o-Xylene	C	11650	10543	11794	15095	15019	15400	15572		AVRG		7.36E-5		13582	16	0.995	20	
Bromofluorobenzene (PID)	C	9001.3	8858.3	8829.6	8883.4	7067.4	9630.7	7826.9	8882.7	AVRG		1.16E-4		8622.5	9	0.995	20	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D
MTBE	B			10.000	**29**	25.000	**23**	100.00	-3	500.00	-9	1000.0	-10	2000.0	-14	5000.0	-15
Benzene	B	2.5000	7	10.000	1	25.000	-4	100.00	6	500.00	-3	1000.0	-3	2000.0	-4		
Toluene	B	2.5000	**51**	10.000	3	25.000	-6	100.00	-6	500.00	-13	1000.0	-14	2000.0	-16		
Ethylbenzene	B	2.5000	**32**	10.000	0	25.000	-11	100.00	1	500.00	-6	1000.0	-6	2000.0	-10		
m,p-Xylenes	B	2.5000	**77**	10.000	-1	25.000	-15	100.00	-7	500.00	-18	1000.0	-19	2000.0	-17		
o-Xylene	B	2.5000	**41**	10.000	-5	25.000	-10	100.00	-1	500.00	-8	1000.0	-8	2000.0	-9		
Bromofluorobenzene (PID)	B	900.00	8	900.00	6	900.00	5	900.00	6	900.00	-19	900.00	8	900.00	-15	900.00	2
MTBE	C			10.000	-14	25.000	-17	100.00	-4	500.00	8	1000.0	12	2000.0	9	5000.0	7
Benzene	C	2.5000	**-25**	10.000	-16	25.000	-10	100.00	13	500.00	11	1000.0	13	2000.0	14		
Toluene	C	2.5000	7	10.000	-15	25.000	-13	100.00	7	500.00	3	1000.0	5	2000.0	6		
Ethylbenzene	C	2.5000	**-22**	10.000	-20	25.000	-12	100.00	14	500.00	12	1000.0	14	2000.0	15		
m,p-Xylenes	C	2.5000	16	10.000	-16	25.000	-15	100.00	5	500.00	1	1000.0	4	2000.0	4		
o-Xylene	C	2.5000	-14	10.000	**-22**	25.000	-13	100.00	11	500.00	11	1000.0	13	2000.0	15		
Bromofluorobenzene (PID)	C	900.00	4	900.00	3	900.00	2	900.00	3	900.00	-18	900.00	12	900.00	-9	900.00	3

CRD 07/06/12 : This ICAL will only be used to report MTBE for sequence 187. Another ICAL ran at the end of that sequence.

CRD 07/06/12 : Corrected automatically drawn baseline for Ch. B in all levels.

CRD 07/06/12 : Old Standard numbers were originally typed into EZChrom. The numbers actually used are correct in LIMS (S20255-S20257). The correct number may be shown in raw data documents, but most of the documents still show old numbers. However, the numbers in LIMS are correct.

EAH 07/06/12 : Reviewed MTBE only in this ICAL.

Analyst: DJA Date: 07/05/12 Reviewer: EAH Date: 07/06/12

rsd=ICAL %RSD failure

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

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 237507 GCVOA Water
EPA 8021B

Inst : GC19 Name : mbtxe/tvh_185
Calnum : 342266910004 Cal Date : 03-JUL-2012

ICV 342266910028 (185_028 04-JUL-2012) stds: S19455 (1000X), S19637 (5000X)

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
MTBE	B	100.0	94.65	ng	-5	15	
Benzene	B	100.0	94.19	ng	-6	15	
Toluene	B	100.0	82.56	ng	**-17**	15	v-
Ethylbenzene	B	100.0	88.95	ng	-11	15	
m,p-Xylenes	B	200.0	158.8	ng	**-21**	15	v-
o-Xylene	B	100.0	88.07	ng	-12	15	
MTBE	C	100.0	97.10	ng	-3	15	
Benzene	C	100.0	102.4	ng	2	15	
Toluene	C	100.0	93.45	ng	-7	15	
Ethylbenzene	C	100.0	98.88	ng	-1	15	
m,p-Xylenes	C	200.0	188.7	ng	-6	15	
o-Xylene	C	100.0	97.40	ng	-3	15	

Analyst: DJA Date: 07/05/12 Reviewer: EAH Date: 07/06/12

-=low bias v=ICV

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 237507 GCVOA Water
EPA 8021B

Inst : GC05 Run Name : BTXE IDF : 1.0
Seqnum : 312266909016 File : 185_016 Time : 03-JUL-2012 20:48
Cal : 312177789001 Caldate : 02-MAY-2012
Standards: S19860 (1000X), S19637 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
MTBE	B	457.84	513.25	100.0	112.1	ng	12	15	
Benzene	B	3719.2	3979.5	100.0	107.0	ng	7	15	
Toluene	B	3673.3	3782.2	100.0	103.0	ng	3	15	
Ethylbenzene	B	3149.2	3327.4	100.0	105.7	ng	6	15	
m,p-Xylenes	B	3806.3	3891.9	100.0	102.3	ng	2	15	
o-Xylene	B	3199.3	3357.8	100.0	105.0	ng	5	15	
Bromofluorobenzene (PID)	B	2525.6	2585.8	900.0	921.4	ng	2	15	
MTBE	C	1570.4	1413.8	100.0	90.03	ng	-10	15	
Benzene	C	17124	18809	100.0	109.8	ng	10	15	
Toluene	C	16304	16998	100.0	104.3	ng	4	15	
Ethylbenzene	C	14083	15085	100.0	107.1	ng	7	15	
m,p-Xylenes	C	16916	17023	100.0	100.6	ng	1	15	
o-Xylene	C	14283	14594	100.0	102.2	ng	2	15	
Bromofluorobenzene (PID)	C	12700	11802	900.0	836.4	ng	-7	15	

Analyst: DJA Date: 07/05/12 Reviewer: EAH Date: 07/05/12

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 237507 GCVOA Water
EPA 8015B

Inst : GC05 Run Name : TVH IDF : 1.0
Seqnum : 312266909017 File : 185_017 Time : 03-JUL-2012 21:25
Cal : 312167703001 Caldate : 25-APR-2012
Standards: S19834 (1000X), S19637 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Gasoline C6-C12	A	3764.8	3471.5	10000	9221	ng	-8	15	
Bromofluorobenzene (FID)	A	2578.4	2420.6	900.0	844.9	ng	-6	15	

Analyst: DJA Date: 07/05/12 Reviewer: EAH Date: 07/05/12

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 237507 GCVOA Water
EPA 8021B

Inst : GC05 Run Name : BTXE IDF : 1.0
Seqnum : 312266909033 File : 185_033 Time : 04-JUL-2012 07:27
Cal : 312177789001 Caldate : 02-MAY-2012
Standards: S19860 (1000X), S19637 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
MTBE	B	457.84	512.71	100.0	112.0	ng	12	15	
Benzene	B	3719.2	3676.1	100.0	98.84	ng	-1	15	
Toluene	B	3673.3	3491.8	100.0	95.06	ng	-5	15	
Ethylbenzene	B	3149.2	3051.7	100.0	96.90	ng	-3	15	
m,p-Xylenes	B	3806.3	3559.3	100.0	93.51	ng	-6	15	
o-Xylene	B	3199.3	3116.2	100.0	97.40	ng	-3	15	
Bromofluorobenzene (PID)	B	2525.6	2420.9	900.0	862.7	ng	-4	15	
MTBE	C	1570.4	1509.0	100.0	96.09	ng	-4	15	
Benzene	C	17124	17958	100.0	104.9	ng	5	15	
Toluene	C	16304	16030	100.0	98.32	ng	-2	15	
Ethylbenzene	C	14083	13929	100.0	98.91	ng	-1	15	
m,p-Xylenes	C	16916	15768	100.0	93.21	ng	-7	15	
o-Xylene	C	14283	13705	100.0	95.96	ng	-4	15	
Bromofluorobenzene (PID)	C	12700	11131	900.0	788.8	ng	-12	15	

Analyst: DJA Date: 07/05/12 Reviewer: EAH Date: 07/05/12

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 237507 GCVOA Water
EPA 8015B

Inst : GC05 Run Name : TVH IDF : 1.0
Seqnum : 312266909034 File : 185_034 Time : 04-JUL-2012 08:04
Cal : 312167703001 Caldate : 25-APR-2012
Standards: S19834 (1000X), S19637 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Gasoline C6-C12	A	3764.8	3431.4	10000	9114	ng	-9	15	
Bromofluorobenzene (FID)	A	2578.4	2378.6	900.0	830.3	ng	-8	15	

DJA 07/05/12 : Corrected automatically drawn baseline for Ch. A.

DJA 07/05/12 [Bromofluorobenzene (FID) A]: Separated from coeluting peak.

Analyst: DJA Date: 07/05/12 Reviewer: EAH Date: 07/05/12

CURTIS & TOMPKINS SPIKE USER REPORT FOR 237507 GCVOA Water
EPA 8015B

Inst : GC19 Run Name : QC646729 IDF : 1.0
Seqnum : 342269803003.2 File : 187_003 Time : 05-JUL-2012 09:59
Cal : 342266910005 Caldate : 03-JUL-2012
Standards: S19834 (2000X), S19637 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Gasoline C6-C12	A	3017.8	2729.0	5000	4521	ng	-10	15	u
Bromofluorobenzene (FID)	A	1483.9	1410.7	900.0	855.6	ng	-5	15	u

CRD 07/06/12 : CCV/LCS,QC646729,188229 [general version]

Analyst: CRD Date: 07/06/12 Reviewer: EAH Date: 07/06/12

u=use

CURTIS & TOMPKINS SPIKE USER REPORT FOR 237507 GCVOA Water
EPA 8021B

Inst : GC19 Run Name : QC646727 IDF : 1.0
Seqnum : 342269803004.2 File : 187_004 Time : 05-JUL-2012 10:36
Cal : 342266910004 Caldate : 03-JUL-2012
Standards: S19860 (2000X), S19637 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
MTBE	C	4854.5	4561.5	50.00	46.98	ng	-6	15	u
MTBE	B	463.45	451.50	50.00	48.71	ng	-3	15	
Benzene	C	15858	15389	50.00	48.52	ng	-3	15	u
Benzene	B	1404.8	1263.6	50.00	44.97	ng	-10	15	
Toluene	C	16184	14799	50.00	45.72	ng	-9	15	u
Toluene	B	1488.5	1249.0	50.00	41.96	ng	**-16**	15	c- rsd v- ***
Ethylbenzene	C	13529	12977	50.00	47.96	ng	-4	15	u
Ethylbenzene	B	1219.0	1045.5	50.00	42.88	ng	-14	15	
m,p-Xylenes	C	17271	15444	50.00	44.71	ng	-11	15	u
m,p-Xylenes	B	1605.2	1323.5	50.00	41.23	ng	**-18**	15	c- rsd v- ***
o-Xylene	C	13582	12626	50.00	46.48	ng	-7	15	u
o-Xylene	B	1204.4	1047.0	50.00	43.47	ng	-13	15	
Bromofluorobenzene (PID)	C	8622.5	6982.7	900.0	728.8	ng	**-19**	15	c- u
Bromofluorobenzene (PID)	B	665.25	553.83	900.0	749.3	ng	**-17**	15	c-

CRD 07/06/12 : CCV/BS,QC646727,188229 [general version]

CRD 07/06/12 : Corrected automatically drawn baseline for Ch. B. [general version]

Analyst: CRD Date: 07/06/12 Reviewer: EAH Date: 07/06/12

-=low bias c=CCV rsd=ICAL %RSD failure u=use v=ICV

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 237507 GCVOA Water
EPA 8021B

Inst : GC19 Run Name : BTXE IDF : 1.0
Seqnum : 342269803009 File : 187_009 Time : 05-JUL-2012 16:13
Cal : 342266910004 Caldate : 03-JUL-2012
Standards: S19860 (1000X), S19637 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
MTBE	B	463.45	460.05	100.0	99.27	ng	-1	15	
Benzene	B	1404.8	1463.0	100.0	104.1	ng	4	15	
Toluene	B	1488.5	1302.2	100.0	87.48	ng	-13	15	rsd v- ***
Ethylbenzene	B	1219.0	1132.6	100.0	92.91	ng	-7	15	
m,p-Xylenes	B	1605.2	1382.7	100.0	86.14	ng	-14	15	rsd v- ***
o-Xylene	B	1204.4	1121.6	100.0	93.13	ng	-7	15	
Bromofluorobenzene (PID)	B	665.25	744.46	900.0	1007	ng	12	15	
MTBE	C	4854.5	5202.7	100.0	107.2	ng	7	15	
Benzene	C	15858	17190	100.0	108.4	ng	8	15	
Toluene	C	16184	16426	100.0	101.5	ng	2	15	
Ethylbenzene	C	13529	14609	100.0	108.0	ng	8	15	
m,p-Xylenes	C	17271	17131	100.0	99.19	ng	-1	15	
o-Xylene	C	13582	14377	100.0	105.9	ng	6	15	
Bromofluorobenzene (PID)	C	8622.5	9559.0	900.0	997.8	ng	11	15	

EAH 07/06/12 : Corrected automatically drawn baseline for Ch. B.

Analyst: CRD Date: 07/06/12 Reviewer: EAH Date: 07/06/12

-=low bias rsd=ICAL %RSD failure v=ICV

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 237507 GCVOA Water
EPA 8015B

Inst : GC19 Run Name : TVH IDF : 1.0
Seqnum : 342269803018 File : 187_018 Time : 05-JUL-2012 22:32
Cal : 342266910005 Caldate : 03-JUL-2012
Standards: S20263 (1000X), S19637 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Gasoline C6-C12	A	3017.8	3078.2	10000	10200	ng	2	15	
Bromofluorobenzene (FID)	A	1483.9	1363.3	900.0	826.8	ng	-8	15	

Analyst: CRD Date: 07/06/12 Reviewer: EAH Date: 07/06/12

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 312167703

Instrument : GC05 Begun : 04/25/12 11:03
Method : EPA 8015B, EPA 8021B SOP Version : TVH_BTXE_rv14

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	116_001	CCV/LCS	QC637151	Soil	185921	04/25/12 11:03	1.0	1 2	
002	116_002	CCV	BTXE			04/25/12 12:19	1.0	3 2	
003	116_003	BLANK	QC637152	Soil	185921	04/25/12 12:56	1.0	3 2	
004	116_004	CCV	BTXE			04/25/12 14:40	1.0	3 2	
005	116_005	CCV	TVH			04/25/12 16:54	1.0	1 2	
006	116_006	CCV	TVH			04/25/12 17:51	1.0	1 2	
007	116_007	X	IB			04/25/12 19:44	1.0	2	
008	116_008	X	IB			04/25/12 20:22	1.0	2	
009	116_009	X	IB			04/25/12 20:59	1.0	2	
010	116_010	X	IB			04/25/12 21:37	1.0	2	
011	116_011	IB	CALIB			04/25/12 22:15	1.0	2	
012	116_012	ICAL	TVH_14			04/25/12 22:52	1.0	4 2	
013	116_013	ICAL	TVH_15			04/25/12 23:30	1.0	5 2	
014	116_014	ICAL	TVH_16			04/26/12 00:08	1.0	6 2	
015	116_015	ICAL	TVH_17			04/26/12 00:45	1.0	7 2	
016	116_016	ICAL	TVH_18			04/26/12 01:23	1.0	7 2	
017	116_017	X	IB			04/26/12 02:00	1.0	2	
018	116_018	ICV	TVH			04/26/12 02:38	1.0	8 2	
019	116_019	X	ICV			04/26/12 03:16	1.0	8 2	
020	116_020	CMARKER				04/26/12 03:53	1.0	9 2	
021	116_021	X	CMARK			04/26/12 04:31	1.0	9 2	
022	116_022	CCV	TVH			04/26/12 05:08	1.0	1 2	
023	116_023	X	IB			04/26/12 05:46	1.0	2	

RP 04/25/12 : Opening carbon marker ran and passed in previous sequence as file 115_031 on 25-APR-12 at 10:12.

RP 04/26/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 23.

Reviewed by: RP Date: 04/26/12

Standards used: 1=S19465 2=S19637 3=S19372 4=S19489 5=S19488 6=S19487 7=S19466 8=S19608 9=S19631

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 312177789

Instrument : GC05 Begun : 05/02/12 11:09
Method : EPA 8015B, EPA 8021B SOP Version : TVH_BTXE_rv14

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	123_001	CCV	TVH			05/02/12 11:09	1.0	1 2	
002	123_002	X	IB			05/02/12 12:53	1.0	2	
003	123_003	X	IB			05/02/12 15:26	1.0	2	
004	123_004	X	IB			05/02/12 18:44	1.0	2	
005	123_005	X	IB			05/02/12 19:22	1.0	2	
006	123_006	X	IB			05/02/12 20:00	1.0	2	
007	123_007	X	IB			05/02/12 20:37	1.0	2	
008	123_008	IB	ICALIB			05/02/12 21:15	1.0	2	
009	123_009	ICAL	BTXE_1			05/02/12 21:52	1.0	3 2	
010	123_010	ICAL	MBTXE_2			05/02/12 22:30	1.0	4 2	
011	123_011	ICAL	MBTXE_3			05/02/12 23:08	1.0	4 2	
012	123_012	ICAL	MBTXE_4			05/02/12 23:45	1.0	4 2	
013	123_013	ICAL	MBTXE_5			05/03/12 00:23	1.0	5 2	
014	123_014	ICAL	MBTXE_6			05/03/12 01:01	1.0	5 2	
015	123_015	ICAL	MBTXE_7			05/03/12 01:38	1.0	5 2	
016	123_016	ICAL	MTBE_7			05/03/12 02:16	1.0	6 2	
017	123_017	X	IB			05/03/12 02:53	1.0	2	
018	123_018	ICV	MBTXE			05/03/12 03:31	1.0	7 2	
019	123_019	X	ICV			05/03/12 04:09	1.0	7 2	

CRD 05/03/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 19.

CRD 05/03/12 : Standard ID used for ICAL MTBE_7 (123_016) was S19756

Reviewed by: CRD Date: 05/03/12

Standards used: 1=S19465 2=S19637 3=S19371 4=S19370 5=S19369 6=S19756 7=S19455

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CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 312266909

Instrument : GC05 Begun : 07/03/12 08:29
Method : EPA 8015B, EPA 8021B SOP Version : TVH_BTXE_rv14

#	File	Type	Sample ID	P	Matrix	Batch	Analyzed	IDF	Stds Used	
001	185_001	X	CMARK				07/03/12 08:29	1.0	1 2	
002	185_002	X	BTXE				07/03/12 09:07	1.0	3 2	
003	185_003	CCV/LCS	QC646515		Soil	188180	07/03/12 09:45	1.0	4 2	
004	185_004	X	BTXE				07/03/12 10:22	1.0	3 2	
005	185_005	CCV/BS	QC646513		Soil	188180	07/03/12 11:15	1.0	3 2	
006	185_006	BSD	QC646514		Soil	188180	07/03/12 12:22	1.0	3 2	
007	185_007	BLANK	QC646516		Soil	188180	07/03/12 13:29	1.0	2	
008	185_008	SAMPLE	237650-001		Soil	188180	07/03/12 14:46	1.0	2	3:GAS:7-12=78000
009	185_009	CCV	BTXE				07/03/12 15:23	1.0	3 2	
010	185_010	SAMPLE	237650-001	M	Soil	188180	07/03/12 16:01	25.0	2	
011	185_011	CCV	TVH				07/03/12 17:09	1.0	4 2	
012	185_012	PREPBLK	QC646644	M	Soil	188180	07/03/12 18:17	25.0	2	
013	185_013	MSS	237654-001		Soil	188180	07/03/12 18:55	1.0	2	
014	185_014	MS	QC646517		Soil	188180	07/03/12 19:33	1.0	4 2	
015	185_015	MSD	QC646518		Soil	188180	07/03/12 20:10	1.0	4 2	
016	185_016	CCV	BTXE				07/03/12 20:48	1.0	3 2	
017	185_017	CCV	TVH				07/03/12 21:25	1.0	4 2	
018	185_018	X	CMARK				07/03/12 22:03	1.0	1 2	
019	185_019	BS	QC646573		Water	188192	07/03/12 22:41	1.0	3 2	
020	185_020	BSD	QC646574		Water	188192	07/03/12 23:18	1.0	3 2	
021	185_021	LCS	QC646575		Water	188192	07/03/12 23:56	1.0	4 2	
022	185_022	BLANK	QC646576		Water	188192	07/04/12 00:33	1.0	2	
023	185_023	SAMPLE	237507-001		Water	188192	07/04/12 01:11	1.0	2	
024	185_024	SAMPLE	237507-002		Water	188192	07/04/12 01:48	1.0	2	
025	185_025	SAMPLE	237552-001		Water	188192	07/04/12 02:26	1.0	2	pH > 2, 6:GAS:7-12=120000
026	185_026	MSS	237592-001		Water	188192	07/04/12 03:04	1.0	2	
027	185_027	MS	QC646577		Water	188192	07/04/12 03:41	1.0	4 2	
028	185_028	MSD	QC646578		Water	188192	07/04/12 04:19	1.0	4 2	
029	185_029	SAMPLE	237592-002		Water	188192	07/04/12 04:56	1.0	2	
030	185_030	SAMPLE	237592-003		Water	188192	07/04/12 05:34	1.0	2	
031	185_031	SAMPLE	237592-004		Water	188192	07/04/12 06:12	1.0	2	
032	185_032	SAMPLE	237592-005		Water	188192	07/04/12 06:49	1.0	2	
033	185_033	CCV	BTXE				07/04/12 07:27	1.0	3 2	
034	185_034	CCV	TVH				07/04/12 08:04	1.0	4 2	
035	185_035	CCV	BTXE				07/04/12 08:42	1.0	3 2	
036	185_036	CCV	TVH				07/04/12 09:19	1.0	4 2	
037	185_037	X	CMARK				07/04/12 09:57	1.0	1 2	
038	185_038	SAMPLE	237592-006		Water	188192	07/04/12 10:35	1.0	2	
039	185_039	SAMPLE	237592-007		Water	188192	07/04/12 11:12	1.0	2	
040	185_040	SAMPLE	237592-008		Water	188192	07/04/12 11:50	1.0	2	
041	185_041	SAMPLE	237592-009		Water	188192	07/04/12 12:27	1.0	2	
042	185_042	SAMPLE	237592-011		Water	188192	07/04/12 13:05	1.0	2	
043	185_043	SAMPLE	237592-012		Water	188192	07/04/12 13:42	1.0	2	
044	185_044	SAMPLE	237592-013		Water	188192	07/04/12 14:20	1.0	2	
045	185_045	SAMPLE	237592-015		Water	188192	07/04/12 14:57	1.0	2	
046	185_046	SAMPLE	237592-016		Water	188192	07/04/12 15:35	1.0	2	
047	185_047	CCV	BTXE				07/04/12 16:12	1.0	3 2	
048	185_048	CCV	TVH				07/04/12 16:50	1.0	4 2	
049	185_049	CCV	BTXE				07/04/12 17:27	1.0	3 2	
050	185_050	CCV	TVH				07/04/12 18:05	1.0	4 2	
051	185_051	X	CMARK				07/04/12 18:42	1.0	1 2	

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 312266909

Instrument : GC05 Begun : 07/03/12 08:29
Method : EPA 8015B, EPA 8021B SOP Version : TVH_BTXE_rv14

CRD 07/03/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 11.

DJA 07/05/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 12 through 51.

Reviewed by: CRD Date: 07/03/12

Standards used: 1=S19631 2=S19637 3=S19860 4=S19834

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 342266910

Instrument : GC19 Begun : 07/03/12 08:30
Method : EPA 8015B, EPA 8021B SOP Version : TVH_BTXE_rv14

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	185_001	X	CMARK			07/03/12 08:30	1.0	1 2	
002	185_002	CCV	BTXE			07/03/12 09:08	1.0	3 2	
003	185_003	CCV	TVH			07/03/12 09:45	1.0	4 2	
004	185_004	CCV	BTXE			07/03/12 10:23	1.0	3 2	
005	185_005	BLANK	QC646351	Water	188140	07/03/12 11:15	1.0	2	
006	185_006	CCV	TVH			07/03/12 12:11	1.0	4 2	
007	185_007	CCV	BTXE			07/03/12 13:06	1.0	3 2	
008	185_008	IB	CALIB			07/03/12 14:00	1.0	2	
009	185_009	ICAL	TVH_14			07/03/12 15:20	1.0	5 2	
010	185_010	ICAL	TVH_15			07/03/12 16:11	1.0	6 2	
011	185_011	ICAL	TVH_16			07/03/12 17:20	1.0	7 2	
012	185_012	ICAL	TVH_17			07/03/12 18:16	1.0	8 2	
013	185_013	ICAL	TVH_18			07/03/12 18:53	1.0	8 2	
014	185_014	X	IB			07/03/12 19:31	1.0	2	
015	185_015	ICV	TVH			07/03/12 20:08	1.0	9 2	
016	185_016	X	ICV			07/03/12 20:46	1.0	9 2	
017	185_017	CMARKER				07/03/12 21:23	1.0	1 2	
018	185_018	IB	ICALIB			07/03/12 22:01	1.0	2	
019	185_019	ICAL	BTXE_1			07/03/12 22:39	1.0	10 2	
020	185_020	ICAL	MBTXE_2			07/03/12 23:16	1.0	11 2	
021	185_021	ICAL	MBTXE_3			07/03/12 23:54	1.0	11 2	
022	185_022	ICAL	MBTXE_4			07/04/12 00:31	1.0	11 2	
023	185_023	ICAL	MBTXE_5			07/04/12 01:09	1.0	12 2	
024	185_024	ICAL	MBTXE_6			07/04/12 01:47	1.0	12 2	
025	185_025	ICAL	MBTXE_7			07/04/12 02:24	1.0	12 2	
026	185_026	ICAL	MTBE_7			07/04/12 03:02	1.0	13 2	
027	185_027	X	IB			07/04/12 03:39	1.0	2	
028	185_028	ICV	MBTXE			07/04/12 04:17	1.0	14 2	
029	185_029	X	ICV			07/04/12 04:54	1.0	14 2	

CRD 07/03/12 : We made new BTXE ICAL standards tonight. I'll log them in on Thursday, but this is a note to show that I know the current s#'s are expired and I made new ones for the ICAL running tonight.

DJA 07/05/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 29.

Reviewed by: CRD Date: 07/05/12

Standards used: 1=S19631 2=S19637 3=S19860 4=S19834 5=S19489 6=S19488 7=S19487 8=S19466 9=S19608 10=S20257 11=S20256 12=S20255 13=S19756 14=S19455

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CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 342269803

Instrument : GC19 Begun : 07/05/12 08:43
Method : EPA 8015B, EPA 8021B SOP Version : TVH_BTXE_rv14

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	187_001	X	CMARK			07/05/12 08:43	1.0	1 2	
002	187_002	X	BTXE			07/05/12 09:21	1.0	3 2	
003	187_003	CCV/LCS	QC646729	Water	188229	07/05/12 09:59	1.0	4 2	
004	187_004	CCV/BS	QC646727	Water	188229	07/05/12 10:36	1.0	3 2	
005	187_005	BLANK	QC646730	Water	188229	07/05/12 12:09	1.0	2	
006	187_006	BSD	QC646728	Water	188229	07/05/12 13:21	1.0	3 2	
007	187_007	SAMPLE	237507-001	Water	188229	07/05/12 14:32	1.0	2	
008	187_008	SAMPLE	237507-002	Water	188229	07/05/12 15:10	1.0	2	
009	187_009	CCV	BTXE			07/05/12 16:13	1.0	3 2	
010	187_010	SAMPLE	237658-001	Water	188229	07/05/12 17:31	1.0	2	
011	187_011	SAMPLE	237658-002	Water	188229	07/05/12 18:09	1.0	2	
012	187_012	SAMPLE	237658-003	Water	188229	07/05/12 18:47	1.0	2	
013	187_013	SAMPLE	237658-004	Water	188229	07/05/12 19:24	1.0	2	
014	187_014	SAMPLE	237658-005	Water	188229	07/05/12 20:02	1.0	2	
015	187_015	SAMPLE	237658-006	Water	188229	07/05/12 20:39	1.0	2	
016	187_016	SAMPLE	237575-001	Water	188229	07/05/12 21:17	1.0	2	
017	187_017	SAMPLE	237575-002	Water	188229	07/05/12 21:54	1.0	2	
018	187_018	CCV	TVH			07/05/12 22:32	1.0	5 2	
019	187_019	CCV	TVH			07/05/12 23:10	1.0	5 2	
020	187_020	X	CMARK			07/05/12 23:47	1.0	1 2	
021	187_021	MSS	237575-005	Water	188229	07/06/12 00:25	1.0	2	
022	187_022	MS	QC646756	Water	188229	07/06/12 01:02	1.0	5 2	
023	187_023	MSD	QC646757	Water	188229	07/06/12 01:40	1.0	5 2	
024	187_024	SAMPLE	237575-007	Water	188229	07/06/12 02:18	1.0	2	
025	187_025	CCV	TVH			07/06/12 02:55	1.0	5 2	
026	187_026	CCV	TVH			07/06/12 03:33	1.0	5 2	
027	187_027	X	CMARK			07/06/12 04:10	1.0	1 2	
028	187_028	IB	ICALIB			07/06/12 04:48	1.0	2	
029	187_029	ICAL	BTXE_1			07/06/12 05:25	1.0	6 2	
030	187_030	ICAL	MBTXE_2			07/06/12 06:03	1.0	7 2	
031	187_031	ICAL	MBTXE_3			07/06/12 06:41	1.0	7 2	
032	187_032	ICAL	MBTXE_4			07/06/12 07:18	1.0	7 2	
033	187_033	ICAL	MBTXE_5			07/06/12 07:56	1.0	8 2	
034	187_034	ICAL	MBTXE_6			07/06/12 08:33	1.0	8 2	
035	187_035	ICAL	MBTXE_7			07/06/12 09:17	1.0	8 2	
036	187_036	ICAL	MTBE_7			07/06/12 09:54	1.0	9 2	
038	187_038	X	MBTXE			07/06/12 12:10	1.0	10 2	
039	187_039	X	CMARK			07/06/12 13:24	1.0	1 2	
040	187_040	ICV	MBTXE			07/06/12 14:12	1.0	10 2	

CRD 07/06/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 36.

EAH 07/06/12 : Reviewed through run # 26.

Reviewed by: CRD Date: 07/06/12

Standards used: 1=S19631 2=S19637 3=S19860 4=S19834 5=S20263 6=S20257 7=S20256 8=S20255 9=S19756 10=S19455

Page 1 of 1

REPORTING SUMMARY FOR 237507 GCVOA Water

Sample ID	Analyte	Inst ID	Ch	Date & Time
237507-001	Gasoline C6-C12	GC05	A	07/04/12 01:11
237507-001	MTBE	GC19	C	07/05/12 14:32
237507-001	Benzene	GC05	B	07/04/12 01:11
237507-001	Toluene	GC05	B	07/04/12 01:11
237507-001	Ethylbenzene	GC05	B	07/04/12 01:11
237507-001	m,p-Xylenes	GC05	B	07/04/12 01:11
237507-001	o-Xylene	GC05	B	07/04/12 01:11
237507-001	Bromofluorobenzene (FID)	GC05	A	07/04/12 01:11
237507-001	Bromofluorobenzene (PID)	GC05	B	07/04/12 01:11
237507-001	Xylene (total)	GC05	B	07/04/12 01:11
237507-002	Gasoline C6-C12	GC05	A	07/04/12 01:48
237507-002	MTBE	GC19	C	07/05/12 15:10
237507-002	Benzene	GC05	B	07/04/12 01:48
237507-002	Toluene	GC05	B	07/04/12 01:48
237507-002	Ethylbenzene	GC05	B	07/04/12 01:48
237507-002	m,p-Xylenes	GC05	B	07/04/12 01:48
237507-002	o-Xylene	GC05	B	07/04/12 01:48
237507-002	Bromofluorobenzene (FID)	GC05	A	07/04/12 01:48
237507-002	Bromofluorobenzene (PID)	GC05	B	07/04/12 01:48
237507-002	Xylene (total)	GC05	B	07/04/12 01:48
QC646573	Benzene	GC05	B	07/03/12 22:41
QC646573	Toluene	GC05	B	07/03/12 22:41
QC646573	Ethylbenzene	GC05	B	07/03/12 22:41
QC646573	m,p-Xylenes	GC05	B	07/03/12 22:41
QC646573	o-Xylene	GC05	B	07/03/12 22:41
QC646573	Bromofluorobenzene (PID)	GC05	B	07/03/12 22:41
QC646574	Benzene	GC05	B	07/03/12 23:18
QC646574	Toluene	GC05	B	07/03/12 23:18
QC646574	Ethylbenzene	GC05	B	07/03/12 23:18
QC646574	m,p-Xylenes	GC05	B	07/03/12 23:18
QC646574	o-Xylene	GC05	B	07/03/12 23:18
QC646574	Bromofluorobenzene (PID)	GC05	B	07/03/12 23:18
QC646575	Gasoline C6-C12	GC05	A	07/03/12 23:56
QC646575	Bromofluorobenzene (FID)	GC05	A	07/03/12 23:56
QC646576	Gasoline C6-C12	GC05	A	07/04/12 00:33
QC646576	Benzene	GC05	B	07/04/12 00:33
QC646576	Toluene	GC05	B	07/04/12 00:33
QC646576	Ethylbenzene	GC05	B	07/04/12 00:33
QC646576	m,p-Xylenes	GC05	B	07/04/12 00:33
QC646576	o-Xylene	GC05	B	07/04/12 00:33
QC646576	Bromofluorobenzene (FID)	GC05	A	07/04/12 00:33
QC646576	Bromofluorobenzene (PID)	GC05	B	07/04/12 00:33
QC646576	Xylene (total)	GC05	B	07/04/12 00:33
QC646577	Gasoline C6-C12	GC05	A	07/04/12 03:41
QC646577	Bromofluorobenzene (FID)	GC05	A	07/04/12 03:41
QC646578	Gasoline C6-C12	GC05	A	07/04/12 04:19
QC646578	Bromofluorobenzene (FID)	GC05	A	07/04/12 04:19

REPORTING SUMMARY FOR 237507 GCVOA Water

Sample ID	Analyte	Inst ID	Ch	Date & Time
QC646727	MTBE	GC19	C	07/05/12 10:36
QC646727	Bromofluorobenzene (PID)	GC19	C	07/05/12 10:36
QC646728	MTBE	GC19	C	07/05/12 13:21
QC646728	Bromofluorobenzene (PID)	GC19	C	07/05/12 13:21
QC646730	MTBE	GC19	C	07/05/12 12:09
QC646730	Bromofluorobenzene (FID)	GC19	A	07/05/12 12:09
QC646730	Bromofluorobenzene (PID)	GC19	C	07/05/12 12:09

Case Narrative Addendum: Manual Integrations for 237507 GCVOA (Water)

For SAMPLE 237507-001 (GC05 185_023):
Corrected automatically drawn baseline for Ch. A.

For SAMPLE 237507-002 (GC19 187_008):
Corrected automatically drawn baseline for Ch. B.
Corrected automatically drawn baseline for Ch. C.

For CCV BTXE (GC19 187_009):
Corrected automatically drawn baseline for Ch. B.

For BSD QC646574 (GC05 185_020):
Corrected automatically drawn baseline for Ch. B.

For LCS QC646575 (GC05 185_021):
Corrected automatically drawn baseline for Ch. A.
Bromofluorobenzene (FID) (Ch. A): Separated from coeluting peak.

For BLANK QC646576 (GC05 185_022):
Corrected automatically drawn baseline for Ch. A.
Corrected automatically drawn baseline for Ch. B.

For MSD QC646578 (GC05 185_028):
Bromofluorobenzene (FID) (Ch. A): Separated from coeluting peak for spike & dup.

For CCV/BS QC646727 (GC19 187_004):
Corrected automatically drawn baseline for Ch. B.

For BLANK QC646730 (GC19 187_005):
Corrected automatically drawn baseline for Ch. A.

For CCV TVH (GC05 185_034):
Corrected automatically drawn baseline for Ch. A.
Bromofluorobenzene (FID) (Ch. A): Separated from coeluting peak.

For Calibration GC05 (312167703001):
Bromofluorobenzene (FID) (Ch. A): Separated from coeluting peak in TVH_15 (116_013).
Bromofluorobenzene (FID) (Ch. A): Separated from coeluting peak in TVH_16 (116_014).

For Calibration GC05 (312177789001):
Corrected automatically drawn baseline for Ch. C in multiple levels.
Corrected automatically drawn baseline for Ch. B in BTXE_1 (123_009).

For Calibration GC19 (342266910005):
Bromofluorobenzene (FID) (Ch. A): Separated from coeluting peak in TVH_14 (185_009).

For Calibration GC19 (342266910004):
Corrected automatically drawn baseline for Ch. B in all levels.

For ICV MBTXE (GC19 185_028):
Corrected automatically drawn baseline for Ch. B.

Laboratory Job Number 237507

ANALYTICAL REPORT

TPH-Extractables by GC

Matrix: Water

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	237507	Location:	Hunters Ponit Naval Shipyard
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	07193.0002	Analysis:	EPA 8015B
Field ID:	IR24MW07A-062712	Sampled:	06/27/12
Matrix:	Water	Received:	06/27/12
Units:	ug/L	Prepared:	06/28/12
Diln Fac:	1.000	Analyzed:	06/30/12
Batch#:	188066		

Type: SAMPLE Cleanup Method: EPA 3630C
Lab ID: 237507-002

Analyte	Result	RL	MDL
Diesel C12-C24	3,200	50	11
Motor Oil C24-C36	170 J	300	63

Surrogate	%REC	Limits
o-Terphenyl	123	61-129

Type: BLANK Cleanup Method: EPA 3630C
Lab ID: QC646044

Analyte	Result	RL	MDL
Diesel C12-C24	ND	50	8.9
Motor Oil C24-C36	ND	300	82

Surrogate	%REC	Limits
o-Terphenyl	137 *	61-129

*= Value outside of QC limits; see narrative
J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	237507	Location:	Hunters Ponit Naval Shipyard
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	07193.0002	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	188066
Units:	ug/L	Prepared:	06/28/12
Diln Fac:	1.000	Analyzed:	07/03/12

Type: BS
Lab ID: QC646045
Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits
Diesel C12-C24	2,500	2,361	94	65-135

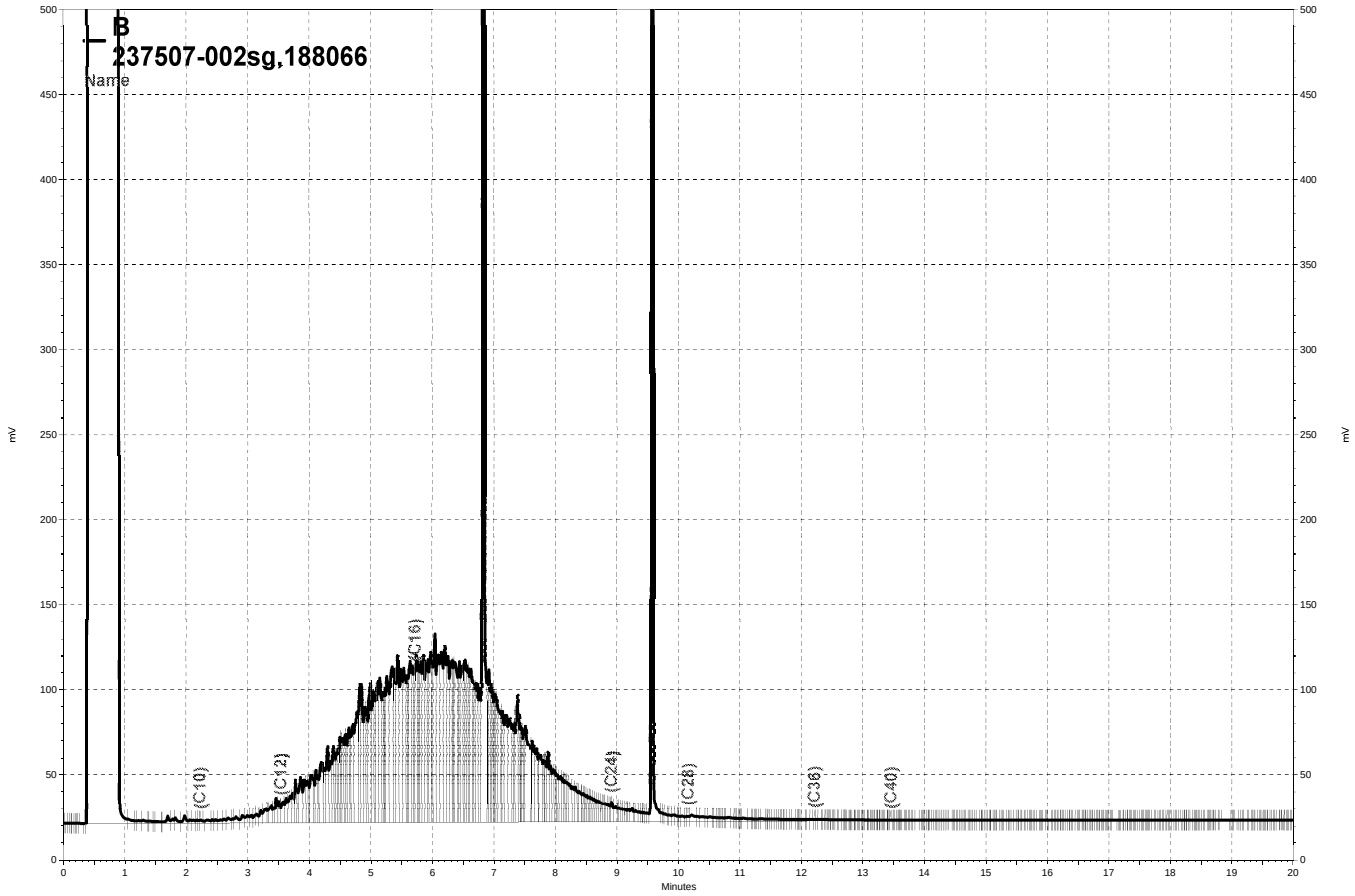
Surrogate	%REC	Limits
o-Terphenyl	111	61-129

Type: BSD
Lab ID: QC646046
Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C12-C24	2,500	2,662	106	65-135	12	20

Surrogate	%REC	Limits
o-Terphenyl	129	61-129

RPD= Relative Percent Difference



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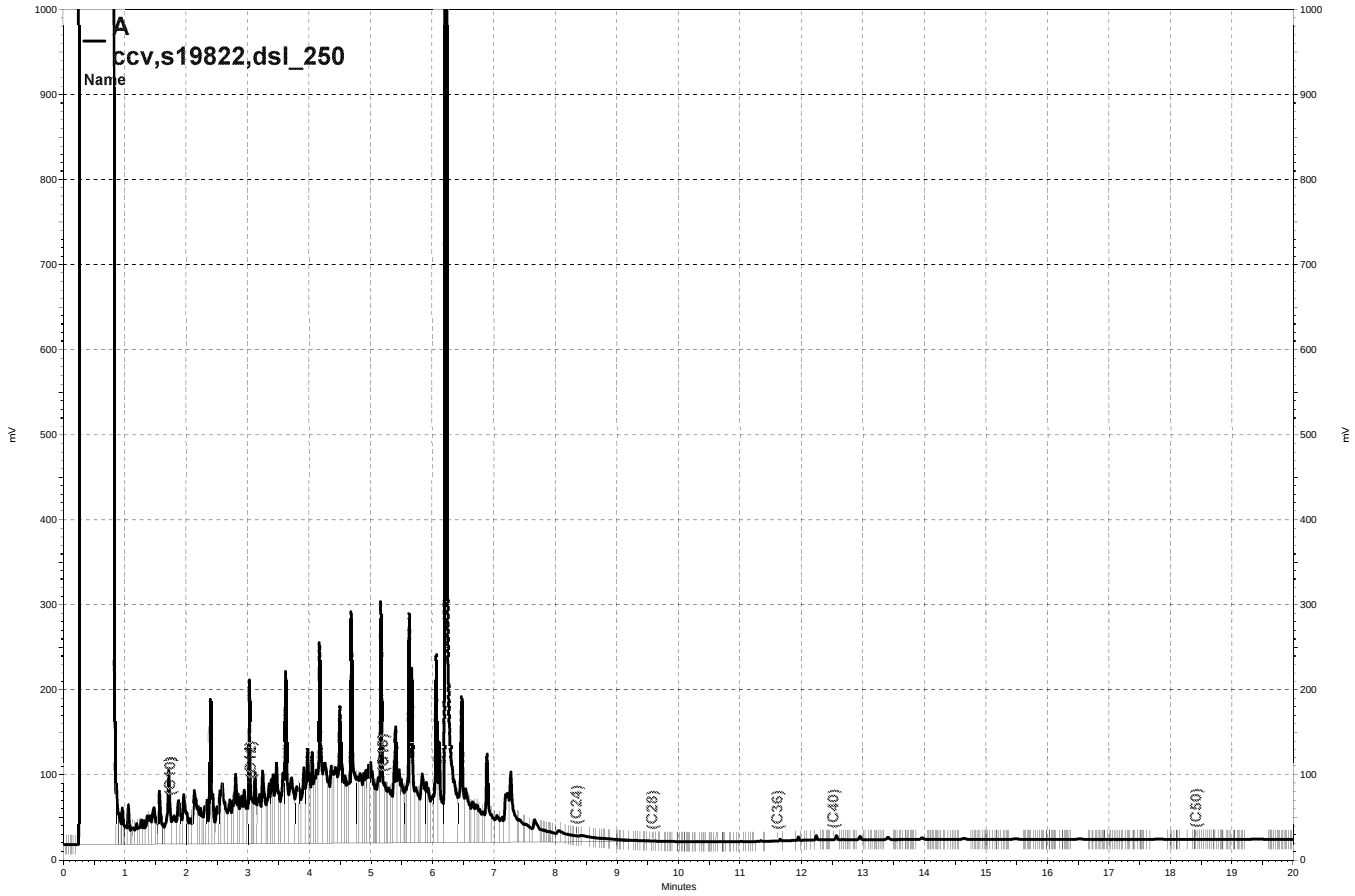

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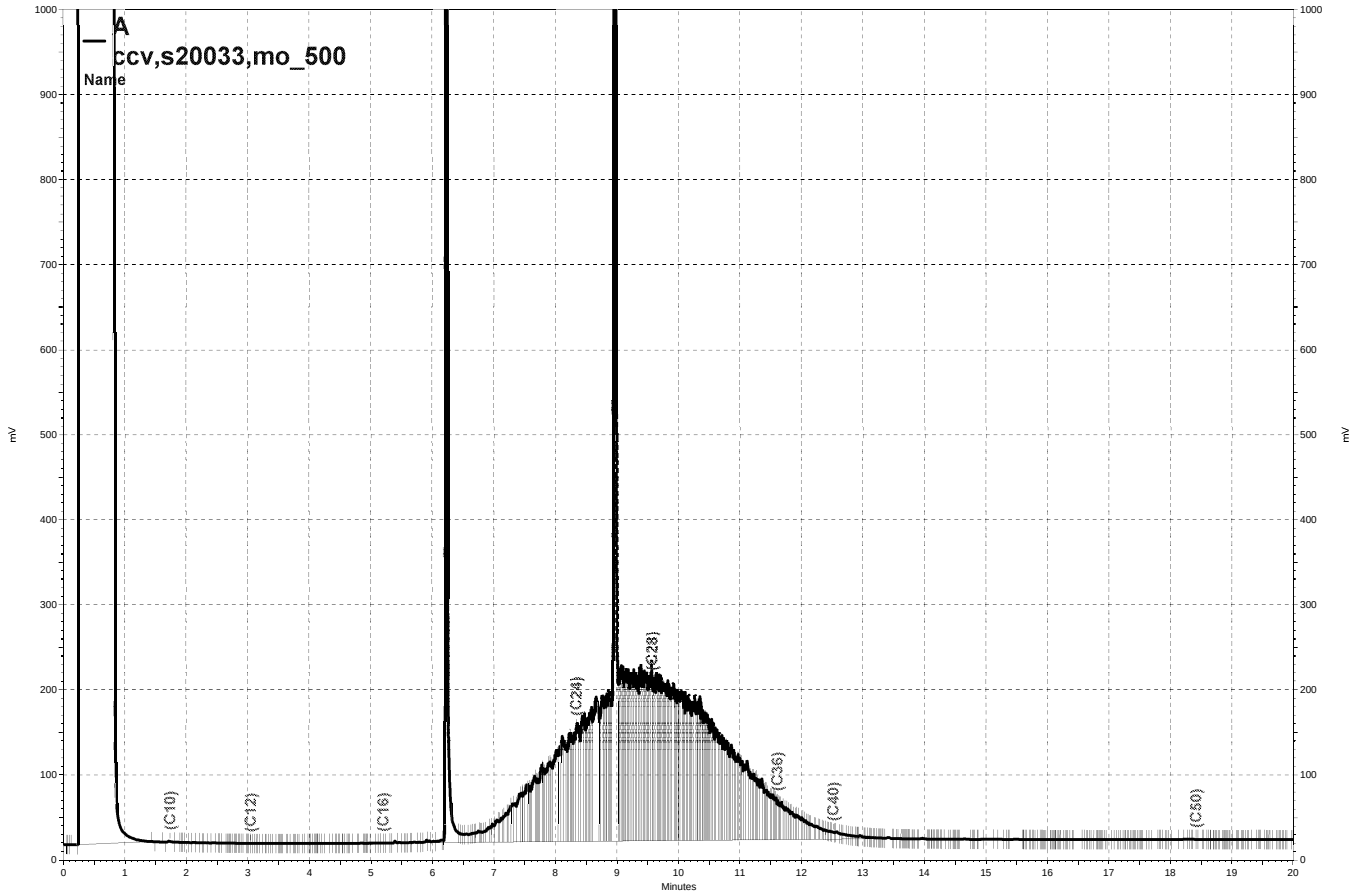

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CURTIS & TOMPKINS INITIAL CALIBRATION FOR 237507 GCSV Water: EPA 8015B

Inst : GC14B
Calnum : 222229527001
Units : mg/L

Name : OtpHex_159
Date : 07-JUN-2012 16:14
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	159_008	222229527008	HEX OTP_5	07-JUN-2012 16:14	S19347
L2	159_009	222229527009	HEX OTP_10	07-JUN-2012 16:42	S19348
L3	159_010	222229527010	HEX OTP_25	07-JUN-2012 17:10	S19349
L4	159_011	222229527011	HEX OTP_50	07-JUN-2012 17:38	S19350
L5	159_012	222229527012	HEX OTP_100	07-JUN-2012 18:05	S19351
L6	159_013	222229527013	HEX OTP_200	07-JUN-2012 18:33	S19352

Analyte	Ch	L1	L2	L3	L4	L5	L6	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
o-Terphenyl	B	33075	33093	32862	32539	33233	33768	AVRG		3.02E-5		33095	1	0.995	20	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D
o-Terphenyl	B	5.0000	0	10.000	0	25.000	-1	50.000	-2	100.00	0	200.00	2

MAC 06/11/12 : Corrected automatically drawn baseline in HEX OTP_25 (159_010).

MAC 06/11/12 : Corrected automatically drawn baseline in HEX OTP_50 (159_011).

MAC 06/11/12 : Corrected automatically drawn baseline in HEX OTP_100 (159_012).

MAC 06/11/12 : Corrected automatically drawn baseline in HEX OTP_200 (159_013).

Analyst: MAC Date: 06/11/12 Reviewer: EAH Date: 06/11/12

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

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 237507 GCSV Water: EPA 8015B

Inst : GC14B
Calnum : 222229527002
Units : mg/L

Name : Dsl_159
Date : 07-JUN-2012 19:29
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	159_015	222229527015	DSL_10	07-JUN-2012 19:29	S19968
L2	159_016	222229527016	DSL_100	07-JUN-2012 19:56	S19945
L3	159_017	222229527017	DSL_500	07-JUN-2012 20:24	S19946
L4	159_018	222229527018	DSL_1000	07-JUN-2012 20:52	S19947
L5	159_019	222229527019	DSL_5000	07-JUN-2012 21:19	S19943
L6	159_020	222229527020	DSL_7500	07-JUN-2012 21:47	S19948

Analyte	Ch	L1	L2	L3	L4	L5	L6	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
Diesel C12-C24	B	34460	25885	25290	27077	24997	24711	AVRG		3.69E-5		27070	14	0.995	20	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D
Diesel C12-C24	B	10.000	**27**	100.00	-4	500.00	-7	1000.0	0	5000.0	-8	7500.0	-9

MAC 06/11/12 : Corrected automatically drawn baseline in DSL_10 (159_015).

MAC 06/11/12 : Corrected automatically drawn baseline in DSL_100 (159_016).

Analyst: MAC Date: 06/11/12 Reviewer: EAH Date: 06/11/12

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

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 237507 GCSV Water
EPA 8015B

Inst : GC14B
Calnum : 222229527002

Name : Dsl_159
Cal Date : 07-JUN-2012

ICV 222229527022 (159_022 07-JUN-2012) stds: S19823

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Diesel C12-C24	B	500.0	445.3	mg/L	-11	15	

Analyst: MAC Date: 06/11/12 Reviewer: EAH Date: 06/11/12

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 237507 GCSV Water: EPA 8015B

Inst : GC14B
Calnum : 222229527003
Units : mg/L

Name : Mo_159
Date : 08-JUN-2012 00:06
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	159_025	222229527025	MO_25	08-JUN-2012 00:06	S19734 (2X)
L2	159_026	222229527026	MO_50	08-JUN-2012 00:34	S19734
L3	159_027	222229527027	MO_250	08-JUN-2012 01:02	S19735
L4	159_028	222229527028	MO_500	08-JUN-2012 01:30	S19736
L5	159_029	222229527029	MO_1000	08-JUN-2012 01:58	S19737
L6	159_030	222229527030	MO_2500	08-JUN-2012 02:26	S19738 (2X)
L7	159_031	222229527031	MO_5000	08-JUN-2012 02:54	S19738

Analyte	Ch	L1	L2	L3	L4	L5	L6	L7	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
Motor Oil C24-C36	B	19079	20227	19402	18046	15766	15398	13958	AVRG		5.74E-5		17411	14	0.995	20	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D
Motor Oil C24-C36	B	25.000	10	50.000	16	250.00	11	500.00	4	1000.0	-9	2500.0	-12	5000.0	-20

MAC 06/11/12 : Corrected automatically drawn baseline in MO_25 (159_025).

MAC 06/11/12 : Corrected automatically drawn baseline in MO_1000 (159_029).

Analyst: MAC Date: 06/11/12 Reviewer: EAH Date: 06/11/12

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

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 237507 GCSV Water: EPA 8015B

Inst : GC17A
Calnum : 172088347001
Units : mg/L

Name : OTP-HEX_061
Date : 01-MAR-2012 17:15
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	061a009	172088347009	HEXOTP_5	01-MAR-2012 17:15	S19347
L2	061a010	172088347010	HEXOTP_10	01-MAR-2012 17:42	S19348
L3	061a011	172088347011	HEXOTP_25	01-MAR-2012 18:10	S19349
L4	061a012	172088347012	HEXOTP_50	01-MAR-2012 18:38	S19350
L5	061a013	172088347013	HEXOTP_100	01-MAR-2012 19:06	S19351
L6	061a014	172088347014	HEXOTP_200	01-MAR-2012 19:33	S19352

Analyte	L1	L2	L3	L4	L5	L6	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
o-Terphenyl	83676	84162	83556	85178	86117	87308	AVRG		1.18E-5		85000	2	0.995	20	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D
o-Terphenyl	5.0000	-2	10.000	-1	25.000	-2	50.000	0	100.00	1	200.00	3

JDG 03/02/12 : Corrected automatically drawn baseline in multiple levels.

Analyst: JDG Date: 03/02/12 Reviewer: CP Date: 03/02/12

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

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 237507 GCSV Water: EPA 8015B

Inst : GC17A
Calnum : 172088347002
Units : mg/L

Name : DIESEL_061
Date : 01-MAR-2012 20:28
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	061a016	172088347016	DSL_10	01-MAR-2012 20:28	S18701
L2	061a017	172088347017	DSL_100	01-MAR-2012 20:56	S18700
L3	061a018	172088347018	DSL_500	01-MAR-2012 21:24	S18699
L4	061a019	172088347019	DSL_1000	01-MAR-2012 21:51	S18698
L5	061a020	172088347020	DSL_5000	01-MAR-2012 22:19	S18696
L6	061a021	172088347021	DSL_7500	01-MAR-2012 22:47	S18697

Analyte	L1	L2	L3	L4	L5	L6	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
Diesel C12-C24	45015	69225	73914	69433	72158	68729	AVRG		1.51E-5		66412	16	0.995	20	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D
Diesel C12-C24	10.000	**-32**	100.00	4	500.00	11	1000.0	5	5000.0	9	7500.0	3

JDG 03/02/12 : Manually integrated fuel hump in DSL_10 (061a016).

Analyst: JDG Date: 03/02/12 Reviewer: EAH Date: 03/02/12

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

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 237507 GCSV Water
EPA 8015B

Inst : GC17A
Calnum : 172088347002

Name : DIESEL_061
Cal Date : 01-MAR-2012

ICV 172088347023 (061a023 01-MAR-2012) stds: S19038

Analyte	Spiked	Quant	Units	%D	Max	Flags
Diesel C12-C24	500.0	462.9	mg/L	-7	15	

Analyst: JDG Date: 03/02/12 Reviewer: EAH Date: 03/02/12

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 237507 GCSV Water: EPA 8015B

Inst : GC17A
Calnum : 172088347003
Units : mg/L

Name : MOTOR OIL_061
Date : 02-MAR-2012 01:04
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	061a026	172088347026	MO_25	02-MAR-2012 01:04	S19106
L2	061a027	172088347027	MO_50	02-MAR-2012 01:32	S18660
L3	061a028	172088347028	MO_250	02-MAR-2012 01:59	S18661
L4	061a029	172088347029	MO_500	02-MAR-2012 02:27	S18662
L5	061a030	172088347030	MO_1000	02-MAR-2012 02:54	S18663
L6	061a031	172088347031	MO_2500	02-MAR-2012 03:21	S19116 (2X)
L7	061a032	172088347032	MO_5000	02-MAR-2012 03:49	S19116

Analyte	L1	L2	L3	L4	L5	L6	L7	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
Motor Oil C24-C36	57749	53680	57116	57391	58986	53090	53355	AVRG		1.79E-5		55909	4	0.995	20	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D
Motor Oil C24-C36	25.000	3	50.000	-4	250.00	2	500.00	3	1000.0	6	2500.0	-5	5000.0	-5

JDG 03/02/12 : Corrected automatically drawn baseline in multiple levels.

Analyst: JDG Date: 03/02/12 Reviewer: EAH Date: 03/02/12

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

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 237507 GCSV Water
EPA 8015B

Inst : GC14B Run Name : DSL_500 IDF : 1.0
Seqnum : 222262698019 File : 182_019 Time : 30-JUN-2012 21:26
Standards: S20069

Analyte	Ch	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C12-C24	B	222229527002	07-JUN-2012	27070	25409	500.0	469.3	mg/L	-6	15	
o-Terphenyl	B	222229527001	07-JUN-2012	33095	33738	50.00	50.97	mg/L	2	15	

MAC 07/02/12 : Corrected automatically drawn baseline.

Analyst: MAC Date: 07/02/12 Reviewer: JDG Date: 07/03/12

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 237507 GCSV Water
EPA 8015B

Inst : GC14B Run Name : MO_500 IDF : 1.0
Seqnum : 222262698020 File : 182_020 Time : 30-JUN-2012 21:54
Standards: S20033

Analyte	Ch	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Motor Oil C24-C36	B	222229527003	08-JUN-2012	17411	16898	500.0	485.3	mg/L	-3	15	
o-Terphenyl	B	222229527001	07-JUN-2012	33095	32242	50.00	48.71	mg/L	-3	15	

MAC 07/02/12 : Corrected automatically drawn baseline.

Analyst: MAC Date: 07/02/12 Reviewer: JDG Date: 07/03/12

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 237507 GCSV Water
EPA 8015B

Inst : GC14B Run Name : DSL_1000 IDF : 1.0
Seqnum : 222262698033 File : 182_033 Time : 01-JUL-2012 03:56
Standards: S19824

Analyte	Ch	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C12-C24	B	222229527002	07-JUN-2012	27070	24300	1000	897.7	mg/L	-10	15	
o-Terphenyl	B	222229527001	07-JUN-2012	33095	33687	50.00	50.89	mg/L	2	15	

MAC 07/02/12 : Corrected automatically drawn baseline.

Analyst: MAC Date: 07/02/12 Reviewer: SFL Date: 07/03/12

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 237507 GCSV Water
EPA 8015B

Inst : GC14B Run Name : MO_500 IDF : 1.0
Seqnum : 222262698034 File : 182_034 Time : 01-JUL-2012 04:24
Standards: S20033

Analyte	Ch	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Motor Oil C24-C36	B	222229527003	08-JUN-2012	17411	16146	500.0	463.7	mg/L	-7	15	
o-Terphenyl	B	222229527001	07-JUN-2012	33095	31347	50.00	47.36	mg/L	-5	15	

MAC 07/02/12 : Corrected automatically drawn baseline.

Analyst: MAC Date: 07/02/12 Reviewer: JDG Date: 07/03/12

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 237507 GCSV Water
EPA 8015B

Inst : GC17A Run Name : DSL_250 IDF : 1.0
Seqnum : 172261083017 File : 181a017 Time : 29-JUN-2012 21:19
Standards: S19822

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C12-C24	172088347002	01-MAR-2012	66412	75818	250.0	285.4	mg/L	14	15	
o-Terphenyl	172088347001	01-MAR-2012	85000	97742	50.00	57.50	mg/L	15	15	

SFL 06/30/12 : Corrected automatically drawn baseline.

Analyst: SFL Date: 06/30/12 Reviewer: MAC Date: 07/03/12

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 237507 GCSV Water
EPA 8015B

Inst : GC17A Run Name : MO_500 IDF : 1.0
Seqnum : 172261083018 File : 181a018 Time : 29-JUN-2012 21:47
Standards: S20033

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Motor Oil C24-C36	172088347003	02-MAR-2012	55909	55401	500.0	495.4	mg/L	-1	15	
o-Terphenyl	172088347001	01-MAR-2012	85000	92553	50.00	54.44	mg/L	9	15	

SFL 06/30/12 : Corrected automatically drawn baseline.

Analyst: SFL Date: 06/30/12 Reviewer: MAC Date: 07/03/12

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 237507 GCSV Water
EPA 8015B

Inst : GC17A Run Name : DSL_1000 IDF : 1.0
Seqnum : 172261083038 File : 181a038 Time : 30-JUN-2012 07:06
Standards: S19824

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C12-C24	172088347002	01-MAR-2012	66412	66243	1000	997.5	mg/L	0	15	
o-Terphenyl	172088347001	01-MAR-2012	85000	94619	50.00	55.66	mg/L	11	15	

SFL 06/30/12 : Corrected automatically drawn baseline.

Analyst: SFL Date: 06/30/12 Reviewer: MAC Date: 07/03/12

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 237507 GCSV Water
EPA 8015B

Inst : GC17A Run Name : MO_500 IDF : 1.0
Seqnum : 172261083039 File : 181a039 Time : 30-JUN-2012 07:34
Standards: S20033

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Motor Oil C24-C36	172088347003	02-MAR-2012	55909	53392	500.0	477.5	mg/L	-5	15	
o-Terphenyl	172088347001	01-MAR-2012	85000	90008	50.00	52.95	mg/L	6	15	

SFL 06/30/12 : Corrected automatically drawn baseline.

Analyst: SFL Date: 06/30/12 Reviewer: MAC Date: 07/03/12

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 237507 GCSV Water
EPA 8015B

Inst : GC17A Run Name : MO_500 IDF : 1.0
Seqnum : 172266867007 File : 185a007 Time : 03-JUL-2012 11:08
Standards: S20033

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Motor Oil C24-C36	172088347003	02-MAR-2012	55909	56117	500.0	501.9	mg/L	0	15	
o-Terphenyl	172088347001	01-MAR-2012	85000	88664	50.00	52.16	mg/L	4	15	

JDG 07/03/12 : Corrected automatically drawn baseline.

JDG: 07/03/12 EAH: 07/03/12 MAC: 07/05/12

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 237507 GCSV Water
EPA 8015B

Inst : GC17A Run Name : DSL_250 IDF : 1.0
Seqnum : 172266867008 File : 185a008 Time : 03-JUL-2012 11:35
Standards: S19822

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C12-C24	172088347002	01-MAR-2012	66412	66168	250.0	249.1	mg/L	0	15	
o-Terphenyl	172088347001	01-MAR-2012	85000	86178	50.00	50.69	mg/L	1	15	

JDG 07/03/12 : Corrected automatically drawn baseline.

JDG: 07/03/12 EAH: 07/03/12 MAC: 07/05/12

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 237507 GCSV Water
EPA 8015B

Inst : GC17A Run Name : DSL_500 IDF : 1.0
Seqnum : 172266867021 File : 185a021 Time : 03-JUL-2012 20:38
Standards: S20069

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C12-C24	172088347002	01-MAR-2012	66412	65604	500.0	493.9	mg/L	-1	15	
o-Terphenyl	172088347001	01-MAR-2012	85000	89018	50.00	52.36	mg/L	5	15	

MAC 07/05/12 : Corrected automatically drawn baseline.

SFL 07/05/12 : ccv,s20069,dsl_500

Analyst: MAC Date: 07/05/12 Reviewer: SFL Date: 07/05/12

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 172088347

Instrument : GC17A Begun : 03/01/12 08:27
Method : EPA 8015B SOP Version : TEH_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	061a001	X	IB			03/01/12 08:27	1.0		
002	061a002	X	IB			03/01/12 08:34	1.0		
003	061a003	X	CMARKER			03/01/12 09:01	1.0	1	
004	061a004	X	DSL_250			03/01/12 09:29	1.0	2	
005	061a005	X	MO_500			03/01/12 09:57	1.0	3	
006	061a006	X	CMARKER			03/01/12 15:24	1.0	1	
007	061a007	X	IB			03/01/12 16:19	1.0		
008	061a008	IB	CALIB			03/01/12 16:47	1.0		
009	061a009	ICAL	HEXOTP_5			03/01/12 17:15	1.0	4	
010	061a010	ICAL	HEXOTP_10			03/01/12 17:42	1.0	5	
011	061a011	ICAL	HEXOTP_25			03/01/12 18:10	1.0	6	
012	061a012	ICAL	HEXOTP_50			03/01/12 18:38	1.0	7	
013	061a013	ICAL	HEXOTP_100			03/01/12 19:06	1.0	8	
014	061a014	ICAL	HEXOTP_200			03/01/12 19:33	1.0	9	
015	061a015	IB	CALIB			03/01/12 20:01	1.0		
016	061a016	ICAL	DSL_10			03/01/12 20:28	1.0	10	
017	061a017	ICAL	DSL_100			03/01/12 20:56	1.0	11	
018	061a018	ICAL	DSL_500			03/01/12 21:24	1.0	12	
019	061a019	ICAL	DSL_1000			03/01/12 21:51	1.0	13	
020	061a020	ICAL	DSL_5000			03/01/12 22:19	1.0	14	
021	061a021	ICAL	DSL_7500			03/01/12 22:47	1.0	15	
022	061a022	IB	CALIB			03/01/12 23:14	1.0		
023	061a023	ICV	DSL_500			03/01/12 23:42	1.0	16	
024	061a024	X	ICV			03/02/12 00:09	1.0	16	
025	061a025	IB	CALIB			03/02/12 00:37	1.0		
026	061a026	ICAL	MO_25			03/02/12 01:04	1.0	17	
027	061a027	ICAL	MO_50			03/02/12 01:32	1.0	18	
028	061a028	ICAL	MO_250			03/02/12 01:59	1.0	19	
029	061a029	ICAL	MO_500			03/02/12 02:27	1.0	20	
030	061a030	ICAL	MO_1000			03/02/12 02:54	1.0	21	
031	061a031	ICAL	MO_2500			03/02/12 03:21	1.0	22	
032	061a032	ICAL	MO_5000			03/02/12 03:49	1.0	22	
033	061a033	IB	CALIB			03/02/12 04:16	1.0		
034	061a034	CMARKER	C8-C50			03/02/12 04:44	1.0	1	
035	061a035	IB	CALIB			03/02/12 05:11	1.0		

JDG 03/02/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 35.

Standards used: 1=S19156 2=S19037 3=S19036 4=S19347 5=S19348 6=S19349 7=S19350 8=S19351 9=S19352 10=S18701 11=S18700 12=S18699 13=S18698 14=S18696 15=S18697 16=S19038 17=S19106 18=S18660 19=S18661 20=S18662 21=S18663 22=S19116

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 172261083

Instrument : GC17A Begun : 06/29/12 07:23
Method : EPA 8015B SOP Version : TEH_rv13

#	File	Type	Sample ID	P	Matrix	Batch	Analyzed	IDF	Stds Used	
001	181a001	X	IB				06/29/12 07:23	1.0		
002	181a002	X	CMARKER				06/29/12 07:51	1.0	1	
003	181a003	CCV	MO_500				06/29/12 08:19	1.0	2	
004	181a004	CCV	DSL_1000				06/29/12 08:47	1.0	3	
005	181a005	CCV	KERO_250				06/29/12 14:56	1.0	4	
006	181a006	SAMPLE	237512-011	S	Water	188061	06/29/12 16:15	1.0		
007	181a007	SAMPLE	237512-012	S	Water	188061	06/29/12 16:43	1.0		
008	181a008	SAMPLE	237512-013	S	Water	188061	06/29/12 17:11	1.0		
009	181a009	SAMPLE	237512-014	S	Water	188061	06/29/12 17:39	1.0		
010	181a010	SAMPLE	237512-015	S	Water	188061	06/29/12 18:06	1.0		
011	181a011	SAMPLE	237512-016	S	Water	188061	06/29/12 18:34	1.0		
012	181a012	SAMPLE	237512-001	S	Water	188061	06/29/12 19:01	1.0		
013	181a013	SAMPLE	237511-003	S	Water	188061	06/29/12 19:29	1.0		
014	181a014	SAMPLE	237511-004	S	Water	188061	06/29/12 19:57	1.0		
015	181a015	SAMPLE	237511-005	S	Water	188061	06/29/12 20:24	1.0		
016	181a016	X	CMARKER				06/29/12 20:52	1.0	1	
017	181a017	CCV	DSL_250				06/29/12 21:19	1.0	5	
018	181a018	CCV	MO_500				06/29/12 21:47	1.0	2	
019	181a019	CCV	KERO_250				06/29/12 22:15	1.0	4	
020	181a020	X	CCV				06/29/12 22:43	1.0	5	
021	181a021	X	CCV				06/29/12 23:11	1.0	2	
022	181a022	X	CCV				06/29/12 23:39	1.0	4	
023	181a023	BLANK	QC646044		Water	188066	06/30/12 00:07	1.0		
024	181a024	SAMPLE	237530-001		Water	188066	06/30/12 00:35	1.0		
025	181a025	SAMPLE	237530-002		Water	188066	06/30/12 01:03	1.0		
026	181a026	SAMPLE	237530-003		Water	188066	06/30/12 01:31	1.0		
027	181a027	BLANK	QC646044	S	Water	188066	06/30/12 01:59	1.0		
028	181a028	BS	QC646045	S	Water	188066	06/30/12 02:27	1.0		
029	181a029	BSD	QC646046	S	Water	188066	06/30/12 02:55	1.0		
030	181a030	SAMPLE	237507-002	S	Water	188066	06/30/12 03:23	1.0		
031	181a031	SAMPLE	237524-001	S	Water	188066	06/30/12 03:50	1.0		
032	181a032	SAMPLE	237524-002	S	Water	188066	06/30/12 04:18	1.0		
033	181a033	SAMPLE	237524-003	S	Water	188066	06/30/12 04:46	1.0		
034	181a034	SAMPLE	237524-004	S	Water	188066	06/30/12 05:14	1.0		
035	181a035	SAMPLE	237524-005	S	Water	188066	06/30/12 05:42	1.0		
036	181a036	SAMPLE	237524-006	S	Water	188066	06/30/12 06:10	1.0		
037	181a037	X	CMARKER				06/30/12 06:38	1.0	1	
038	181a038	CCV	DSL_1000				06/30/12 07:06	1.0	3	
039	181a039	CCV	MO_500				06/30/12 07:34	1.0	2	

SFL 06/30/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 39.

Standards used: 1=S19277 2=S20033 3=S19824 4=S19567 5=S19822

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 172266867

Instrument : GC17A Begun : 07/03/12 07:47
Method : EPA 8015B SOP Version : TEH_rv13

#	File	Type	Sample ID	P	Matrix	Batch	Analyzed	IDF	Stds Used
001	185a001	X	IB				07/03/12 07:47	1.0	
002	185a002	X	CMARKER				07/03/12 08:15	1.0	1
003	185a003	X	DSL_1000				07/03/12 08:43	1.0	2
004	185a004	CCV	MO_500				07/03/12 09:11	1.0	3
005	185a005	CCV	DSL_1000				07/03/12 09:49	1.0	2
006	185a006	SAMPLE	237650-002		Soil	188126	07/03/12 10:33	3.0	
007	185a007	CCV	MO_500				07/03/12 11:08	1.0	3
008	185a008	CCV	DSL_250				07/03/12 11:35	1.0	4
009	185a009	BS	QC646045		Water	188066	07/03/12 15:01	1.0	
010	185a010	BSD	QC646046		Water	188066	07/03/12 15:29	1.0	
011	185a011	BLANK	QC646030		Water	188061	07/03/12 15:57	1.0	
012	185a012	BS	QC646031		Water	188061	07/03/12 16:24	1.0	
013	185a013	BSD	QC646032		Water	188061	07/03/12 16:57	1.0	
014	185a014	SAMPLE	237511-002		Water	188061	07/03/12 17:24	1.0	
015	185a015	SAMPLE	237511-003		Water	188061	07/03/12 17:52	1.0	
016	185a016	SAMPLE	237511-004		Water	188061	07/03/12 18:20	1.0	
017	185a017	SAMPLE	237511-005		Water	188061	07/03/12 18:47	1.0	
018	185a018	BS	QC646045	S	Water	188066	07/03/12 19:15	1.0	
019	185a019	BSD	QC646046	S	Water	188066	07/03/12 19:43	1.0	
020	185a020	X	CMARKER				07/03/12 20:10	1.0	1
021	185a021	CCV	DSL_500				07/03/12 20:38	1.0	5
022	185a022	CCV	MO_500				07/03/12 21:05	1.0	3

JDG 07/03/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 8.

MAC 07/05/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 9 through 22.

Standards used: 1=S19277 2=S19824 3=S20033 4=S19822 5=S20069

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 222229527

Instrument : GC14B Begun : 06/07/12 09:27
Method : EPA 8015B SOP Version : TEH_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	159_001	X	PRIMER			06/07/12 09:27	1.0		
002	159_002	X	IB			06/07/12 09:54	1.0		
003	159_003	X	IB			06/07/12 10:22	1.0		
004	159_004	X	IB			06/07/12 10:50	1.0		
005	159_005	CHECK	DSL_10			06/07/12 11:18	1.0	1	
006	159_006	CCV	MO_500			06/07/12 12:55	1.0	2	
007	159_007	IB	CALIB			06/07/12 15:46	1.0		
008	159_008	ICAL	HEX OTP_5			06/07/12 16:14	1.0	3	
009	159_009	ICAL	HEX OTP_10			06/07/12 16:42	1.0	4	
010	159_010	ICAL	HEX OTP_25			06/07/12 17:10	1.0	5	
011	159_011	ICAL	HEX OTP_50			06/07/12 17:38	1.0	6	
012	159_012	ICAL	HEX OTP_100			06/07/12 18:05	1.0	7	
013	159_013	ICAL	HEX OTP_200			06/07/12 18:33	1.0	8	
014	159_014	IB	CALIB			06/07/12 19:01	1.0		
015	159_015	ICAL	DSL_10			06/07/12 19:29	1.0	1	
016	159_016	ICAL	DSL_100			06/07/12 19:56	1.0	9	
017	159_017	ICAL	DSL_500			06/07/12 20:24	1.0	10	
018	159_018	ICAL	DSL_1000			06/07/12 20:52	1.0	11	
019	159_019	ICAL	DSL_5000			06/07/12 21:19	1.0	12	
020	159_020	ICAL	DSL_7500			06/07/12 21:47	1.0	13	
021	159_021	IB	CALIB			06/07/12 22:15	1.0		
022	159_022	ICV	DSL_500			06/07/12 22:43	1.0	14	
023	159_023	X	ICV			06/07/12 23:11	1.0	14	
024	159_024	IB	CALIB			06/07/12 23:38	1.0		
025	159_025	ICAL	MO_25			06/08/12 00:06	1.0	15	
026	159_026	ICAL	MO_50			06/08/12 00:34	1.0	15	
027	159_027	ICAL	MO_250			06/08/12 01:02	1.0	16	
028	159_028	ICAL	MO_500			06/08/12 01:30	1.0	17	
029	159_029	ICAL	MO_1000			06/08/12 01:58	1.0	18	
030	159_030	ICAL	MO_2500			06/08/12 02:26	1.0	19	
031	159_031	ICAL	MO_5000			06/08/12 02:54	1.0	19	
032	159_032	IB	CALIB			06/08/12 03:22	1.0		
033	159_033	CMARKER	C8-C50			06/08/12 03:50	1.0	20	
034	159_034	IB	CALIB			06/08/12 04:18	1.0		

MAC 06/11/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 34.

Standards used: 1=S19968 2=S19781 3=S19347 4=S19348 5=S19349 6=S19350 7=S19351 8=S19352 9=S19945 10=S19946 11=S19947 12=S19943 13=S19948 14=S19823 15=S19734 16=S19735 17=S19736 18=S19737 19=S19738 20=S19277

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 222262698

Instrument : GC14B Begun : 06/30/12 10:18
Method : EPA 8015B SOP Version : TEH_rv13

#	File	Type	Sample ID	P	Matrix	Batch	Analyzed	IDF	Stds Used	
001	182_001	X	PRIMER				06/30/12 10:18	1.0		
002	182_002	X	CMARKER				06/30/12 10:45	1.0	1	
003	182_003	CCV	DSL_250				06/30/12 11:13	1.0	2	
004	182_004	CCV	MO_500				06/30/12 11:41	1.0	3	
005	182_005	CCV	KERO_250				06/30/12 14:34	1.0	4	
006	182_006	BLANK	QC646030	S	Water	188061	06/30/12 15:25	1.0		
007	182_007	BS	QC646031	S	Water	188061	06/30/12 15:52	1.0		
008	182_008	BSD	QC646032	S	Water	188061	06/30/12 16:20	1.0		
009	182_009	SAMPLE	237512-001	S	Water	188061	06/30/12 16:48	1.0		
010	182_010	SAMPLE	237512-002	S	Water	188061	06/30/12 17:16	1.0		
011	182_011	SAMPLE	237512-003	S	Water	188061	06/30/12 17:44	1.0		
012	182_012	SAMPLE	237512-004	S	Water	188061	06/30/12 18:12	1.0		
013	182_013	SAMPLE	237512-005	S	Water	188061	06/30/12 18:39	1.0		
014	182_014	SAMPLE	237512-006	S	Water	188061	06/30/12 19:07	1.0		
015	182_015	SAMPLE	237512-007	S	Water	188061	06/30/12 19:35	1.0		
016	182_016	SAMPLE	237512-008	S	Water	188061	06/30/12 20:03	1.0		
017	182_017	SAMPLE	237512-009	S	Water	188061	06/30/12 20:31	1.0		
018	182_018	SAMPLE	237512-010	S	Water	188061	06/30/12 20:58	1.0		
019	182_019	CCV	DSL_500				06/30/12 21:26	1.0	5	
020	182_020	CCV	MO_500				06/30/12 21:54	1.0	3	
021	182_021	CCV	KERO_250				06/30/12 22:22	1.0	4	
022	182_022	SAMPLE	237397-004	S	WET DI Leachate	188017	06/30/12 22:50	1.0		
023	182_023	SAMPLE	237482-002	S	Water	188017	06/30/12 23:18	1.0		
024	182_024	SAMPLE	237507-002	S	Water	188066	06/30/12 23:46	1.0		
025	182_025	SAMPLE	237552-002		Soil	188096	07/01/12 00:14	1.0		
026	182_026	SAMPLE	237552-003		Soil	188096	07/01/12 00:41	1.0		
027	182_027	SAMPLE	237482-002	S	Water	188104	07/01/12 01:09	1.0		
028	182_028	SAMPLE	237483-001	S	Water	188104	07/01/12 01:37	1.0		
029	182_029	SAMPLE	237483-002	S	Water	188104	07/01/12 02:05	1.0		
030	182_030	SAMPLE	237483-003	S	Water	188104	07/01/12 02:33	1.0		
031	182_031	SAMPLE	237483-004	S	Water	188104	07/01/12 03:00	1.0		
032	182_032	X	CMARKER				07/01/12 03:28	1.0	1	
033	182_033	CCV	DSL_1000				07/01/12 03:56	1.0	6	
034	182_034	CCV	MO_500				07/01/12 04:24	1.0	3	
035	182_035	BLANK	QC646201		Water	188104	07/01/12 04:52	1.0		
036	182_036	BLANK	QC646201	S	Water	188104	07/01/12 05:20	1.0		
037	182_037	LCS	QC646202	S	Water	188104	07/01/12 05:48	1.0		
038	182_038	PREPBLK	QC646205		WET DI Leachate	188104	07/01/12 06:16	1.0		
039	182_039	MSS	237575-005		Water	188104	07/01/12 06:44	1.0		
040	182_040	MS	QC646203		Water	188104	07/01/12 07:12	1.0		
041	182_041	MSD	QC646204		Water	188104	07/01/12 07:40	1.0		
042	182_042	SAMPLE	237483-005	S	Water	188104	07/01/12 08:09	1.0		
043	182_043	SAMPLE	237483-006	S	Water	188104	07/01/12 08:37	1.0		
044	182_044	SAMPLE	237500-004		WET DI Leachate	188104	07/01/12 09:05	1.0		
045	182_045	SAMPLE	237552-001		Water	188104	07/01/12 09:33	1.0		
046	182_046	SAMPLE	237575-001		Water	188104	07/01/12 10:01	1.0		
047	182_047	SAMPLE	237575-002		Water	188104	07/01/12 10:29	1.0		
048	182_048	SAMPLE	237575-007		Water	188104	07/01/12 10:57	1.0		
049	182_049	CCV	DSL_500				07/01/12 11:25	1.0	5	
050	182_050	CCV	MO_500				07/01/12 11:53	1.0	3	

MAC 07/02/12 : I verified that the vials loaded on the instrument matched the

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 222262698

Instrument : GC14B Begun : 06/30/12 10:18
Method : EPA 8015B SOP Version : TEH_rv13

sequence data entry, for runs 1 through 50.

Standards used: 1=S19277 2=S19822 3=S20033 4=S19567 5=S20069 6=S19824

SAMPLE PREPARATION SUMMARY

Batch # : 188066
Started By : JPE
Method : 3520C
Spike #1 ID : S20015

Prep Date : 28-JUN-2012 16:50
SOP Version : TEH_3520_rv12
Spike #2 ID : S19809

Analysis : TEH
Finished By : CGL
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
237507-002		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
237524-001		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
237524-002		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
237524-003		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
237524-004		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
237524-005		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
237524-006		Water	460	2.5	1	0.005435	7	.5			3630C	TEHM	
237528-001		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
237528-002		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
237528-003		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
237528-004		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
237528-005		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
237528-006		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
237530-001		Water	500	2.5	1	0.005	7	.5				TEH	
237530-002		Water	500	2.5	1	0.005	7	.5				TEH	
237530-003		Water	500	2.5	1	0.005	7	.5				TEH	
237542-013		Water	500	2.5	1	0.005	7	.5			3630C	TEH	
QC646044	BLANK	Water	500	2.5	1	0.005		.5			3630C		
QC646045	BS	Water	500	2.5	1	0.005		.5	.5		3630C		
QC646046	BSD	Water	500	2.5	1	0.005		.5	.5		3630C		

JDG 07/03/12 : Matrix spikes were not performed for this analysis in batch 188066 due to insufficient sample amount.

Analyst: CP Date: 07/05/12 Reviewer: MAC Date: 07/05/12

TEH (8015) Water Prep Log Curtis & Tompkins, Ltd.

Page 27 BK 3319

LIMS Batch No: 188066
LIMS Analysis: TEH / N
Date Extracted: 6/28/12

Extraction Method:
☒ 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
237507-002	G	☒ 500 ☐	☒ 7 ☐	☒ 2.5 ☐	X	☒ ≤2pH	
237524-001	E	☒ 500 ☐	☒ 7 ☐	☒ 2.5 ☐		☒ ≤2pH	
-002		☒ 500 ☐	☒ 7 ☐	☒ 2.5 ☐		☒ ≤2pH	
-003		☒ 500 ☐	☒ 7 ☐	☒ 2.5 ☐		☒ ≤2pH	
-004		☒ 500 ☐	☒ 7 ☐	☒ 2.5 ☐		☒ ≤2pH	
-005		☒ 500 ☐	☒ 7 ☐	☒ 2.5 ☐		☒ ≤2pH	
-006		☐ 500 ☒ 460	☒ 7 ☐	☒ 2.5 ☐		☒ ≤2pH	
237528-001	H	☒ 500 ☐	☒ 7 ☐	☒ 2.5 ☐		☒ ≤2pH	
-002		☒ 500 ☐	☒ 7 ☐	☒ 2.5 ☐		☒ ≤2pH	
-003		☒ 500 ☐	☒ 7 ☐	☒ 2.5 ☐		☒ ≤2pH	
-004		☒ 500 ☐	☒ 7 ☐	☒ 2.5 ☐		☒ ≤2pH	
-005		☒ 500 ☐	☒ 7 ☐	☒ 2.5 ☐		☒ ≤2pH	
-006		☒ 500 ☐	☒ 7 ☐	☒ 2.5 ☐		☒ ≤2pH	
237530-001	E	☒ 500 ☐	☒ 7 ☐	☒ 2.5 ☐		☒ ≤2pH	
-002		☒ 500 ☐	☒ 7 ☐	☒ 2.5 ☐		☒ ≤2pH	
-003		☒ 500 ☐	☒ 7 ☐	☒ 2.5 ☐		☒ ≤2pH	
MB QC 646044	NA	☒ 500 ☐	☐ 7 ☒ NA	☒ 2.5 ☐	X	☒ ≤2pH	
BS 45		☒ 500 ☐	☐ 7 ☒	☒ 2.5 ☐		☒ ≤2pH	
BSD 46		☒ 500 ☐	☐ 7 ☒	☒ 2.5 ☐		☒ ≤2pH	
237542-013	H	☒ 500 ☐	☒ 7 ☐	☒ 2.5 ☐		☒ ≤2pH	
		☐ 500 ☐	☐ 7 ☐	☐ 2.5 ☐		☐ ≤2pH	
		☐ 500 ☐	☐ 7 ☐	☐ 2.5 ☐		☐ ≤2pH	
		☐ 500 ☐	☐ 7 ☐	☐ 2.5 ☐		☐ ≤2pH	
		☐ 500 ☐	☐ 7 ☐	☐ 2.5 ☐		☐ ≤2pH	6-29-12

	Mfg & Lot# / LIMS # / Time	Date/ Initials
0.5 mL of TEH_SURR was added to all samples	S200150	JPE 6/29/12
0.5 mL of TEH_SP was added to all spikes	S198091	↓
pH of all samples adjusted to pH ≤ 2 with H_2SO_4	FS116662	↓
☒ 3520c: Samples were continually extracted about 450 mL of CH_2Cl_2	EM52115	↓
Extraction Start Time:	16:50	↓
Extraction End Time:	10:50	6-29-12
☐ 3510c: Samples were extracted 3 times with 60 mL of CH_2Cl_2	N/A	↓
Extracts filtered through baked, CH2Cl2-rinsed granular Na2SO4	EM30122150	↓
Concentrated to final volume at temperature (degrees C)	100	↓
Relinquished to TEH Department	K	↓

6/28/12

Extraction Chemist **Date**

Contined from Page _____
Continued on Page _____

6-29-12

Reviewed by **Date**

Curtis & Tompkins, Ltd. **Silica Gel Cleanup** **EPA 3630c**

Prep Chemist: [illegible]
Cleanup Date: 6-29-12

Benchbook # **BK 3327**
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Sample #	Extraction Batch#	Initial Volume (mL)	Final Volume (mL)	Comments
237502-002	1848066	☑ 1.0 ☐____	☑ 1.0 ☐____	
237524-001		☑ 1.0 ☐____	☑ 1.0 ☐____	
-002		☑ 1.0 ☐____	☑ 1.0 ☐____	
-003		☑ 1.0 ☐____	☑ 1.0 ☐____	
-004		☑ 1.0 ☐____	☑ 1.0 ☐____	
-005		☑ 1.0 ☐____	☑ 1.0 ☐____	
-006		☑ 1.0 ☐____	☑ 1.0 ☐____	
237528-001		☑ 1.0 ☐____	☑ 1.0 ☐____	
-002		☑ 1.0 ☐____	☑ 1.0 ☐____	
-003		☑ 1.0 ☐____	☑ 1.0 ☐____	
-004		☑ 1.0 ☐____	☑ 1.0 ☐____	
-005		☑ 1.0 ☐____	☑ 1.0 ☐____	
-006		☑ 1.0 ☐____	☑ 1.0 ☐____	
MB QC646044		☑ 1.0 ☐____	☑ 1.0 ☐____	
BS 5		☑ 1.0 ☐____	☑ 1.0 ☐____	
BSD 6		☑ 1.0 ☐____	☑ 1.0 ☐____	
		☐ 1.0 ☐____	☐ 1.0 ☐____	
		☐ 1.0 ☐____	☐ 1.0 ☐____	
		☐ 1.0 ☐____	☐ 1.0 ☐____	
		☐ 1.0 ☐____	☐ 1.0 ☐____	
		☐ 1.0 ☐____	☐ 1.0 ☐____	
		☐ 1.0 ☐____	☐ 1.0 ☐____	
		☐ 1.0 ☐____	☐ 1.0 ☐____	
		☐ 1.0 ☐____	☐ 1.0 ☐____	
		☐ 1.0 ☐____	☐ 1.0 ☐____	
		☐ 1.0 ☐____	☐ 1.0 ☐____	
		☐ 1.0 ☐____	☐ 1.0 ☐____	
		☐ 1.0 ☐____	☐ 1.0 ☐____	
		☐ 1.0 ☐____	☐ 1.0 ☐____	
		☐ 1.0 ☐____	☐ 1.0 ☐____	
		☐ 1.0 ☐____	☐ 1.0 ☐____	
		☐ 1.0 ☐____	☐ 1.0 ☐____	
		☐ 1.0 ☐____	☐ 1.0 ☐____	
		☐ 1.0 ☐____	☐ 1.0 ☐____	TFB 7/3/12
		☐ 1.0 ☐____	☐ 1.0 ☐____	

	Mfg & Lot # / Time / Program	Initials / Date
☑ Extracts were cleaned up using C&T assembled 1.0 g columns	F12X009	[illegible] 6-29-12
☐ Extracts were cleaned up using ___ g cartridges	NA	
Extracts were eluted with 9.0 mL CH_2Cl_2	EM52115	
Concentrated to volumes as noted above	X	

[illegible] 6-29-12
Extraction Chemist / Date

Continued from page ___
Continued on page ___

TFB 7/3/12
Reviewed by / Date

Case Narrative Addendum: Manual Integrations for 237507 GCSV (Water)

For SAMPLE 237507-002 (GC14B 182_024):
Corrected automatically drawn baseline.

For CCV DSL_1000 (GC17A 181a038):
Corrected automatically drawn baseline.

For CCV DSL_1000 (GC14B 182_033):
Corrected automatically drawn baseline.

For CCV DSL_250 (GC17A 181a017):
Corrected automatically drawn baseline.

For CCV DSL_250 (GC17A 185a008):
Corrected automatically drawn baseline.

For CCV DSL_500 (GC17A 185a021):
Corrected automatically drawn baseline.

For CCV DSL_500 (GC14B 182_019):
Corrected automatically drawn baseline.

For CCV MO_500 (GC14B 182_034):
Corrected automatically drawn baseline.

For CCV MO_500 (GC14B 182_020):
Corrected automatically drawn baseline.

For CCV MO_500 (GC17A 185a007):
Corrected automatically drawn baseline.

For CCV MO_500 (GC17A 181a039):
Corrected automatically drawn baseline.

For CCV MO_500 (GC17A 181a018):
Corrected automatically drawn baseline.

For BLANK QC646044 (GC17A 181a027):
Corrected automatically drawn baseline.

For BSD QC646046 (GC17A 185a019):
Corrected automatically drawn baseline for spike & dup.

For Calibration GC17A (172088347001):
Corrected automatically drawn baseline in multiple levels.

For Calibration GC17A (172088347002):
Manually integrated fuel hump in DSL_10 (061a016).

For ICV DSL_500 (GC17A 061a023):
Corrected automatically drawn baseline.

For Calibration GC17A (172088347003):
Corrected automatically drawn baseline in multiple levels.

For Calibration GC14B (222229527001):
Corrected automatically drawn baseline in HEX OTP_25 (159_010).
Corrected automatically drawn baseline in HEX OTP_50 (159_011).
Corrected automatically drawn baseline in HEX OTP_100 (159_012).
Corrected automatically drawn baseline in HEX OTP_200 (159_013).

For Calibration GC14B (222229527002):
Corrected automatically drawn baseline in DSL_10 (159_015).
Corrected automatically drawn baseline in DSL_100 (159_016).

For ICV DSL_500 (GC14B 159_022):
Corrected automatically drawn baseline.

For Calibration GC14B (222229527003):
Corrected automatically drawn baseline in MO_25 (159_025).
Corrected automatically drawn baseline in MO_1000 (159_029).

Laboratory Job Number 237507

ANALYTICAL REPORT

Semivolatile Organics by GC/MS SIM

Matrix: Water

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS SIM

Lab #:	237507	Location:	Hunters Ponit Naval Shipyard
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	07193.0002	Analysis:	EPA 8270C-SIM
Field ID:	IR24MW07A-062712	Batch#:	188059
Lab ID:	237507-002	Sampled:	06/27/12
Matrix:	Water	Received:	06/27/12
Units:	ug/L	Prepared:	06/28/12
Diln Fac:	1.000	Analyzed:	06/29/12

Analyte	Result	RL	MDL
Naphthalene	ND	0.09	0.02
1-Methylnaphthalene	ND	0.09	0.02
2-Methylnaphthalene	ND	0.09	0.02
Acenaphthylene	ND	0.09	0.02
Acenaphthene	ND	0.09	0.02
Fluorene	ND	0.09	0.02
Phenanthrene	ND	0.09	0.02
Anthracene	ND	0.09	0.02
Fluoranthene	ND	0.09	0.02
Pyrene	0.09 J	0.09	0.02
Benzo(a)anthracene	ND	0.09	0.02
Chrysene	ND	0.09	0.02
Benzo(b)fluoranthene	ND	0.09	0.02
Benzo(k)fluoranthene	ND	0.09	0.02
Benzo(a)pyrene	ND	0.09	0.02
Indeno(1,2,3-cd)pyrene	ND	0.09	0.02
Dibenz(a,h)anthracene	ND	0.09	0.02
Benzo(g,h,i)perylene	ND	0.09	0.02

Surrogate	%REC	Limits
Nitrobenzene-d5	97	41-126
2-Fluorobiphenyl	73	48-120
Terphenyl-d14	67	28-120

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS SIM

Lab #:	237507	Location:	Hunters Ponit Naval Shipyard
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	07193.0002	Analysis:	EPA 8270C-SIM
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC646023	Batch#:	188059
Matrix:	Water	Prepared:	06/28/12
Units:	ug/L	Analyzed:	06/29/12

Analyte	Result	RL	MDL
Naphthalene	0.03 J	0.1	0.02
1-Methylnaphthalene	ND	0.1	0.02
2-Methylnaphthalene	ND	0.1	0.02
Acenaphthylene	ND	0.1	0.02
Acenaphthene	ND	0.1	0.02
Fluorene	ND	0.1	0.02
Phenanthrene	ND	0.1	0.02
Anthracene	ND	0.1	0.02
Fluoranthene	ND	0.1	0.02
Pyrene	ND	0.1	0.02
Benzo(a)anthracene	ND	0.1	0.02
Chrysene	ND	0.1	0.02
Benzo(b)fluoranthene	ND	0.1	0.02
Benzo(k)fluoranthene	ND	0.1	0.02
Benzo(a)pyrene	ND	0.1	0.02
Indeno(1,2,3-cd)pyrene	ND	0.1	0.02
Dibenz(a,h)anthracene	ND	0.1	0.02
Benzo(g,h,i)perylene	ND	0.1	0.02

Surrogate	%REC	Limits
Nitrobenzene-d5	75	41-126
2-Fluorobiphenyl	72	48-120
Terphenyl-d14	84	28-120

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS SIM

Lab #:	237507	Location:	Hunters Point Naval Shipyard
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	07193.0002	Analysis:	EPA 8270C-SIM
Matrix:	Water	Batch#:	188059
Units:	ug/L	Prepared:	06/28/12
Diln Fac:	1.000	Analyzed:	06/29/12

Type: BS Lab ID: QC646024

Analyte	Spiked	Result	%REC	Limits
Naphthalene	1.000	0.8931	89	40-115
1-Methylnaphthalene	1.000	0.8904	89	40-115
2-Methylnaphthalene	1.000	0.8402	84	40-115
Acenaphthylene	1.000	0.7651	77	40-115
Acenaphthene	1.000	0.7565	76	40-115
Fluorene	1.000	0.7713	77	40-115
Phenanthrene	1.000	0.8447	84	40-115
Anthracene	1.000	0.7718	77	40-115
Fluoranthene	1.000	0.7347	73	40-115
Pyrene	1.000	0.7797	78	40-115
Benzo(a)anthracene	1.000	0.6647	66	40-115
Chrysene	1.000	0.7589	76	40-115
Benzo(b)fluoranthene	1.000	0.7405	74	40-115
Benzo(k)fluoranthene	1.000	0.7650	77	40-115
Benzo(a)pyrene	1.000	0.7379	74	40-115
Indeno(1,2,3-cd)pyrene	1.000	0.7513	75	40-115
Dibenz(a,h)anthracene	1.000	0.7846	78	40-115
Benzo(g,h,i)perylene	1.000	0.7613	76	40-115

Surrogate	%REC	Limits
Nitrobenzene-d5	83	41-126
2-Fluorobiphenyl	76	48-120
Terphenyl-d14	80	28-120

Type: BSD Lab ID: QC646025

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Naphthalene	1.000	0.8793	88	40-115	2	20
1-Methylnaphthalene	1.000	0.8986	90	40-115	1	20
2-Methylnaphthalene	1.000	0.8387	84	40-115	0	20
Acenaphthylene	1.000	0.7791	78	40-115	2	20
Acenaphthene	1.000	0.7585	76	40-115	0	20
Fluorene	1.000	0.7786	78	40-115	1	20
Phenanthrene	1.000	0.8360	84	40-115	1	20
Anthracene	1.000	0.7903	79	40-115	2	20
Fluoranthene	1.000	0.7417	74	40-115	1	20
Pyrene	1.000	0.7555	76	40-115	3	20
Benzo(a)anthracene	1.000	0.6654	67	40-115	0	20
Chrysene	1.000	0.7248	72	40-115	5	20
Benzo(b)fluoranthene	1.000	0.7672	77	40-115	4	20
Benzo(k)fluoranthene	1.000	0.7362	74	40-115	4	20
Benzo(a)pyrene	1.000	0.7356	74	40-115	0	20
Indeno(1,2,3-cd)pyrene	1.000	0.7666	77	40-115	2	20
Dibenz(a,h)anthracene	1.000	0.7934	79	40-115	1	20
Benzo(g,h,i)perylene	1.000	0.7660	77	40-115	1	20

Surrogate	%REC	Limits
Nitrobenzene-d5	85	41-126
2-Fluorobiphenyl	74	48-120
Terphenyl-d14	77	28-120

RPD= Relative Percent Difference

CURTIS & TOMPKINS DFTPP TUNE FOR 237507 MSSIM Water
EPA 8270C

Inst : MSBNA03 Run Name : DFTPP/PEM IDF : 1.0
Seqnum : 522157913003 File : vdi03 Time : 18-APR-2012 16:46

Standards: S19354

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	95552	47.76	
68	< 2% of mass 69	0	0.00	
69		90227	100.00	
70	< 2% of mass 69	435	0.48	
127	40% - 60% of mass 198	92239	46.10	
197	< 1% of mass 198	0	0.00	
198		200068	100.00	
199	5% - 9% of mass 198	14138	7.07	
275	10% - 30% of mass 198	51857	25.92	
365	> 1% of mass 198	5942	2.97	
441	Present, < mass 443	18402	82.49	
442	> 40% and < 100% of mass 198	117403	58.68	
443	17% - 23% of mass 442	22309	19.00	

Analyst: KMH Date: 04/19/12 Reviewer: LW Date: 04/19/12

CURTIS & TOMPKINS DFTPP TUNE FOR 237507 MSSIM Water
EPA 8270C

Inst : MSBNA03 Run Name : DFTPP/PEM IDF : 1.0
Seqnum : 522261295001 File : vft01 Time : 29-JUN-2012 10:55

Standards: S20011

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	415091	53.18	
68	< 2% of mass 69	0	0.00	
69		321920	100.00	
70	< 2% of mass 69	2095	0.65	
127	40% - 60% of mass 198	419861	53.79	
197	< 1% of mass 198	0	0.00	
198		780608	100.00	
199	5% - 9% of mass 198	55170	7.07	
275	10% - 30% of mass 198	226325	28.99	
365	> 1% of mass 198	33778	4.33	
441	Present, < mass 443	69072	80.23	
442	> 40% and < 100% of mass 198	436224	55.88	
443	17% - 23% of mass 442	86096	19.74	

Analyst: LLH Date: 06/29/12 Reviewer: LW Date: 07/02/12

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 237507 MSSIM Water: EPA 8270C-SIM

Inst : MSBNA03
Calnum : 522157913001
Units : ug/mL

Name : 3PAHSIM
Date : 18-APR-2012 17:08
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	vdi04	522157913004	ICAL-1	18-APR-2012 17:08	S19471
L2	vdi05	522157913005	ICAL-2	18-APR-2012 17:44	S19472
L3	vdi06	522157913006	ICAL-3	18-APR-2012 18:17	S19473
L4	vdi07	522157913007	ICAL-4	18-APR-2012 18:50	S19474
L5	vdi08	522157913008	ICAL-5	18-APR-2012 19:22	S19475
L6	vdi09	522157913009	ICAL-6	18-APR-2012 19:55	S19476
L7	vdi10	522157913010	ICAL-7	18-APR-2012 20:28	S19477

Analyte	L1	L2	L3	L4	L5	L6	L7	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Naphthalene	0.8666	0.9589	0.9610	0.9332	0.9282	0.8586	0.8201	AVRG		1.10646		0.9038	6	15	0.05	0.99	
2-Methylnaphthalene	0.6367	0.6860	0.6836	0.6523	0.6437	0.5971	0.5648	AVRG		1.56802		0.6377	7	15	0.05	0.99	
1-Methylnaphthalene	0.6246	0.6684	0.6533	0.6231	0.6174	0.5791	0.5459	AVRG		1.62344		0.6160	7	15	0.05	0.99	
Acenaphthylene	1.6880	1.8503	1.8128	1.7620	1.7650	1.6500	1.5387	AVRG		0.58010		1.7239	6	15	0.05	0.99	
Acenaphthene	0.9804	1.0895	1.0687	1.0581	1.0520	1.0050	0.9617	AVRG		0.97015		1.0308	5	15	0.05	0.99	
Fluorene	1.3528	1.3953	1.3320	1.2906	1.2680	1.2064	1.1328	AVRG		0.77970		1.2826	7	15	0.05	0.99	
Phenanthrene	1.0220	1.0338	0.9856	0.9383	0.9411	0.8737	0.8229	AVRG		1.05784		0.9453	8	15	0.05	0.99	
Anthracene	1.0173	1.0204	0.9898	0.9357	0.9290	0.8657	0.7995	AVRG		1.06748		0.9368	9	15	0.05	0.99	
Fluoranthene	1.4184	1.3778	1.2934	1.2125	1.1810	1.0818	0.9838	AVRG		0.81883		1.2213	13	15	0.05	0.99	
Pyrene	1.4780	1.3592	1.2406	1.1753	1.1546	1.0691	1.0104	AVRG		0.82477		1.2125	13	15	0.05	0.99	
Benzo(a)anthracene	1.2432	1.2198	1.1609	1.1352	1.1410	1.0797	1.0182	AVRG		0.87521		1.1426	7	15	0.05	0.99	
Chrysene	1.1065	1.1133	1.0783	1.0587	1.0657	0.9960	0.9337	AVRG		0.95212		1.0503	6	15	0.05	0.99	
Benzo(b)fluoranthene	1.2999	1.2541	1.2383	1.1644	1.2036	1.1122	1.0763	AVRG		0.83844		1.1927	7	15	0.05	0.99	
Benzo(k)fluoranthene	1.2045	1.1767	1.1566	1.1251	1.0906	1.0491	1.0014	AVRG		0.89697		1.1149	6	15	0.05	0.99	
Benzo(a)pyrene	1.1028	1.1185	1.1041	1.0870	1.1051	1.0654	1.0224	AVRG		0.92041		1.0865	3	15	0.05	0.99	
Indeno(1,2,3-cd)pyrene	1.0996	1.0881	1.0883	1.0807	1.1096	1.1112	1.1075	AVRG		0.91086		1.0979	1	15	0.05	0.99	
Dibenz(a,h)anthracene	0.8686	0.8572	0.8682	0.8602	0.8915	0.9203	0.9224	AVRG		1.13115		0.8841	3	15	0.05	0.99	
Benzo(g,h,i)perylene	0.9585	0.9786	0.9600	0.9373	0.9352	0.9050	0.8768	AVRG		1.06851		0.9359	4	15	0.05	0.99	
Nitrobenzene-d5	0.2401	0.2581	0.2566	0.2565	0.2658	0.2681	0.2697	AVRG		3.85703		0.2593	4	15	0.05	0.99	
2-Fluorobiphenyl	1.3503	1.4774	1.4378	1.4003	1.3715	1.2564	1.1777	AVRG		0.73907		1.3531	8	15	0.05	0.99	
Terphenyl-d14	0.8332	0.8206	0.7860	0.7533	0.7562	0.7205	0.6962	AVRG		1.30448		0.7666	7	15	0.05	0.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D
Naphthalene	0.1000	-4	0.2000	6	0.5000	6	1.0000	3	2.0000	3	5.0000	-5	10.000	-9
2-Methylnaphthalene	0.1000	0	0.2000	8	0.5000	7	1.0000	2	2.0000	1	5.0000	-6	10.000	-11
1-Methylnaphthalene	0.1000	1	0.2000	9	0.5000	6	1.0000	1	2.0000	0	5.0000	-6	10.000	-11
Acenaphthylene	0.1000	-2	0.2000	7	0.5000	5	1.0000	2	2.0000	2	5.0000	-4	10.000	-11
Acenaphthene	0.1000	-5	0.2000	6	0.5000	4	1.0000	3	2.0000	2	5.0000	-2	10.000	-7
Fluorene	0.1000	5	0.2000	9	0.5000	4	1.0000	1	2.0000	-1	5.0000	-6	10.000	-12
Phenanthrene	0.1000	8	0.2000	9	0.5000	4	1.0000	-1	2.0000	0	5.0000	-8	10.000	-13
Anthracene	0.1000	9	0.2000	9	0.5000	6	1.0000	0	2.0000	-1	5.0000	-8	10.000	-15
Fluoranthene	0.1000	16	0.2000	13	0.5000	6	1.0000	-1	2.0000	-3	5.0000	-11	10.000	-19
Pyrene	0.1000	**22**	0.2000	12	0.5000	2	1.0000	-3	2.0000	-5	5.0000	-12	10.000	-17
Benzo(a)anthracene	0.1000	9	0.2000	7	0.5000	2	1.0000	-1	2.0000	0	5.0000	-6	10.000	-11
Chrysene	0.1000	5	0.2000	6	0.5000	3	1.0000	1	2.0000	1	5.0000	-5	10.000	-11
Benzo(b)fluoranthene	0.1000	9	0.2000	5	0.5000	4	1.0000	-2	2.0000	1	5.0000	-7	10.000	-10
Benzo(k)fluoranthene	0.1000	8	0.2000	6	0.5000	4	1.0000	1	2.0000	-2	5.0000	-6	10.000	-10
Benzo(a)pyrene	0.1000	2	0.2000	3	0.5000	2	1.0000	0	2.0000	2	5.0000	-2	10.000	-6
Indeno(1,2,3-cd)pyrene	0.1000	0	0.2000	-1	0.5000	-1	1.0000	-2	2.0000	1	5.0000	1	10.000	1
Dibenz(a,h)anthracene	0.1000	-2	0.2000	-3	0.5000	-2	1.0000	-3	2.0000	1	5.0000	4	10.000	4
Benzo(g,h,i)perylene	0.1000	2	0.2000	5	0.5000	3	1.0000	0	2.0000	0	5.0000	-3	10.000	-6
Nitrobenzene-d5	0.1000	-7	0.2000	0	0.5000	-1	1.0000	-1	2.0000	3	5.0000	3	10.000	4
2-Fluorobiphenyl	0.1000	0	0.2000	9	0.5000	6	1.0000	3	2.0000	1	5.0000	-7	10.000	-13
Terphenyl-d14	0.1000	9	0.2000	7	0.5000	3	1.0000	-2	2.0000	-1	5.0000	-6	10.000	-9

KMH 04/19/12 [1,4-Dioxane]: Corrected automatically drawn baseline in multiple levels.

KMH 06/25/12 : cut 3 loops to improve peak shapes

Analyst: KMH Date: 04/19/12 Reviewer: LW Date: 04/19/12

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

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 237507 MSSIM Water
EPA 8270C-SIM

Inst : MSBNA03 Name : 3PAHSIM
Calnum : 522157913001 Cal Date : 18-APR-2012

ICV 522157913011 (vdi11 18-APR-2012) stds: S18731

Analyte	Spiked	Quant	Units	%D	Max	Flags
Naphthalene	1.000	1.074	ug/mL	7	30	
2-Methylnaphthalene	1.000	1.059	ug/mL	6	30	
1-Methylnaphthalene	1.000	1.029	ug/mL	3	30	
Acenaphthylene	1.000	1.036	ug/mL	4	30	
Acenaphthene	1.000	1.004	ug/mL	0	20	
Fluorene	1.000	1.002	ug/mL	0	30	
Phenanthrene	1.000	1.004	ug/mL	0	30	
Anthracene	1.000	0.9969	ug/mL	0	30	
Fluoranthene	1.000	0.9929	ug/mL	-1	20	
Pyrene	1.000	0.9705	ug/mL	-3	30	
Benzo(a)anthracene	1.000	0.9874	ug/mL	-1	30	
Chrysene	1.000	1.017	ug/mL	2	30	
Benzo(b)fluoranthene	1.000	0.9996	ug/mL	0	30	
Benzo(k)fluoranthene	1.000	1.003	ug/mL	0	30	
Benzo(a)pyrene	1.000	0.9066	ug/mL	-9	20	
Indeno(1,2,3-cd)pyrene	1.000	1.021	ug/mL	2	30	
Dibenz(a,h)anthracene	1.000	1.011	ug/mL	1	30	
Benzo(g,h,i)perylene	1.000	1.045	ug/mL	5	30	

Analyst: KMH Date: 04/19/12 Reviewer: LW Date: 04/19/12

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 237507 MSSIM Water
EPA 8270C-SIM

Inst : MSBNA03 Run Name : PAHDIOX IDF : 1.0
Seqnum : 522261295002 File : vft02 Time : 29-JUN-2012 11:14
Cal : 522157913001 Caldate : 18-APR-2012
Standards: S19474

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Naphthalene	0.9038	0.9447	1.000	1.045	ug/mL	5	30	0.0500	
2-Methylnaphthalene	0.6377	0.6386	1.000	1.001	ug/mL	0	30	0.0500	
1-Methylnaphthalene	0.6160	0.6665	1.000	1.082	ug/mL	8	30	0.0500	m
Acenaphthylene	1.7239	1.7325	1.000	1.005	ug/mL	1	30	0.0500	
Acenaphthene	1.0308	1.0085	1.000	0.9784	ug/mL	-2	20	0.0500	
Fluorene	1.2826	1.2097	1.000	0.9432	ug/mL	-6	30	0.0500	
Phenanthrene	0.9453	1.0101	1.000	1.069	ug/mL	7	30	0.0500	
Anthracene	0.9368	0.9639	1.000	1.029	ug/mL	3	30	0.0500	m
Fluoranthene	1.2213	1.1726	1.000	0.9602	ug/mL	-4	20	0.0500	
Pyrene	1.2125	1.2441	1.000	1.026	ug/mL	3	30	0.0500	
Benzo(a)anthracene	1.1426	1.1637	1.000	1.019	ug/mL	2	30	0.0500	
Chrysene	1.0503	1.1040	1.000	1.051	ug/mL	5	30	0.0500	
Benzo(b)fluoranthene	1.1927	1.2338	1.000	1.035	ug/mL	3	30	0.0500	
Benzo(k)fluoranthene	1.1149	1.1595	1.000	1.040	ug/mL	4	30	0.0500	m
Benzo(a)pyrene	1.0865	1.1171	1.000	1.028	ug/mL	3	20	0.0500	
Indeno(1,2,3-cd)pyrene	1.0979	1.1160	1.000	1.017	ug/mL	2	30	0.0500	
Dibenz(a,h)anthracene	0.8841	0.9001	1.000	1.018	ug/mL	2	30	0.0500	
Benzo(g,h,i)perylene	0.9359	0.9473	1.000	1.012	ug/mL	1	30	0.0500	
Nitrobenzene-d5	0.2593	0.2458	1.000	0.9481	ug/mL	-5	30	0.0500	m
2-Fluorobiphenyl	1.3531	1.3252	1.000	0.9794	ug/mL	-2	30	0.0500	
Terphenyl-d14	0.7666	0.7830	1.000	1.021	ug/mL	2	30	0.0500	

LLH 06/29/12 [1,4-Dioxane]: Corrected automatically drawn baseline.

LLH 06/29/12 [Nitrobenzene-d5]: Corrected automatically drawn baseline.

LLH 06/29/12 [1-Methylnaphthalene]: Corrected automatically drawn baseline.

LLH 06/29/12 [Anthracene]: Corrected automatically drawn baseline.

LLH 06/29/12 [Benzo(k)fluoranthene]: Corrected automatically drawn baseline.

Analyst: LLH Date: 06/29/12 Reviewer: LW Date: 07/02/12

m=manual integration

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 522261295

Date : 06/29/12
Sequence : MSBNA03 vft

Reference : vft02
Analyzed : 06/29/12 11:14

#	Type	Sample ID	DCBZ14D4	RT	NAPHD8	RT	ACEND10	RT	PHEND10	RT	CHYD12	RT	PERYD12	RT
		CCV+CCV/BS+CCV/LCS+ICV+ICV/BS+ICV/CCV+ICV/LCS+RCCV STD	24696	7.03	95775	8.64	56212	10.93	103447	12.87	95834	16.31	83724	18.04
		LOWER LIMIT	12348	6.53	47888	8.14	28106	10.43	51724	12.37	47917	15.81	41862	17.54
		UPPER LIMIT	49392	7.53	191550	9.14	112424	11.43	206894	13.37	191668	16.81	167448	18.54
002	CCV	PAHDIOX	24696	7.03	95775	8.64	56212	10.93	103447	12.87	95834	16.31	83724	18.04
005	BLANK	QC646023	18038	7.03	68284	8.64	45816	10.93	84239	12.87	80403	16.31	66163	18.04
007	BS	QC646024	18893	7.02	67862	8.64	44178	10.93	82694	12.87	81099	16.31	69536	18.03
008	BSD	QC646025	19373	7.02	70363	8.64	45237	10.93	84481	12.87	86177	16.31	71626	18.03
009	BLANK	QC646023	17295	7.03	68290	8.64	45847	10.93	84565	12.87	81947	16.31	67476	18.03
010	SAMPLE	237443-010	19682	7.02	74070	8.63	49582	10.93	90714	12.87	92188	16.31	78206	18.03
011	SAMPLE	237507-002	20583	7.02	69882	8.64	55869	10.93	94596	12.88	89968	16.32	57136	18.04
012	SAMPLE	237511-002	18056	7.02	66349	8.63	44216	10.93	79919	12.87	76746	16.31	68734	18.03
013	SAMPLE	237511-003	18097	7.02	66481	8.63	44612	10.93	81574	12.87	86335	16.31	74289	18.03
014	SAMPLE	237511-004	19976	7.02	68102	8.63	54114	10.93	116690	12.88	199851 *	16.32	38915 *	18.04
015	SAMPLE	237511-005	18734	7.02	65260	8.63	60944	10.93	144686	12.89	91014	16.33	44108	18.05
016	SAMPLE	237528-001	19278	7.02	67575	8.63	46960	10.93	84962	12.87	93279	16.32	61817	18.04
017	SAMPLE	237528-002	18984	7.02	48822	8.65	44020	10.93	92077	12.87	103617	16.31	64306	18.04
018	SAMPLE	237528-003	18297	7.02	65144	8.63	44278	10.93	80731	12.87	79340	16.31	69745	18.03
019	SAMPLE	237528-004	18135	7.02	64664	8.63	42778	10.93	79498	12.87	79480	16.31	67792	18.03
020	SAMPLE	237528-005	17121	7.02	62773	8.63	41415	10.92	77771	12.87	80144	16.31	67200	18.03
021	SAMPLE	237528-006	16757	7.02	601472 *	8.69	75938	10.97	253996 *	12.92	48961	16.35	8127 *	18.05

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 522157913

Instrument : MSBNA03 Begun : 04/18/12 15:53
Method : EPA 8270C, EPA 8270C-SIM SOP Version : 8270-SIM_rv0, bna_rv.9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	vdi01	TUN	DFTPP/PEM			04/18/12 15:53	1.0	1	
002	vdi02	CCV	RTCHECK			04/18/12 16:20	1.0	2	
003	vdi03	TUN	DFTPP/PEM			04/18/12 16:46	1.0	1	
004	vdi04	ICAL	ICAL-1			04/18/12 17:08	1.0	3	
005	vdi05	ICAL	ICAL-2			04/18/12 17:44	1.0	4	
006	vdi06	ICAL	ICAL-3			04/18/12 18:17	1.0	5	
007	vdi07	ICAL	ICAL-4			04/18/12 18:50	1.0	2	
008	vdi08	ICAL	ICAL-5			04/18/12 19:22	1.0	6	
009	vdi09	ICAL	ICAL-6			04/18/12 19:55	1.0	7	
010	vdi10	ICAL	ICAL-7			04/18/12 20:28	1.0	8	
011	vdi11	ICV	ICV			04/18/12 21:02	1.0	9	

KMH 04/19/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 11.

Standards used: 1=S19354 2=S19474 3=S19471 4=S19472 5=S19473 6=S19475 7=S19476 8=S19477 9=S18731

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 522261295

Instrument : MSBNA03 Begun : 06/29/12 10:55
Method : EPA 8270C, EPA 8270C-SIM SOP Version : 8270-SIM_rv0, bna_rv.9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	vft01	TUN	DFTPP/PEM			06/29/12 10:55	1.0	1	
002	vft02	CCV	PAHDIOX			06/29/12 11:14	1.0	2	
003	vft03	BLANK	QC646026	Soil	188060	06/29/12 11:51	1.0	3	
004	vft04	LCS	QC646027	Soil	188060	06/29/12 12:30	1.0	3	spk
005	vft05	BLANK	QC646023	Water	188059	06/29/12 13:05	1.0	3	
006	vft06	LCS	QC646027	Soil	188060	06/29/12 13:39	1.0	3	spk
007	vft07	BS	QC646024	Water	188059	06/29/12 14:14	1.0	3	
008	vft08	BSD	QC646025	Water	188059	06/29/12 14:50	1.0	3	
009	vft09	BLANK	QC646023	Water	188059	06/29/12 15:27	1.0	3	
010	vft10	SAMPLE	237443-010	Water	188059	06/29/12 16:00	1.0	3	
011	vft11	SAMPLE	237507-002	Water	188059	06/29/12 16:38	1.0	3	
012	vft12	SAMPLE	237511-002	Water	188059	06/29/12 17:11	1.0	3	
013	vft13	SAMPLE	237511-003	Water	188059	06/29/12 17:46	1.0	3	
014	vft14	SAMPLE	237511-004	Water	188059	06/29/12 18:19	1.0	3	
015	vft15	SAMPLE	237511-005	Water	188059	06/29/12 18:51	1.0	3	
016	vft16	SAMPLE	237528-001	Water	188059	06/29/12 19:23	1.0	3	
017	vft17	SAMPLE	237528-002	Water	188059	06/29/12 19:54	1.0	3	3:NAPH=470
018	vft18	SAMPLE	237528-003	Water	188059	06/29/12 20:27	1.0	3	
019	vft19	SAMPLE	237528-004	Water	188059	06/29/12 20:59	1.0	3	
020	vft20	SAMPLE	237528-005	Water	188059	06/29/12 21:30	1.0	3	
021	vft21	SAMPLE	237528-006	Water	188059	06/29/12 22:04	1.0	3	8:ACNP=290

KMH 07/02/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 21.

Standards used: 1=S20011 2=S19474 3=S19938

Flags used: spk=5% spike rule

Page 1 of 1

SAMPLE PREPARATION SUMMARY

Batch # : 188059 Analysis : 8270-SIM
Started By : JPE Prep Date : 28-JUN-2012 14:10 Finished By : CGL
Method : 3520C SOP Version : 8270_SIM_rv1 Units : mL
Spike #1 ID : S19629 Spike #2 ID : S19883

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
237443-010		Water	1070	1	1	0.0009346	7	1				8270-SIM	
237507-002		Water	1060	1	1	0.0009434	7	1				8270-SIM	
237511-002		Water	1060	1	1	0.0009434	7	1				8270-SIM	See comment 1 below
237511-003		Water	1060	1	1	0.0009434	7	1				8270-SIM	
237511-004		Water	1060	1	1	0.0009434	7	1				8270-SIM	
237511-005		Water	1060	1	1	0.0009434	7	1				8270-SIM	
237528-001		Water	1060	1	1	0.0009434	7	1				8270-SIM	
237528-002		Water	1060	1	1	0.0009434	7	1				8270-SIM	
237528-003		Water	1060	1	1	0.0009434	7	1				8270-SIM	
237528-004		Water	1060	1	1	0.0009434	7	1				8270-SIM	
237528-005		Water	1060	1	1	0.0009434	7	1				8270-SIM	
237528-006		Water	1060	1	1	0.0009434	7	1				8270-SIM	
QC646023	BLANK	Water	1000	1	1	0.001		1				8270-SIM	
QC646024	BS	Water	1000	1	1	0.001		1	1			8270-SIM	
QC646025	BSD	Water	1000	1	1	0.001		1	1			8270-SIM	

Comment 1: possible loss: when vialing pasteur pipette lost suction and ~50% of concentrated sample was spilled.

KMH 07/02/12 : Matrix spikes were not performed for this analysis in batch 188059 due to insufficient sample amount.

Analyst: KMH Date: 07/02/12 Reviewer: LW Date: 07/02/12

BNA (8270 & 625) Water Prep Log — **Curtis & Tompkins, Ltd.** — B

Page 26 — **BK3315**

LIMS Batch No: 188059
LIMS Analysis: 8270-SIM
Date Extracted: 6/28/12

Extraction Method:
X EPA 3520c cont. L/L
o _____

Sample #	Container ID	Volume of Sample (mL)	Sample pH	Final Volume (mL)	Confirmed pH <2	Comments
237443-010	K	1070	☒7 ☐	☒ 1.0 ☐	☒ ≤2	re-ex
237507-002	I	1060	☒7 ☐	☒ 1.0 ☐	☒ ≤2	
237511-002	G	1060	☒7 ☐	☒ 1.0 ☐	☒ ≤2	Possible Loss
-003	↓	1060	☒7 ☐	☒ 1.0 ☐	☒ ≤2	
-004	↓	1060	☒7 ☐	☒ 1.0 ☐	☒ ≤2	
-005	↓	1060	☒7 ☐	☒ 1.0 ☐	☒ ≤2	
237528-001	J	1060	☒7 ☐	☒ 1.0 ☐	☒ ≤2	
-002	↓	1060	☒7 ☐	☒ 1.0 ☐	☒ ≤2	
-003	↓	1060	☒7 ☐	☒ 1.0 ☐	☒ ≤2	
-004	↓	1060	☒7 ☐	☒ 1.0 ☐	☒ ≤2	
-005	↓	1060	☒7 ☐	☒ 1.0 ☐	☒ ≤2	
-006	↓	1060	☒7 ☐	☒ 1.0 ☐	☒ ≤2	
MB QC646023	NA	1000	☐7 ☒ NA	☒ 1.0 ☐	☒ ≤2	
BS 24	↓	1000	☐7 ☒	☒ 1.0 ☐	☒ ≤2	
BSD 25	↓	1000	☐7 ☒	☒ 1.0 ☐	☒ ≤2	
			☐7 ☐	☐ 1.0 ☐	☐ ≤2	
			☐7 ☐	☐ 1.0 ☐	☐ ≤2	
			☐7 ☐	☐ 1.0 ☐	☐ ≤2	
			☐7 ☐	☐ 1.0 ☐	☐ ≤2	
			☐7 ☐	☐ 1.0 ☐	☐ ≤2	
			☐7 ☐	☐ 1.0 ☐	☐ ≤2	
			☐7 ☐	☐ 1.0 ☐	☐ ≤2	
			☐7 ☐	☐ 1.0 ☐	☐ ≤2	
			☐7 ☐	☐ 1.0 ☐	☐ ≤2	6-29-12

	Lot# / LIMS # / Time	Date/ Initial
1.0 mL of surrogate solution was added to all samples	S196291	NE 6/28/12
1.0 mL of matrix spiking solution was added to all spikes	S198836	↓
pH of all samples adjusted to pH ≤ 2 with H_2SO_4	FS116662	↓
Cont. L/L extracted with 450mL of CH_2Cl_2	EM52115	↓
Extraction Start Time:	14:10	↓
Extraction End Time:	16:10	6-29-12
pH of all samples adjusted to pH ≥ 11 with 10 N NaOH	NA	↓
Extraction Start Time:	↓	
Extraction End Time:	↓	
Extracts filtered through baked, CH2Cl2-rinsed granular Na2SO4	EM3012C150	
Concentrated to final volume at temperature (degrees C)	70	
Relinquished to BNA department	Y	↓

6/28/12
Extraction Chemist / **Date**

Contined from Page ____
Continued on Page ____

6-29-12
Reviewed by / **Date**

Case Narrative Addendum: Manual Integrations for 237507 MSSIM (Water)

For CCV PAHDIOX (MSBNA03 vft02):
Anthracene: Corrected automatically drawn baseline.
Benzo(k)fluoranthene: Corrected automatically drawn baseline.
1,4-Dioxane: Corrected automatically drawn baseline.
1-Methylnaphthalene: Corrected automatically drawn baseline.
Nitrobenzene-d5: Corrected automatically drawn baseline.

For BLANK QC646023 (MSBNA03 vft05):
Naphthalene: Corrected automatically drawn baseline.
Nitrobenzene-d5: Corrected automatically drawn baseline.

For BSD QC646025 (MSBNA03 vft08):
1,4-Dioxane: Corrected automatically drawn baseline for spike & dup.
Nitrobenzene-d5: Corrected automatically drawn baseline for spike & dup.

For Calibration MSBNA03 (522157913001):
1,4-Dioxane: Corrected automatically drawn baseline in multiple levels.

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 239885
ANALYTICAL REPORT

Innovative Technical Solutions,Inc.	Project : 07193.0002
2730 Shadelands Drive	Location : Hunters Point NAPL
Walnut Creek, CA 94598	Level : III

Sample ID	Lab ID
TB-092512	239885-001
IR24MW07A-092512	239885-002

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

Signature: _____ Date: 10/02/2012

Mike J. Dahlquist
Project Manager
(510) 486-0900

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**239885**
Client:	**Innovative Technical Solutions,Inc.**
Project:	**07193.0002**
Location:	**Hunters Point NAPL**
Request Date:	**09/25/12**
Samples Received:	**09/25/12**

This data package contains sample and QC results for two water samples, requested for the above referenced project on 09/25/12. 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 responses were observed for a number of analytes in the CCV analyzed 09/28/12 00:37; these analytes were not detected at or above the RL in the associated sample, and affected data was qualified with "b".

High surrogate recovery was observed for bromofluorobenzene (FID) in the MSD for batch 191067; the parent sample was not a project sample.

A number of analytes were detected between the MDL and the RL in the method blank for batch 191067; these analytes were not detected in samples at or above the RL.

Toluene and m,p-xylenes were detected between the MDL and the RL in the method blank for batch 191188; these analytes were not detected in the sample at or above the RL.

No other analytical problems were encountered.

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

Semivolatile Organics by GC/MS SIM (EPA 8270C-SIM):
No analytical problems were encountered.

Chain of Custody

124080

239885

002689

ITSI Innovative Technical Solutions, Inc.
2730 Shadelands Drive, Suite 100
Walnut Creek, California 94598
(925) 946-3100 – (925) 256-8998 (fax)

Local Address: ITSI
HPNS, SF, CA

Chain-Of-Custody

Project Name and Number: Fall 2012 NAPL 07193.0002
Project Manager: Ken Leonard
Site Location: Hunters Point Naval Shipyard

Laboratory Name: C&T
Address: 2323 5th St
Berekly, CA

Contact Name: Mike Dahlquist
Phone: 510.204-2225

Date: 09-25-12
Page: 1 of 1

Analysis:

	Sample I.D.	Date	Time	Sample Depth	No. of Containers	Sample Matrix	TPH-G	BTEX/MTBE	TPH-D/MO	PAH	Special Instructions/Comments
							Preservative: HCL	HCL	N/A	N/A	temp blank inside cooler
							Container Type: VOA	VOA	1 liter	1 liter	
1	TB-092512	09-25-12	07:00	N/A	2	W	X	X			
2	1R24MW07A-092512	09-25-12	10:15	N/A	10	W	X	X	X	X	Level 3

Sampled By: TR/TO
Signature: [signature]
Special Instructions: Level 3
Send Results to: (w/fax #) rflynn@itsi.com
Turnaround Time: Standard

Sampler: TR/TO

Courier/Airbill No.: ITSI dropped off at C&T Lab.

Relinquished By/Affiliation:	Date:	Time:	Received By/Affiliation:	Date:	Time:
Teresa Ruhe	09-25-12	1135	[signature]	9/25/12	11:35
			Adnan Ahmad	9/25/12	1135

Original – Laboratory Yellow – Field/Office

Graphics/Stationery/chain_custody1004.ai

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 239885 Date Received 9/25/12 Number of coolers 1
Client ITSI Project Fall 2012 NAPL

Date Opened 9/25/12 By (print) AA (sign) [illegible]
Date Logged in ↓ By (print) ↓ (sign) ↓

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

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

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

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

Type of ice used: ☑ Wet ☐ Blue/Gel ☐ None Temp(°C) 1

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

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

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

COMMENTS

_____
_____
_____
_____
_____
_____

Rev 10, 11/11

Laboratory Job Number 239885

ANALYTICAL REPORT

TPH-Purgeables and/or BTXE by GC

Matrix: Water

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	239885	Location:	Hunters Point NAPL
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 5030B
Project#:	07193.0002		
Field ID:	TB-092512	Batch#:	191067
Lab ID:	239885-001	Sampled:	09/25/12
Matrix:	Water	Received:	09/25/12
Units:	ug/L	Analyzed:	09/27/12
Diln Fac:	1.000		

Analyte	Result	RL	MDL	Analysis
Gasoline C6-C12	16 J	50	5.6	EPA 8015B
MTBE	ND	2.0	0.45	EPA 8021B
Benzene	ND	0.50	0.051	EPA 8021B
Toluene	ND	0.50	0.051	EPA 8021B
Ethylbenzene	0.18 C J b	0.50	0.042	EPA 8021B
m,p-Xylenes	ND	0.50	0.045	EPA 8021B
o-Xylene	ND	0.50	0.047	EPA 8021B
Xylene (total)	ND	0.50		EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	117	75-124	EPA 8015B
Bromofluorobenzene (PID)	108	62-134	EPA 8021B

C= Presence confirmed, but RPD between columns exceeds 40%
J= Estimated value
b= See narrative
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	239885	Location:	Hunters Point NAPL
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 5030B
Project#:	07193.0002		
Field ID:	IR24MW07A-092512	Diln Fac:	1.000
Lab ID:	239885-002	Sampled:	09/25/12
Matrix:	Water	Received:	09/25/12
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Analyzed	Analysis
Gasoline C6-C12	38 J	50	5.6	191067	09/27/12	EPA 8015B
MTBE	ND	2.0	0.45	191188	10/01/12	EPA 8021B
Benzene	ND	0.50	0.051	191188	10/01/12	EPA 8021B
Toluene	ND	0.50	0.051	191188	10/01/12	EPA 8021B
Ethylbenzene	ND	0.50	0.042	191188	10/01/12	EPA 8021B
m,p-Xylenes	ND	0.50	0.045	191188	10/01/12	EPA 8021B
o-Xylene	ND	0.50	0.047	191188	10/01/12	EPA 8021B
Xylene (total)	ND	0.50		191188	10/01/12	EPA 8021B

Surrogate	%REC	Limits	Batch#	Analyzed	Analysis
Bromofluorobenzene (FID)	120	75-124	191067	09/27/12	EPA 8015B
Bromofluorobenzene (PID)	93	62-134	191188	10/01/12	EPA 8021B

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	239885	Location:	Hunters Point NAPL
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 5030B
Project#:	07193.0002	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC658570	Batch#:	191067
Matrix:	Water	Analyzed:	09/27/12
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C6-C12	1,000	1,049	105	65-135

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	107	75-124

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	239885	Location:	Hunters Point NAPL
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 5030B
Project#:	07193.0002	Analysis:	EPA 8021B
Matrix:	Water	Batch#:	191067
Units:	ug/L	Analyzed:	09/27/12
Diln Fac:	1.000		

Type: BS Lab ID: QC658571

Analyte	Spiked	Result	%REC	Limits
MTBE	10.00	9.271	93	70-130
Benzene	10.00	9.288	93	70-130
Toluene	10.00	9.106	91	70-130
Ethylbenzene	10.00	9.749	97	70-130
m,p-Xylenes	10.00	10.02	100	70-130
o-Xylene	10.00	9.657	97	70-130

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	87	62-134

Type: BSD Lab ID: QC658572

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	10.00	8.454	85	70-130	9	20
Benzene	10.00	8.896	89	70-130	4	20
Toluene	10.00	8.674	87	70-130	5	20
Ethylbenzene	10.00	9.550	95	70-130	2	20
m,p-Xylenes	10.00	9.656	97	70-130	4	20
o-Xylene	10.00	9.188	92	70-130	5	20

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	91	62-134

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	239885	Location:	Hunters Point NAPL
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 5030B
Project#:	07193.0002		
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC658573	Batch#:	191067
Matrix:	Water	Analyzed:	09/27/12
Units:	ug/L		

Analyte	Result	RL	MDL	Analysis
Gasoline C6-C12	14 J	50	5.6	EPA 8015B
MTBE	ND	2.0	0.45	EPA 8021B
Benzene	ND	0.50	0.051	EPA 8021B
Toluene	0.14 J	0.50	0.051	EPA 8021B
Ethylbenzene	0.043 C J	0.50	0.042	EPA 8021B
m,p-Xylenes	0.23 C J	0.50	0.045	EPA 8021B
o-Xylene	ND	0.50	0.047	EPA 8021B
Xylene (total)	0.23 C J	0.50		EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	99	75-124	EPA 8015B
Bromofluorobenzene (PID)	96	62-134	EPA 8021B

C= Presence confirmed, but RPD between columns exceeds 40%
J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	239885	Location:	Hunters Point NAPL
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 5030B
Project#:	07193.0002	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	191067
MSS Lab ID:	239951-001	Sampled:	09/24/12
Matrix:	Water	Received:	09/26/12
Units:	ug/L	Analyzed:	09/27/12
Diln Fac:	1.000		

Type: MS Lab ID: QC658574

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C6-C12	96.91	2,000	1,849	88	65-135

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	111	75-124

Type: MSD Lab ID: QC658575

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C6-C12	2,000	2,089	100	65-135	12	20

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	129 *	75-124

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

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	239885	Location:	Hunters Point NAPL
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 5030B
Project#:	07193.0002	Analysis:	EPA 8021B
Matrix:	Water	Batch#:	191188
Units:	ug/L	Analyzed:	10/01/12
Diln Fac:	1.000		

Type: BS Lab ID: QC659066

Analyte	Spiked	Result	%REC	Limits
MTBE	20.00	18.23	91	70-130
Benzene	20.00	19.28	96	70-130
Toluene	20.00	18.37	92	70-130
Ethylbenzene	20.00	20.23	101	70-130
m,p-Xylenes	20.00	20.64	103	70-130
o-Xylene	20.00	20.11	101	70-130

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	95	62-134

Type: BSD Lab ID: QC659067

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	20.00	16.66	83	70-130	9	20
Benzene	20.00	18.04	90	70-130	7	20
Toluene	20.00	17.06	85	70-130	7	20
Ethylbenzene	20.00	19.00	95	70-130	6	20
m,p-Xylenes	20.00	19.17	96	70-130	7	20
o-Xylene	20.00	18.78	94	70-130	7	20

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	89	62-134

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

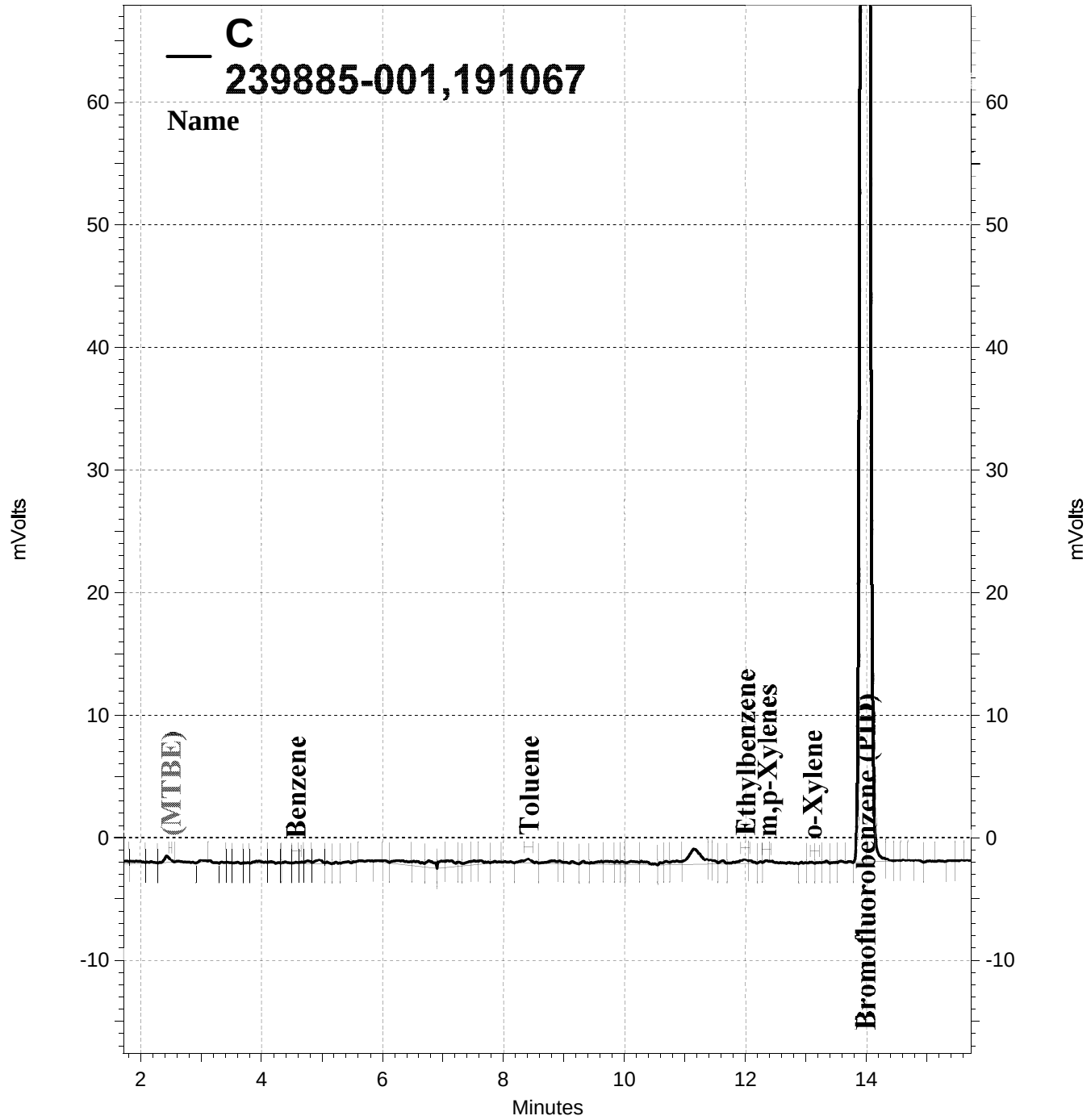
Curtis & Tompkins Laboratories Analytical Report

Lab #:	239885	Location:	Hunters Point NAPL
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 5030B
Project#:	07193.0002		
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC659069	Batch#:	191188
Matrix:	Water	Analyzed:	10/01/12
Units:	ug/L		

Analyte	Result	RL	MDL	Analysis
MTBE	ND	2.0	0.45	EPA 8021B
Benzene	ND	0.50	0.051	EPA 8021B
Toluene	0.054 C J	0.50	0.051	EPA 8021B
Ethylbenzene	ND	0.50	0.042	EPA 8021B
m,p-Xylenes	0.046 C J	0.50	0.045	EPA 8021B
o-Xylene	ND	0.50	0.047	EPA 8021B
Xylene (total)	0.046 C J	0.50		EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	111	75-124	EPA 8015B
Bromofluorobenzene (PID)	101	62-134	EPA 8021B

C= Presence confirmed, but RPD between columns exceeds 40%
J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit



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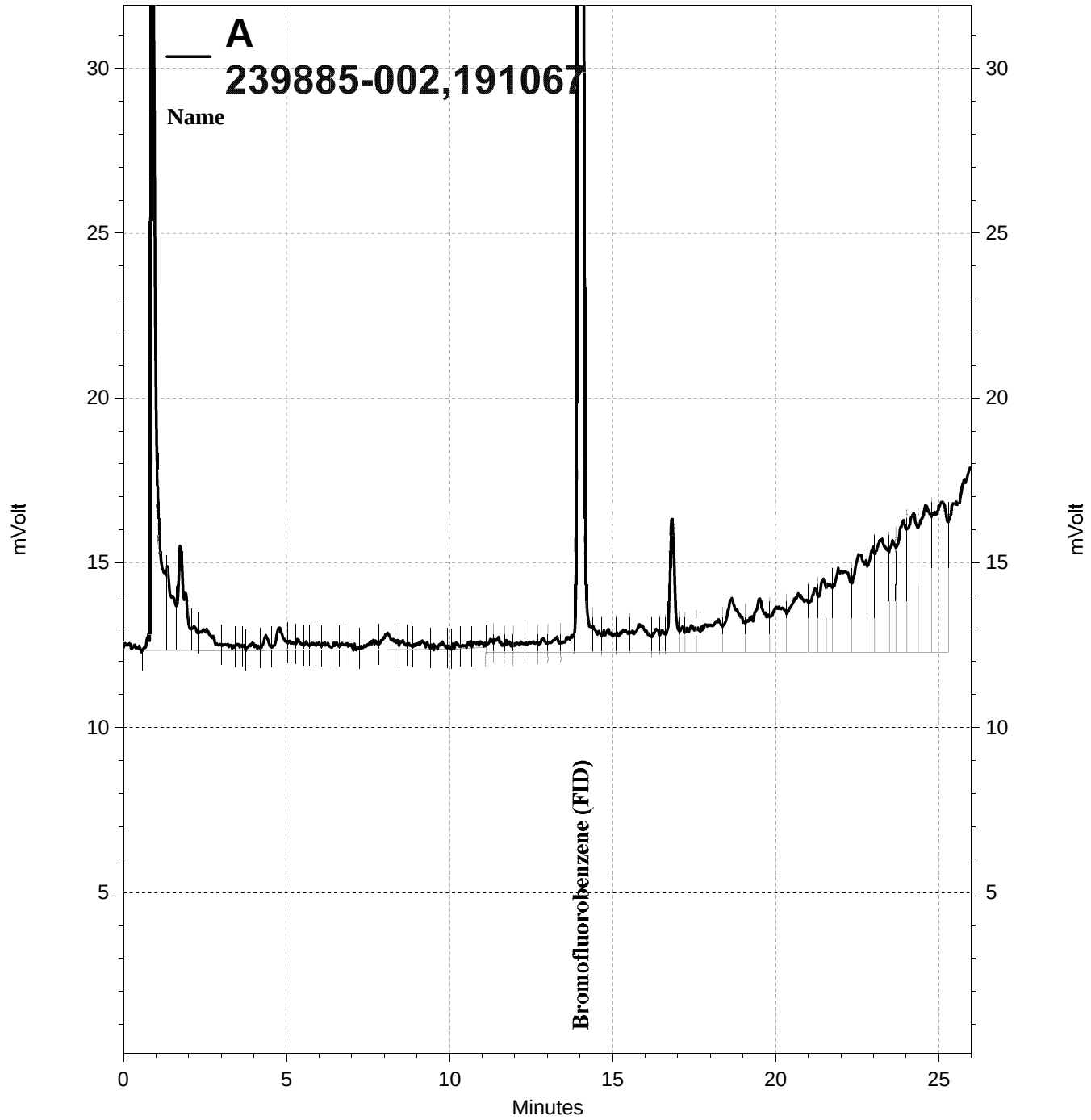

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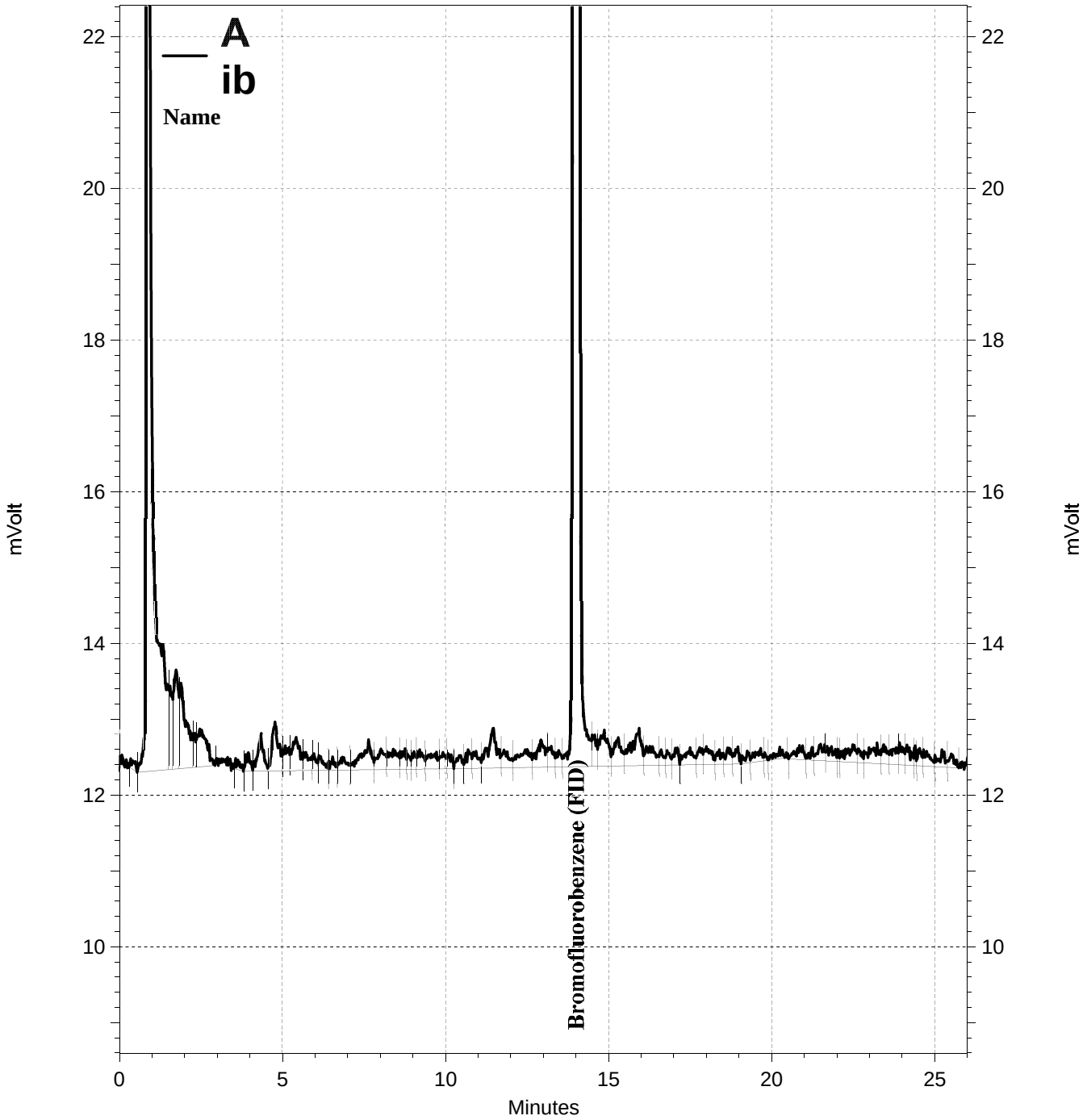

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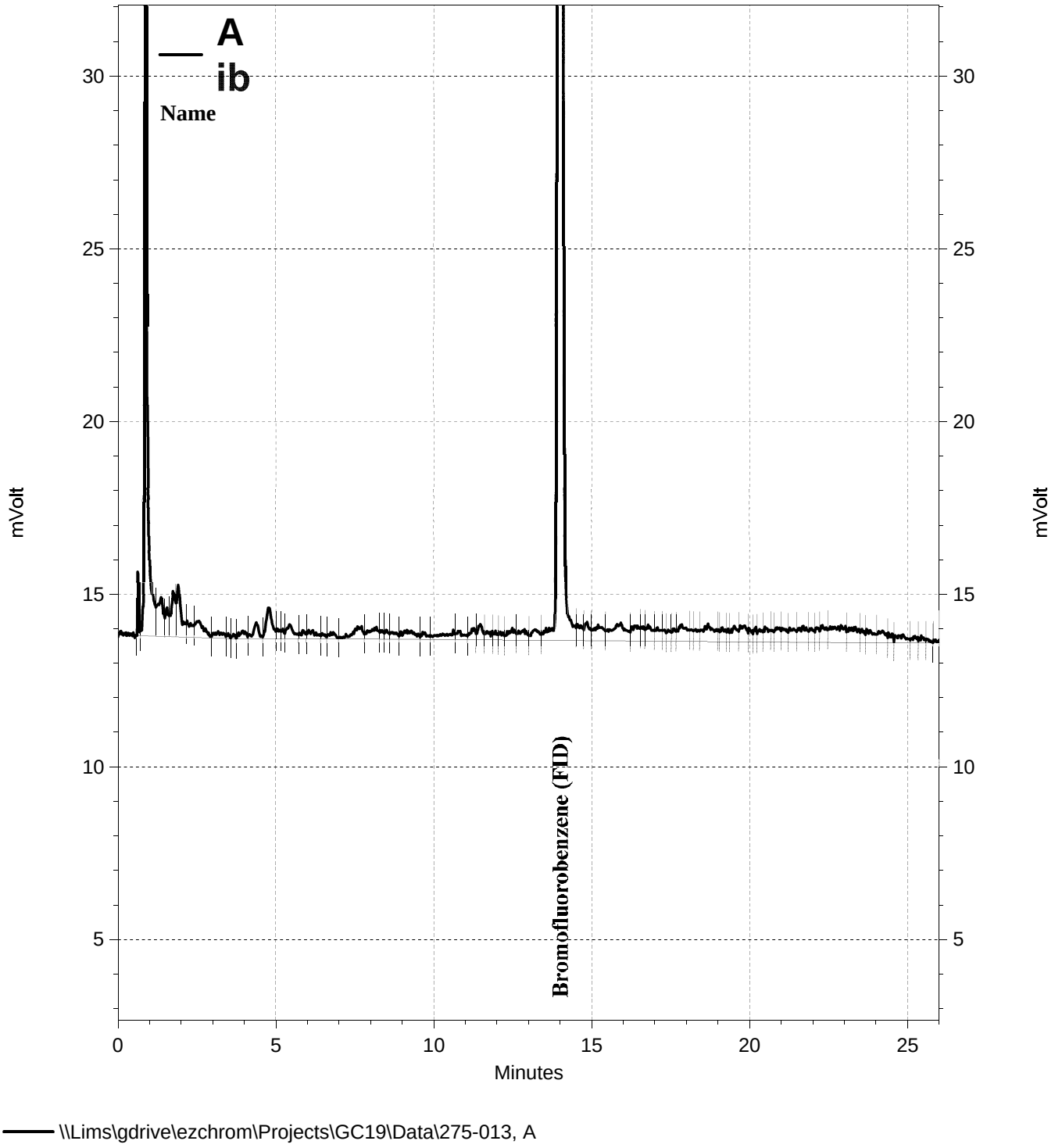
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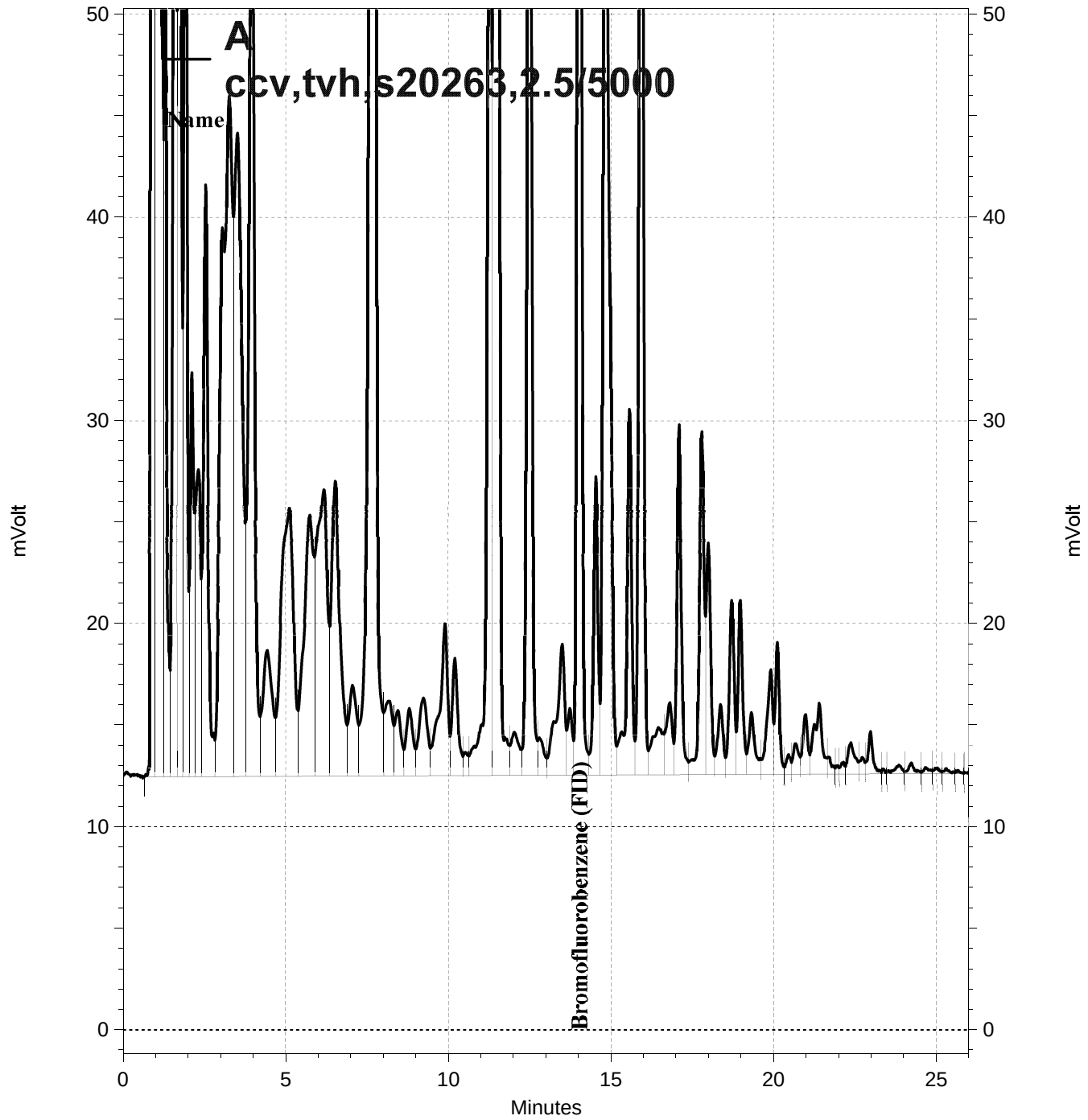

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Initial & Continuing Calibration Data

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 239885 GCVOA Water: EPA 8021B

Inst : GC19
Calnum : 342377898001
Units : ng

Name : mbtxe/bfb_262
Date : 19-SEP-2012 02:59
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	262_021	342377898021	BTXE_1	19-SEP-2012 02:59	S20257 (1000X), S20276 (5000X)
L2	262_022	342377898022	MBTXE_2	19-SEP-2012 03:36	S20256 (1250X), S20276 (5000X)
L3	262_023	342377898023	MBTXE_3	19-SEP-2012 04:14	S20256 (500X), S20276 (5000X)
L4	262_024	342377898024	MBTXE_4	19-SEP-2012 04:51	S20256 (125X), S20276 (5000X)
L5	262_025	342377898025	MBTXE_5	19-SEP-2012 05:29	S20255 (1000X), S20276 (5000X)
L6	262_026	342377898026	MBTXE_6	19-SEP-2012 06:07	S20255 (500X), S20276 (5000X)
L7	262_027	342377898027	MBTXE_7	19-SEP-2012 06:44	S20255 (250X), S20276 (5000X)
L8	262_028	342377898028	MTBE_7	19-SEP-2012 07:22	S19756 (500X), S20276 (5000X)

Analyte	Ch	L1	L2	L3	L4	L5	L6	L7	L8	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
MTBE	B		1521.7	1147.4	917.16	955.62	929.84	889.34	883.79	AVRG		9.66E-4		1035.0	**22**	0.995	20	rsd ***
Benzene	B	3396.4	3552.7	3490.1	2888.5	3102.3	3091.0	2992.3		AVRG		3.11E-4		3216.2	8	0.995	20	
Toluene	B	4566.0	3874.7	3134.2	2854.3	2998.8	2983.5	2911.5		AVRG		3.00E-4		3331.9	19	0.995	20	
Ethylbenzene	B	3589.6	2787.6	2773.3	2536.1	2699.9	2755.2	2663.4		AVRG		3.53E-4		2829.3	12	0.995	20	
m,p-Xylenes	B	4003.6	3561.9	3184.6	3109.1	3111.2	3044.3	3049.1		AVRG		3.04E-4		3294.8	11	0.995	20	
o-Xylene	B	3375.2	2955.6	2656.7	2614.9	2615.7	2623.7	2596.9		AVRG		3.60E-4		2777.0	11	0.995	20	
Bromofluorobenzene (PID)	B	1456.2	1585.1	1520.8	1299.1	1471.3	1466.4	1519.6	1547.7	AVRG		6.74E-4		1483.3	6	0.995	20	
MTBE	C		1352.6	1257.4	1197.8	1512.9	1554.5	1543.5	1572.5	AVRG		7.01E-4		1427.3	11	0.995	20	
Benzene	C	6328.4	4048.7	4215.6	4478.2	5267.2	5408.9	5392.4		AVRG		1.99E-4		5019.9	16	0.995	20	
Toluene	C	6710.4	4186.2	4056.2	4374.6	5113.7	5294.3	5276.0		AVRG		2.00E-4		5001.6	18	0.995	20	
Ethylbenzene	C	3262.4	3387.7	3650.4	3987.0	4688.6	4875.2	4872.0		AVRG		2.44E-4		4103.3	17	0.995	20	
m,p-Xylenes	C	3768.4	3755.7	4139.3	4536.8	5284.5	5498.7	5551.2		AVRG		2.15E-4		4647.8	17	0.995	20	
o-Xylene	C	3005.2	3377.5	3554.2	3813.6	4520.8	4727.3	4792.2		AVRG		2.52E-4		3970.1	18	0.995	20	
Bromofluorobenzene (PID)	C	2431.6	2642.4	2506.8	2123.4	2452.2	2509.2	2610.5	2649.9	AVRG		4.01E-4		2490.8	7	0.995	20	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D
MTBE	B			10.000	**47**	25.000	11	100.00	-11	500.00	-8	1000.0	-10	2000.0	-14	5000.0	-15
Benzene	B	2.5000	6	10.000	10	25.000	9	100.00	-10	500.00	-4	1000.0	-4	2000.0	-7		
Toluene	B	2.5000	**37**	10.000	16	25.000	-6	100.00	-14	500.00	-10	1000.0	-10	2000.0	-13		
Ethylbenzene	B	2.5000	**27**	10.000	-1	25.000	-2	100.00	-10	500.00	-5	1000.0	-3	2000.0	-6		
m,p-Xylenes	B	2.5000	**22**	10.000	8	25.000	-3	100.00	-6	500.00	-6	1000.0	-8	2000.0	-7		
o-Xylene	B	2.5000	**22**	10.000	6	25.000	-4	100.00	-6	500.00	-6	1000.0	-6	2000.0	-6		
Bromofluorobenzene (PID)	B	900.00	-2	900.00	7	900.00	3	900.00	-12	900.00	-1	900.00	-1	900.00	2	900.00	4
MTBE	C			10.000	-5	25.000	-12	100.00	-16	500.00	6	1000.0	9	2000.0	8	5000.0	10
Benzene	C	2.5000	**26**	10.000	-19	25.000	-16	100.00	-11	500.00	5	1000.0	8	2000.0	7		
Toluene	C	2.5000	**34**	10.000	-16	25.000	-19	100.00	-13	500.00	2	1000.0	6	2000.0	5		
Ethylbenzene	C	2.5000	-20	10.000	-17	25.000	-11	100.00	-3	500.00	14	1000.0	19	2000.0	19		
m,p-Xylenes	C	2.5000	-19	10.000	-19	25.000	-11	100.00	-2	500.00	14	1000.0	18	2000.0	19		
o-Xylene	C	2.5000	**-24**	10.000	-15	25.000	-10	100.00	-4	500.00	14	1000.0	19	2000.0	**21**		
Bromofluorobenzene (PID)	C	900.00	-2	900.00	6	900.00	1	900.00	-15	900.00	-2	900.00	1	900.00	5	900.00	6

MAC 09/19/12 : Corrected automatically drawn baseline for Ch. C in multiple levels.

Analyst: MAC Date: 09/19/12 Reviewer: EAH Date: 09/19/12

rsd=ICAL %RSD failure

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

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 239885 GCVOA Water
EPA 8021B

Inst : GC19 Name : mbtxe/bfb_262
Calnum : 342377898001 Cal Date : 19-SEP-2012

ICV 342377898030 (262_030 19-SEP-2012) stds: S20462 (1000X), S20276 (5000X)

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
MTBE	B	100.0	106.0	ng	6	15	
Benzene	B	100.0	104.3	ng	4	15	
Toluene	B	100.0	93.94	ng	-6	15	
Ethylbenzene	B	100.0	95.80	ng	-4	15	
m,p-Xylenes	B	200.0	193.0	ng	-3	15	
o-Xylene	B	100.0	95.31	ng	-5	15	
MTBE	C	100.0	101.1	ng	1	15	
Benzene	C	100.0	103.6	ng	4	15	
Toluene	C	100.0	95.18	ng	-5	15	
Ethylbenzene	C	100.0	103.3	ng	3	15	
m,p-Xylenes	C	200.0	220.1	ng	10	15	
o-Xylene	C	100.0	100.6	ng	1	15	

Analyst: MAC Date: 09/19/12 Reviewer: EAH Date: 09/19/12

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 239885 GCVOA Water: EPA 8015B

Inst : GC19
Calnum : 342382096001
Units : ng

Name : tvh/bfb_265
Date : 22-SEP-2012 00:51
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	265_022	342382096022	TVH_14	22-SEP-2012 00:51	S20355 (1000X), S20276 (5000X)
L2	265_023	342382096023	TVH_15	22-SEP-2012 01:28	S20354 (1000X), S20276 (5000X)
L3	265_024	342382096024	TVH_16	22-SEP-2012 02:06	S20353 (1000X), S20276 (5000X)
L4	265_025	342382096025	TVH_17	22-SEP-2012 02:43	S20352 (2000X), S20276 (5000X)
L5	265_026	342382096026	TVH_18	22-SEP-2012 03:21	S20352 (1000X), S20276 (5000X)

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
Gasoline C6-C12	A	3504.7	2840.3	2672.3	2608.5	2654.8	AVRG		3.50E-4		2856.1	13	0.995	20	
Bromofluorobenzene (FID)	A	1033.6	1006.6	1092.6	1044.5	1161.9	AVRG		9.37E-4		1067.8	6	0.995	20	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Gasoline C6-C12	A	250.00	**23**	2500.0	-1	10000	-6	25000	-9	50000	-7
Bromofluorobenzene (FID)	A	900.00	-3	900.00	-6	900.00	2	900.00	-2	900.00	9

DJA 09/24/12 : Corrected automatically drawn baseline in TVH_14 (265_022).

Analyst: DJA Date: 09/24/12 Reviewer: EAH Date: 09/24/12

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

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 239885 GCVOA Water
EPA 8015B

Inst : GC19 Name : tvh/bfb_265
Calnum : 342382096001 Cal Date : 22-SEP-2012

ICV 342382096028 (265_028 22-SEP-2012) stds: S20463 (1000X), S20276 (5000X)

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Gasoline C6-C12	A	10000	8786	ng	-12	15	

Analyst: DJA Date: 09/24/12 Reviewer: EAH Date: 09/24/12

CURTIS & TOMPKINS SPIKE USER REPORT FOR 239885 GCVOA Water
EPA 8021B

Inst : GC19 Run Name : QC658571 IDF : 1.0
Seqnum : 342390736002.1 File : 271_002 Time : 27-SEP-2012 08:53
Cal : 342377898001 Caldate : 19-SEP-2012
Standards: S20258 (2000X), S20276 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
MTBE	C	1427.3	1323.3	50.00	46.36	ng	-7	15	u
MTBE	B	1035.0	1638.1	50.00	79.14	ng	**58**	15	c+ rsd ***
Benzene	C	5019.9	4662.7	50.00	46.44	ng	-7	15	u
Benzene	B	3216.2	4820.7	50.00	74.94	ng	**50**	15	c+ ***
Toluene	C	5001.6	4554.7	50.00	45.53	ng	-9	15	u
Toluene	B	3331.9	4621.8	50.00	69.36	ng	**39**	15	c+ ***
Ethylbenzene	C	4103.3	4000.2	50.00	48.74	ng	-3	15	u
Ethylbenzene	B	2829.3	4217.5	50.00	74.53	ng	**49**	15	c+ ***
m,p-Xylenes	C	4647.8	4656.0	50.00	50.09	ng	0	15	u
m,p-Xylenes	B	3294.8	4802.1	50.00	72.87	ng	**46**	15	c+ ***
o-Xylene	C	3970.1	3834.0	50.00	48.29	ng	-3	15	u
o-Xylene	B	2777.0	3975.8	50.00	71.59	ng	**43**	15	c+ ***
Bromofluorobenzene (PID)	C	2490.8	2175.0	900.0	785.9	ng	-13	15	u
Bromofluorobenzene (PID)	B	1483.3	1886.3	900.0	1145	ng	**27**	15	c+

MAC 09/28/12 : ccv/bs,qc658571,191067 [general version]

Analyst: DJA Date: 10/02/12 Reviewer: EAH Date: 10/02/12

+=high bias c=CCV rsd=ICAL %RSD failure u=use

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 239885 GCVOA Water
EPA 8015B

Inst : GC19 Run Name : TVH IDF : 1.0
Seqnum : 342390736005.1 File : 271_005 Time : 27-SEP-2012 10:57
Cal : 342382096001 Caldate : 22-SEP-2012
Standards: S20263 (2000X), S20276 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Gasoline C6-C12	A	2856.1	2513.9	5000	4401	ng	-12	15	
Bromofluorobenzene (FID)	A	1067.8	1073.6	900.0	904.9	ng	1	15	

MAC: 09/28/12 * DJA: 10/02/12 EAH: 10/02/12

CURTIS & TOMPKINS SPIKE USER REPORT FOR 239885 GCVOA Water
EPA 8015B

Inst : GC19 Run Name : QC658570 IDF : 1.0
Seqnum : 342390736007.1 File : 271_007 Time : 27-SEP-2012 13:05
Cal : 342382096001 Caldate : 22-SEP-2012
Standards: S20263 (2000X), S20276 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Gasoline C6-C12	A	2856.1	2996.2	5000	5245	ng	5	15	u
Bromofluorobenzene (FID)	A	1067.8	1142.1	900.0	962.7	ng	7	15	u

MAC 09/28/12 : ccv/lcs,qc658570,191067 [general version]

Analyst: DJA Date: 10/02/12 Reviewer: EAH Date: 10/02/12

u=use

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 239885 GCVOA Water
EPA 8021B

Inst : GC19 Run Name : BTXE IDF : 1.0
Seqnum : 342390736010 File : 271_010 Time : 27-SEP-2012 17:06
Cal : 342377898001 Caldate : 19-SEP-2012
Standards: S20258 (1000X), S20276 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
MTBE	B	1035.0	1544.5	100.0	149.2	ng	**49**	15	c+ rsd ***
Benzene	B	3216.2	4970.0	100.0	154.5	ng	**55**	15	c+ ***
Toluene	B	3331.9	4577.0	100.0	137.4	ng	**37**	15	c+ ***
Ethylbenzene	B	2829.3	4169.1	100.0	147.4	ng	**47**	15	c+ ***
m,p-Xylenes	B	3294.8	4757.8	100.0	144.4	ng	**44**	15	c+ ***
o-Xylene	B	2777.0	3977.9	100.0	143.2	ng	**43**	15	c+ ***
Bromofluorobenzene (PID)	B	1483.3	2107.8	900.0	1279	ng	**42**	15	c+
MTBE	C	1427.3	1385.3	100.0	97.05	ng	-3	15	
Benzene	C	5019.9	5019.6	100.0	99.99	ng	0	15	
Toluene	C	5001.6	4787.2	100.0	95.71	ng	-4	15	
Ethylbenzene	C	4103.3	4351.3	100.0	106.0	ng	6	15	
m,p-Xylenes	C	4647.8	5024.6	100.0	108.1	ng	8	15	
o-Xylene	C	3970.1	4187.9	100.0	105.5	ng	5	15	
Bromofluorobenzene (PID)	C	2490.8	2422.9	900.0	875.5	ng	-3	15	

MAC: 09/28/12 * DJA: 10/02/12 EAH: 10/02/12

+=high bias c=CCV rsd=ICAL %RSD failure

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 239885 GCVOA Water
EPA 8021B

Inst : GC19 Run Name : BTXE IDF : 1.0
Seqnum : 342390736022 File : 271_022 Time : 28-SEP-2012 00:37
Cal : 342377898001 Caldate : 19-SEP-2012
Standards: S20258 (666.7X), S20276 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
MTBE	B	1035.0	1571.1	150.0	227.7	ng	**52**	15	c+ rsd ***
Benzene	B	3216.2	4817.5	150.0	224.7	ng	**50**	15	c+ ***
Toluene	B	3331.9	4644.1	150.0	209.1	ng	**39**	15	c+ ***
Ethylbenzene	B	2829.3	4221.4	150.0	223.8	ng	**49**	15	c+ ***
m,p-Xylenes	B	3294.8	4802.9	150.0	218.7	ng	**46**	15	c+ ***
o-Xylene	B	2777.0	4161.8	150.0	224.8	ng	**50**	15	c+ ***
Bromofluorobenzene (PID)	B	1483.3	2418.3	900.0	1467	ng	**63**	15	c+
MTBE	C	1427.3	1661.6	150.0	174.6	ng	**16**	15	c+ ***
Benzene	C	5019.9	5743.5	150.0	171.6	ng	14	15	
Toluene	C	5001.6	5418.3	150.0	162.5	ng	8	15	
Ethylbenzene	C	4103.3	4904.0	150.0	179.3	ng	**20**	15	c+ ***
m,p-Xylenes	C	4647.8	5553.5	150.0	179.2	ng	**19**	15	c+ ***
o-Xylene	C	3970.1	4766.3	150.0	180.1	ng	**20**	15	c+ ***
Bromofluorobenzene (PID)	C	2490.8	2929.6	900.0	1059	ng	**18**	15	c+

Analyst: DJA Date: 10/02/12 Reviewer: EAH Date: 10/02/12

+=high bias c=CCV rsd=ICAL %RSD failure

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 239885 GCVOA Water
EPA 8015B

Inst : GC19 Run Name : TVH IDF : 1.0
Seqnum : 342390736024.1 File : 271_024 Time : 28-SEP-2012 01:52
Cal : 342382096001 Caldate : 22-SEP-2012
Standards: S20263 (666.7X), S20276 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Gasoline C6-C12	A	2856.1	2850.9	15000	14970	ng	0	15	
Bromofluorobenzene (FID)	A	1067.8	1174.9	900.0	990.3	ng	10	15	

MAC: 09/28/12 * DJA: 10/02/12 EAH: 10/02/12

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 239885 GCVOA Water
EPA 8021B

Inst : GC19 Run Name : BTXE IDF : 1.0
Seqnum : 342396508007.1 File : 275_007 Time : 01-OCT-2012 12:39
Cal : 342377898001 Caldate : 19-SEP-2012
Standards: S20258 (1000X), S20276 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
MTBE	B	1035.0	1122.1	100.0	108.4	ng	8	15	rsd ***
Benzene	B	3216.2	3718.2	100.0	115.6	ng	**16**	15	c+ ***
Toluene	B	3331.9	3484.9	100.0	104.6	ng	5	15	
Ethylbenzene	B	2829.3	3162.1	100.0	111.8	ng	12	15	
m,p-Xylenes	B	3294.8	3916.2	100.0	118.9	ng	**19**	15	c+ ***
o-Xylene	B	2777.0	3325.4	100.0	119.8	ng	**20**	15	c+ ***
Bromofluorobenzene (PID)	B	1483.3	1598.4	900.0	969.9	ng	8	15	
MTBE	C	1427.3	1224.2	100.0	85.77	ng	-14	15	
Benzene	C	5019.9	4753.3	100.0	94.69	ng	-5	15	
Toluene	C	5001.6	4552.8	100.0	91.03	ng	-9	15	
Ethylbenzene	C	4103.3	4123.9	100.0	100.5	ng	1	15	
m,p-Xylenes	C	4647.8	4739.2	100.0	102.0	ng	2	15	
o-Xylene	C	3970.1	3977.2	100.0	100.2	ng	0	15	
Bromofluorobenzene (PID)	C	2490.8	2211.8	900.0	799.2	ng	-11	15	

MAC: 10/01/12 * DJA: 10/02/12 EAH: 10/02/12

+=high bias c=CCV rsd=ICAL %RSD failure

CURTIS & TOMPKINS SPIKE USER REPORT FOR 239885 GCVOA Water
EPA 8021B

Inst : GC19 Run Name : QC659066 IDF : 1.0
Seqnum : 342396508010.1 File : 275_010 Time : 01-OCT-2012 14:56
Cal : 342377898001 Caldate : 19-SEP-2012
Standards: S20258 (1000X), S20276 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
MTBE	C	1427.3	1300.9	100.0	91.15	ng	-9	15	u
MTBE	B	1035.0	0.0000	100.0	0	ng	**-100**	15	c- rsd ***
Benzene	C	5019.9	4838.2	100.0	96.38	ng	-4	15	u
Benzene	B	3216.2	3665.6	100.0	114.0	ng	14	15	
Toluene	C	5001.6	4594.6	100.0	91.86	ng	-8	15	u
Toluene	B	3331.9	3593.4	100.0	107.9	ng	8	15	
Ethylbenzene	C	4103.3	4151.3	100.0	101.2	ng	1	15	u
Ethylbenzene	B	2829.3	3234.9	100.0	114.3	ng	14	15	
m,p-Xylenes	C	4647.8	4797.4	100.0	103.2	ng	3	15	u
m,p-Xylenes	B	3294.8	3640.9	100.0	110.5	ng	11	15	
o-Xylene	C	3970.1	3991.6	100.0	100.5	ng	1	15	u
o-Xylene	B	2777.0	3086.9	100.0	111.2	ng	11	15	
Bromofluorobenzene (PID)	C	2490.8	2361.6	900.0	853.3	ng	-5	15	u
Bromofluorobenzene (PID)	B	1483.3	1705.5	900.0	1035	ng	15	15	

MAC 10/01/12 [Benzene B]: Corrected automatically drawn baseline for Ch. B. [general version]

DJA 10/02/12 : ccv/bs,qc659066,191188 [general version]

Analyst: DJA Date: 10/02/12 Reviewer: EAH Date: 10/02/12

-=low bias c=CCV rsd=ICAL %RSD failure u=use

CURTIS & TOMPKINS SPIKE USER REPORT FOR 239885 GCVOA Water
EPA 8015B

Inst : GC19 Run Name : QC659068 IDF : 1.0
Seqnum : 342396508012.1 File : 275_012 Time : 01-OCT-2012 16:28
Cal : 342382096001 Caldate : 22-SEP-2012
Standards: S20263 (2000X), S20276 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Gasoline C6-C12	A	2856.1	2599.0	5000	4550	ng	-9	15	u
Bromofluorobenzene (FID)	A	1067.8	1101.0	900.0	928.0	ng	3	15	u

DJA 10/02/12 : ccv/lcs,qc659068,191188 [general version]

Analyst: DJA Date: 10/02/12 Reviewer: EAH Date: 10/02/12

u=use

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 239885 GCVOA Water
EPA 8021B

Inst : GC19 Run Name : BTXE IDF : 1.0
Seqnum : 342396508024 File : 275_024 Time : 02-OCT-2012 00:28
Cal : 342377898001 Caldate : 19-SEP-2012
Standards: S20258 (666.7X), S20276 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
MTBE	B	1035.0	1145.2	150.0	166.0	ng	11	15	rsd ***
Benzene	B	3216.2	3623.5	150.0	169.0	ng	13	15	
Toluene	B	3331.9	3399.9	150.0	153.1	ng	2	15	
Ethylbenzene	B	2829.3	2993.2	150.0	158.7	ng	6	15	
m,p-Xylenes	B	3294.8	3552.1	150.0	161.7	ng	8	15	
o-Xylene	B	2777.0	2974.6	150.0	160.7	ng	7	15	
Bromofluorobenzene (PID)	B	1483.3	1379.7	900.0	837.1	ng	-7	15	
MTBE	C	1427.3	1485.9	150.0	156.2	ng	4	15	
Benzene	C	5019.9	5165.6	150.0	154.4	ng	3	15	
Toluene	C	5001.6	4873.5	150.0	146.2	ng	-3	15	
Ethylbenzene	C	4103.3	4370.3	150.0	159.8	ng	7	15	
m,p-Xylenes	C	4647.8	4968.3	150.0	160.3	ng	7	15	
o-Xylene	C	3970.1	4227.9	150.0	159.7	ng	6	15	
Bromofluorobenzene (PID)	C	2490.8	2009.3	900.0	726.0	ng	**-19**	15	c-

DJA 10/02/12 [Bromofluorobenzene (PID) C]: Passes control limits.

Analyst: DJA Date: 10/02/12 Reviewer: EAH Date: 10/02/12

-=low bias c=CCV rsd=ICAL %RSD failure

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 239885 GCVOA Water
EPA 8015B

Inst : GC19 Run Name : TVH IDF : 1.0
Seqnum : 342396508027 File : 275_027 Time : 02-OCT-2012 02:21
Cal : 342382096001 Caldate : 22-SEP-2012
Standards: S20263 (1000X), S20276 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Gasoline C6-C12	A	2856.1	2415.2	10000	8456	ng	-15	15	
Bromofluorobenzene (FID)	A	1067.8	860.22	900.0	725.0	ng	**-19**	15	c-

DJA 10/02/12 [Bromofluorobenzene (FID) A]: Passes control limits.

Analyst: DJA Date: 10/02/12 Reviewer: EAH Date: 10/02/12

-=low bias c=CCV

Logbooks & Sequences

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 342377898

Instrument : GC19 Begun : 09/18/12 10:18
Method : EPA 8015B, EPA 8021B SOP Version : TVH_BTXE_rv14

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	262_001	X	CMARK			09/18/12 10:18	1.0	1 2	
002	262_002	CCV	BTXE			09/18/12 10:56	1.0	3 2	
003	262_003	CCV/BS	QC656938	Water	190669	09/18/12 11:34	1.0	4 2	
004	262_004	BLANK	QC656940	Water	190669	09/18/12 12:57	1.0	2	
005	262_005	X	CMARK			09/18/12 14:30	1.0	1 2	
006	262_006	BSD	QC656939	Water	190669	09/18/12 15:08	1.0	4 2	
007	262_007	MS	QC656941	Water	190669	09/18/12 18:12	1.0	4 2	
008	262_008	MSD	QC656942	Water	190669	09/18/12 18:50	1.0	4 2	
009	262_009	SAMPLE	239684-010	Water	190669	09/18/12 19:27	1.0	2	
010	262_010	SAMPLE	239684-009	Water	190669	09/18/12 20:05	1.0	2	
011	262_011	SAMPLE	239657-002	Water	190669	09/18/12 20:43	1.0	2	pH > 2
012	262_012	SAMPLE	239657-003	Water	190669	09/18/12 21:20	1.0	2	pH > 2
013	262_013	SAMPLE	239657-004	Water	190669	09/18/12 21:58	1.0	2	pH > 2
014	262_014	SAMPLE	239657-005	Water	190669	09/18/12 22:36	1.0	2	pH > 2
015	262_015	SAMPLE	239657-006	Water	190669	09/18/12 23:13	1.0	2	pH > 2
016	262_016	SAMPLE	239665-003	Water	190669	09/18/12 23:51	1.0	2	pH > 2
017	262_017	CCV	TVH			09/19/12 00:28	1.0	4 2	
018	262_018	CCV	TVH			09/19/12 01:06	1.0	4 2	
019	262_019	X	CMARK			09/19/12 01:44	1.0	1 2	
020	262_020	IB	ICALIB			09/19/12 02:21	1.0	2	
021	262_021	ICAL	BTXE_1			09/19/12 02:59	1.0	5 2	
022	262_022	ICAL	MBTXE_2			09/19/12 03:36	1.0	6 2	
023	262_023	ICAL	MBTXE_3			09/19/12 04:14	1.0	6 2	
024	262_024	ICAL	MBTXE_4			09/19/12 04:51	1.0	6 2	
025	262_025	ICAL	MBTXE_5			09/19/12 05:29	1.0	7 2	
026	262_026	ICAL	MBTXE_6			09/19/12 06:07	1.0	7 2	
027	262_027	ICAL	MBTXE_7			09/19/12 06:44	1.0	7 2	
028	262_028	ICAL	MTBE_7			09/19/12 07:22	1.0	8 2	
029	262_029	X	IB			09/19/12 07:59	1.0	2	
030	262_030	ICV	MBTXE			09/19/12 08:37	1.0	9 2	
031	262_031	X	ICV			09/19/12 09:14	1.0	9 2	

MAC 09/19/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 31.

MAC 09/19/12 : All samples in batch set to rerun due to MS/MSD being run without MSS

Reviewed by: MAC Date: 09/19/12

Standards used: 1=S19631 2=S20276 3=S20258 4=S20263 5=S20257 6=S20256 7=S20255 8=S19756 9=S20462

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 342382096

Instrument : GC19 Begun : 09/21/12 08:16
Method : EPA 8015B, EPA 8021B SOP Version : TVH_BTXE_rv14

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	265_001	X	TVH			09/21/12 08:16	1.0	1 2	
002	265_002	X	TVH			09/21/12 09:19	1.0	1 2	
003	265_003	X	TVH			09/21/12 10:30	1.0	1 2	
004	265_004	CCV/BS	QC657587	Soil	190826	09/21/12 11:38	1.0	3 2	
005	265_005	BSD	QC657588	Soil	190826	09/21/12 12:30	1.0	3 2	
006	265_006	BLANK	QC657589	Soil	190826	09/21/12 13:37	1.0	2	
007	265_007	SAMPLE	239789-001	Soil	190826	09/21/12 14:28	1.0	2	
008	265_008	CCV	BTXE			09/21/12 15:16	1.0	3 2	
009	265_009	X	CMARK			09/21/12 16:05	1.0	4 2	
010	265_010	CCV/BS	QC657633	Water	190836	09/21/12 16:43	1.0	3 2	
011	265_011	BSD	QC657634	Water	190836	09/21/12 17:20	1.0	3 2	
012	265_012	BLANK	QC657635	Water	190836	09/21/12 18:35	1.0	2	
013	265_013	SAMPLE	239745-001	Water	190836	09/21/12 19:12	1.0	2	
014	265_014	SAMPLE	239708-001	Water	190836	09/21/12 19:50	5.0	2	
015	265_015	X	IB			09/21/12 20:28	1.0	2	
016	265_016	SAMPLE	239708-002	Water	190836	09/21/12 21:05	500.0	2	
017	265_017	X	IB			09/21/12 21:43	1.0	2	
018	265_018	SAMPLE	239708-003	Water	190836	09/21/12 22:20	5.0	2	pH > 2
019	265_019	CCV	BTXE			09/21/12 22:58	1.0	3 2	
020	265_020	CCV	BTXE			09/21/12 23:36	1.0	3 2	
021	265_021	IB	CALIB			09/22/12 00:13	1.0	2	
022	265_022	ICAL	TVH_14			09/22/12 00:51	1.0	5 2	
023	265_023	ICAL	TVH_15			09/22/12 01:28	1.0	6 2	
024	265_024	ICAL	TVH_16			09/22/12 02:06	1.0	7 2	
025	265_025	ICAL	TVH_17			09/22/12 02:43	1.0	8 2	
026	265_026	ICAL	TVH_18			09/22/12 03:21	1.0	8 2	
027	265_027	X	IB			09/22/12 03:59	1.0	2	
028	265_028	ICV	TVH			09/22/12 04:36	1.0	9 2	
029	265_029	X	ICV			09/22/12 05:14	1.0	9 2	
030	265_030	CMARKER	CMARK			09/22/12 05:51	1.0	4 2	

DJA 09/24/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 30.

Reviewed by: DJA Date: 09/24/12

Standards used: 1=S20263 2=S20276 3=S20258 4=S19631 5=S20355 6=S20354 7=S20353 8=S20352 9=S20463

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CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 342390736

Instrument : GC19 Begun : 09/27/12 08:16
Method : EPA 8015B, EPA 8021B SOP Version : TVH_BTXE_rv14

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	271_001	X	CMARK			09/27/12 08:16	1.0	1 2	
002	271_002	CCV/BS	QC658571	Water	191067	09/27/12 08:53	1.0	3 2	
003	271_003	X	TVH			09/27/12 09:31	1.0	4 2	
004	271_004	BSD	QC658572	Water	191067	09/27/12 10:09	1.0	3 2	
005	271_005	CCV	TVH			09/27/12 10:57	1.0	4 2	
006	271_006	X	TVH			09/27/12 11:51	1.0	4 2	
007	271_007	CCV/LCS	QC658570	Water	191067	09/27/12 13:05	1.0	4 2	
008	271_008	BLANK	QC658573	Water	191067	09/27/12 14:01	1.0	2	
009	271_009	X	CMARK			09/27/12 16:28	1.0	1 2	
010	271_010	CCV	BTXE			09/27/12 17:06	1.0	3 2	
011	271_011	SAMPLE	239885-001	Water	191067	09/27/12 17:43	1.0	2	
012	271_012	SAMPLE	239885-002	Water	191067	09/27/12 18:21	1.0	2	
013	271_013	SAMPLE	239809-001	Water	191067	09/27/12 18:59	1.0	2	
014	271_014	SAMPLE	239809-002	Water	191067	09/27/12 19:36	1.0	2	
015	271_015	MSS	239951-001	Water	191067	09/27/12 20:14	1.0	2	
016	271_016	MS	QC658574	Water	191067	09/27/12 20:51	1.0	4 2	
017	271_017	MSD	QC658575	Water	191067	09/27/12 21:29	1.0	4 2	
018	271_018	SAMPLE	239951-002	Water	191067	09/27/12 22:06	1.0	2	
019	271_019	SAMPLE	239951-003	Water	191067	09/27/12 22:44	1.0	2	
020	271_020	SAMPLE	239951-004	Water	191067	09/27/12 23:22	1.0	2	
021	271_021	X	TVH			09/27/12 23:59	1.0	4 2	
022	271_022	CCV	BTXE			09/28/12 00:37	1.0	3 2	
023	271_023	X	CMARK			09/28/12 01:14	1.0	1 2	
024	271_024	CCV	TVH			09/28/12 01:52	1.0	4 2	
025	271_025	X	BTXE			09/28/12 02:29	1.0	3 2	
026	271_026	SAMPLE	239903-001	Water	191067	09/28/12 03:07	1.0	2	
027	271_027	SAMPLE	239903-003	Water	191067	09/28/12 03:44	1.0	2	pH > 2
028	271_028	X	IB			09/28/12 04:22	1.0	2	
029	271_029	SAMPLE	239903-004	Water	191067	09/28/12 05:00	1.0	2	
030	271_030	SAMPLE	239951-005	Water	191067	09/28/12 05:37	1.0	2	
031	271_031	SAMPLE	239951-006	Water	191067	09/28/12 06:15	1.0	2	
032	271_032	SAMPLE	239951-007	Water	191067	09/28/12 06:52	1.0	2	
033	271_033	SAMPLE	239951-008	Water	191067	09/28/12 07:30	1.0	2	
034	271_034	SAMPLE	239951-009	Water	191067	09/28/12 08:07	1.0	2	
035	271_035	SAMPLE	239951-010	Water	191067	09/28/12 08:45	1.0	2	
036	271_036	X	TVH			09/28/12 09:22	1.0	4 2	
037	271_037	CCV	TVH			09/28/12 10:00	1.0	4 2	
038	271_038	X	CMARK			09/28/12 10:38	1.0	1 2	
039	271_039	IB	BAKE			09/28/12 11:15	1.0	2	
040	271_040	IB	BAKE			09/28/12 11:53	1.0	2	
041	271_041	IB	NOBAKE			09/28/12 12:30	1.0	2	
042	271_042	IB	NOBAKE			09/28/12 13:08	1.0	2	

MAC 09/28/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 38.

MAC 09/28/12 : run 36 was x'd and run 37 was used as closing ccv

Reviewed by: MAC Date: 09/28/12

Standards used: 1=S19631 2=S20276 3=S20258 4=S20263

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CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 342396508

Instrument : GC19 Begun : 10/01/12 08:28
Method : EPA 8015B, EPA 8021B SOP Version : TVH_BTXE_rv14

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	275_001	X	BTXE			10/01/12 08:28	1.0	1 2	
002	275_002	CCV/LCS	QC658958	Soil	191162	10/01/12 09:06	1.0	1 2	
003	275_003	BLANK	QC658961	Soil	191162	10/01/12 09:52	1.0	2	
004	275_004	MSS	240013-002	Soil	191162	10/01/12 10:46	1.0	2	
005	275_005	MS	QC658959	Soil	191162	10/01/12 11:23	1.0	1 2	
006	275_006	MSD	QC658960	Soil	191162	10/01/12 12:01	1.0	1 2	
007	275_007	CCV	BTXE			10/01/12 12:39	1.0	1 2	
008	275_008	X	BTXE			10/01/12 13:27	1.0	1 2	
009	275_009	X	CMARK			10/01/12 14:18	1.0	3 2	
010	275_010	CCV/BS	QC659066	Water	191188	10/01/12 14:56	1.0	1 2	
011	275_011	BSD	QC659067	Water	191188	10/01/12 15:34	1.0	1 2	
012	275_012	CCV/LCS	QC659068	Water	191188	10/01/12 16:28	1.0	4 2	
013	275_013	BLANK	QC659069	Water	191188	10/01/12 17:20	1.0	2	
014	275_014	MSS	239885-002	Water	191188	10/01/12 18:12	1.0	2	
015	275_015	MS	QC659070	Water	191188	10/01/12 18:50	1.0	4 2	
016	275_016	MSD	QC659071	Water	191188	10/01/12 19:27	1.0	4 2	
017	275_017	SAMPLE	239998-001	Water	191188	10/01/12 20:05	1.0	2	
018	275_018	SAMPLE	239998-009	Water	191188	10/01/12 20:43	1.0	2	
019	275_019	SAMPLE	239998-008	Water	191188	10/01/12 21:20	1.0	2	
020	275_020	SAMPLE	239998-004	Water	191188	10/01/12 21:58	1.0	2	
021	275_021	SAMPLE	239998-003	Water	191188	10/01/12 22:35	1.0	2	
022	275_022	SAMPLE	239998-006	Water	191188	10/01/12 23:13	1.0	2	
023	275_023	SAMPLE	239998-005	Water	191188	10/01/12 23:51	1.0	2	
024	275_024	CCV	BTXE			10/02/12 00:28	1.0	1 2	
025	275_025	X	TVH			10/02/12 01:06	1.0	4 2	
026	275_026	X	BTXE			10/02/12 01:43	1.0	1 2	
027	275_027	CCV	TVH			10/02/12 02:21	1.0	4 2	
028	275_028	X	CMARK			10/02/12 02:58	1.0	3 2	
029	275_029	SAMPLE	239998-002	Water	191188	10/02/12 03:36	1.0	2	
030	275_030	X	IB			10/02/12 04:14	1.0	2	
031	275_031	SAMPLE	240021-002	Water	191188	10/02/12 04:51	1.0	2	pH > 2
032	275_032	SAMPLE	240021-001	Water	191188	10/02/12 05:29	1.0	2	
033	275_033	SAMPLE	240021-003	Water	191188	10/02/12 06:06	1.0	2	
034	275_034	SAMPLE	240021-006	Water	191188	10/02/12 06:44	1.0	2	1:BZ=6100
035	275_035	SAMPLE	240021-005	Water	191188	10/02/12 07:21	1.0	2	
036	275_036	SAMPLE	240021-008	Water	191188	10/02/12 07:59	1.0	2	
037	275_037	SAMPLE	240021-007	Water	191188	10/02/12 08:36	1.0	2	3:GAS:6-10=57000
038	275_038	SAMPLE	240021-004	Water	191188	10/02/12 09:14	1.0	2	1:BZ=2800
039	275_039	SAMPLE	240021-009	Water	191188	10/02/12 09:52	1.0	2	1:BZ=5800
040	275_040	CCV	BTXE			10/02/12 10:29	1.0	1 2	
041	275_041	CCV	TVH			10/02/12 11:07	1.0	4 2	
042	275_042	X	CMARK			10/02/12 11:44	1.0	3 2	

DJA 10/01/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 10.

DJA 10/02/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 44.

Reviewed by: DJA Date: 10/01/12

Standards used: 1=S20258 2=S20276 3=S19631 4=S20263

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REPORTING SUMMARY FOR 239885 GCVOA Water

Sample ID	Analyte	Inst ID	Ch	Date & Time
239885-001	Gasoline C6-C12	GC19	A	09/27/12 17:43
239885-001	MTBE	GC19	C	09/27/12 17:43
239885-001	Benzene	GC19	C	09/27/12 17:43
239885-001	Toluene	GC19	C	09/27/12 17:43
239885-001	Ethylbenzene	GC19	C	09/27/12 17:43
239885-001	m,p-Xylenes	GC19	C	09/27/12 17:43
239885-001	o-Xylene	GC19	C	09/27/12 17:43
239885-001	Bromofluorobenzene (FID)	GC19	A	09/27/12 17:43
239885-001	Bromofluorobenzene (PID)	GC19	C	09/27/12 17:43
239885-001	Xylene (total)	GC19	C	09/27/12 17:43
239885-002	Gasoline C6-C12	GC19	A	09/27/12 18:21
239885-002	MTBE	GC19	C	10/01/12 18:12
239885-002	Benzene	GC19	C	10/01/12 18:12
239885-002	Toluene	GC19	C	10/01/12 18:12
239885-002	Ethylbenzene	GC19	C	10/01/12 18:12
239885-002	m,p-Xylenes	GC19	C	10/01/12 18:12
239885-002	o-Xylene	GC19	C	10/01/12 18:12
239885-002	Bromofluorobenzene (FID)	GC19	A	09/27/12 18:21
239885-002	Bromofluorobenzene (PID)	GC19	C	10/01/12 18:12
239885-002	Xylene (total)	GC19	C	10/01/12 18:12
QC658570	Gasoline C6-C12	GC19	A	09/27/12 13:05
QC658570	Bromofluorobenzene (FID)	GC19	A	09/27/12 13:05
QC658571	MTBE	GC19	C	09/27/12 08:53
QC658571	Benzene	GC19	C	09/27/12 08:53
QC658571	Toluene	GC19	C	09/27/12 08:53
QC658571	Ethylbenzene	GC19	C	09/27/12 08:53
QC658571	m,p-Xylenes	GC19	C	09/27/12 08:53
QC658571	o-Xylene	GC19	C	09/27/12 08:53
QC658571	Bromofluorobenzene (PID)	GC19	C	09/27/12 08:53
QC658572	MTBE	GC19	C	09/27/12 10:09
QC658572	Benzene	GC19	C	09/27/12 10:09
QC658572	Toluene	GC19	C	09/27/12 10:09
QC658572	Ethylbenzene	GC19	C	09/27/12 10:09
QC658572	m,p-Xylenes	GC19	C	09/27/12 10:09
QC658572	o-Xylene	GC19	C	09/27/12 10:09
QC658572	Bromofluorobenzene (PID)	GC19	C	09/27/12 10:09
QC658573	Gasoline C6-C12	GC19	A	09/27/12 14:01
QC658573	MTBE	GC19	C	09/27/12 14:01
QC658573	Benzene	GC19	C	09/27/12 14:01
QC658573	Toluene	GC19	C	09/27/12 14:01
QC658573	Ethylbenzene	GC19	C	09/27/12 14:01
QC658573	m,p-Xylenes	GC19	C	09/27/12 14:01
QC658573	o-Xylene	GC19	C	09/27/12 14:01
QC658573	Bromofluorobenzene (FID)	GC19	A	09/27/12 14:01
QC658573	Bromofluorobenzene (PID)	GC19	C	09/27/12 14:01
QC658573	Xylene (total)	GC19	C	09/27/12 14:01
QC658574	Gasoline C6-C12	GC19	A	09/27/12 20:51
QC658574	Bromofluorobenzene (FID)	GC19	A	09/27/12 20:51

REPORTING SUMMARY FOR 239885 GCVOA Water

Sample ID	Analyte	Inst ID	Ch	Date & Time
QC658575	Gasoline C6-C12	GC19	A	09/27/12 21:29
QC658575	Bromofluorobenzene (FID)	GC19	A	09/27/12 21:29
QC659066	MTBE	GC19	C	10/01/12 14:56
QC659066	Benzene	GC19	C	10/01/12 14:56
QC659066	Toluene	GC19	C	10/01/12 14:56
QC659066	Ethylbenzene	GC19	C	10/01/12 14:56
QC659066	m,p-Xylenes	GC19	C	10/01/12 14:56
QC659066	o-Xylene	GC19	C	10/01/12 14:56
QC659066	Bromofluorobenzene (PID)	GC19	C	10/01/12 14:56
QC659067	MTBE	GC19	C	10/01/12 15:34
QC659067	Benzene	GC19	C	10/01/12 15:34
QC659067	Toluene	GC19	C	10/01/12 15:34
QC659067	Ethylbenzene	GC19	C	10/01/12 15:34
QC659067	m,p-Xylenes	GC19	C	10/01/12 15:34
QC659067	o-Xylene	GC19	C	10/01/12 15:34
QC659067	Bromofluorobenzene (PID)	GC19	C	10/01/12 15:34
QC659069	MTBE	GC19	C	10/01/12 17:20
QC659069	Benzene	GC19	C	10/01/12 17:20
QC659069	Toluene	GC19	C	10/01/12 17:20
QC659069	Ethylbenzene	GC19	C	10/01/12 17:20
QC659069	m,p-Xylenes	GC19	C	10/01/12 17:20
QC659069	o-Xylene	GC19	C	10/01/12 17:20
QC659069	Bromofluorobenzene (FID)	GC19	A	10/01/12 17:20
QC659069	Bromofluorobenzene (PID)	GC19	C	10/01/12 17:20
QC659069	Xylene (total)	GC19	C	10/01/12 17:20

Case Narrative Addendum: Manual Integrations for 239885 GCVOA (Water)

For SAMPLE 239885-001 (GC19_271_011):
Bromofluorobenzene (FID) (Ch. A): Separated from coeluting peak for Ch. A.

For MSS 239885-002 (GC19_275_014):
Corrected automatically drawn baseline for Ch. A.

For SAMPLE 239885-002 (GC19_271_012):
Corrected automatically drawn baseline for Ch. A.
Bromofluorobenzene (FID) (Ch. A): Separated from coeluting peak for Ch. A.

For BLANK QC658573 (GC19_271_008):
m,p-Xylenes (Ch. B): Separated from coeluting peak.

For MSD QC658575 (GC19_271_017):
Bromofluorobenzene (FID) (Ch. A): Corrected automatically drawn baseline for Ch. A for spike & dup.

For CCV/BS QC659066 (GC19_275_010):
Benzene (Ch. B): Corrected automatically drawn baseline for Ch. B.

For BLANK QC659069 (GC19_275_013):
Toluene (Ch. C): Separated from coeluting peak.
Ethylbenzene (Ch. C): Separated from coeluting peak.
Ethylbenzene (Ch. B): Separated from coeluting peak.
m,p-Xylenes (Ch. C): Separated from coeluting peak.
m,p-Xylenes (Ch. B): Separated from coeluting peak.

For Calibration GC19 (342377898001):
Corrected automatically drawn baseline for Ch. C in multiple levels.

For Calibration GC19 (342382096001):
Corrected automatically drawn baseline in TVH_14 (265_022).

C-Flags for 239885 GCVOA Water
Curtis & Tompkins Laboratories

Type	Sample ID	Analyte	Ch	Primary	Ch	Confirm	Inst	Analyzed
SAMPLE	239885-001	Ethylbenzene	C	0.1837	B	0.06885	GC19	09/27/12 17:43
BLANK	QC658573	Ethylbenzene	C	0.04275	B	0.1054	GC19	09/27/12 14:01
BLANK	QC658573	m,p-Xylenes	C	0.2299	B	0.1199	GC19	09/27/12 14:01
BLANK	QC659069	Toluene	C	0.05406	B	0.1053	GC19	10/01/12 17:20
BLANK	QC659069	m,p-Xylenes	C	0.04626	B	0.3705	GC19	10/01/12 17:20

C-Flag = RPD between columns exceeds 40%

Lower Values Reported for 239885 GCVOA Water
Curtis & Tompkins Laboratories

Type	Sample ID	Analyte	Ch	Primary	Ch	Confirm	Inst	Analyzed
BLANK	QC658573	Toluene	C	0.1371	B	0.1983	GC19	09/27/12 14:01
BLANK	QC658573	Ethylbenzene	C	0.04275	B	0.1054	GC19	09/27/12 14:01
BLANK	QC659069	Toluene	C	0.05406	B	0.1053	GC19	10/01/12 17:20
BLANK	QC659069	m,p-Xylenes	C	0.04626	B	0.3705	GC19	10/01/12 17:20

Laboratory Job Number 239885

ANALYTICAL REPORT

TPH-Extractables by GC

Matrix: Water

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	239885	Location:	Hunters Point NAPL
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	07193.0002	Analysis:	EPA 8015B
Field ID:	IR24MW07A-092512	Sampled:	09/25/12
Matrix:	Water	Received:	09/25/12
Units:	ug/L	Prepared:	09/25/12
Diln Fac:	1.000	Analyzed:	09/26/12
Batch#:	190974		

Type: SAMPLE Cleanup Method: EPA 3630C
Lab ID: 239885-002

Analyte	Result	RL	MDL
Diesel C12-C24	1,400	50	16
Motor Oil C24-C36	ND	300	84

Surrogate	%REC	Limits
o-Terphenyl	99	61-134

Type: BLANK Cleanup Method: EPA 3630C
Lab ID: QC658160

Analyte	Result	RL	MDL
Diesel C12-C24	ND	50	12
Motor Oil C24-C36	ND	300	81

Surrogate	%REC	Limits
o-Terphenyl	102	61-134

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	239885	Location:	Hunters Point NAPL
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	07193.0002	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	190974
Units:	ug/L	Prepared:	09/25/12
Diln Fac:	1.000	Analyzed:	09/26/12

Type: BS
Lab ID: QC658161
Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits
Diesel C12-C24	2,500	2,216	89	65-135

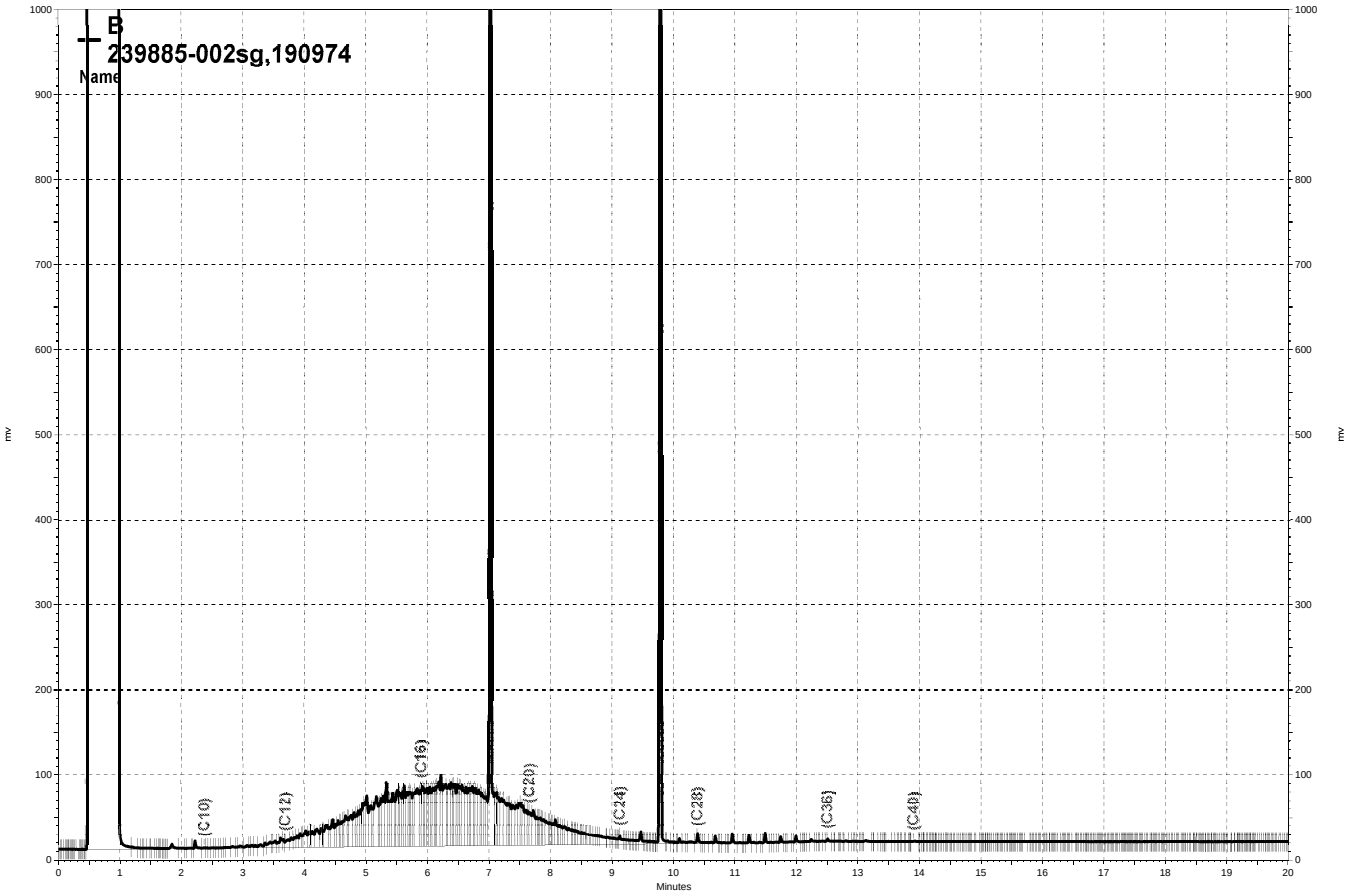
Surrogate	%REC	Limits
o-Terphenyl	87	61-134

Type: BSD
Lab ID: QC658162
Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C12-C24	2,500	2,362	94	65-135	6	20

Surrogate	%REC	Limits
o-Terphenyl	95	61-134

RPD= Relative Percent Difference



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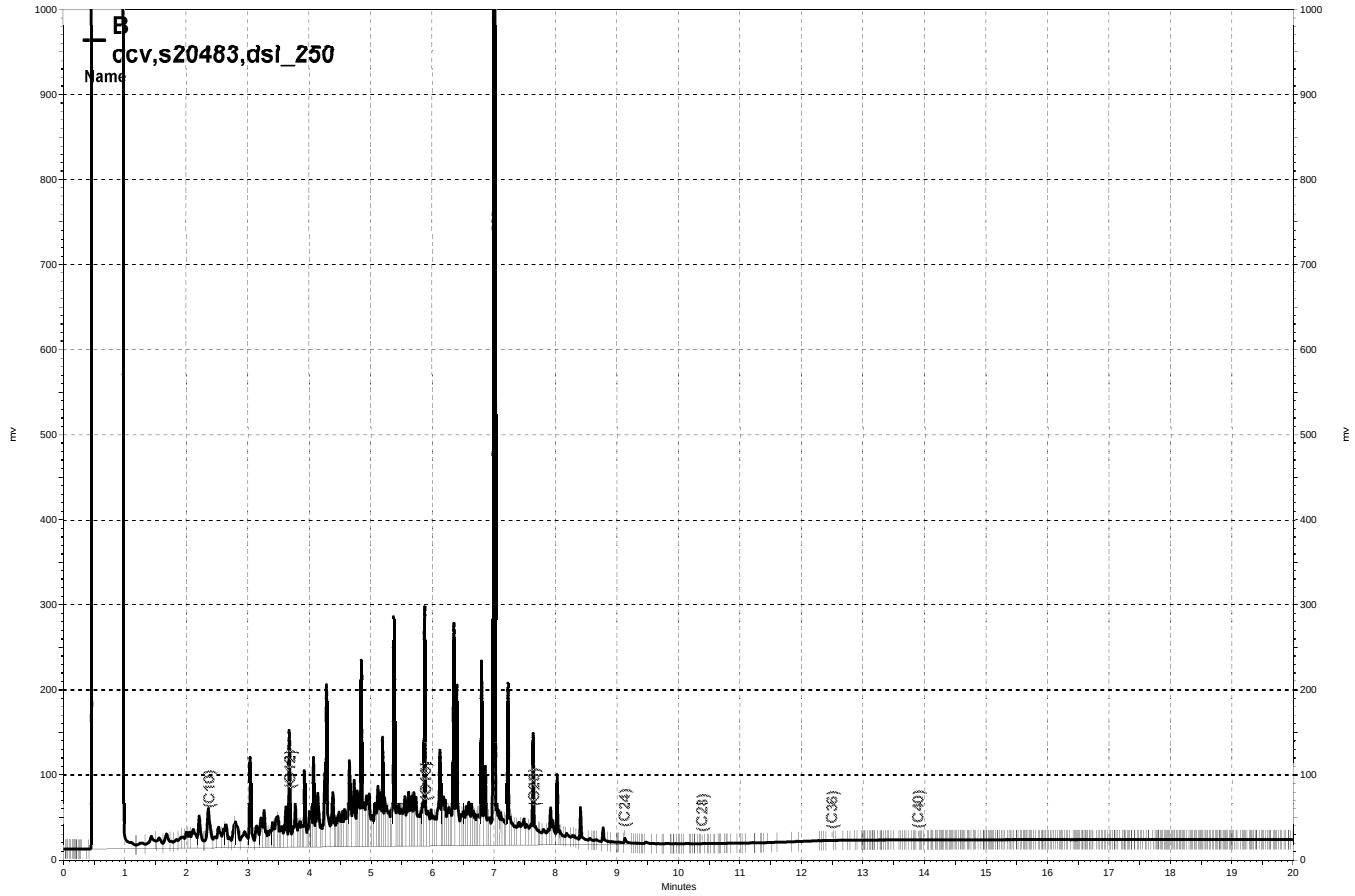

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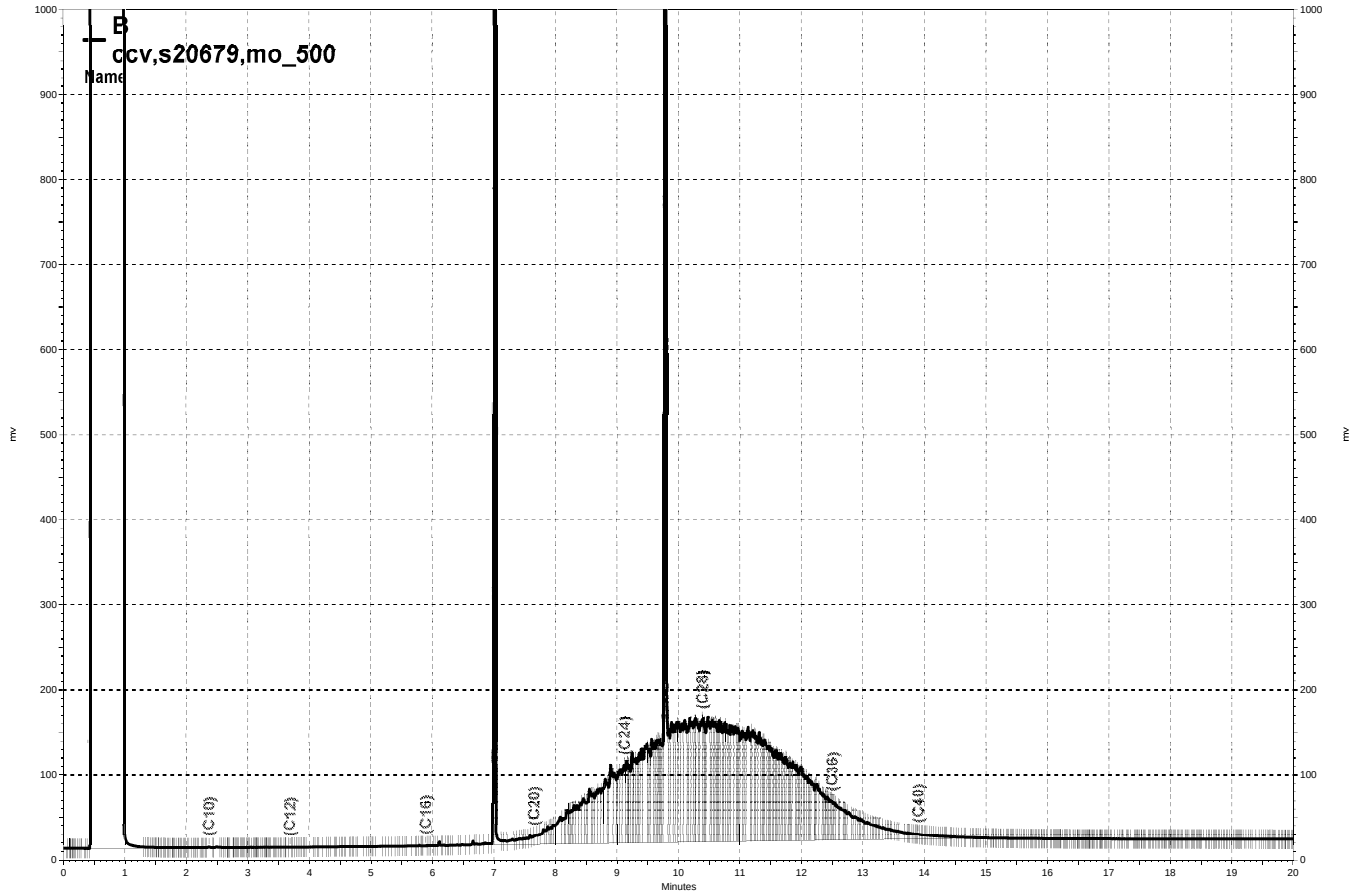

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Initial & Continuing Calibration Data

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 239885 GCSV Water: EPA 8015B

Inst : GC15B
Calnum : 162269861001
Units : mg/L

Name : MO_187
Date : 05-JUL-2012 17:13
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	187b013	162269861013	MO_50	05-JUL-2012 17:40	S20089
L2	187b014	162269861014	MO_250	05-JUL-2012 18:08	S19735
L3	187b015	162269861015	MO_500	05-JUL-2012 18:36	S19736
L4	187b016	162269861016	MO_1000	05-JUL-2012 19:03	S19737
L5	187b017	162269861017	MO_2500	05-JUL-2012 19:31	S19738 (2X)
L6	187b018	162269861018	MO_5000	05-JUL-2012 19:59	S19738

Analyte	L1	L2	L3	L4	L5	L6	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
Motor Oil C24-C36	36632	41825	42396	41873	39738	36092	AVRG		2.52E-5		39759	7	0.995	20	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D
Motor Oil C24-C36	50.000	-8	250.00	5	500.00	7	1000.0	5	2500.0	0	5000.0	-9

SFL 07/06/12 : Corrected automatically drawn baseline on all level except MO_1000.

Analyst: SFL Date: 07/06/12 Reviewer: EAH Date: 07/06/12

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

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 239885 GCSV Water: EPA 8015B

Inst : GC15B
Calnum : 162276981001
Units : mg/L

Name : DSL_192
Date : 10-JUL-2012 18:17
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	192b013	162276981013	DSL_10	10-JUL-2012 18:17	S19968
L2	192b014	162276981014	DSL_100	10-JUL-2012 18:45	S19945
L3	192b015	162276981015	DSL_500	10-JUL-2012 19:13	S19946
L4	192b016	162276981016	DSL_1000	10-JUL-2012 19:41	S19947
L5	192b017	162276981017	DSL_5000	10-JUL-2012 20:08	S19943
L6	192b018	162276981018	DSL_7500	10-JUL-2012 20:36	S19948

Analyte	L1	L2	L3	L4	L5	L6	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
Diesel C12-C24	43068	47538	47393	48335	46187	45695	AVRG		2.16E-5		46369	4	0.995	20	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D
Diesel C12-C24	10.000	-7	100.00	3	500.00	2	1000.0	4	5000.0	0	7500.0	-1

JDG 07/11/12 : Manually integrated fuel hump in multiple levels.

JDG 07/12/12 : RT has been fixed.

Analyst: JDG Date: 07/12/12 Reviewer: EAH Date: 07/12/12

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

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 239885 GCSV Water
EPA 8015B

Inst : GC15B
Calnum : 162276981001

Name : DSL_192
Cal Date : 10-JUL-2012

ICV 162276981020 (192b020 10-JUL-2012) stds: S19823

Analyte	Spiked	Quant	Units	%D	Max	Flags
Diesel C12-C24	500.0	479.8	mg/L	-4	15	

Analyst: JDG Date: 07/11/12 Reviewer: EAH Date: 07/12/12

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 239885 GCSV Water: EPA 8015B

Inst : GC15B
Calnum : 162281280001
Units : mg/L

Name : OTP-HEX_195
Date : 13-JUL-2012 17:42
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	195b011	162281280011	HEXOTP_5	13-JUL-2012 17:42	S19347
L2	195b012	162281280012	HEXOTP_10	13-JUL-2012 18:09	S19348
L3	195b013	162281280013	HEXOTP_25	13-JUL-2012 18:37	S19349
L4	195b014	162281280014	HEXOTP_50	13-JUL-2012 19:04	S19350
L5	195b015	162281280015	HEXOTP_100	13-JUL-2012 19:32	S19351
L6	195b016	162281280016	HEXOTP_200	13-JUL-2012 20:00	S19352

Analyte	L1	L2	L3	L4	L5	L6	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
o-Terphenyl	62022	61944	61801	62655	63080	61712	AVRG		1.61E-5		62202	1	0.995	20	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D
o-Terphenyl	5.0000	0	10.000	0	25.000	-1	50.000	1	100.00	1	200.00	-1

JDG 07/16/12 : Corrected automatically drawn baseline in multiple levels.

Analyst: JDG Date: 07/16/12 Reviewer: EAH Date: 07/16/12

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

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 239885 GCSV Water: EPA 8015B

Inst : GC26A
Calnum : 862229641002
Units : mg/L

Name : DSL_159
Date : 07-JUN-2012 21:31
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	159a013	862229641013	DSL_10	07-JUN-2012 21:31	S19968
L2	159a014	862229641014	DSL_100	07-JUN-2012 21:59	S19945
L3	159a015	862229641015	DSL_500	07-JUN-2012 22:26	S19946
L4	159a016	862229641016	DSL_1000	07-JUN-2012 22:54	S19947
L5	159a017	862229641017	DSL_5000	07-JUN-2012 23:22	S19943
L6	159a018	862229641018	DSL_7500	07-JUN-2012 23:50	S19948

Analyte	L1	L2	L3	L4	L5	L6	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
Diesel C12-C24	34979	37966	39260	42515	42011	41047	AVRG		2.52E-5		39630	7	0.995	20	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D
Diesel C12-C24	10.000	-12	100.00	-4	500.00	-1	1000.0	7	5000.0	6	7500.0	4

SFL 06/10/12 : Corrected automatically drawn baseline in DSL_500 (159a015).

SFL 06/10/12 : Corrected automatically drawn baseline in DSL_1000 (159a016).

SFL 06/10/12 : Corrected automatically drawn baseline in DSL_5000 (159a017).

SFL 06/10/12 : Corrected automatically drawn baseline in DSL_7500 (159a018).

EAH 06/12/12 : SFL06/12/12 11:38RT for C24 fixed to 8.892

Analyst: SFL Date: 06/10/12 Reviewer: EAH Date: 06/12/12

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

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 239885 GCSV Water
EPA 8015B

Inst : GC26A
Calnum : 862229641002

Name : DSL_159
Cal Date : 07-JUN-2012

ICV 862229641020 (159a020 08-JUN-2012) stds: S19823

Analyte	Spiked	Quant	Units	%D	Max	Flags
Diesel C12-C24	500.0	482.4	mg/L	-4	15	

Analyst: SFL Date: 06/10/12 Reviewer: EAH Date: 06/11/12

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 239885 GCSV Water: EPA 8015B

Inst : GC26A
Calnum : 862246744001
Units : mg/L

Name : MO_171
Date : 19-JUN-2012 11:45
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	171a007	862246744007	MO_50	19-JUN-2012 11:45	S19734
L2	171a008	862246744008	MO_250	19-JUN-2012 12:13	S19735
L3	171a009	862246744009	MO_500	19-JUN-2012 12:40	S19736
L4	171a010	862246744010	MO_1000	19-JUN-2012 13:08	S19737
L5	171a011	862246744011	MO_2500	19-JUN-2012 13:36	S19738 (2X)
L6	171a012	862246744012	MO_5000	19-JUN-2012 14:04	S19738

Analyte	L1	L2	L3	L4	L5	L6	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
Motor Oil C24-C36	28100	34267	35355	34093	35057	36030	AVRG		2.96E-5		33817	9	0.995	20	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D
Motor Oil C24-C36	50.000	-17	250.00	1	500.00	5	1000.0	1	2500.0	4	5000.0	7

JDG 06/19/12 : Corrected automatically drawn baseline in all levels.

SFL 06/20/12 : The RT for C40 on page 29 is changed to 12.743.

JDG: 06/19/12 SFL: 06/20/12 EAH: 06/20/12

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

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 239885 GCSV Water: EPA 8015B

Inst : GC26A
Calnum : 862248129001
Units : mg/L

Name : OTP-HEX_172
Date : 20-JUN-2012 16:51
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	172a016	862248129016	HEXOTP_5	20-JUN-2012 16:51	S19347
L2	172a017	862248129017	HEXOTP_10	20-JUN-2012 17:19	S19348
L3	172a018	862248129018	HEXOTP_25	20-JUN-2012 17:47	S19349
L4	172a019	862248129019	HEXOTP_50	20-JUN-2012 18:15	S19350
L5	172a020	862248129020	HEXOTP_100	20-JUN-2012 18:42	S19351
L6	172a021	862248129021	HEXOTP_200	20-JUN-2012 19:10	S19352

Analyte	L1	L2	L3	L4	L5	L6	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
o-Terphenyl	57987	57128	57947	59072	60911	61357	AVRG		1.69E-5		59067	3	0.995	20	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D
o-Terphenyl	5.0000	-2	10.000	-3	25.000	-2	50.000	0	100.00	3	200.00	4

JDG 06/21/12 : Corrected automatically drawn baseline in all levels.

Analyst: JDG Date: 06/21/12 Reviewer: EAH Date: 06/21/12

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

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 239885 GCSV Water
EPA 8015B

Inst : GC15B Run Name : DSL_250 IDF : 1.0
Seqnum : 162389251013 File : 270b013 Time : 26-SEP-2012 15:11
Standards: S20483

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C12-C24	162276981001	10-JUL-2012	46369	47028	250.0	253.5	mg/L	1	15	
o-Terphenyl	162281280001	13-JUL-2012	62202	65666	50.00	52.78	mg/L	6	15	

JDG 09/26/12 : Corrected automatically drawn baseline.

Analyst: JDG Date: 09/26/12 Reviewer: EAH Date: 09/26/12

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 239885 GCSV Water
EPA 8015B

Inst : GC15B Run Name : MO_500 IDF : 1.0
Seqnum : 162389251014 File : 270b014 Time : 26-SEP-2012 15:39
Standards: S20679

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Motor Oil C24-C36	162269861001	05-JUL-2012	39759	44283	500.0	556.9	mg/L	11	15	
o-Terphenyl	162281280001	13-JUL-2012	62202	66204	50.00	53.22	mg/L	6	15	

Analyst: JDG Date: 09/26/12 Reviewer: EAH Date: 09/26/12

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 239885 GCSV Water
EPA 8015B

Inst : GC15B Run Name : DSL_500 IDF : 1.0
Seqnum : 162389251027 File : 270b027 Time : 26-SEP-2012 22:09
Standards: S20484

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C12-C24	162276981001	10-JUL-2012	46369	50414	500.0	543.6	mg/L	9	15	
o-Terphenyl	162281280001	13-JUL-2012	62202	68692	50.00	55.22	mg/L	10	15	

JDG 09/27/12 : Corrected automatically drawn baseline.

Analyst: JDG Date: 09/27/12 Reviewer: EAH Date: 09/27/12

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 239885 GCSV Water
EPA 8015B

Inst : GC15B Run Name : MO_500 IDF : 1.0
Seqnum : 162389251028 File : 270b028 Time : 26-SEP-2012 22:37
Standards: S20679

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Motor Oil C24-C36	162269861001	05-JUL-2012	39759	44974	500.0	565.6	mg/L	13	15	
o-Terphenyl	162281280001	13-JUL-2012	62202	66304	50.00	53.30	mg/L	7	15	

Analyst: JDG Date: 09/27/12 Reviewer: EAH Date: 09/27/12

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 239885 GCSV Water
EPA 8015B

Inst : GC26A Run Name : DSL_500 IDF : 1.0
Seqnum : 862389251013 File : 270a013 Time : 26-SEP-2012 13:05
Standards: S20484

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C12-C24	862229641002	07-JUN-2012	39630	42518	500.0	536.4	mg/L	7	15	
o-Terphenyl	862248129001	20-JUN-2012	59067	56751	50.00	48.04	mg/L	-4	15	

SFL 09/26/12 : Corrected automatically drawn baseline.

Analyst: SFL Date: 09/26/12 Reviewer: JDG Date: 09/26/12

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 239885 GCSV Water
EPA 8015B

Inst : GC26A Run Name : MO_500 IDF : 1.0
Seqnum : 862389251014 File : 270a014 Time : 26-SEP-2012 13:32
Standards: S20679

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Motor Oil C24-C36	862246744001	19-JUN-2012	33817	35829	500.0	529.8	mg/L	6	15	
o-Terphenyl	862248129001	20-JUN-2012	59067	58364	50.00	49.40	mg/L	-1	15	

SFL 09/26/12 : Corrected automatically drawn baseline.

Analyst: SFL Date: 09/26/12 Reviewer: JDG Date: 09/26/12

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 239885 GCSV Water
EPA 8015B

Inst : GC26A Run Name : MO_500 IDF : 1.0
Seqnum : 862389251030 File : 270a030 Time : 26-SEP-2012 22:52
Standards: S20679

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Motor Oil C24-C36	862246744001	19-JUN-2012	33817	36183	500.0	535.0	mg/L	7	15	
o-Terphenyl	862248129001	20-JUN-2012	59067	58090	50.00	49.17	mg/L	-2	15	

JDG 09/27/12 : Corrected automatically drawn baseline.

Analyst: JDG Date: 09/27/12 Reviewer: EAH Date: 09/27/12

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 239885 GCSV Water
EPA 8015B

Inst : GC26A Run Name : DSL_1000 IDF : 1.0
Seqnum : 862389251031 File : 270a031 Time : 26-SEP-2012 23:20
Standards: S20485

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C12-C24	862229641002	07-JUN-2012	39630	41513	1000	1048	mg/L	5	15	
o-Terphenyl	862248129001	20-JUN-2012	59067	58477	50.00	49.50	mg/L	-1	15	

JDG 09/27/12 : Corrected automatically drawn baseline.

Analyst: JDG Date: 09/27/12 Reviewer: EAH Date: 09/27/12

Logbooks & Sequences

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 162269861

Instrument : GC15B Begun : 07/05/12 09:41
Method : EPA 8015B SOP Version : TEH_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	187b001	X	PRIMER			07/05/12 09:41	1.0		
002	187b002	X	CMARKER			07/05/12 10:09	1.0	1	
003	187b003	CCV	DSL_250			07/05/12 10:36	1.0	2	
004	187b004	CCV	MO_500			07/05/12 11:04	1.0	3	
005	187b005	X	IB			07/05/12 12:36	1.0		
006	187b006	X	CMARKER			07/05/12 13:04	1.0	1	
007	187b007	CCV	DSL_250			07/05/12 13:42	1.0	2	
008	187b008	CCV	MO_500			07/05/12 14:09	1.0	3	
009	187b009	X	CMARKER			07/05/12 14:37	1.0	4	
010	187b010	X	IB			07/05/12 16:18	1.0		
011	187b011	IB	CALIB			07/05/12 16:45	1.0		
012	187b012	ICAL	MO_25			07/05/12 17:13	1.0	5	
013	187b013	ICAL	MO_50			07/05/12 17:40	1.0	5	
014	187b014	ICAL	MO_250			07/05/12 18:08	1.0	6	
015	187b015	ICAL	MO_500			07/05/12 18:36	1.0	7	
016	187b016	ICAL	MO_1000			07/05/12 19:03	1.0	8	
017	187b017	ICAL	MO_2500			07/05/12 19:31	1.0	9	
018	187b018	ICAL	MO_5000			07/05/12 19:59	1.0	9	
019	187b019	IB	CALIB			07/05/12 20:27	1.0		
020	187b020	CMARKER	C8-C50			07/05/12 20:54	1.0	4	
021	187b021	IB	CALIB			07/05/12 21:22	1.0		

SFL 07/06/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 21.

Standards used: 1=S19277 2=S19822 3=S20033 4=S20262 5=S20089 6=S19735 7=S19736 8=S19737 9=S19738

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 162276981

Instrument : GC15B Begun : 07/10/12 08:21
Method : EPA 8015B SOP Version : TEH_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	192b001	X	PRIMER			07/10/12 08:21	1.0		
002	192b002	X	CMARKER			07/10/12 08:49	1.0	1	
003	192b003	X	MO_500			07/10/12 09:17	1.0	2	
004	192b004	X	DSL_500			07/10/12 09:45	1.0	3	
005	192b005	X	CMARKER			07/10/12 12:07	1.0	1	
006	192b006	X	MO_500			07/10/12 12:34	1.0	2	
007	192b007	X	DSL_500			07/10/12 13:02	1.0	3	
008	192b008	CCV	DSL_500			07/10/12 14:41	1.0	3	
009	192b009	CCV	MO_500			07/10/12 15:08	1.0	2	
010	192b010	CCV	DSL_500			07/10/12 15:55	1.0	3	
011	192b011	CCV	DSL_250			07/10/12 16:49	1.0	4	
012	192b012	IB	CALIB			07/10/12 17:50	1.0		
013	192b013	ICAL	DSL_10			07/10/12 18:17	1.0	5	
014	192b014	ICAL	DSL_100			07/10/12 18:45	1.0	6	
015	192b015	ICAL	DSL_500			07/10/12 19:13	1.0	7	
016	192b016	ICAL	DSL_1000			07/10/12 19:41	1.0	8	
017	192b017	ICAL	DSL_5000			07/10/12 20:08	1.0	9	
018	192b018	ICAL	DSL_7500			07/10/12 20:36	1.0	10	
019	192b019	IB	CALIB			07/10/12 21:03	1.0		
020	192b020	ICV	DSL_500			07/10/12 21:31	1.0	11	
021	192b021	X	ICV			07/10/12 21:59	1.0	11	
022	192b022	IB	CALIB			07/10/12 22:27	1.0		
023	192b023	CMARKER	C8-C50			07/10/12 22:55	1.0	1	
024	192b024	IB	CALIB			07/10/12 23:23	1.0		

JDG 07/11/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 24.

Standards used: 1=S20262 2=S20033 3=S20069 4=S20066 5=S19968 6=S19945 7=S19946 8=S19947 9=S19943 10=S19948 11=S19823

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 162281280

Instrument : GC15B Begun : 07/13/12 08:00
Method : EPA 8015B SOP Version : TEH_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	195b001	X	PRIMER			07/13/12 08:00	1.0		
002	195b002	X	CMARKER			07/13/12 08:28	1.0	1	
003	195b003	CCV	DSL_500			07/13/12 08:56	1.0	2	
004	195b004	CCV	MO_500			07/13/12 10:15	1.0	3	
005	195b005	LOQ	237608-007	Soil	188126	07/13/12 14:40	1.0		
006	195b006	BLANK	QC647456	Soil	188404	07/13/12 15:12	1.0		
007	195b007	CCV	MO_500			07/13/12 15:44	1.0	3	
008	195b008	CCV	DSL_250			07/13/12 16:12	1.0	4	
010	195b010	IB	CALIB			07/13/12 17:14	1.0		
011	195b011	ICAL	HEXOTP_5			07/13/12 17:42	1.0	5	
012	195b012	ICAL	HEXOTP_10			07/13/12 18:09	1.0	6	
013	195b013	ICAL	HEXOTP_25			07/13/12 18:37	1.0	7	
014	195b014	ICAL	HEXOTP_50			07/13/12 19:04	1.0	8	
015	195b015	ICAL	HEXOTP_100			07/13/12 19:32	1.0	9	
016	195b016	ICAL	HEXOTP_200			07/13/12 20:00	1.0	10	
017	195b017	IB	CALIB			07/13/12 20:28	1.0		

JDG 07/13/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 8.

JDG 07/16/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 9 through 17.

Standards used: 1=S20262 2=S20069 3=S20033 4=S20066 5=S19347 6=S19348 7=S19349 8=S19350 9=S19351 10=S19352

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 162389251

Instrument : GC15B Begun : 09/26/12 07:31
Method : EPA 8015B SOP Version : TEH_rv13

#	File	Type	Sample ID	P	Matrix	Batch	Analyzed	IDF	Stds Used	
001	270b001	X	PRIMER				09/26/12 07:31	1.0		
002	270b002	X	CMARKER				09/26/12 08:01	1.0	1	
003	270b003	CCV	DSL_1000				09/26/12 08:29	1.0	2	
004	270b004	CCV	MO_500				09/26/12 08:57	1.0	3	
005	270b005	BLANK	QC658109		Soil	190959	09/26/12 10:11	1.0		
006	270b006	LCS	QC658159		Soil	190959	09/26/12 10:39	1.0		
007	270b007	SAMPLE	239887-002		Soil	190959	09/26/12 11:07	1.0		
008	270b008	SAMPLE	239887-003		Soil	190959	09/26/12 11:35	1.0		
009	270b009	SAMPLE	239874-001		Water	190897	09/26/12 12:03	1.0		
010	270b010	CCV	DSL_500				09/26/12 12:58	1.0	4	
011	270b011	CCV	MO_500				09/26/12 13:26	1.0	3	
012	270b012	BLANK	QC658154		Soil	190972	09/26/12 14:44	1.0		
013	270b013	CCV	DSL_250				09/26/12 15:11	1.0	5	
014	270b014	CCV	MO_500				09/26/12 15:39	1.0	3	
015	270b015	SAMPLE	239896-011	S	Soil	190972	09/26/12 16:35	1.0		
016	270b016	SAMPLE	239896-015	S	Soil	190972	09/26/12 17:02	3.0		
017	270b017	SAMPLE	239896-012	S	Soil	190972	09/26/12 17:30	10.0		
018	270b018	X	IB				09/26/12 17:58	1.0		
019	270b019	SAMPLE	239851-019		Water	190974	09/26/12 18:26	1.0		
020	270b020	SAMPLE	239851-020		Water	190974	09/26/12 18:54	1.0		
021	270b021	SAMPLE	239851-021		Water	190974	09/26/12 19:22	1.0		
022	270b022	SAMPLE	239863-001	S	Water	190974	09/26/12 19:50	1.0		
023	270b023	SAMPLE	239863-003	S	Water	190974	09/26/12 20:18	1.0		
024	270b024	SAMPLE	239863-004	S	Water	190974	09/26/12 20:46	1.0		
025	270b025	SAMPLE	239885-002	S	Water	190974	09/26/12 21:13	1.0		
026	270b026	X	CMARKER				09/26/12 21:41	1.0	1	
027	270b027	CCV	DSL_500				09/26/12 22:09	1.0	4	
028	270b028	CCV	MO_500				09/26/12 22:37	1.0	3	

JDG 09/26/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 11.

JDG 09/26/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 12 through 14.

JDG 09/27/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 15 through 28.

Standards used: 1=S20262 2=S20485 3=S20679 4=S20484 5=S20483

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 862229641

Instrument : GC26A Begun : 06/07/12 11:21
Method : EPA 8015B SOP Version : TEH_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	159a001	X	PRIMER			06/07/12 11:21	1.0		
002	159a002	X	IB			06/07/12 11:48	1.0		
003	159a003	X	IB			06/07/12 14:20	1.0		
004	159a004	X	IB			06/07/12 16:34	1.0		
005	159a005	IB	CALIB			06/07/12 17:50	1.0		
006	159a006	ICAL	HEXOTP_5			06/07/12 18:18	1.0	1	
007	159a007	ICAL	HEXOTP_10			06/07/12 18:45	1.0	2	
008	159a008	ICAL	HEXOTP_25			06/07/12 19:13	1.0	3	
009	159a009	ICAL	HEXOTP_50			06/07/12 19:41	1.0	4	
010	159a010	ICAL	HEXOTP_100			06/07/12 20:08	1.0	5	
011	159a011	ICAL	HEXOTP_200			06/07/12 20:36	1.0	6	
012	159a012	IB	CALIB			06/07/12 21:03	1.0		
013	159a013	ICAL	DSL_10			06/07/12 21:31	1.0	7	
014	159a014	ICAL	DSL_100			06/07/12 21:59	1.0	8	
015	159a015	ICAL	DSL_500			06/07/12 22:26	1.0	9	
016	159a016	ICAL	DSL_1000			06/07/12 22:54	1.0	10	
017	159a017	ICAL	DSL_5000			06/07/12 23:22	1.0	11	
018	159a018	ICAL	DSL_7500			06/07/12 23:50	1.0	12	
019	159a019	IB	CALIB			06/08/12 00:18	1.0		
020	159a020	ICV	DSL_500			06/08/12 00:45	1.0	13	
021	159a021	X	ICV			06/08/12 01:13	1.0	13	
022	159a022	IB	CALIB			06/08/12 01:40	1.0		
023	159a023	ICAL	MO_25			06/08/12 02:08	1.0	14	
024	159a024	ICAL	MO_50			06/08/12 02:36	1.0	14	
025	159a025	ICAL	MO_250			06/08/12 03:04	1.0	15	
026	159a026	ICAL	MO_500			06/08/12 03:31	1.0	16	
027	159a027	ICAL	MO_1000			06/08/12 03:59	1.0	17	
028	159a028	ICAL	MO_2500			06/08/12 04:26	1.0	18	
029	159a029	IB	CALIB			06/08/12 04:54	1.0		
030	159a030	CMARKER	C8-C50			06/08/12 05:22	1.0	19	
031	159a031	IB	CALIB			06/08/12 05:50	1.0		

SFL 06/10/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 31.

Standards used: 1=S19347 2=S19348 3=S19349 4=S19350 5=S19351 6=S19352 7=S19968 8=S19945 9=S19946 10=S19947 11=S19943 12=S19948 13=S19823 14=S19734 15=S19735 16=S19736 17=S19737 18=S19738 19=S19277

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 862246744

Instrument : GC26A Begun : 06/19/12 08:24
Method : EPA 8015B SOP Version : TEH_rv13

#	File	Type	Sample ID	P	Matrix	Batch	Analyzed	IDF	Stds Used	
001	171a001	X	PRIMER				06/19/12 08:24	1.0		
002	171a002	X	IB				06/19/12 08:51	1.0		
003	171a003	X	CMARKER				06/19/12 09:19	1.0	1	
004	171a004	CCV	DSL_250				06/19/12 09:46	1.0	2	
005	171a005	IB	CALIB				06/19/12 10:50	1.0		
006	171a006	X	MO_25				06/19/12 11:18	1.0	3	
007	171a007	ICAL	MO_50				06/19/12 11:45	1.0	3	
008	171a008	ICAL	MO_250				06/19/12 12:13	1.0	4	
009	171a009	ICAL	MO_500				06/19/12 12:40	1.0	5	
010	171a010	ICAL	MO_1000				06/19/12 13:08	1.0	6	
011	171a011	ICAL	MO_2500				06/19/12 13:36	1.0	7	
012	171a012	ICAL	MO_5000				06/19/12 14:04	1.0	7	
013	171a013	IB	CALIB				06/19/12 14:31	1.0		
014	171a014	CMARKER	C8-C50				06/19/12 14:59	1.0	1	
015	171a015	IB	CALIB				06/19/12 15:27	1.0		
016	171a016	CCV	DSL_250				06/19/12 15:55	1.0	2	
017	171a017	CCV	MO_500				06/19/12 16:23	1.0	8	
018	171a018	X	CCV				06/19/12 16:51	1.0	2	
019	171a019	BLANK	QC644131	S	Soil	187597	06/19/12 17:19	1.0		
020	171a020	LCS	QC644135	S	Soil	187597	06/19/12 17:47	1.0		
021	171a021	SAMPLE	236880-002	S	Soil	187450	06/19/12 18:14	1.0		
022	171a022	SAMPLE	236880-007	S	Soil	187450	06/19/12 18:42	1.0		2:BUNKC:12-50=5300
023	171a023	SAMPLE	236880-011	S	Soil	187450	06/19/12 19:10	1.0		
024	171a024	MSS	236958-017	S	Soil	187597	06/19/12 19:38	1.0		
025	171a025	SAMPLE	236958-018	S	Soil	187597	06/19/12 20:05	1.0		
026	171a026	SAMPLE	236958-019	S	Soil	187597	06/19/12 20:33	1.0		
027	171a027	SAMPLE	236958-020	S	Soil	187597	06/19/12 21:01	1.0		
028	171a028	SAMPLE	236958-022	S	Soil	187597	06/19/12 21:28	1.0		
029	171a029	SAMPLE	236958-023	S	Soil	187597	06/19/12 21:56	1.0		
030	171a030	SAMPLE	236958-024	S	Soil	187597	06/19/12 22:24	1.0		
031	171a031	CCV	DSL_500				06/19/12 22:52	1.0	9	
032	171a032	CCV	MO_500				06/19/12 23:20	1.0	8	
033	171a033	X	CCV				06/19/12 23:48	1.0	9	
034	171a034	X	CCV				06/20/12 00:15	1.0	8	
035	171a035	SAMPLE	236958-025	S	Soil	187597	06/20/12 00:44	1.0		
036	171a036	X	IB				06/20/12 01:11	1.0		
037	171a037	LOD	212266-020		Water	187712	06/20/12 01:39	1.0		
038	171a038	LOD	213035-021		Water	187712	06/20/12 02:07	1.0		
039	171a039	X	CMARKER				06/20/12 02:35	1.0	1	
040	171a040	X	DSL_1000				06/20/12 03:03	1.0	10	
041	171a041	CCV	MO_500				06/20/12 03:31	1.0	8	
042	171a042	CCV	DSL_1000				06/20/12 08:23	1.0	10	

JDG 06/19/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 16.

JDG 06/20/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 17 through 42.

Standards used: 1=S19277 2=S19822 3=S19734 4=S19735 5=S19736 6=S19737 7=S19738 8=S20033 9=S19823 10=S19824

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 862248129

Instrument : GC26A Begun : 06/20/12 07:29
Method : EPA 8015B SOP Version : TEH_rv13

#	File	Type	Sample ID	P	Matrix	Batch	Analyzed	IDF	Stds Used	
001	172a001	X	PRIMER				06/20/12 07:29	1.0		
002	172a002	X	CMARKER				06/20/12 07:56	1.0	1	
003	172a003	CCV	DSL_250				06/20/12 08:51	1.0	2	
004	172a004	CCV	MO_500				06/20/12 09:19	1.0	3	
005	172a005	SAMPLE	236880-007		Soil	187450	06/20/12 09:46	1.0		
006	172a006	SAMPLE	236880-002		Soil	187450	06/20/12 10:14	1.0		
007	172a007	SAMPLE	236880-011		Soil	187450	06/20/12 10:42	1.0		
008	172a008	SAMPLE	236880-002	S	Soil	187450	06/20/12 12:40	1.0		
009	172a009	SAMPLE	236880-007	S	Soil	187450	06/20/12 13:07	1.0		
010	172a010	SAMPLE	236880-011	S	Soil	187450	06/20/12 13:35	1.0		
011	172a011	CCV	DSL_500				06/20/12 14:27	1.0	4	
012	172a012	SAMPLE	236958-021	S	Soil	187597	06/20/12 14:57	1.0		
013	172a013	CCV	DSL_500				06/20/12 15:24	1.0	4	
014	172a014	CCV	MO_500				06/20/12 15:52	1.0	3	
015	172a015	IB	CALIB				06/20/12 16:24	1.0		
016	172a016	ICAL	HEXOTP_5				06/20/12 16:51	1.0	5	
017	172a017	ICAL	HEXOTP_10				06/20/12 17:19	1.0	6	
018	172a018	ICAL	HEXOTP_25				06/20/12 17:47	1.0	7	
019	172a019	ICAL	HEXOTP_50				06/20/12 18:15	1.0	8	
020	172a020	ICAL	HEXOTP_100				06/20/12 18:42	1.0	9	
021	172a021	ICAL	HEXOTP_200				06/20/12 19:10	1.0	10	
022	172a022	IB	CALIB				06/20/12 19:38	1.0		

SFL 06/20/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 14.

JDG 06/21/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 15 through 20.

Standards used: 1=S19277 2=S19822 3=S20033 4=S19823 5=S19347 6=S19348 7=S19349 8=S19350 9=S19351 10=S19352

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 862389251

Instrument : GC26A Begun : 09/26/12 07:31
Method : EPA 8015B SOP Version : TEH_rv13

#	File	Type	Sample ID	P	Matrix	Batch	Analyzed	IDF	Stds Used	
001	270a001	X	IB				09/26/12 07:31	1.0		
002	270a002	X	CMARKER				09/26/12 07:59	1.0	1	
003	270a003	CCV	MO_500				09/26/12 08:28	1.0	2	
004	270a004	CCV	DSL_250				09/26/12 08:56	1.0	3	
005	270a005	BLANK	QC658154	S	Soil	190972	09/26/12 09:37	1.0		
006	270a006	LCS	QC658155	S	Soil	190972	09/26/12 10:05	1.0		
007	270a007	MSS	239889-002	S	Soil	190972	09/26/12 10:33	1.0		
008	270a008	MS	QC658156	S	Soil	190972	09/26/12 11:01	1.0		
009	270a009	MSD	QC658157	S	Soil	190972	09/26/12 11:29	1.0		
010	270a010	MSD	QC658157	S	Soil	190972	09/26/12 12:01	1.0		
012	270a012	X	IB				09/26/12 12:36	1.0		
013	270a013	CCV	DSL_500				09/26/12 13:05	1.0	4	
014	270a014	CCV	MO_500				09/26/12 13:32	1.0	2	
015	270a015	BLANK	QC658160		Water	190974	09/26/12 15:57	1.0		
016	270a016	BLANK	QC658160	S	Water	190974	09/26/12 16:24	1.0		
017	270a017	BS	QC658161	S	Water	190974	09/26/12 16:51	1.0		
018	270a018	BSD	QC658162	S	Water	190974	09/26/12 17:19	1.0		
019	270a019	SAMPLE	239886-001	S	Water	190974	09/26/12 17:46	1.0		
020	270a020	SAMPLE	239877-001		Water	190974	09/26/12 18:14	1.0		
021	270a021	SAMPLE	239851-001		Water	190974	09/26/12 18:42	1.0		
022	270a022	SAMPLE	239851-002		Water	190974	09/26/12 19:10	1.0		
023	270a023	SAMPLE	239851-003		Water	190974	09/26/12 19:37	1.0		
024	270a024	SAMPLE	239851-004		Water	190974	09/26/12 20:05	1.0		
025	270a025	SAMPLE	239851-005		Water	190974	09/26/12 20:33	1.0		
026	270a026	SAMPLE	239851-016		Water	190974	09/26/12 21:00	1.0		
027	270a027	SAMPLE	239851-017		Water	190974	09/26/12 21:29	1.0		
028	270a028	SAMPLE	239851-018		Water	190974	09/26/12 21:56	1.0		
029	270a029	X	CMARKER				09/26/12 22:24	1.0	1	
030	270a030	CCV	MO_500				09/26/12 22:52	1.0	2	
031	270a031	CCV	DSL_1000				09/26/12 23:20	1.0	5	

SFL 09/26/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 14.

JDG 09/27/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 15 through 31.

Standards used: 1=S20262 2=S20679 3=S20483 4=S20484 5=S20485

SAMPLE PREPARATION SUMMARY

Batch # : 190974
Started By : TFB
Method : 3520C
Spike #1 ID : S20715

Prep Date : 25-SEP-2012 18:00
Spike #2 ID : S20611

Analysis : TEHM
Finished By : RDG
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
239851-001		Water	500	2.5	1	0.005	7	.5				TEHM	heavy sediment
239851-002		Water	500	2.5	1	0.005	7	.5				TEHM	heavy sediment
239851-003		Water	470	2.5	1	0.005319	7	.5				TEHM	heavy sediment
239851-004		Water	470	2.5	1	0.005319	7	.5				TEHM	heavy sediment
239851-005		Water	490	2.5	1	0.005102	7	.5				TEHM	heavy sediment
239851-016		Water	490	2.5	1	0.005102	7	.5				TEHM	
239851-017		Water	470	2.5	1	0.005319	7	.5				TEHM	
239851-018		Water	470	2.5	1	0.005319	7	.5				TEHM	
239851-019		Water	490	2.5	1	0.005102	7	.5				TEHM	
239851-020		Water	450	2.5	1	0.005556	7	.5				TEHM	
239851-021		Water	480	2.5	1	0.005208	7	.5				TEHM	
239863-001		Water	480	2.5	1	0.005208	7	.5			3630C	TEHM	
239863-003		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
239863-004		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
239877-001		Water	500	2.5	1	0.005	7	.5				TEH	
239885-002		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
239886-001		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
239894-026		Water	490	2.5	1	0.005102	7	.5				TEH	Prepped 26-SEP-2012 11:15
239896-013		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	Prepped 26-SEP-2012 11:15
QC658160	BLANK	Water	500	2.5	1	0.005		.5			3630C		
QC658161	BS	Water	500	2.5	1	0.005		.5	.5		3630C		
QC658162	BSD	Water	500	2.5	1	0.005		.5	.5		3630C		

JDG 09/27/12 : Matrix spikes were not performed for this analysis in batch 190974 due to insufficient sample amount.

Analyst: JDG Date: 09/27/12 Reviewer: EAH Date: 09/27/12

TEH (8015) Water Prep Log

Curtis & Tompkins, Ltd.

Page 81 BK 3319

LIMS Batch No: 190974
LIMS Analysis: TEH/M
Date Extracted: 9/25/12

Extraction Method:
☒ 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
239851-001	A	☒ 500 ☐	☒7 ☐	☒2.5 ☐		☒ ≤2pH	heavy sediment
-002		☒ 500 ☐	☒7 ☐	☒2.5 ☐		☒ ≤2pH	
-003		☐ 500 ☒ 470	☒7 ☐	☒2.5 ☐		☒ ≤2pH	
-004		☐ 500 ☒ 470	☒7 ☐	☒2.5 ☐		☒ ≤2pH	
-005		☐ 500 ☒ 490	☒7 ☐	☒2.5 ☐		☒ ≤2pH	▲
TEB 9/25/12 ~~-006~~ -016		☐ 500 ☒ 490	☒7 ☐	☒2.5 ☐		☒ ≤2pH	
-017		☐ 500 ☒ 470	☒7 ☐	☒2.5 ☐		☒ ≤2pH	
-018		☐ 500 ☒ 470	☒7 ☐	☒2.5 ☐		☒ ≤2pH	
-019		☐ 500 ☒ 490	☒7 ☐	☒2.5 ☐		☒ ≤2pH	
-020		☐ 500 ☒ 450	☒7 ☐	☒2.5 ☐		☒ ≤2pH	
-021		☐ 500 ☒ 480	☒7 ☐	☒2.5 ☐		☒ ≤2pH	
239863-001	J	☐ 500 ☒ 480	☒7 ☐	☒2.5 ☐	X	☒ ≤2pH	
-003	M	☒ 500 ☐	☒7 ☐	☒2.5 ☐		☒ ≤2pH	
-004	J	☒ 500 ☐	☒7 ☐	☒2.5 ☐		☒ ≤2pH	
239877-001	H	☒ 500 ☐	☒7 ☐	☒2.5 ☐		☒ ≤2pH	
239885-002	G	☒ 500 ☐	☒7 ☐	☒2.5 ☐	X	☒ ≤2pH	
239886-001	H	☒ 500 ☐	☒7 ☐	☒2.5 ☐		☒ ≤2pH	
MB QC 160	NA	☒ 500 ☐	☐7 ☒ NA	☒2.5 ☐		☒ ≤2pH	
BS 161		☒ 500 ☐	☐7 ☒	☒2.5 ☐		☒ ≤2pH	
BSD 162		☒ 500 ☐	☐7 ☒	☒2.5 ☐		☒ ≤2pH	
239894-006	E	☐ 500 ☒ 490	☒7 ☐	☒2.5 ☐	PDG 9/27/12 X	☒ ≤2pH	ADDED 11/16/12 G 11:15
239896-003	C	☒ 500 ☐	☒7 ☐	☒2.5 ☐	X	☒ ≤2pH	
		☐ 500 ☐	☐7 ☐	☐ 2.5 ☐		☐ ≤2pH	
		☐ 500 ☐	☐7 ☐	☐ 2.5 ☐		☐ ≤2pH	

A burner died this morning. Restarted @10:30. unknown time off. 09/27/12

0.5 mL of TEH_SURR was added to all samples
0.5 mL of TEH_SP was added to all spikes
pH of all samples adjusted to pH ≤ 2 with H_2SO_4
☒ 3520c: Samples were continually extracted about 450 mL of CH_2Cl_2
Extraction Start Time:
Extraction End Time:
☐ 3510c: Samples were extracted 3 times with 60 mL of CH_2Cl_2
Extracts filtered through baked, CH2Cl2-rinsed granular Na2SO4
Concentrated to final volume at temperature (degrees C)
Relinquished to TEH Department

Mfg & Lot# / LIMS # / Time	Date/Initials
S20715A	TEB 9/25/12
S20611C	
FS120450	
EM52160	
1800/11:15	
1700/0730	TEB 9/26/12
NA	PDG 09/26/12
EMVB1514	
1M	
✓	

9/25/12
Extraction Chemist **Date**

Contined from Page ____
Continued on Page ____

09/27/12
Reviewed by **Date**

Curtis & Tompkins, Ltd. **Silica Gel Cleanup** **EPA 3630c**

Prep Chemist: RDG
Cleanup Date: 09/26/12

Benchbook # **BK 3352**
Page 72

Sample #	Extraction Batch#	Initial Volume (mL)	Final Volume (mL)	Comments
239863-001	190974	☒ 1.0 ☐____	☒ 1.0 ☐____	
↓ 003	↓	☒ 1.0 ☐____	☒ 1.0 ☐____	
↓ 004	↓	☒ 1.0 ☐____	☒ 1.0 ☐____	
239885-002	↓	☒ 1.0 ☐____	☒ 1.0 ☐____	
239886-001	↓	☒ 1.0 ☐____	☒ 1.0 ☐____	
MB QC658160	190974	☒ 1.0 ☐____	☒ 1.0 ☐____	
BS ↓ 61	↓	☒ 1.0 ☐____	☒ 1.0 ☐____	
BSD ↓ 62	↓	☒ 1.0 ☐____	☒ 1.0 ☐____	
		☐ 1.0 ☐____	☐ 1.0 ☐____	
		☐ 1.0 ☐____	☐ 1.0 ☐____	
		☐ 1.0 ☐____	☐ 1.0 ☐____	
		☐ 1.0 ☐____	☐ 1.0 ☐____	
		☐ 1.0 ☐____	☐ 1.0 ☐____	
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		☐ 1.0 ☐____	☐ 1.0 ☐____	
		☐ 1.0 ☐____	☐ 1.0 ☐____	
		☐ 1.0 ☐____	☐ 1.0 ☐____	
		☐ 1.0 ☐____	☐ 1.0 ☐____	
		☐ 1.0 ☐____	☐ 1.0 ☐____	[signature] 09/27/12

	Mfg & Lot # / Time / Program	Initials / Date
O Extracts were cleaned up using C&T assembled — g columns	NA	RDG 09/26/12
☒ Extracts were cleaned up using 1.0 g cartridges	SP 3469301	↓
Extracts were eluted with 4.0 mL CH_2Cl_2	EM 52160	↓
Concentrated to volumes as noted above	✓	↓

[signature] 09/26/12
Extraction Chemist / Date

Continued from page /
Continued on page /

[signature] 09/27/12
Reviewed by / Date

Curtis & Tompkins, Ltd. **Silica Gel Cleanup** **EPA 3630c**

Prep Chemist: MA
Cleanup Date: 9-27-12

Benchbook # **BK 3352**
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Sample #	Extraction Batch#	Initial Volume (mL)	Final Volume (mL)	Comments
239894-026	190974	☒ 1.0 □____	☒ 1.0 □____	Didn't need sg xtrac 09/27/12
239896-013	↓	☒ 1.0 □____	☒ 1.0 □____	
		□ 1.0 □____	□ 1.0 □____	
		□ 1.0 □____	□ 1.0 □____	
		□ 1.0 □____	□ 1.0 □____	
		□ 1.0 □____	□ 1.0 □____	
		□ 1.0 □____	□ 1.0 □____	
		□ 1.0 □____	□ 1.0 □____	
		□ 1.0 □____	□ 1.0 □____	
		□ 1.0 □____	□ 1.0 □____	
		□ 1.0 □____	□ 1.0 □____	
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		□ 1.0 □____	□ 1.0 □____	
		□ 1.0 □____	□ 1.0 □____	
		□ 1.0 □____	□ 1.0 □____	
		□ 1.0 □____	□ 1.0 □____	MA 9/27/12
		□ 1.0 □____	□ 1.0 □____	

	Mfg & Lot # / Time / Program	Initials / Date
O Extracts were cleaned up using C&T assembled ___ g columns	N/A	MA 9-27-12
☒ Extracts were cleaned up using 1.0 g cartridges	SD346930	↓
Extracts were eluted with 4.0 mL CH_2Cl_2	EM52160	↓
Concentrated to volumes as noted above	X	↓

9-27-12
Extraction Chemist / Date

Continued from page ___/___
Continued on page ___/___

9/27/12
Reviewed by / Date

Case Narrative Addendum: Manual Integrations for 239885 GCSV (Water)

For SAMPLE 239885-002 (GC15B 270b025):
Manually integrated fuel hump.

For CCV DSL_1000 (GC26A 270a031):
Corrected automatically drawn baseline.

For CCV DSL_250 (GC15B 270b013):
Corrected automatically drawn baseline.

For CCV DSL_500 (GC26A 270a013):
Corrected automatically drawn baseline.

For CCV DSL_500 (GC15B 270b027):
Corrected automatically drawn baseline.

For CCV MO_500 (GC26A 270a014):
Corrected automatically drawn baseline.

For CCV MO_500 (GC26A 270a030):
Corrected automatically drawn baseline.

For BLANK QC658160 (GC26A 270a016):
Corrected automatically drawn baseline.

For BSD QC658162 (GC26A 270a018):
Corrected automatically drawn baseline for spike & dup.

For Calibration GC26A (862229641002):
Corrected automatically drawn baseline in DSL_500 (159a015).
Corrected automatically drawn baseline in DSL_1000 (159a016).
Corrected automatically drawn baseline in DSL_5000 (159a017).
Corrected automatically drawn baseline in DSL_7500 (159a018).

For ICV DSL_500 (GC26A 159a020):
Corrected automatically drawn baseline.

For Calibration GC26A (862246744001):
Corrected automatically drawn baseline in all levels.

For Calibration GC26A (862248129001):
Corrected automatically drawn baseline in all levels.

For Calibration GC15B (162276981001):
Manually integrated fuel hump in multiple levels.

For ICV DSL_500 (GC15B 192b020):
Corrected automatically drawn baseline.

For Calibration GC15B (162281280001):
Corrected automatically drawn baseline in multiple levels.

Laboratory Job Number 239885

ANALYTICAL REPORT

Semivolatile Organics by GC/MS SIM

Matrix: Water

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS SIM

Lab #:	239885	Location:	Hunters Point NAPL
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	07193.0002	Analysis:	EPA 8270C-SIM
Field ID:	IR24MW07A-092512	Batch#:	190913
Lab ID:	239885-002	Sampled:	09/25/12
Matrix:	Water	Received:	09/25/12
Units:	ug/L	Prepared:	09/25/12
Diln Fac:	1.000	Analyzed:	09/26/12

Analyte	Result	RL	MDL
Naphthalene	ND	0.1	0.02
1-Methylnaphthalene	ND	0.1	0.02
2-Methylnaphthalene	ND	0.1	0.03
Acenaphthylene	ND	0.1	0.02
Acenaphthene	ND	0.1	0.02
Fluorene	ND	0.1	0.02
Phenanthrene	ND	0.1	0.02
Anthracene	ND	0.1	0.03
Fluoranthene	ND	0.1	0.02
Pyrene	0.2	0.1	0.02
Benzo(a)anthracene	ND	0.1	0.02
Chrysene	ND	0.1	0.03
Benzo(b)fluoranthene	0.03 J	0.1	0.02
Benzo(k)fluoranthene	ND	0.1	0.02
Benzo(a)pyrene	ND	0.1	0.02
Indeno(1,2,3-cd)pyrene	ND	0.1	0.02
Dibenz(a,h)anthracene	ND	0.1	0.02
Benzo(g,h,i)perylene	ND	0.1	0.02

Surrogate	%REC	Limits
Nitrobenzene-d5	93	45-127
2-Fluorobiphenyl	79	49-120
Terphenyl-d14	101	27-120

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS SIM

Lab #:	239885	Location:	Hunters Point NAPL
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	07193.0002	Analysis:	EPA 8270C-SIM
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC657919	Batch#:	190913
Matrix:	Water	Prepared:	09/24/12
Units:	ug/L	Analyzed:	09/26/12

Analyte	Result	RL	MDL
Naphthalene	ND	0.1	0.02
1-Methylnaphthalene	ND	0.1	0.02
2-Methylnaphthalene	ND	0.1	0.03
Acenaphthylene	ND	0.1	0.02
Acenaphthene	ND	0.1	0.02
Fluorene	ND	0.1	0.02
Phenanthrene	ND	0.1	0.02
Anthracene	ND	0.1	0.03
Fluoranthene	ND	0.1	0.02
Pyrene	ND	0.1	0.02
Benzo(a)anthracene	ND	0.1	0.02
Chrysene	ND	0.1	0.03
Benzo(b)fluoranthene	ND	0.1	0.02
Benzo(k)fluoranthene	ND	0.1	0.02
Benzo(a)pyrene	ND	0.1	0.02
Indeno(1,2,3-cd)pyrene	ND	0.1	0.02
Dibenz(a,h)anthracene	ND	0.1	0.02
Benzo(g,h,i)perylene	ND	0.1	0.03

Surrogate	%REC	Limits
Nitrobenzene-d5	86	45-127
2-Fluorobiphenyl	83	49-120
Terphenyl-d14	94	27-120

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS SIM

Lab #:	239885	Location:	Hunters Point NAPL
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	07193.0002	Analysis:	EPA 8270C-SIM
Matrix:	Water	Batch#:	190913
Units:	ug/L	Prepared:	09/24/12
Diln Fac:	1.000	Analyzed:	09/26/12

Type: BS Lab ID: QC657920

Analyte	Spiked	Result	%REC	Limits
Naphthalene	1.000	0.7994	80	40-115
1-Methylnaphthalene	1.000	0.7580	76	40-115
2-Methylnaphthalene	1.000	0.8293	83	40-115
Acenaphthylene	1.000	0.7012	70	40-115
Acenaphthene	1.000	0.6944	69	40-115
Fluorene	1.000	0.7504	75	40-115
Phenanthrene	1.000	0.8119	81	40-115
Anthracene	1.000	0.7780	78	40-115
Fluoranthene	1.000	0.7562	76	40-115
Pyrene	1.000	0.7680	77	40-115
Benzo(a)anthracene	1.000	0.6621	66	40-115
Chrysene	1.000	0.6735	67	40-115
Benzo(b)fluoranthene	1.000	0.6720	67	40-115
Benzo(k)fluoranthene	1.000	0.7083	71	40-115
Benzo(a)pyrene	1.000	0.6821	68	40-115
Indeno(1,2,3-cd)pyrene	1.000	0.5854	59	40-115
Dibenz(a,h)anthracene	1.000	0.6127	61	40-115
Benzo(g,h,i)perylene	1.000	0.5488	55	40-115

Surrogate	%REC	Limits
Nitrobenzene-d5	87	45-127
2-Fluorobiphenyl	74	49-120
Terphenyl-d14	85	27-120

Type: BSD Lab ID: QC657921

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Naphthalene	1.000	0.8888	89	40-115	11	20
1-Methylnaphthalene	1.000	0.8561	86	40-115	12	20
2-Methylnaphthalene	1.000	0.8644	86	40-115	4	20
Acenaphthylene	1.000	0.8040	80	40-115	14	20
Acenaphthene	1.000	0.8012	80	40-115	14	20
Fluorene	1.000	0.8581	86	40-115	13	20
Phenanthrene	1.000	0.8611	86	40-115	6	20
Anthracene	1.000	0.8108	81	40-115	4	20
Fluoranthene	1.000	0.7757	78	40-115	3	20
Pyrene	1.000	0.7817	78	40-115	2	20
Benzo(a)anthracene	1.000	0.6925	69	40-115	4	20
Chrysene	1.000	0.7166	72	40-115	6	20
Benzo(b)fluoranthene	1.000	0.7347	73	40-115	9	20
Benzo(k)fluoranthene	1.000	0.8074	81	40-115	13	20
Benzo(a)pyrene	1.000	0.7357	74	40-115	8	20
Indeno(1,2,3-cd)pyrene	1.000	0.6285	63	40-115	7	20
Dibenz(a,h)anthracene	1.000	0.6727	67	40-115	9	20
Benzo(g,h,i)perylene	1.000	0.6051	61	40-115	10	20

Surrogate	%REC	Limits
Nitrobenzene-d5	95	45-127
2-Fluorobiphenyl	88	49-120
Terphenyl-d14	83	27-120

RPD= Relative Percent Difference

Initial & Continuing Calibration Data

CURTIS & TOMPKINS DFTPP TUNE FOR 239885 MSSIM Water
EPA 8270C

Inst : MSBNA02 Run Name : DFTPP IDF : 1.0
Seqnum : 512381205005 File : uik05 Time : 20-SEP-2012 19:29

Standards: S20011

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	55176	51.08	
68	< 2% of mass 69	69	0.12	
69		58088	100.00	
70	< 2% of mass 69	29	0.05	
127	40% - 60% of mass 198	57479	53.22	
197	< 1% of mass 198	0	0.00	
198		108010	100.00	
199	5% - 9% of mass 198	7537	6.98	
275	10% - 30% of mass 198	20595	19.07	
365	> 1% of mass 198	2235	2.07	
441	Present, < mass 443	12925	75.47	
442	> 40% and < 100% of mass 198	87330	80.85	
443	17% - 23% of mass 442	17125	19.61	

Analyst: KMH Date: 09/21/12 Reviewer: LW Date: 09/21/12

CURTIS & TOMPKINS DFTPP TUNE FOR 239885 MSSIM Water
EPA 8270C

Inst : MSBNA02 Run Name : DFTPP IDF : 1.0
Seqnum : 512389445001 File : uiq01 Time : 26-SEP-2012 10:45

Standards: S20709

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	74872	49.78	
68	< 2% of mass 69	245	0.33	
69		73790	100.00	
70	< 2% of mass 69	327	0.44	
127	40% - 60% of mass 198	75258	50.04	
197	< 1% of mass 198	0	0.00	
198		150400	100.00	
199	5% - 9% of mass 198	10007	6.65	
275	10% - 30% of mass 198	26405	17.56	
365	> 1% of mass 198	2813	1.87	
441	Present, < mass 443	14782	77.15	
442	> 40% and < 100% of mass 198	97610	64.90	
443	17% - 23% of mass 442	19159	19.63	

Analyst: KMH Date: 09/26/12 Reviewer: LLH Date: 09/26/12

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 239885 MSSIM Water: EPA 8270C-SIM

Inst : MSBNA02
Calnum : 512381205001
Units : ug/mL

Name : 2PAHSIM
Date : 20-SEP-2012 19:49
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	uik06	512381205006	PAHDIOX	20-SEP-2012 19:49	S20547
L2	uik07	512381205007	PAHDIOX	20-SEP-2012 20:23	S20548
L3	uik08	512381205008	PAHDIOX	20-SEP-2012 20:57	S20549
L4	uik09	512381205009	PAHDIOX	20-SEP-2012 21:30	S20550
L5	uik10	512381205010	PAHDIOX	20-SEP-2012 22:04	S20551
L6	uik11	512381205011	PAHDIOX	20-SEP-2012 22:39	S20552
L7	uik12	512381205012	PAHDIOX	20-SEP-2012 23:14	S20553

Analyte	L1	L2	L3	L4	L5	L6	L7	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Naphthalene	1.0167	1.0431	1.0374	1.0172	1.0053	0.9600	0.8969	AVRG		1.00336		0.9967	5	15	0.05	0.99	
2-Methylnaphthalene	0.6791	0.6550	0.6710	0.6947	0.6540	0.6328	0.5580	AVRG		1.54029		0.6492	7	15	0.05	0.99	
1-Methylnaphthalene	0.7104	0.6901	0.6743	0.6753	0.6399	0.5998	0.5710	AVRG		1.53484		0.6515	8	15	0.05	0.99	
Acenaphthylene	1.8132m	1.8163	1.8420	1.7661	1.7184	1.6133	1.5547	AVRG		0.57736		1.7320	6	15	0.05	0.99	
Acenaphthene	1.1152	1.1729	1.1558	1.1142	1.0974	1.0160	1.0025	AVRG		0.91217		1.0963	6	15	0.05	0.99	
Fluorene	1.2289	1.2343	1.2628	1.1374	1.1172	1.0711	1.0576	AVRG		0.86321		1.1585	7	15	0.05	0.99	
Phenanthrene	1.0480	0.9569	1.0008	0.9600	0.9241	0.8715	0.8856	AVRG		1.05313		0.9495	7	15	0.05	0.99	
Anthracene	1.0717m	0.9939m	1.0478m	0.9436m	0.9122m	0.8500	0.8922m	AVRG		1.04300		0.9588	9	15	0.05	0.99	
Fluoranthene	1.2273	1.0959	1.1294	0.9736	1.0065	0.8857	0.9271	AVRG		0.96612		1.0351	12	15	0.05	0.99	
Pyrene	1.5501	1.5419	1.4195	1.3820	1.3217	1.2252	1.1625	AVRG		0.72895		1.3718	11	15	0.05	0.99	
Benzo(a)anthracene	1.2063	1.2021	1.1289	1.0476	1.0896	1.0303	0.9782	AVRG		0.91109		1.0976	8	15	0.05	0.99	
Chrysene	1.2140m	1.1186m	1.0357m	1.0415m	1.0836m	0.9980m	1.0067m	AVRG		0.93356		1.0712	7	15	0.05	0.99	
Benzo(b)fluoranthene	1.3316	1.3502	1.1828	1.1629	1.1790	1.0188	1.0189	AVRG		0.84908		1.1777	11	15	0.05	0.99	
Benzo(k)fluoranthene	1.2344m	1.5764	1.1283	1.6182	1.6157	1.5362	1.4438	AVRG		0.68945		1.4504	13	15	0.05	0.99	
Benzo(a)pyrene	1.0748	1.0549	0.9552	1.0238m	1.0458m	1.0129	0.9462	AVRG		0.98404		1.0162	5	15	0.05	0.99	
Indeno(1,2,3-cd)pyrene	1.0040	1.0116	0.9685	0.9969	1.0758	1.0467	1.0594	AVRG		0.97727		1.0233	4	15	0.05	0.99	
Dibenz(a,h)anthracene	0.7483	0.7508	0.7221	0.7510	0.8060	0.8096	0.8367	AVRG		1.29044		0.7749	5	15	0.05	0.99	
Benzo(g,h,i)perylene	0.9999	0.9933	0.9529	0.9665	0.9952	0.9846	0.9682	AVRG		1.02033		0.9801	2	15	0.05	0.99	
Nitrobenzene-d5	0.2451m	0.2613	0.2615	0.2601	0.2598	0.2557	0.2405	AVRG		3.92373		0.2549	3	15	0.05	0.99	
2-Fluorobiphenyl	1.2337	1.3223	1.2646	1.1917	1.1245	1.0703	1.0279	AVRG		0.85003		1.1764	9	15	0.05	0.99	
Terphenyl-d14	0.8718	0.9026	0.8082	0.7884	0.7773	0.7297	0.7039	AVRG		1.25404		0.7974	9	15	0.05	0.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D
Naphthalene	0.1000	2	0.2000	5	0.5000	4	1.0000	2	2.0000	1	5.0000	-4	10.000	-10
2-Methylnaphthalene	0.1000	5	0.2000	1	0.5000	3	1.0000	7	2.0000	1	5.0000	-3	10.000	-14
1-Methylnaphthalene	0.1000	9	0.2000	6	0.5000	3	1.0000	4	2.0000	-2	5.0000	-8	10.000	-12
Acenaphthylene	0.1000	5	0.2000	5	0.5000	6	1.0000	2	2.0000	-1	5.0000	-7	10.000	-10
Acenaphthene	0.1000	2	0.2000	7	0.5000	5	1.0000	2	2.0000	0	5.0000	-7	10.000	-9
Fluorene	0.1000	6	0.2000	7	0.5000	9	1.0000	-2	2.0000	-4	5.0000	-8	10.000	-9
Phenanthrene	0.1000	10	0.2000	1	0.5000	5	1.0000	1	2.0000	-3	5.0000	-8	10.000	-7
Anthracene	0.1000	12	0.2000	4	0.5000	9	1.0000	-2	2.0000	-5	5.0000	-11	10.000	-7
Fluoranthene	0.1000	19	0.2000	6	0.5000	9	1.0000	-6	2.0000	-3	5.0000	-14	10.000	-10
Pyrene	0.1000	13	0.2000	12	0.5000	3	1.0000	1	2.0000	-4	5.0000	-11	10.000	-15
Benzo(a)anthracene	0.1000	10	0.2000	10	0.5000	3	1.0000	-5	2.0000	-1	5.0000	-6	10.000	-11
Chrysene	0.1000	13	0.2000	4	0.5000	-3	1.0000	-3	2.0000	1	5.0000	-7	10.000	-6
Benzo(b)fluoranthene	0.1000	13	0.2000	15	0.5000	0	1.0000	-1	2.0000	0	5.0000	-13	10.000	-13
Benzo(k)fluoranthene	0.1000	-15	0.2000	9	0.5000	**-22**	1.0000	12	2.0000	11	5.0000	6	10.000	0
Benzo(a)pyrene	0.1000	6	0.2000	4	0.5000	-6	1.0000	1	2.0000	3	5.0000	0	10.000	-7
Indeno(1,2,3-cd)pyrene	0.1000	-2	0.2000	-1	0.5000	-5	1.0000	-3	2.0000	5	5.0000	2	10.000	4
Dibenz(a,h)anthracene	0.1000	-3	0.2000	-3	0.5000	-7	1.0000	-3	2.0000	4	5.0000	4	10.000	8
Benzo(g,h,i)perylene	0.1000	2	0.2000	1	0.5000	-3	1.0000	-1	2.0000	2	5.0000	0	10.000	-1
Nitrobenzene-d5	0.1000	-4	0.2000	3	0.5000	3	1.0000	2	2.0000	2	5.0000	0	10.000	-6
2-Fluorobiphenyl	0.1000	5	0.2000	12	0.5000	7	1.0000	1	2.0000	-4	5.0000	-9	10.000	-13
Terphenyl-d14	0.1000	9	0.2000	13	0.5000	1	1.0000	-1	2.0000	-3	5.0000	-8	10.000	-12

KMH 09/21/12 [Chrysene-d12]: Corrected automatically drawn baseline in multiple levels.

KMH 09/21/12 [Perylene-d12]: Corrected automatically drawn baseline in all levels.

KMH 09/21/12 [1,4-Dioxane]: Corrected automatically drawn baseline in multiple levels.

KMH 09/21/12 [Nitrobenzene-d5]: Corrected automatically drawn baseline in PAHDIOX (uik06).

KMH 09/21/12 [Acenaphthylene]: Corrected automatically drawn baseline in PAHDIOX (uik06).

KMH 09/21/12 [Anthracene]: Corrected automatically drawn baseline in multiple levels.

KMH 09/21/12 [Chrysene]: Corrected automatically drawn baseline in multiple levels.

KMH 09/21/12 [Benzo(k)fluoranthene]: Corrected automatically drawn baseline in PAHDIOX (uik06).

KMH 09/21/12 [Benzo(a)pyrene]: Corrected automatically drawn baseline in multiple levels.

Analyst: KMH Date: 09/21/12 Reviewer: LW Date: 09/21/12

m=manual integration

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

512381205001

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 239885 MSSIM Water
EPA 8270C-SIM

Inst : MSBNA02 Name : 2PAHSIM
Calnum : 512381205001 Cal Date : 20-SEP-2012

ICV 512381205013 (uik13 20-SEP-2012) stds: S20103

Analyte	Spiked	Quant	Units	%D	Max	Flags
Naphthalene	1.000	1.072	ug/mL	7	30	
2-Methylnaphthalene	1.000	1.032	ug/mL	3	30	
1-Methylnaphthalene	1.000	1.001	ug/mL	0	30	
Acenaphthylene	1.000	1.017	ug/mL	2	30	
Acenaphthene	1.000	0.9645	ug/mL	-4	20	
Fluorene	1.000	0.9994	ug/mL	0	30	
Phenanthrene	1.000	1.030	ug/mL	3	30	
Anthracene	1.000	0.9880	ug/mL	-1	30	m
Fluoranthene	1.000	0.9994	ug/mL	0	20	
Pyrene	1.000	0.9434	ug/mL	-6	30	
Benzo(a)anthracene	1.000	1.005	ug/mL	1	30	
Chrysene	1.000	1.008	ug/mL	1	30	m
Benzo(b)fluoranthene	1.000	1.015	ug/mL	2	30	
Benzo(k)fluoranthene	1.000	1.085	ug/mL	8	30	
Benzo(a)pyrene	1.000	0.8682	ug/mL	-13	20	
Indeno(1,2,3-cd)pyrene	1.000	1.007	ug/mL	1	30	
Dibenz(a,h)anthracene	1.000	1.002	ug/mL	0	30	
Benzo(g,h,i)perylene	1.000	0.9732	ug/mL	-3	30	

Analyst: KMH Date: 09/21/12 Reviewer: LW Date: 09/21/12

m=manual integration

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 239885 MSSIM Water
EPA 8270C-SIM

Inst : MSBNA02 Run Name : PAHDIOX IDF : 1.0
Seqnum : 512389445002 File : uiq02 Time : 26-SEP-2012 11:08
Cal : 512381205001 Caldate : 20-SEP-2012
Standards: S20550

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Naphthalene	0.9967	1.0243	1.000	1.028	ug/mL	3	30	0.0500	
2-Methylnaphthalene	0.6492	0.6507	1.000	1.002	ug/mL	0	30	0.0500	
1-Methylnaphthalene	0.6515	0.6478	1.000	0.9942	ug/mL	-1	30	0.0500	
Acenaphthylene	1.7320	1.7854	1.000	1.031	ug/mL	3	30	0.0500	
Acenaphthene	1.0963	1.0797	1.000	0.9849	ug/mL	-2	20	0.0500	
Fluorene	1.1585	1.2307	1.000	1.062	ug/mL	6	30	0.0500	
Phenanthrene	0.9495	1.0600	1.000	1.116	ug/mL	12	30	0.0500	
Anthracene	0.9588	1.0288	1.000	1.073	ug/mL	7	30	0.0500	
Fluoranthene	1.0351	1.0750	1.000	1.039	ug/mL	4	20	0.0500	
Pyrene	1.3718	1.4598	1.000	1.064	ug/mL	6	30	0.0500	
Benzo(a)anthracene	1.0976	1.1489	1.000	1.047	ug/mL	5	30	0.0500	
Chrysene	1.0712	1.0382	1.000	0.9693	ug/mL	-3	30	0.0500	m
Benzo(b)fluoranthene	1.1777	1.2057	1.000	1.024	ug/mL	2	30	0.0500	
Benzo(k)fluoranthene	1.4504	1.6273	1.000	1.122	ug/mL	12	30	0.0500	
Benzo(a)pyrene	1.0162	1.0479	1.000	1.031	ug/mL	3	20	0.0500	
Indeno(1,2,3-cd)pyrene	1.0233	0.8803	1.000	0.8603	ug/mL	-14	30	0.0500	
Dibenz(a,h)anthracene	0.7749	0.6831	1.000	0.8814	ug/mL	-12	30	0.0500	
Benzo(g,h,i)perylene	0.9801	0.7998	1.000	0.8161	ug/mL	-18	30	0.0500	
Nitrobenzene-d5	0.2549	0.2660	1.000	1.044	ug/mL	4	30	0.0500	
2-Fluorobiphenyl	1.1764	1.2042	1.000	1.024	ug/mL	2	30	0.0500	
Terphenyl-d14	0.7974	0.8257	1.000	1.036	ug/mL	4	30	0.0500	

KMH 09/26/12 [Perylene-d12]: Corrected automatically drawn baseline.

KMH 09/26/12 [1,4-Dioxane]: Corrected automatically drawn baseline.

KMH 09/26/12 [Chrysene]: Corrected automatically drawn baseline.

Analyst: KMH Date: 09/26/12 Reviewer: LLH Date: 09/26/12

m=manual integration

Logbooks & Sequences

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 512389445

Date : 09/26/12
Sequence : MSBNA02 uiq

Reference : uiq02
Analyzed : 09/26/12 11:08

#	Type	Sample ID	DCBZ14D4	RT	NAPHD8	RT	ACEND10	RT	PHEND10	RT	CHYD12	RT	PERYD12	RT
		CCV+CCV/BS+CCV/LCS+ICV+ICV/BS+ICV/CCV+ICV/LCS+RCCV STD	52883	8.15	203868	9.71	103282	11.99	150922	13.93	109774	17.51	79165	19.48
		LOWER LIMIT	26442	7.65	101934	9.21	51641	11.49	75461	13.43	54887	17.01	39583	18.98
		UPPER LIMIT	105766	8.65	407736	10.21	206564	12.49	301844	14.43	219548	18.01	158330	19.98
002	CCV	PAHDIOX	52883	8.15	203868	9.71	103282	11.99	150922	13.93	109774	17.51	79165	19.48
003	BLANK	QC657919	51423	8.15	205565	9.71	111024	11.99	165491	13.93	118205	17.51	80555	19.49
004	BS	QC657920	52371	8.14	204179	9.71	111729	11.99	164901	13.93	124846	17.51	92871	19.48
005	BSD	QC657921	52652	8.14	199678	9.71	105308	11.99	166802	13.93	124319	17.51	92343	19.48
006	SAMPLE	239825-001	57816	8.15	223992	9.71	125989	11.99	167390	13.93	126134	17.52	100495	19.49
007	SAMPLE	239825-002	55690	8.15	225465	9.71	124496	11.99	166694	13.93	122579	17.51	96468	19.49
008	SAMPLE	239863-001	57291	8.15	216974	9.72	180789	11.99	196005	13.95	124431	17.53	82240	19.50
009	SAMPLE	239863-003	57298	8.15	229694	9.72	120673	11.99	171363	13.95	114064	17.53	70170	19.50
010	SAMPLE	239863-004	53780	8.16	1854700 *	9.79	126776	12.15	4866 *	14.17	592 *	17.81	5012 *	19.49
011	SAMPLE	239711-003	49816	8.15	195847	9.71	101678	11.99	136166	13.93	65275	17.52	24263 *	19.51
012	SAMPLE	239711-012	52754	8.15	211047	9.71	112948	11.99	147930	13.95	72906	17.52	30957 *	19.49
013	SAMPLE	239711-013	56952	8.15	228017	9.71	122251	11.99	167465	13.95	92814	17.52	43780	19.49
014	SAMPLE	239734-001	58356	8.15	241329	9.71	123713	11.99	187718	13.95	99755	17.52	49212	19.49
015	SAMPLE	239734-002	57323	8.15	228789	9.71	126099	11.99	177398	13.95	102895	17.52	48940	19.49
016	SAMPLE	239734-003	60210	8.15	246868	9.71	123032	11.99	192260	13.95	108283	17.52	52707	19.49
017	SAMPLE	239885-002	59534	8.15	230639	9.71	127440	11.99	171777	13.95	98892	17.52	49019	19.49
019	SAMPLE	239826-002	50451	8.15	202900	9.71	106344	11.99	148169	13.93	81188	17.52	38475 *	19.49

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 512381205

Instrument : MSBNA02 Begun : 09/20/12 17:25
Method : EPA 8270C, EPA 8270C-SIM SOP Version : 8270-SIM_rv0, bna_rv.9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	uik01	TUN	DFTPP			09/20/12 17:25	1.0	1	
002	uik02	CCV	PAHDIOX			09/20/12 17:43	1.0	2	
003	uik03	TUN	DFTPP			09/20/12 18:41	1.0	1	
004	uik04	CCV	PAHDIOX			09/20/12 19:00	1.0	2	
005	uik05	TUN	DFTPP			09/20/12 19:29	1.0	3	
006	uik06	ICAL	PAHDIOX			09/20/12 19:49	1.0	4	
007	uik07	ICAL	PAHDIOX			09/20/12 20:23	1.0	5	
008	uik08	ICAL	PAHDIOX			09/20/12 20:57	1.0	2	
009	uik09	ICAL	PAHDIOX			09/20/12 21:30	1.0	6	
010	uik10	ICAL	PAHDIOX			09/20/12 22:04	1.0	7	
011	uik11	ICAL	PAHDIOX			09/20/12 22:39	1.0	8	
012	uik12	ICAL	PAHDIOX			09/20/12 23:14	1.0	9	
013	uik13	ICV	SIMICV			09/20/12 23:49	1.0	10	

KMH 09/21/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 13.

Standards used: 1=S20709 2=S20549 3=S20011 4=S20547 5=S20548 6=S20550 7=S20551 8=S20552 9=S20553 10=S20103

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 512389445

Instrument : MSBNA02 Begun : 09/26/12 10:45
Method : EPA 8270C, EPA 8270C-SIM SOP Version : 8270-SIM_rv0, bna_rv.9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used
001	uiq01	TUN	DFTPP			09/26/12 10:45	1.0	1
002	uiq02	CCV	PAHDIOX			09/26/12 11:08	1.0	2
003	uiq03	BLANK	QC657919	Water	190913	09/26/12 11:49	1.0	3
004	uiq04	BS	QC657920	Water	190913	09/26/12 12:26	1.0	3
005	uiq05	BSD	QC657921	Water	190913	09/26/12 13:01	1.0	3
006	uiq06	SAMPLE	239825-001	Water	190913	09/26/12 13:36	1.0	3
007	uiq07	SAMPLE	239825-002	Water	190913	09/26/12 14:10	1.0	3
008	uiq08	SAMPLE	239863-001	Water	190913	09/26/12 14:45	1.0	3
009	uiq09	SAMPLE	239863-003	Water	190913	09/26/12 15:18	1.0	3
010	uiq10	SAMPLE	239863-004	Water	190913	09/26/12 15:53	1.0	3
011	uiq11	SAMPLE	239711-003	Soil	190793	09/26/12 16:27	1.0	3
012	uiq12	SAMPLE	239711-012	Soil	190793	09/26/12 17:04	1.0	3
013	uiq13	SAMPLE	239711-013	Soil	190793	09/26/12 17:38	10.0	3
014	uiq14	SAMPLE	239734-001	Soil	190764	09/26/12 18:13	300.0	3
015	uiq15	SAMPLE	239734-002	Soil	190764	09/26/12 18:50	1500	3
016	uiq16	SAMPLE	239734-003	Soil	190764	09/26/12 19:28	500.0	3
017	uiq17	SAMPLE	239885-002	Water	190913	09/26/12 20:02	1.0	3
018	uiq18	SAMPLE	239886-001	Water	190913	09/26/12 20:38	1.0	3
019	uiq19	SAMPLE	239826-002	Soil	190889	09/26/12 21:16	2.0	3

KMH 09/27/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 19.

Standards used: 1=S20709 2=S20550 3=S20546

SAMPLE PREPARATION SUMMARY

Batch # : 190913 Analysis : 8270-SIM
Started By : TFB Prep Date : 24-SEP-2012 19:30 Finished By : RDG
Method : 3520C SOP Version : 8270_SIM_rv1 Units : mL
Spike #1 ID : S20153 Spike #2 ID : S20151

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
239825-001		Water	1070	1	1	0.0009346	7	1				8270-SIM	
239825-002		Water	1070	1	1	0.0009346	7	1				8270-SIM	heavy sediment
239863-001		Water	1060	1	1	0.0009434	7	1				8270-SIM	
239863-003		Water	1060	1	1	0.0009434	7	1				8270-SIM	
239863-004		Water	1060	1	1	0.0009434	7	1				8270-SIM	
239885-002		Water	1020	1	1	0.0009804	7	1				8270-SIM	Prepped 25-SEP-2012 17:30
239886-001		Water	960	1	1	0.001042	7	1				8270-SIM	Prepped 25-SEP-2012 17:30
QC657919	BLANK	Water	1000	1	1	0.001		1				8270-SIM	
QC657920	BS	Water	1000	1	1	0.001		1	1			8270-SIM	
QC657921	BSD	Water	1000	1	1	0.001		1	1			8270-SIM	

KMH 09/26/12 : Matrix spikes were not performed for this analysis in batch 190913 due to insufficient sample amount.

Analyst: KMH Date: 09/26/12 Reviewer: LW Date: 09/26/12

BNA (8270 & 625) Water Prep Log

Curtis & Tompkins, Ltd.

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LIMS Batch No: 190913 Extraction Method:
LIMS Analysis: 8270-SIM ☒ EPA 3520c cont. L/L
Date Extracted: 9/24/12 o ____________

Sample #	Container ID	Volume of Sample (mL)	Sample pH	Final Volume (mL)	Confirmed pH <2	Comments
239825-001	J	1070	☒7 ☐	☒ 1.0 ☐	☒ ≤2	
↓ -002	↓	1070	☒7 ☐	☒ 1.0 ☐	☒ ≤2	heavy sediment
239863-001	K	1060	☒7 ☐	☒ 1.0 ☐	☒ ≤2	
-003	L	1060	☒7 ☐	☒ 1.0 ☐	☒ ≤2	
↓ -004	K	1060	☒7 ☐	☒ 1.0 ☐	☒ ≤2	
MB QC657919	NA	1000	☐7 ☒ NA	☒ 1.0 ☐	☒ ≤2	
BS ↓ 20	↓	1000	☐7 ☒ ↓	☒ 1.0 ☐	☒ ≤2	
BSD ↓ 21	↓	1000	☐7 ☒ ↓	☒ 1.0 ☐	☒ ≤2	
239885-002	I	1020	☒7 ☐	☒ 1.0 ☐	☒ ≤2	★ added 9/25/12 @ 1730
239886-001	G	960	☒7 ☐	☒ 1.0 ☐	☒ ≤2	↓
			☐7 ☐	☐ 1.0 ☐	☐ ≤2	
			☐7 ☐	☐ 1.0 ☐	☐ ≤2	
			☐7 ☐	☐ 1.0 ☐	☐ ≤2	
			☐7 ☐	☐ 1.0 ☐	☐ ≤2	
			☐7 ☐	☐ 1.0 ☐	☐ ≤2	
			☐7 ☐	☐ 1.0 ☐	☐ ≤2	
			☐7 ☐	☐ 1.0 ☐	☐ ≤2	
			☐7 ☐	☐ 1.0 ☐	☐ ≤2	
			☐7 ☐	☐ 1.0 ☐	☐ ≤2	
			☐7 ☐	☐ 1.0 ☐	☐ ≤2	
			☐7 ☐	☐ 1.0 ☐	☐ ≤2	
			☐7 ☐	☐ 1.0 ☐	☐ ≤2	
			☐7 ☐	☐ 1.0 ☐	☐ ≤2	
			☐7 ☐	☐ 1.0 ☐	☐ ≤2	TMH 9/24/12

	Lot# / LIMS # / Time	Date/ Initials
1.0 mL of surrogate solution was added to all samples	S20153D	TFB 9/24/12
1.0 mL of matrix spiking solution was added to all spikes	S20151E	↓
pH of all samples adjusted to pH ≤ 2 with H_2SO_4	FS120450	
Cont. L/L extracted with 450mL of CH_2Cl_2	EM52160	
Extraction Start Time:	1930 / 1730	↓
Extraction End Time:	13:30 / 1200	FDG 09/24/12
pH of all samples adjusted to pH ≥ 11 with 10 N NaOH	NA	↓
Extraction Start Time:	↓	
Extraction End Time:	↓	
Extracts filtered through baked, CH2Cl2-rinsed granular Na2SO4	EMVB15H	
Concentrated to final volume at temperature (degrees C)	70	
Relinquished to BNA department	✓	↓

Extraction Chemist 9/24/12 Date

Contined from Page /
Continued on Page /

Reviewed by 9/26/12 Date

Case Narrative Addendum: Manual Integrations for 239885 MSSIM (Water)

For SAMPLE 239885-002 (MSBNA02 uiq17):
Benzo(b)fluoranthene: Separated from coeluting peak.
Benzo(k)fluoranthene: Separated from coeluting peak.

For CCV PAHDIOX (MSBNA02 uiq02):
Chrysene: Corrected automatically drawn baseline.
1,4-Dioxane: Corrected automatically drawn baseline.
Perylene-d12: Corrected automatically drawn baseline.

For BSD QC657921 (MSBNA02 uiq05):
Chrysene: Corrected automatically drawn baseline for spike & dup.
1,4-Dioxane: Corrected automatically drawn baseline for dup.
Perylene-d12: Corrected automatically drawn baseline for spike & dup.

For Calibration MSBNA02 (512381205001):
Acenaphthylene: Corrected automatically drawn baseline in PAHDIOX (uik06).
Anthracene: Corrected automatically drawn baseline in multiple levels.
Benzo(a)pyrene: Corrected automatically drawn baseline in multiple levels.
Benzo(k)fluoranthene: Corrected automatically drawn baseline in PAHDIOX (uik06).
Chrysene: Corrected automatically drawn baseline in multiple levels.
Chrysene-d12: Corrected automatically drawn baseline in multiple levels.
1,4-Dioxane: Corrected automatically drawn baseline in multiple levels.
Nitrobenzene-d5: Corrected automatically drawn baseline in PAHDIOX (uik06).
Perylene-d12: Corrected automatically drawn baseline in all levels.

For ICV SIMICV (MSBNA02 uik13):
Anthracene: Corrected automatically drawn baseline.
Chrysene: Corrected automatically drawn baseline.
Chrysene-d12: Corrected automatically drawn baseline.
Perylene-d12: Corrected automatically drawn baseline.

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 242032
ANALYTICAL REPORT

Innovative Technical Solutions,Inc.	Project : 07193.0002
2730 Shadelands Drive	Location : Hunters Point Parcel B Fall 2012 GW
Walnut Creek, CA 94598	Level : III

Sample ID	Lab ID
IR46MW58A-121712	242032-001
TB-121712	242032-002
IR46MW56A-121712	242032-003
IR46MW57A-121812	242032-004
IR46MW59A-121812	242032-005
IR46MW60A-121812	242032-006
IR46MW46A-121812	242032-007
IR46MW47A-121812	242032-008
IR99MW47A-121812	242032-009

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

Signature: _____ Date: 12/27/2012

Mike J. Dahlquist
Project Manager
(510) 486-0900

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**242032**
Client:	**Innovative Technical Solutions,Inc.**
Project:	**07193.0002**
Location:	**Hunters Point Parcel B Fall 2012 GW**
Request Date:	**12/18/12**
Samples Received:	**12/18/12**

This data package contains sample and QC results for nine water samples, requested for the above referenced project on 12/18/12. 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.

Semivolatile Organics by GC/MS SIM (EPA 8270C-SIM):
High recoveries were observed for 2-methylnaphthalene, naphthalene, and phenanthrene in the BS/BSD for batch 193973; the associated RPDs were within limits, and these analytes were not detected at or above the RL in the associated samples.

High recoveries were observed for 2-methylnaphthalene and naphthalene in the LCS for batch 194084; these analytes were not detected at or above the RL in the associated samples.

High recoveries were observed for 2-methylnaphthalene, naphthalene, and phenanthrene in the MSD of IR46MW46A-121812 (lab # 242032-007); the associated RPDs were within limits, and these analytes were not detected at or above the RL in the associated samples.

High surrogate recovery was observed for nitrobenzene-d5 in IR46MW60A-121812 (lab # 242032-006); no target analytes were detected in the sample.

High surrogate recovery was observed for 2-fluorobiphenyl in IR46MW60A-121812 (lab # 242032-006); no target analytes were detected in the sample.

High surrogate recovery was observed for terphenyl-d14 in IR46MW60A-121812 (lab # 242032-006); no target analytes were detected in the sample.

No other analytical problems were encountered.

Chain of Custody

242032

007401

ITSI
2730 Shadelands Drive, Suite 100
Walnut Creek, California 94598
(925) 946-3100 (925) 256-8998 (fax)

Local Address: ITSI
HPNS, SF, CA

Chain-Of-Custody

Project Name and Number: 57193.002 0056800
Project Manager: Ken Leonard
Site Location: Hunters Point Parcel B Fall 2012 GW

Laboratory Name: Curtis & Tompkins
Address: 2323 5th St. Berkeley, CA
Contact Name: Mike Dahlquist
Phone: 510-486-0900

Date: 12/17/12
Page: 1 of

	Sample I.D.	Date	Time	Sample Depth	No. of Containers	Sample Matrix	8021 TVH/BTEX/MTBE	TPH-D/M.O.	PAH 8270 SIM							Special Instructions/Comments
							Preservative: HCl	-	-							
							Container Type: 40ml	1L	1L							
1	IR46MW58A-121712	12/17/12	1500		7	GW	3	2	2							
2	TB-121712	12/17/12	1330		3	GW	3	~~2~~	~~2~~							
3	IR46MW56A-121712	12/17/12	1530		7	GW	3	2	2							
4	IR46MW57A-121812	12/18/12	845		7	GW	3	2	2							
5	IR46MW59A-121812	12/18/12	945		7	GW	3	2	2							
6	IR46MW60A-121812	12/18/12	1100		7	GW	3	2	2							
7	IR46MW46A-121812	12/18/12	1335		14	GW	6	4	4							MS/MSD
8	IR46MW47A-121812	12/18/12	1500		7	GW	3	2	2							
9	IR29MW47A-121812	12/18/12	1555		7	GW	3	2	2							

Sampled By: ITSI
Signature:
Special Instructions:
Send Results to: (w/fax #) rFlynn@itsi.com
Turnaround Time: Standard

Sampler: Kimberly Tan
Courier/Airbill No.:

Relinquished By/Affiliation:	Date:	Time:	Received By/Affiliation:	Date:	Time:
ITSI	12/18/12	1600	C&T	12/18/12	1600
	12/18/12	1840		12/18/12	1840

Original – Laboratory Yellow – Field/Office

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 242032 Date Received 12/18/12 Number of coolers 5
Client ITSI Project 07193.0002

Date Opened 12/18 By (print) P.S. (sign) P.S.
Date Logged in ↓ By (print) [illegible] (sign) [illegible]

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 10 Name SIGNATURE Date 18 DEC 12
2B. Were custody seals intact upon arrival? _____ YES NO N/A
3. Were custody papers dry and intact when received? _____ YES NO
4. Were custody papers filled out properly (ink, signed, etc)? _____ YES NO
5. Is the project identifiable from custody papers? (If so fill out top of form) ___ YES NO
6. Indicate the packing in cooler: (if other, describe) _____

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

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

Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C) 1.2, 1.5, 1.5, 2.0, 2.3

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

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

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

COMMENTS

_____
_____
_____
_____
_____
_____

Rev 10, 11/11

Laboratory Job Number 242032

ANALYTICAL REPORT

TPH-Purgeables and/or BTXE by GC

Matrix: Water

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	242032	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 5030B
Project#:	07193.0002		

Field ID:	IR46MW58A-121712	Batch#:	194030
Lab ID:	242032-001	Sampled:	12/17/12
Matrix:	Water	Received:	12/18/12
Units:	ug/L	Analyzed:	12/19/12
Diln Fac:	1.000		

Analyte	Result	RL	MDL	Analysis
Gasoline C6-C12	14 J	50	10	EPA 8015B
MTBE	ND	2.0	0.57	EPA 8021B
Benzene	ND	0.50	0.10	EPA 8021B
Toluene	ND	0.50	0.11	EPA 8021B
Ethylbenzene	ND	0.50	0.10	EPA 8021B
m,p-Xylenes	ND	0.50	0.14	EPA 8021B
o-Xylene	ND	0.50	0.11	EPA 8021B
Xylene (total)	ND	0.50		EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	98	75-124	EPA 8015B
Bromofluorobenzene (PID)	96	62-134	EPA 8021B

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	242032	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 5030B
Project#:	07193.0002		
Field ID:	TB-121712	Batch#:	194030
Lab ID:	242032-002	Sampled:	12/17/12
Matrix:	Water	Received:	12/18/12
Units:	ug/L	Analyzed:	12/19/12
Diln Fac:	1.000		

Analyte	Result	RL	MDL	Analysis
Gasoline C6-C12	ND	50	10	EPA 8015B
MTBE	1.8 J	2.0	0.40	EPA 8021B
Benzene	ND	0.50	0.10	EPA 8021B
Toluene	ND	0.50	0.11	EPA 8021B
Ethylbenzene	ND	0.50	0.10	EPA 8021B
m,p-Xylenes	ND	0.50	0.14	EPA 8021B
o-Xylene	ND	0.50	0.11	EPA 8021B
Xylene (total)	ND	0.50		EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	98	75-124	EPA 8015B
Bromofluorobenzene (PID)	96	62-134	EPA 8021B

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	242032	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 5030B
Project#:	07193.0002		
Field ID:	IR46MW56A-121712	Batch#:	194030
Lab ID:	242032-003	Sampled:	12/17/12
Matrix:	Water	Received:	12/18/12
Units:	ug/L	Analyzed:	12/19/12
Diln Fac:	1.000		

Analyte	Result	RL	MDL	Analysis
Gasoline C6-C12	ND	50	10	EPA 8015B
MTBE	2.2	2.0	0.40	EPA 8021B
Benzene	ND	0.50	0.10	EPA 8021B
Toluene	ND	0.50	0.11	EPA 8021B
Ethylbenzene	ND	0.50	0.10	EPA 8021B
m,p-Xylenes	ND	0.50	0.14	EPA 8021B
o-Xylene	ND	0.50	0.11	EPA 8021B
Xylene (total)	ND	0.50		EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	99	75-124	EPA 8015B
Bromofluorobenzene (PID)	97	62-134	EPA 8021B

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	242032	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 5030B
Project#:	07193.0002		

Field ID:	IR46MW57A-121812	Batch#:	194030
Lab ID:	242032-004	Sampled:	12/18/12
Matrix:	Water	Received:	12/18/12
Units:	ug/L	Analyzed:	12/19/12
Diln Fac:	1.000		

Analyte	Result	RL	MDL	Analysis
Gasoline C6-C12	ND	50	10	EPA 8015B
MTBE	ND	2.0	0.57	EPA 8021B
Benzene	ND	0.50	0.10	EPA 8021B
Toluene	ND	0.50	0.11	EPA 8021B
Ethylbenzene	ND	0.50	0.10	EPA 8021B
m,p-Xylenes	ND	0.50	0.14	EPA 8021B
o-Xylene	ND	0.50	0.11	EPA 8021B
Xylene (total)	ND	0.50		EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	96	75-124	EPA 8015B
Bromofluorobenzene (PID)	95	62-134	EPA 8021B

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	242032	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 5030B
Project#:	07193.0002		

Field ID:	IR46MW59A-121812	Batch#:	194030
Lab ID:	242032-005	Sampled:	12/18/12
Matrix:	Water	Received:	12/18/12
Units:	ug/L	Analyzed:	12/19/12
Diln Fac:	1.000		

Analyte	Result	RL	MDL	Analysis
Gasoline C6-C12	ND	50	10	EPA 8015B
MTBE	ND	2.0	0.57	EPA 8021B
Benzene	ND	0.50	0.10	EPA 8021B
Toluene	ND	0.50	0.11	EPA 8021B
Ethylbenzene	ND	0.50	0.10	EPA 8021B
m,p-Xylenes	ND	0.50	0.14	EPA 8021B
o-Xylene	ND	0.50	0.11	EPA 8021B
Xylene (total)	ND	0.50		EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	98	75-124	EPA 8015B
Bromofluorobenzene (PID)	97	62-134	EPA 8021B

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	242032	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 5030B
Project#:	07193.0002		

Field ID:	IR46MW60A-121812	Batch#:	194030
Lab ID:	242032-006	Sampled:	12/18/12
Matrix:	Water	Received:	12/18/12
Units:	ug/L	Analyzed:	12/19/12
Diln Fac:	1.000		

Analyte	Result	RL	MDL	Analysis
Gasoline C6-C12	ND	50	10	EPA 8015B
MTBE	ND	2.0	0.57	EPA 8021B
Benzene	ND	0.50	0.10	EPA 8021B
Toluene	ND	0.50	0.11	EPA 8021B
Ethylbenzene	ND	0.50	0.10	EPA 8021B
m,p-Xylenes	ND	0.50	0.14	EPA 8021B
o-Xylene	ND	0.50	0.11	EPA 8021B
Xylene (total)	ND	0.50		EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	98	75-124	EPA 8015B
Bromofluorobenzene (PID)	97	62-134	EPA 8021B

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	242032	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 5030B
Project#:	07193.0002		

Field ID:	IR46MW46A-121812	Batch#:	194030
Lab ID:	242032-007	Sampled:	12/18/12
Matrix:	Water	Received:	12/18/12
Units:	ug/L	Analyzed:	12/19/12
Diln Fac:	1.000		

Analyte	Result	RL	MDL	Analysis
Gasoline C6-C12	ND	50	10	EPA 8015B
MTBE	ND	2.0	0.57	EPA 8021B
Benzene	ND	0.50	0.10	EPA 8021B
Toluene	ND	0.50	0.11	EPA 8021B
Ethylbenzene	ND	0.50	0.10	EPA 8021B
m,p-Xylenes	ND	0.50	0.14	EPA 8021B
o-Xylene	ND	0.50	0.11	EPA 8021B
Xylene (total)	ND	0.50		EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	97	75-124	EPA 8015B
Bromofluorobenzene (PID)	96	62-134	EPA 8021B

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	242032	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 5030B
Project#:	07193.0002		

Field ID:	IR46MW47A-121812	Batch#:	194030
Lab ID:	242032-008	Sampled:	12/18/12
Matrix:	Water	Received:	12/18/12
Units:	ug/L	Analyzed:	12/20/12
Diln Fac:	1.000		

Analyte	Result	RL	MDL	Analysis
Gasoline C6-C12	ND	50	10	EPA 8015B
MTBE	ND	2.0	0.57	EPA 8021B
Benzene	ND	0.50	0.10	EPA 8021B
Toluene	ND	0.50	0.11	EPA 8021B
Ethylbenzene	ND	0.50	0.10	EPA 8021B
m,p-Xylenes	ND	0.50	0.14	EPA 8021B
o-Xylene	ND	0.50	0.11	EPA 8021B
Xylene (total)	ND	0.50		EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	100	75-124	EPA 8015B
Bromofluorobenzene (PID)	99	62-134	EPA 8021B

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	242032	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 5030B
Project#:	07193.0002		
Field ID:	IR99MW47A-121812	Batch#:	194030
Lab ID:	242032-009	Sampled:	12/18/12
Matrix:	Water	Received:	12/18/12
Units:	ug/L	Analyzed:	12/20/12
Diln Fac:	1.000		

Analyte	Result	RL	MDL	Analysis
Gasoline C6-C12	ND	50	10	EPA 8015B
MTBE	3.5	2.0	0.57	EPA 8021B
Benzene	ND	0.50	0.10	EPA 8021B
Toluene	ND	0.50	0.11	EPA 8021B
Ethylbenzene	ND	0.50	0.10	EPA 8021B
m,p-Xylenes	ND	0.50	0.14	EPA 8021B
o-Xylene	ND	0.50	0.11	EPA 8021B
Xylene (total)	ND	0.50		EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	99	75-124	EPA 8015B
Bromofluorobenzene (PID)	97	62-134	EPA 8021B

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	242032	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 5030B
Project#:	07193.0002	Analysis:	EPA 8021B
Matrix:	Water	Batch#:	194030
Units:	ug/L	Analyzed:	12/19/12
Diln Fac:	1.000		

Type: BS Lab ID: QC670884

Analyte	Spiked	Result	%REC	Limits
MTBE	10.00	8.893	89	70-130
Benzene	10.00	8.899	89	70-130
Toluene	10.00	9.048	90	70-130
Ethylbenzene	10.00	8.991	90	70-130
m,p-Xylenes	10.00	9.591	96	70-130
o-Xylene	10.00	8.834	88	70-130

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	89	62-134

Type: BSD Lab ID: QC670885

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	10.00	9.355	94	70-130	5	20
Benzene	10.00	9.644	96	70-130	8	20
Toluene	10.00	9.789	98	70-130	8	20
Ethylbenzene	10.00	9.707	97	70-130	8	20
m,p-Xylenes	10.00	10.39	104	70-130	8	20
o-Xylene	10.00	9.615	96	70-130	8	20

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	95	62-134

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	242032	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 5030B
Project#:	07193.0002	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC670886	Batch#:	194030
Matrix:	Water	Analyzed:	12/19/12
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C6-C12	1,000	999.2	100	65-135

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	94	75-124

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	242032	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 5030B
Project#:	07193.0002		
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC670887	Batch#:	194030
Matrix:	Water	Analyzed:	12/19/12
Units:	ug/L		

Analyte	Result	RL	MDL	Analysis
Gasoline C6-C12	ND	50	10	EPA 8015B
MTBE	ND	2.0	0.57	EPA 8021B
Benzene	ND	0.50	0.10	EPA 8021B
Toluene	ND	0.50	0.11	EPA 8021B
Ethylbenzene	ND	0.50	0.10	EPA 8021B
m,p-Xylenes	ND	0.50	0.14	EPA 8021B
o-Xylene	ND	0.50	0.11	EPA 8021B
Xylene (total)	ND	0.50		EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	94	75-124	EPA 8015B
Bromofluorobenzene (PID)	91	62-134	EPA 8021B

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	242032	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 5030B
Project#:	07193.0002	Analysis:	EPA 8015B
Field ID:	IR46MW46A-121812	Batch#:	194030
MSS Lab ID:	242032-007	Sampled:	12/18/12
Matrix:	Water	Received:	12/18/12
Units:	ug/L	Analyzed:	12/20/12
Diln Fac:	1.000		

Type: MS Lab ID: QC670888

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C6-C12	<10.44	2,000	1,806	90	65-135

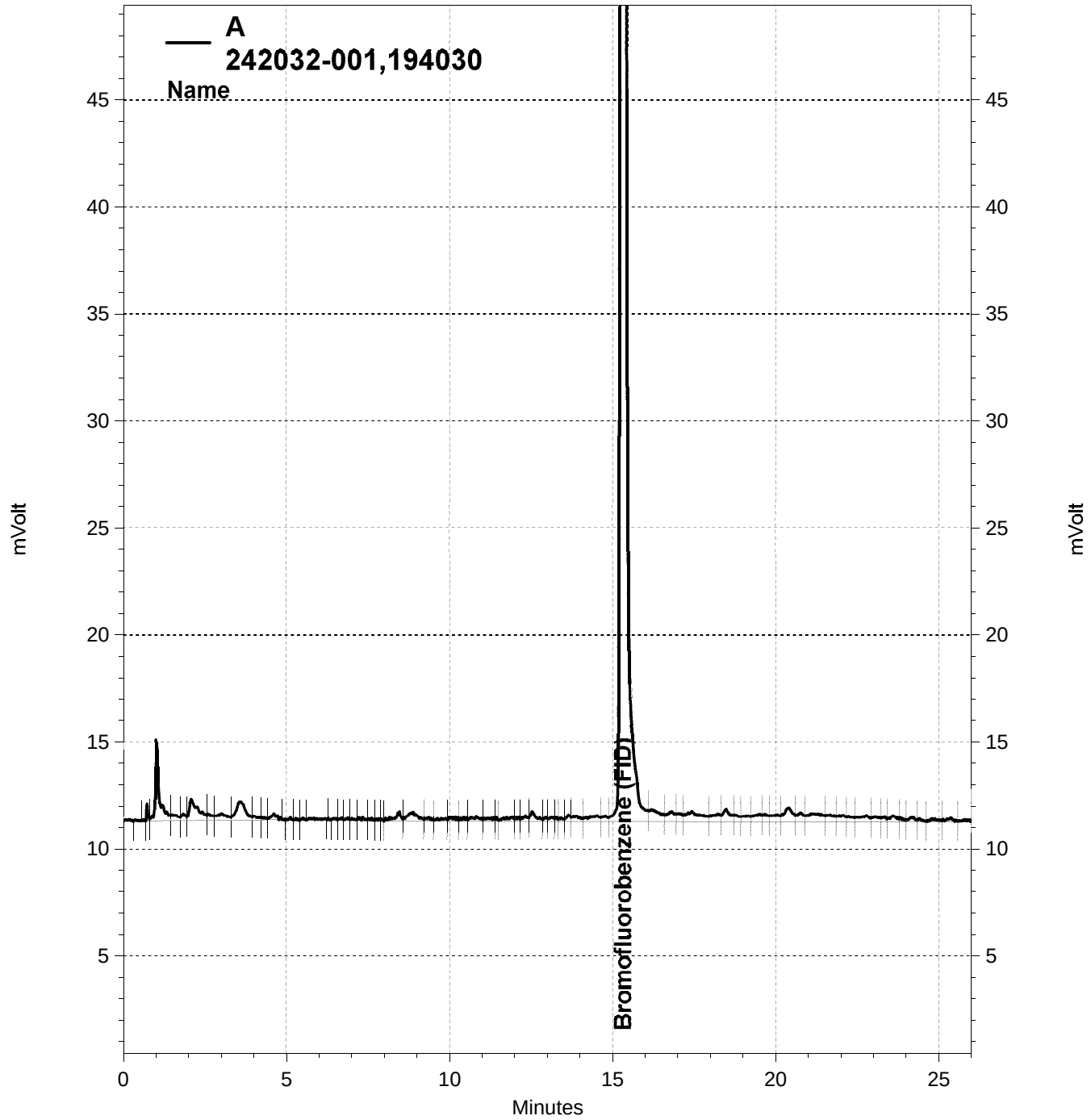
Surrogate	%REC	Limits
Bromofluorobenzene (FID)	102	75-124

Type: MSD Lab ID: QC670889

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C6-C12	2,000	1,789	89	65-135	1	20

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	98	75-124

RPD= Relative Percent Difference



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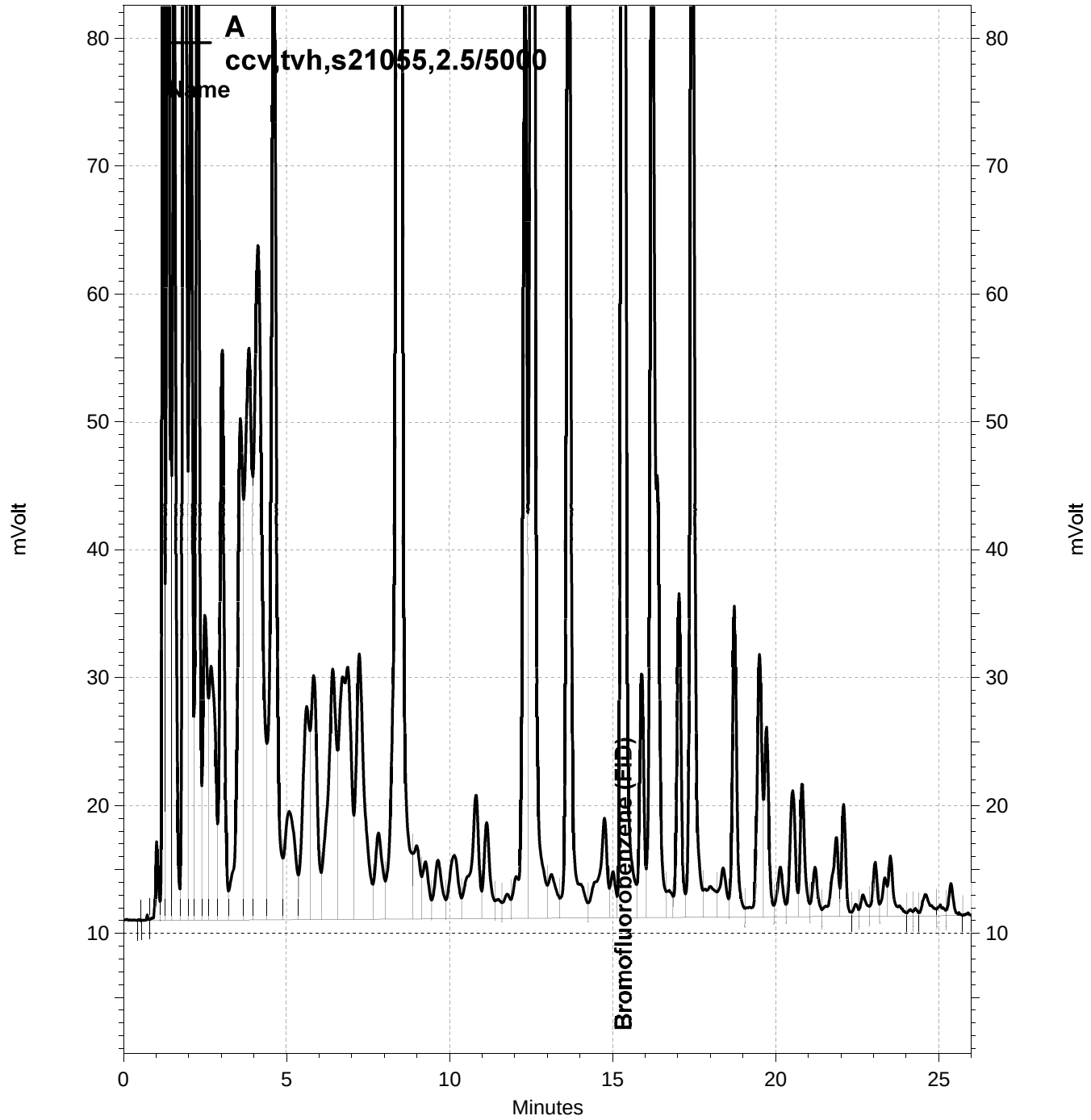
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Name
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Initial & Continuing Calibration Data

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 242032 GCVOA Water: EPA 8015B

Inst : GC07
Calnum : 322382210001
Units : ng

Name : tvh_265
Date : 21-SEP-2012 15:00
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	265_006	322382210006	TVH_14	21-SEP-2012 15:00	S20355 (1000X), S20276 (5000X)
L2	265_007	322382210007	TVH_15	21-SEP-2012 15:39	S20354 (1000X), S20276 (5000X)
L3	265_008	322382210008	TVH_16	21-SEP-2012 16:18	S20353 (1000X), S20276 (5000X)
L4	265_009	322382210009	TVH_17	21-SEP-2012 16:56	S20352 (2000X), S20276 (5000X)
L5	265_010	322382210010	TVH_18	21-SEP-2012 17:35	S20352 (1000X), S20276 (5000X)

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
Gasoline C6-C12	A	4206.9	3453.0	3465.9	3455.2	3387.0	AVRG		2.78E-4		3593.6	10	0.995	20	
Bromofluorobenzene (FID)	A	2287.3	2182.1	2331.8	2535.3	2661.8	AVRG		4.17E-4		2399.7	8	0.995	20	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Gasoline C6-C12	A	250.00	17	2500.0	-4	10000	-4	25000	-4	50000	-6
Bromofluorobenzene (FID)	A	900.00	-5	900.00	-9	900.00	-3	900.00	6	900.00	11

MAC 09/24/12 [Bromofluorobenzene (FID) A]: Separated from coeluting peak in TVH_14 (265_006).

DJA 09/25/12 : Added calibration report of BFB.

DJA: 09/25/12 MAC: 09/26/12 EAH: 09/26/12

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

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 242032 GCVOA Water
EPA 8015B

Inst : GC07 Name : tvh_265
Calnum : 322382210001 Cal Date : 21-SEP-2012

ICV 322382210012 (265_012 21-SEP-2012) stds: S20463 (1000X), S20276 (5000X)

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Gasoline C6-C12	A	10000	9357	ng	-6	15	

Analyst: MAC Date: 09/24/12 Reviewer: EAH Date: 09/24/12

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 242032 GCVOA Water: EPA 8021B

Inst : GC07
Calnum : 322422427001
Units : ng

Name : mbtxe/bfb_293
Date : 20-OCT-2012 17:45
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	293_039	322422427039	BTXE_1	20-OCT-2012 17:45	S20843 (1000X), S20862 (5000X)
L2	293_040	322422427040	MBTXE_2	20-OCT-2012 18:24	S20842 (1250X), S20862 (5000X)
L3	293_041	322422427041	MBTXE_3	20-OCT-2012 19:01	S20842 (500X), S20862 (5000X)
L4	293_042	322422427042	MBTXE_4	20-OCT-2012 19:40	S20842 (125X), S20862 (5000X)
L5	293_043	322422427043	MBTXE_5	20-OCT-2012 20:19	S20841 (1000X), S20862 (5000X)
L6	293_044	322422427044	MBTXE_6	20-OCT-2012 20:57	S20841 (500X), S20862 (5000X)
L7	293_045	322422427045	MBTXE_7	20-OCT-2012 21:35	S20841 (250X), S20862 (5000X)
L8	293_046	322422427046	MTBE_7	20-OCT-2012 22:14	S19756 (500X), S20862 (5000X)

Analyte	Ch	L1	L2	L3	L4	L5	L6	L7	L8	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
MTBE	B		10978	10287	10323	11187	11356	10158	10245	AVRG		9.39E-5		10648	5	0.995	20	
Benzene	B	27259	27057	25941	25743	27568	27190	26383		AVRG		3.74E-5		26734	3	0.995	20	
Toluene	B	26029	26613	24382	24384	26005	25493	24638		AVRG		3.94E-5		25363	4	0.995	20	
Ethylbenzene	B	20339	20730	19228	19710	21988	21049	21176		AVRG		4.85E-5		20603	5	0.995	20	
m,p-Xylenes	B	30520	28975	26376	26472	26750	26458	24928		AVRG		3.67E-5		27211	7	0.995	20	
o-Xylene	B	23159	23005	21924	22275	23363	22776	22159		AVRG		4.41E-5		22666	2	0.995	20	
Bromofluorobenzene (PID)	B	18868	18693	18498	19114	19773	19923	20369	19451	AVRG		5.17E-5		19336	3	0.995	20	
MTBE	C		657.00	707.40	807.95	971.73	968.03	844.99	814.41	AVRG		0.00121		824.50	14	0.995	20	
Benzene	C	1767.2	2038.9	2080.1	2251.3	2461.9	2389.8	2286.5		AVRG		4.58E-4		2182.2	11	0.995	20	
Toluene	C	1664.0	1861.3	1889.4	2062.6	2229.3	2172.7	2096.3		AVRG		5.01E-4		1996.5	10	0.995	20	
Ethylbenzene	C	1383.6	1612.5	1594.6	1768.8	1923.8	1884.9	1822.0		AVRG		5.84E-4		1712.9	11	0.995	20	
m,p-Xylenes	C	1890.8	2036.2	1985.8	2149.4	2251.4	2183.1	2112.3		AVRG		4.79E-4		2087.0	6	0.995	20	
o-Xylene	C	1917.2	1824.5	1810.2	1905.9	1980.1	1924.4	1866.8		AVRG		5.29E-4		1889.9	3	0.995	20	
Bromofluorobenzene (PID)	C	1702.2	1673.0	1642.4	1673.5	1654.2	1624.6	1628.4	1658.3	AVRG		6.03E-4		1657.1	2	0.995	20	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D
MTBE	B			10.000	3	25.000	-3	100.00	-3	500.00	5	1000.0	7	2000.0	-5	5000.0	-4
Benzene	B	2.5000	2	10.000	1	25.000	-3	100.00	-4	500.00	3	1000.0	2	2000.0	-1		
Toluene	B	2.5000	3	10.000	5	25.000	-4	100.00	-4	500.00	3	1000.0	1	2000.0	-3		
Ethylbenzene	B	2.5000	-1	10.000	1	25.000	-7	100.00	-4	500.00	7	1000.0	2	2000.0	3		
m,p-Xylenes	B	2.5000	12	10.000	6	25.000	-3	100.00	-3	500.00	-2	1000.0	-3	2000.0	-8		
o-Xylene	B	2.5000	2	10.000	1	25.000	-3	100.00	-2	500.00	3	1000.0	0	2000.0	-2		
Bromofluorobenzene (PID)	B	900.00	-2	900.00	-3	900.00	-4	900.00	-1	900.00	2	900.00	3	900.00	5	900.00	1
MTBE	C			10.000	-20	25.000	-14	100.00	-2	500.00	18	1000.0	17	2000.0	2	5000.0	-1
Benzene	C	2.5000	-19	10.000	-7	25.000	-5	100.00	3	500.00	13	1000.0	10	2000.0	5		
Toluene	C	2.5000	-17	10.000	-7	25.000	-5	100.00	3	500.00	12	1000.0	9	2000.0	5		
Ethylbenzene	C	2.5000	-19	10.000	-6	25.000	-7	100.00	3	500.00	12	1000.0	10	2000.0	6		
m,p-Xylenes	C	2.5000	-9	10.000	-2	25.000	-5	100.00	3	500.00	8	1000.0	5	2000.0	1		
o-Xylene	C	2.5000	1	10.000	-3	25.000	-4	100.00	1	500.00	5	1000.0	2	2000.0	-1		
Bromofluorobenzene (PID)	C	900.00	3	900.00	1	900.00	-1	900.00	1	900.00	0	900.00	-2	900.00	-2	900.00	0

DJA 10/22/12 : Had to RR levels 6 and 7 for the mbtxe ical b/c the autosampler stopped at file 37.

DJA 10/22/12 : Corrected automatically drawn baseline for Ch. B in multiple levels.

DJA 10/22/12 : Corrected automatically drawn baseline for Ch. C in MBTXE_7 (293_045).

EAH 10/23/12 : DJA10/23/12 09:01RR levels 1 and 2 for the mbtxe ical b/c the autosampler stopped at file 37.

Analyst: DJA Date: 10/22/12 Reviewer: EAH Date: 10/23/12

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

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 242032 GCVOA Water
EPA 8021B

Inst : GC07 Name : mbtxe/bfb_293
Calnum : 322422427001 Cal Date : 20-OCT-2012

ICV 322422427048 (293_048 20-OCT-2012) stds: S20462 (1000X), S20862 (5000X)

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
MTBE	B	100.0	98.07	ng	-2	15	
Benzene	B	100.0	95.92	ng	-4	15	
Toluene	B	100.0	94.31	ng	-6	15	
Ethylbenzene	B	100.0	94.98	ng	-5	15	
m,p-Xylenes	B	200.0	186.2	ng	-7	15	
o-Xylene	B	100.0	98.36	ng	-2	15	
MTBE	C	100.0	98.28	ng	-2	15	
Benzene	C	100.0	102.5	ng	2	15	
Toluene	C	100.0	100.6	ng	1	15	
Ethylbenzene	C	100.0	100.9	ng	1	15	
m,p-Xylenes	C	200.0	207.3	ng	4	15	
o-Xylene	C	100.0	99.26	ng	-1	15	

Analyst: DJA Date: 10/22/12 Reviewer: EAH Date: 10/22/12

CURTIS & TOMPKINS SPIKE USER REPORT FOR 242032 GCVOA Water
EPA 8021B

Inst : GC07 Run Name : QC670884 IDF : 1.0
Seqnum : 322510493001.3 File : 354_001 Time : 19-DEC-2012 12:13
Cal : 322422427001 Caldate : 20-OCT-2012
Standards: S21041 (2000X), S20862 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
MTBE	C	824.50	733.24	50.00	44.47	ng	-11	15	u
MTBE	B	10648	9590.4	50.00	45.04	ng	-10	15	
Benzene	C	2182.2	1942.0	50.00	44.50	ng	-11	15	u
Benzene	B	26734	23251	50.00	43.49	ng	-13	15	
Toluene	C	1996.5	1806.5	50.00	45.24	ng	-10	15	u
Toluene	B	25363	22477	50.00	44.31	ng	-11	15	
Ethylbenzene	C	1712.9	1540.1	50.00	44.96	ng	-10	15	u
Ethylbenzene	B	20603	18096	50.00	43.92	ng	-12	15	
m,p-Xylenes	C	2087.0	2001.6	50.00	47.95	ng	-4	15	u
m,p-Xylenes	B	27211	24774	50.00	45.52	ng	-9	15	
o-Xylene	C	1889.9	1669.4	50.00	44.17	ng	-12	15	u
o-Xylene	B	22666	20258	50.00	44.69	ng	-11	15	
Bromofluorobenzene (PID)	C	1657.1	1471.5	900.0	799.2	ng	-11	15	u
Bromofluorobenzene (PID)	B	19336	16289	900.0	758.2	ng	**-16**	15	c-

DJA 12/20/12 : ccv/bs,qc670884,194030 [general version]

Analyst: DJA Date: 12/20/12 Reviewer: TW Date: 12/21/12

-=low bias c=CCV u=use

CURTIS & TOMPKINS SPIKE USER REPORT FOR 242032 GCVOA Water
EPA 8015B

Inst : GC07 Run Name : QC670886 IDF : 1.0
Seqnum : 322510493002.3 File : 354_002 Time : 19-DEC-2012 12:52
Cal : 322382210001 Caldate : 21-SEP-2012
Standards: S21055 (2000X), S20862 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Gasoline C6-C12	A	3593.6	3590.6	5000	4996	ng	0	15	u
Bromofluorobenzene (FID)	A	2399.7	2260.9	900.0	848.0	ng	-6	15	u

DJA 12/20/12 : ccv/bs,qc670886,194030 [general version]

Analyst: DJA Date: 12/20/12 Reviewer: TW Date: 12/21/12

u=use

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 242032 GCVOA Water
EPA 8021B

Inst : GC07 Run Name : BTXE IDF : 1.0
Seqnum : 322510493005 File : 354_005 Time : 19-DEC-2012 16:18
Cal : 322422427001 Caldate : 20-OCT-2012
Standards: S21041 (2000X), S20862 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
MTBE	B	10648	11194	50.00	52.57	ng	5	15	
Benzene	B	26734	23908	50.00	44.71	ng	-11	15	
Toluene	B	25363	22808	50.00	44.96	ng	-10	15	
Ethylbenzene	B	20603	18684	50.00	45.34	ng	-9	15	
m,p-Xylenes	B	27211	25358	50.00	46.60	ng	-7	15	
o-Xylene	B	22666	20818	50.00	45.92	ng	-8	15	
Bromofluorobenzene (PID)	B	19336	17034	900.0	792.9	ng	-12	15	
MTBE	C	824.50	845.50	50.00	51.27	ng	3	15	
Benzene	C	2182.2	1987.5	50.00	45.54	ng	-9	15	
Toluene	C	1996.5	1850.9	50.00	46.35	ng	-7	15	
Ethylbenzene	C	1712.9	1588.7	50.00	46.38	ng	-7	15	
m,p-Xylenes	C	2087.0	2078.1	50.00	49.79	ng	0	15	
o-Xylene	C	1889.9	1771.9	50.00	46.88	ng	-6	15	
Bromofluorobenzene (PID)	C	1657.1	1525.3	900.0	828.5	ng	-8	15	

Analyst: DJA Date: 12/20/12 Reviewer: TW Date: 12/20/12

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 242032 GCVOA Water
EPA 8015B

Inst : GC07 Run Name : TVH IDF : 1.0
Seqnum : 322510493006 File : 354_006 Time : 19-DEC-2012 16:56
Cal : 322382210001 Caldate : 21-SEP-2012
Standards: S21055 (2000X), S20862 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Gasoline C6-C12	A	3593.6	3598.5	5000	5007	ng	0	15	
Bromofluorobenzene (FID)	A	2399.7	2319.2	900.0	869.8	ng	-3	15	

Analyst: DJA Date: 12/20/12 Reviewer: TW Date: 12/20/12

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 242032 GCVOA Water
EPA 8021B

Inst : GC07 Run Name : BTXE IDF : 1.0
Seqnum : 322510493018 File : 354_018 Time : 20-DEC-2012 01:19
Cal : 322422427001 Caldate : 20-OCT-2012
Standards: S21041 (1000X), S20862 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
MTBE	B	10648	10293	100.0	96.67	ng	-3	15	
Benzene	B	26734	25017	100.0	93.58	ng	-6	15	
Toluene	B	25363	23744	100.0	93.62	ng	-6	15	
Ethylbenzene	B	20603	19193	100.0	93.16	ng	-7	15	
m,p-Xylenes	B	27211	25603	100.0	94.09	ng	-6	15	
o-Xylene	B	22666	21346	100.0	94.17	ng	-6	15	
Bromofluorobenzene (PID)	B	19336	18543	900.0	863.1	ng	-4	15	
MTBE	C	824.50	830.76	100.0	100.8	ng	1	15	
Benzene	C	2182.2	2173.7	100.0	99.61	ng	0	15	
Toluene	C	1996.5	1983.8	100.0	99.36	ng	-1	15	
Ethylbenzene	C	1712.9	1676.3	100.0	97.86	ng	-2	15	
m,p-Xylenes	C	2087.0	2138.0	100.0	102.4	ng	2	15	
o-Xylene	C	1889.9	1827.1	100.0	96.68	ng	-3	15	
Bromofluorobenzene (PID)	C	1657.1	1636.0	900.0	888.6	ng	-1	15	

Analyst: DJA Date: 12/20/12 Reviewer: TW Date: 12/20/12

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 242032 GCVOA Water
EPA 8015B

Inst : GC07 Run Name : TVH IDF : 1.0
Seqnum : 322510493019 File : 354_019 Time : 20-DEC-2012 01:57
Cal : 322382210001 Caldate : 21-SEP-2012
Standards: S21055 (1000X), S20862 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Gasoline C6-C12	A	3593.6	3283.3	10000	9136	ng	-9	15	
Bromofluorobenzene (FID)	A	2399.7	2195.7	900.0	823.5	ng	-9	15	

Analyst: DJA Date: 12/20/12 Reviewer: TW Date: 12/20/12

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 242032 GCVOA Water
EPA 8015B

Inst : GC07 Run Name : TVH IDF : 1.0
Seqnum : 322510493022 File : 354_022 Time : 20-DEC-2012 03:54
Cal : 322382210001 Caldate : 21-SEP-2012
Standards: S21055 (1000X), S20862 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Gasoline C6-C12	A	3593.6	3102.2	10000	8633	ng	-14	15	
Bromofluorobenzene (FID)	A	2399.7	2095.8	900.0	786.0	ng	-13	15	

Analyst: DJA Date: 12/20/12 Reviewer: TW Date: 12/20/12

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 242032 GCVOA Water
EPA 8015B

Inst : GC07 Run Name : TVH IDF : 1.0
Seqnum : 322510493030 File : 354_030 Time : 20-DEC-2012 09:02
Cal : 322382210001 Caldate : 21-SEP-2012
Standards: S21055 (666.7X), S20862 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Gasoline C6-C12	A	3593.6	3280.0	15000	13690	ng	-9	15	
Bromofluorobenzene (FID)	A	2399.7	2345.9	900.0	879.8	ng	-2	15	

Analyst: DJA Date: 12/20/12 Reviewer: TW Date: 12/20/12

Logbooks & Sequences

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 322382210

Instrument : GC07 Begun : 09/21/12 10:10
Method : EPA 8015B, EPA 8021B SOP Version : TVH_BTXE_rv14

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	265_001	CCV	TVH			09/21/12 10:10	1.0	1 2	
002	265_002	CCV	TVH			09/21/12 11:06	1.0	1 2	
003	265_003	CCV	BTXE			09/21/12 11:44	1.0	3 2	
004	265_004	CCV	BTXE			09/21/12 12:30	1.0	3 2	
005	265_005	IB	CALIB			09/21/12 14:21	1.0	2	
006	265_006	ICAL	TVH_14			09/21/12 15:00	1.0	4 2	
007	265_007	ICAL	TVH_15			09/21/12 15:39	1.0	5 2	
008	265_008	ICAL	TVH_16			09/21/12 16:18	1.0	6 2	
009	265_009	ICAL	TVH_17			09/21/12 16:56	1.0	7 2	
010	265_010	ICAL	TVH_18			09/21/12 17:35	1.0	7 2	
011	265_011	X	IB			09/21/12 18:13	1.0	2	
012	265_012	ICV	TVH			09/21/12 18:52	1.0	8 2	
013	265_013	X	ICV			09/21/12 19:30	1.0	8 2	
014	265_014	CMARKER				09/21/12 20:09	1.0	9 2	
015	265_015	BLANK	QC657714	Water	190860	09/21/12 20:48	1.0	2	
016	265_016	CCV				09/21/12 21:27	1.0	2 3	
017	265_017	IDOC	QC657715	Water	190860	09/21/12 22:06	1.0	2 3	
018	265_018	IDOC	QC657716	Water	190860	09/21/12 22:45	1.0	2 3	
019	265_019	IDOC	QC657717	Water	190860	09/21/12 23:22	1.0	2 3	
020	265_020	IDOC	QC657718	Water	190860	09/22/12 00:01	1.0	2 3	
021	265_021	CCV	BTXE	Water		09/22/12 00:40	1.0	3 2	
022	265_022	BLANK	QC657720	Soil	190861	09/22/12 01:18	1.0	2	
023	265_023	CCV				09/22/12 01:57	1.0	2 3	
024	265_024	IDOC	QC657721	Soil	190861	09/22/12 02:36	1.0	2 3	
025	265_025	IDOC	QC657722	Soil	190861	09/22/12 03:15	1.0	2 3	
026	265_026	IDOC	QC657723	Soil	190861	09/22/12 03:54	1.0	2 3	
027	265_027	IDOC	QC657724	Soil	190861	09/22/12 04:32	1.0	2 3	
028	265_028	CCV	BTXE	Soil		09/22/12 05:10	1.0	3 2	

MAC 09/24/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 28.

Reviewed by: MAC Date: 09/24/12

Standards used: 1=S20263 2=S20276 3=S20258 4=S20355 5=S20354 6=S20353 7=S20352 8=S20463 9=S19631

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CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 322422427

Instrument : GC07 Begun : 10/19/12 08:27
Method : EPA 8015B, EPA 8021B SOP Version : TVH_BTXE_rv14

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	293_001	X	CMARK			10/19/12 08:27	1.0	1 2	
002	293_002	CCV	TVH			10/19/12 09:06	1.0	3 2	
003	293_003	X	IB			10/19/12 10:08	1.0	2	
004	293_004	X	BTXE			10/19/12 11:22	1.0	4 2	
005	293_005	CCV/LCS	QC661877	Water	191877	10/19/12 12:47	1.0	3 2	
006	293_006	BLANK	QC661878	Water	191877	10/19/12 13:46	1.0	2	
007	293_007	MSS	240521-001	Water	191877	10/19/12 14:50	1.0	2	
008	293_008	MS	QC661879	Water	191877	10/19/12 15:29	1.0	3 2	
009	293_009	MSD	QC661880	Water	191877	10/19/12 16:07	1.0	3 2	
010	293_010	SAMPLE	240521-002	Water	191877	10/19/12 16:45	1.0	2	
011	293_011	LOD	214826-034	Water	191877	10/19/12 17:24	1.0	5 2	
012	293_012	MSS	240527-001	Water	191877	10/19/12 20:13	1.0	2	
013	293_013	MS	QC662001	Water	191877	10/19/12 20:51	1.0	3 2	
014	293_014	MSD	QC662002	Water	191877	10/19/12 21:30	1.0	3 2	
015	293_015	SAMPLE	240530-001	Water	191877	10/19/12 22:08	1.0	2	
016	293_016	SAMPLE	240529-002	Water	191877	10/19/12 22:47	1.0	2	
017	293_017	SAMPLE	240529-001	Water	191877	10/19/12 23:25	1.0	2	
018	293_018	CCV	TVH			10/20/12 00:04	1.0	3 2	
019	293_019	X	TVH			10/20/12 00:42	1.0	3 2	
020	293_020	X	CMARK			10/20/12 01:20	1.0	1 2	
021	293_021	CCV	MINSP			10/20/12 01:58	1.0	6 2	
022	293_022	CCV	MINSP			10/20/12 02:37	1.0	6 2	
023	293_023	SAMPLE	240534-001	Water	191877	10/20/12 03:15	1.0	2	
024	293_024	SAMPLE	240534-002	Water	191877	10/20/12 03:53	1.0	2	
025	293_025	SAMPLE	240534-003	Water	191877	10/20/12 04:31	1.0	2	
026	293_026	SAMPLE	240534-004	Water	191877	10/20/12 05:08	1.0	2	
027	293_027	SAMPLE	240534-005	Water	191877	10/20/12 05:47	1.0	2	
028	293_028	SAMPLE	240534-006	Water	191877	10/20/12 06:26	1.0	2	
029	293_029	SAMPLE	240534-007	Water	191877	10/20/12 07:04	1.0	2	
030	293_030	CCV	TVH			10/20/12 07:43	1.0	3 2	
031	293_031	CCV	MINSP			10/20/12 08:21	1.0	6 2	
032	293_032	CCV	TVH			10/20/12 09:00	1.0	3 2	
033	293_033	CCV	MINSP			10/20/12 09:38	1.0	6 2	
034	293_034	X	CMARK			10/20/12 10:17	1.0	1 2	
035	293_035	X	ICALIB			10/20/12 10:56	1.0	2	
036	293_036	X	BTXE_1			10/20/12 11:34	1.0	7 2	
037	293_037	X	MBTXE_2			10/20/12 12:13	1.0	8 2	
038	293_038	IB	ICALIB			10/20/12 17:08	1.0	2	
039	293_039	ICAL	BTXE_1			10/20/12 17:45	1.0	7 2	
040	293_040	ICAL	MBTXE_2			10/20/12 18:24	1.0	8 2	
041	293_041	ICAL	MBTXE_3			10/20/12 19:01	1.0	8 2	
042	293_042	ICAL	MBTXE_4			10/20/12 19:40	1.0	8 2	
043	293_043	ICAL	MBTXE_5			10/20/12 20:19	1.0	9 2	
044	293_044	ICAL	MBTXE_6			10/20/12 20:57	1.0	9 2	
045	293_045	ICAL	MBTXE_7			10/20/12 21:35	1.0	9 2	
046	293_046	ICAL	MTBE_7			10/20/12 22:14	1.0	10 2	
047	293_047	X	IB			10/20/12 22:53	1.0	2	
048	293_048	ICV	MBTXE			10/20/12 23:30	1.0	11 2	
049	293_049	X	ICV			10/21/12 00:09	1.0	11 2	

DJA 10/22/12 : Had to RR levels 6 and 7 for the mbtxe ical b/c the autosampler stopped at file 37.

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 322422427

Instrument : GC07 Begun : 10/19/12 08:27
Method : EPA 8015B, EPA 8021B SOP Version : TVH_BTXE_rv14

DJA 10/22/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 49.

Reviewed by: DJA Date: 10/22/12

Standards used: 1=S20705 2=S20862 3=S20263 4=S20258 5=S20965 6=S20988 7=S20843 8=S20842 9=S20841 10=S19756 11=S20462

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 322510493

Instrument : GC07 Begun : 12/19/12 12:13
Method : EPA 8015B, EPA 8021B SOP Version : TVH_BTXE_rv14

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used
001	354_001	CCV/BS	QC670884	Water	194030	12/19/12 12:13	1.0	1 2
002	354_002	CCV/LCS	QC670886	Water	194030	12/19/12 12:52	1.0	3 2
003	354_003	BSD	QC670885	Water	194030	12/19/12 13:31	1.0	1 2
004	354_004	BLANK	QC670887	Water	194030	12/19/12 15:17	1.0	2
005	354_005	CCV	BTXE			12/19/12 16:18	1.0	1 2
006	354_006	CCV	TVH			12/19/12 16:56	1.0	3 2
007	354_007	X	CMARK			12/19/12 17:35	1.0	4 2
008	354_008	SAMPLE	242009-001	Water	194030	12/19/12 18:55	1.0	2
009	354_009	SAMPLE	242032-001	Water	194030	12/19/12 19:34	1.0	2
010	354_010	SAMPLE	242032-002	Water	194030	12/19/12 20:13	1.0	2
011	354_011	SAMPLE	242032-003	Water	194030	12/19/12 20:51	1.0	2
012	354_012	SAMPLE	242032-004	Water	194030	12/19/12 21:30	1.0	2
013	354_013	SAMPLE	242032-005	Water	194030	12/19/12 22:08	1.0	2
014	354_014	SAMPLE	242032-006	Water	194030	12/19/12 22:46	1.0	2
015	354_015	MSS	242032-007	Water	194030	12/19/12 23:24	1.0	2
016	354_016	SAMPLE	242032-008	Water	194030	12/20/12 00:03	1.0	2
017	354_017	SAMPLE	242032-009	Water	194030	12/20/12 00:41	1.0	2
018	354_018	CCV	BTXE			12/20/12 01:19	1.0	1 2
019	354_019	CCV	TVH			12/20/12 01:57	1.0	3 2
020	354_020	X	CMARK			12/20/12 02:36	1.0	4 2
021	354_021	CCV	BTXE			12/20/12 03:15	1.0	1 2
022	354_022	CCV	TVH			12/20/12 03:54	1.0	3 2
023	354_023	SAMPLE	242009-002	Water	194030	12/20/12 04:32	1.0	2
024	354_024	MS	QC670888	Water	194030	12/20/12 05:10	1.0	3 2
025	354_025	MSD	QC670889	Water	194030	12/20/12 05:48	1.0	3 2
026	354_026	SAMPLE	242016-001	Water	194030	12/20/12 06:26	1.0	2
027	354_027	SAMPLE	241979-001	Water	194030	12/20/12 07:05	1.0	2
028	354_028	SAMPLE	241979-002	Water	194030	12/20/12 07:43	1.0	2
029	354_029	SAMPLE	242035-002	Water	194030	12/20/12 08:22	1.0	2
030	354_030	CCV	TVH			12/20/12 09:02	1.0	3 2
031	354_031	X	IB			12/20/12 09:36	1.0	2
032	354_032	X	CMARK			12/20/12 10:13	1.0	4 2

DJA 12/20/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 32.

DJA 12/20/12 : Opening CM ran at the end of the last sequence.

Reviewed by: DJA Date: 12/20/12

Standards used: 1=S21041 2=S20862 3=S21055 4=S20705

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REPORTING SUMMARY FOR 242032 GCVOA Water

Sample ID	Analyte	Inst ID	Ch	Date & Time
242032-001	Gasoline C6-C12	GC07	A	12/19/12 19:34
242032-001	MTBE	GC07	C	12/19/12 19:34
242032-001	Benzene	GC07	C	12/19/12 19:34
242032-001	Toluene	GC07	C	12/19/12 19:34
242032-001	Ethylbenzene	GC07	C	12/19/12 19:34
242032-001	m,p-Xylenes	GC07	C	12/19/12 19:34
242032-001	o-Xylene	GC07	C	12/19/12 19:34
242032-001	Bromofluorobenzene (FID)	GC07	A	12/19/12 19:34
242032-001	Bromofluorobenzene (PID)	GC07	C	12/19/12 19:34
242032-001	Xylene (total)	GC07	C	12/19/12 19:34
242032-002	Gasoline C6-C12	GC07	A	12/19/12 20:13
242032-002	MTBE	GC07	B	12/19/12 20:13
242032-002	Benzene	GC07	C	12/19/12 20:13
242032-002	Toluene	GC07	C	12/19/12 20:13
242032-002	Ethylbenzene	GC07	C	12/19/12 20:13
242032-002	m,p-Xylenes	GC07	C	12/19/12 20:13
242032-002	o-Xylene	GC07	C	12/19/12 20:13
242032-002	Bromofluorobenzene (FID)	GC07	A	12/19/12 20:13
242032-002	Bromofluorobenzene (PID)	GC07	C	12/19/12 20:13
242032-002	Xylene (total)	GC07	C	12/19/12 20:13
242032-003	Gasoline C6-C12	GC07	A	12/19/12 20:51
242032-003	MTBE	GC07	B	12/19/12 20:51
242032-003	Benzene	GC07	C	12/19/12 20:51
242032-003	Toluene	GC07	C	12/19/12 20:51
242032-003	Ethylbenzene	GC07	C	12/19/12 20:51
242032-003	m,p-Xylenes	GC07	C	12/19/12 20:51
242032-003	o-Xylene	GC07	C	12/19/12 20:51
242032-003	Bromofluorobenzene (FID)	GC07	A	12/19/12 20:51
242032-003	Bromofluorobenzene (PID)	GC07	C	12/19/12 20:51
242032-003	Xylene (total)	GC07	C	12/19/12 20:51
242032-004	Gasoline C6-C12	GC07	A	12/19/12 21:30
242032-004	MTBE	GC07	C	12/19/12 21:30
242032-004	Benzene	GC07	C	12/19/12 21:30
242032-004	Toluene	GC07	C	12/19/12 21:30
242032-004	Ethylbenzene	GC07	C	12/19/12 21:30
242032-004	m,p-Xylenes	GC07	C	12/19/12 21:30
242032-004	o-Xylene	GC07	C	12/19/12 21:30
242032-004	Bromofluorobenzene (FID)	GC07	A	12/19/12 21:30
242032-004	Bromofluorobenzene (PID)	GC07	C	12/19/12 21:30
242032-004	Xylene (total)	GC07	C	12/19/12 21:30
242032-005	Gasoline C6-C12	GC07	A	12/19/12 22:08
242032-005	MTBE	GC07	C	12/19/12 22:08
242032-005	Benzene	GC07	C	12/19/12 22:08
242032-005	Toluene	GC07	C	12/19/12 22:08
242032-005	Ethylbenzene	GC07	C	12/19/12 22:08
242032-005	m,p-Xylenes	GC07	C	12/19/12 22:08
242032-005	o-Xylene	GC07	C	12/19/12 22:08
242032-005	Bromofluorobenzene (FID)	GC07	A	12/19/12 22:08
242032-005	Bromofluorobenzene (PID)	GC07	C	12/19/12 22:08
242032-005	Xylene (total)	GC07	C	12/19/12 22:08

REPORTING SUMMARY FOR 242032 GCVOA Water

Sample ID	Analyte	Inst ID	Ch	Date & Time
242032-006	Gasoline C6-C12	GC07	A	12/19/12 22:46
242032-006	MTBE	GC07	C	12/19/12 22:46
242032-006	Benzene	GC07	C	12/19/12 22:46
242032-006	Toluene	GC07	C	12/19/12 22:46
242032-006	Ethylbenzene	GC07	C	12/19/12 22:46
242032-006	m,p-Xylenes	GC07	C	12/19/12 22:46
242032-006	o-Xylene	GC07	C	12/19/12 22:46
242032-006	Bromofluorobenzene (FID)	GC07	A	12/19/12 22:46
242032-006	Bromofluorobenzene (PID)	GC07	C	12/19/12 22:46
242032-006	Xylene (total)	GC07	C	12/19/12 22:46
242032-007	Gasoline C6-C12	GC07	A	12/19/12 23:24
242032-007	MTBE	GC07	C	12/19/12 23:24
242032-007	Benzene	GC07	C	12/19/12 23:24
242032-007	Toluene	GC07	C	12/19/12 23:24
242032-007	Ethylbenzene	GC07	C	12/19/12 23:24
242032-007	m,p-Xylenes	GC07	C	12/19/12 23:24
242032-007	o-Xylene	GC07	C	12/19/12 23:24
242032-007	Bromofluorobenzene (FID)	GC07	A	12/19/12 23:24
242032-007	Bromofluorobenzene (PID)	GC07	C	12/19/12 23:24
242032-007	Xylene (total)	GC07	C	12/19/12 23:24
242032-008	Gasoline C6-C12	GC07	A	12/20/12 00:03
242032-008	MTBE	GC07	C	12/20/12 00:03
242032-008	Benzene	GC07	C	12/20/12 00:03
242032-008	Toluene	GC07	C	12/20/12 00:03
242032-008	Ethylbenzene	GC07	C	12/20/12 00:03
242032-008	m,p-Xylenes	GC07	C	12/20/12 00:03
242032-008	o-Xylene	GC07	C	12/20/12 00:03
242032-008	Bromofluorobenzene (FID)	GC07	A	12/20/12 00:03
242032-008	Bromofluorobenzene (PID)	GC07	C	12/20/12 00:03
242032-008	Xylene (total)	GC07	C	12/20/12 00:03
242032-009	Gasoline C6-C12	GC07	A	12/20/12 00:41
242032-009	MTBE	GC07	C	12/20/12 00:41
242032-009	Benzene	GC07	C	12/20/12 00:41
242032-009	Toluene	GC07	C	12/20/12 00:41
242032-009	Ethylbenzene	GC07	C	12/20/12 00:41
242032-009	m,p-Xylenes	GC07	C	12/20/12 00:41
242032-009	o-Xylene	GC07	C	12/20/12 00:41
242032-009	Bromofluorobenzene (FID)	GC07	A	12/20/12 00:41
242032-009	Bromofluorobenzene (PID)	GC07	C	12/20/12 00:41
242032-009	Xylene (total)	GC07	C	12/20/12 00:41
QC670884	MTBE	GC07	C	12/19/12 12:13
QC670884	Benzene	GC07	C	12/19/12 12:13
QC670884	Toluene	GC07	C	12/19/12 12:13
QC670884	Ethylbenzene	GC07	C	12/19/12 12:13
QC670884	m,p-Xylenes	GC07	C	12/19/12 12:13
QC670884	o-Xylene	GC07	C	12/19/12 12:13
QC670884	Bromofluorobenzene (PID)	GC07	C	12/19/12 12:13
QC670885	MTBE	GC07	C	12/19/12 13:31

REPORTING SUMMARY FOR 242032 GCVOA Water

Sample ID	Analyte	Inst ID	Ch	Date & Time
QC670885	Benzene	GC07	C	12/19/12 13:31
QC670885	Toluene	GC07	C	12/19/12 13:31
QC670885	Ethylbenzene	GC07	C	12/19/12 13:31
QC670885	m,p-Xylenes	GC07	C	12/19/12 13:31
QC670885	o-Xylene	GC07	C	12/19/12 13:31
QC670885	Bromofluorobenzene (PID)	GC07	C	12/19/12 13:31
QC670886	Gasoline C6-C12	GC07	A	12/19/12 12:52
QC670886	Bromofluorobenzene (FID)	GC07	A	12/19/12 12:52
QC670887	Gasoline C6-C12	GC07	A	12/19/12 15:17
QC670887	MTBE	GC07	C	12/19/12 15:17
QC670887	Benzene	GC07	C	12/19/12 15:17
QC670887	Toluene	GC07	C	12/19/12 15:17
QC670887	Ethylbenzene	GC07	C	12/19/12 15:17
QC670887	m,p-Xylenes	GC07	C	12/19/12 15:17
QC670887	o-Xylene	GC07	C	12/19/12 15:17
QC670887	Bromofluorobenzene (FID)	GC07	A	12/19/12 15:17
QC670887	Bromofluorobenzene (PID)	GC07	C	12/19/12 15:17
QC670887	Xylene (total)	GC07	C	12/19/12 15:17
QC670888	Gasoline C6-C12	GC07	A	12/20/12 05:10
QC670888	Bromofluorobenzene (FID)	GC07	A	12/20/12 05:10
QC670889	Gasoline C6-C12	GC07	A	12/20/12 05:48
QC670889	Bromofluorobenzene (FID)	GC07	A	12/20/12 05:48

Case Narrative Addendum: Manual Integrations for 242032 GCVOA (Water)

For Calibration GC07 (322382210001):
Bromofluorobenzene (FID) (Ch. A): Separated from coeluting peak in TVH_14 (265_006).

For Calibration GC07 (322422427001):
Corrected automatically drawn baseline for Ch. B in multiple levels.
Corrected automatically drawn baseline for Ch. C in MBTXE_7 (293_045).

Laboratory Job Number 242032

ANALYTICAL REPORT

TPH-Extractables by GC

Matrix: Water

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	242032	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	07193.0002	Analysis:	EPA 8015B
Matrix:	Water	Received:	12/18/12
Units:	ug/L	Prepared:	12/19/12
Diln Fac:	1.000	Analyzed:	12/20/12
Batch#:	194025		

Field ID: IR46MW58A-121712 Sampled: 12/17/12
Type: SAMPLE Cleanup Method: EPA 3630C
Lab ID: 242032-001

Analyte	Result	RL	MDL
Diesel C12-C24	23 J	50	16
Motor Oil C24-C36	ND	300	84

Surrogate	%REC	Limits
o-Terphenyl	107	61-134

Field ID: IR46MW56A-121712 Sampled: 12/17/12
Type: SAMPLE Cleanup Method: EPA 3630C
Lab ID: 242032-003

Analyte	Result	RL	MDL
Diesel C12-C24	28 J	50	16
Motor Oil C24-C36	ND	300	84

Surrogate	%REC	Limits
o-Terphenyl	119	61-134

Field ID: IR46MW57A-121812 Sampled: 12/18/12
Type: SAMPLE Cleanup Method: EPA 3630C
Lab ID: 242032-004

Analyte	Result	RL	MDL
Diesel C12-C24	ND	50	16
Motor Oil C24-C36	ND	300	84

Surrogate	%REC	Limits
o-Terphenyl	109	61-134

Field ID: IR46MW59A-121812 Sampled: 12/18/12
Type: SAMPLE Cleanup Method: EPA 3630C
Lab ID: 242032-005

Analyte	Result	RL	MDL
Diesel C12-C24	29 J	50	16
Motor Oil C24-C36	ND	300	84

Surrogate	%REC	Limits
o-Terphenyl	101	61-134

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	242032	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	07193.0002	Analysis:	EPA 8015B
Matrix:	Water	Received:	12/18/12
Units:	ug/L	Prepared:	12/19/12
Diln Fac:	1.000	Analyzed:	12/20/12
Batch#:	194025		

Field ID: IR46MW60A-121812 Sampled: 12/18/12
Type: SAMPLE Cleanup Method: EPA 3630C
Lab ID: 242032-006

Analyte	Result	RL	MDL
Diesel C12-C24	ND	50	16
Motor Oil C24-C36	ND	300	84

Surrogate	%REC	Limits
o-Terphenyl	108	61-134

Field ID: IR46MW46A-121812 Sampled: 12/18/12
Type: SAMPLE Cleanup Method: EPA 3630C
Lab ID: 242032-007

Analyte	Result	RL	MDL
Diesel C12-C24	ND	50	16
Motor Oil C24-C36	ND	300	84

Surrogate	%REC	Limits
o-Terphenyl	102	61-134

Field ID: IR46MW47A-121812 Sampled: 12/18/12
Type: SAMPLE Cleanup Method: EPA 3630C
Lab ID: 242032-008

Analyte	Result	RL	MDL
Diesel C12-C24	ND	50	16
Motor Oil C24-C36	ND	300	84

Surrogate	%REC	Limits
o-Terphenyl	109	61-134

Field ID: IR99MW47A-121812 Sampled: 12/18/12
Type: SAMPLE Cleanup Method: EPA 3630C
Lab ID: 242032-009

Analyte	Result	RL	MDL
Diesel C12-C24	26 J	50	16
Motor Oil C24-C36	ND	300	84

Surrogate	%REC	Limits
o-Terphenyl	111	61-134

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	242032	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	07193.0002	Analysis:	EPA 8015B
Matrix:	Water	Received:	12/18/12
Units:	ug/L	Prepared:	12/19/12
Diln Fac:	1.000	Analyzed:	12/20/12
Batch#:	194025		

Type: BLANK
Lab ID: QC670866

Cleanup Method: EPA 3630C

Analyte	Result	RL	MDL
Diesel C12-C24	ND	50	16
Motor Oil C24-C36	ND	300	84

Surrogate	%REC	Limits
o-Terphenyl	96	61-134

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	242032	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	07193.0002	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC670867	Batch#:	194025
Matrix:	Water	Prepared:	12/19/12
Units:	ug/L	Analyzed:	12/20/12

Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits
Diesel C12-C24	2,500	2,227	89	65-135

Surrogate	%REC	Limits
o-Terphenyl	108	61-134

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	242032	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	07193.0002	Analysis:	EPA 8015B
Field ID:	IR46MW46A-121812	Batch#:	194025
MSS Lab ID:	242032-007	Sampled:	12/18/12
Matrix:	Water	Received:	12/18/12
Units:	ug/L	Prepared:	12/19/12
Diln Fac:	1.000	Analyzed:	12/20/12

Type: MS Cleanup Method: EPA 3630C
Lab ID: QC670868

Analyte	MSS Result	Spiked	Result	%REC	Limits
Diesel C12-C24	<16.49	2,500	2,129	85	65-135

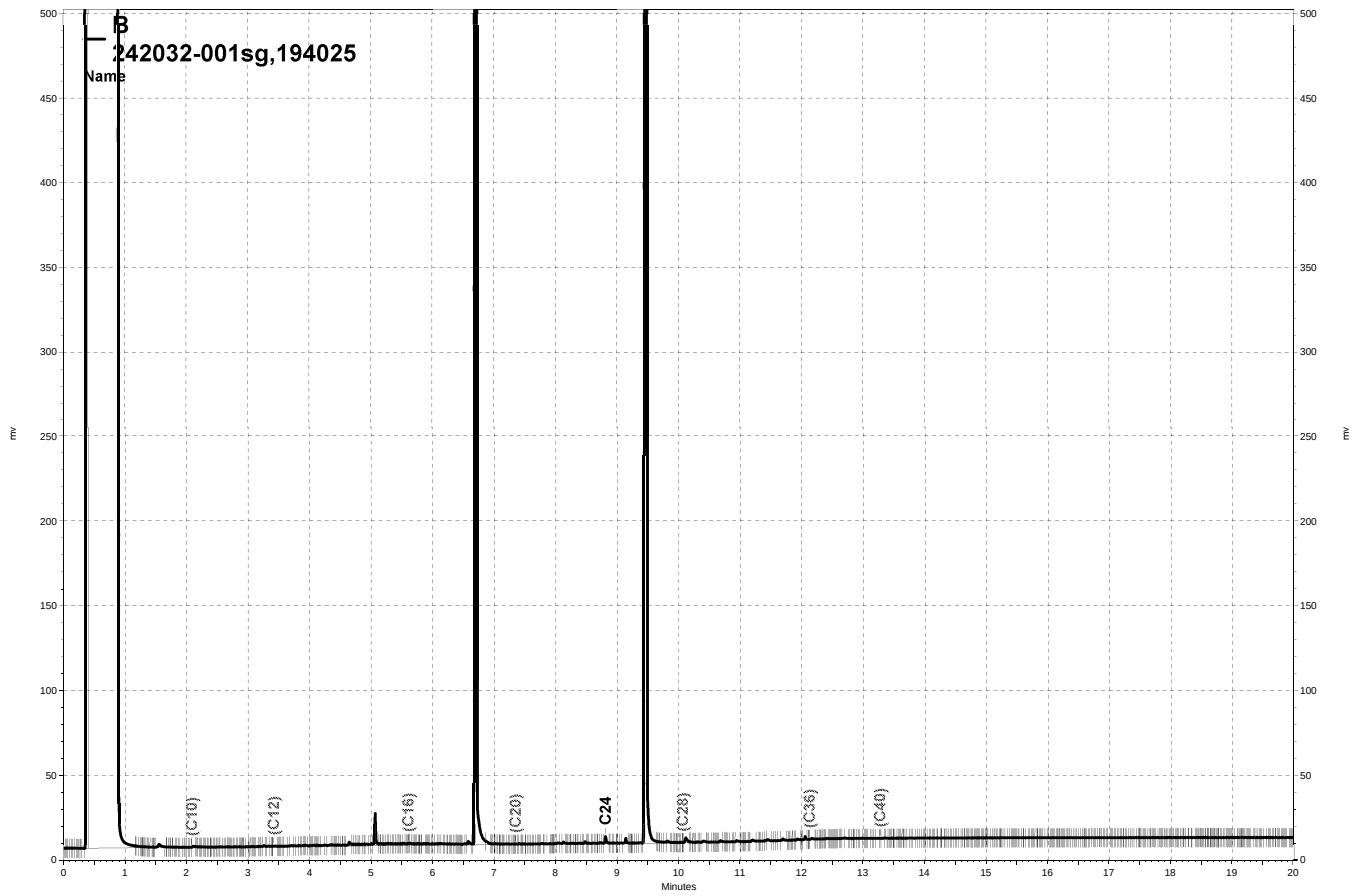
Surrogate	%REC	Limits
o-Terphenyl	109	61-134

Type: MSD Cleanup Method: EPA 3630C
Lab ID: QC670869

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C12-C24	2,500	2,104	84	65-135	1	20

Surrogate	%REC	Limits
o-Terphenyl	103	61-134

RPD= Relative Percent Difference



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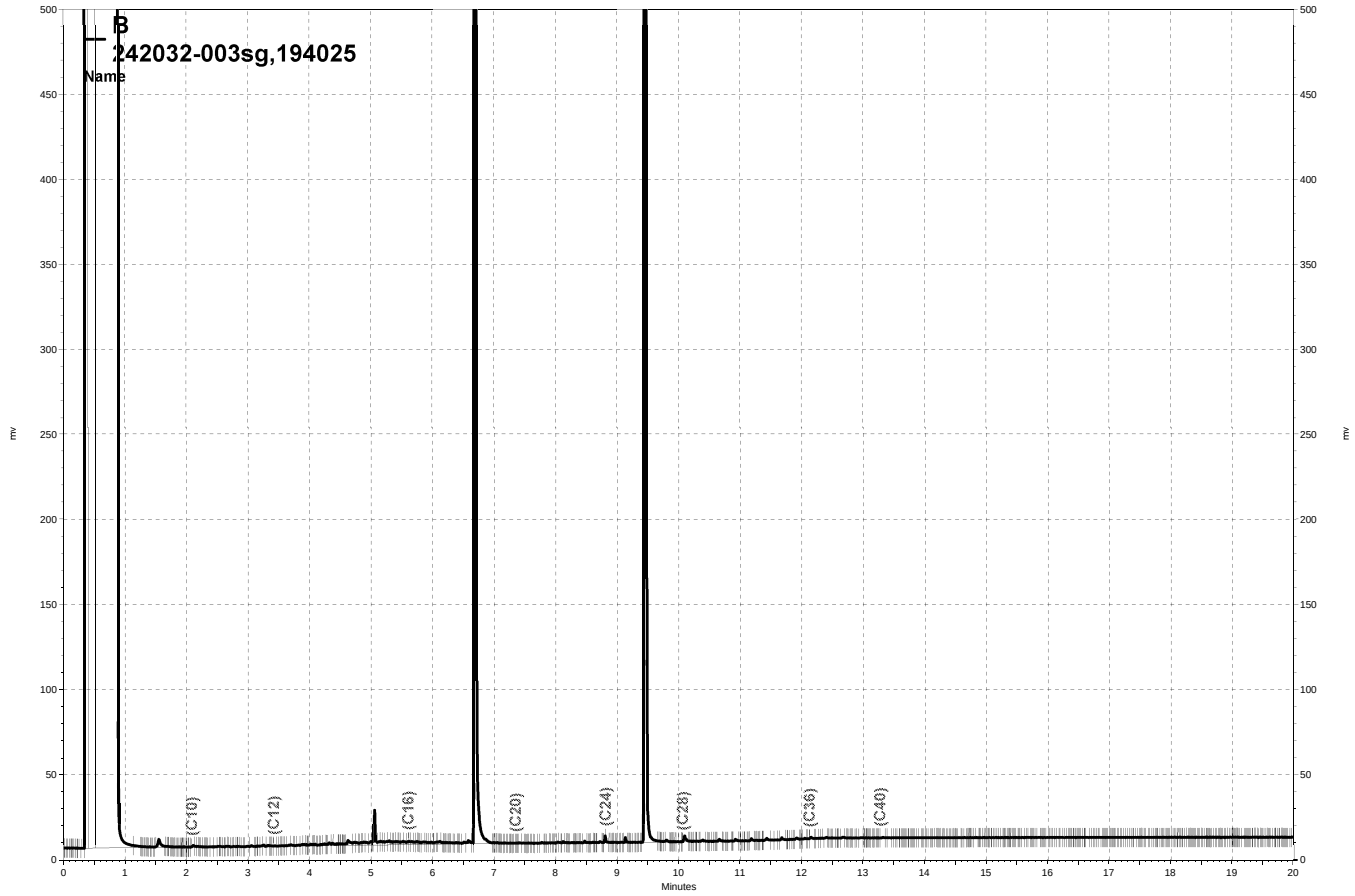

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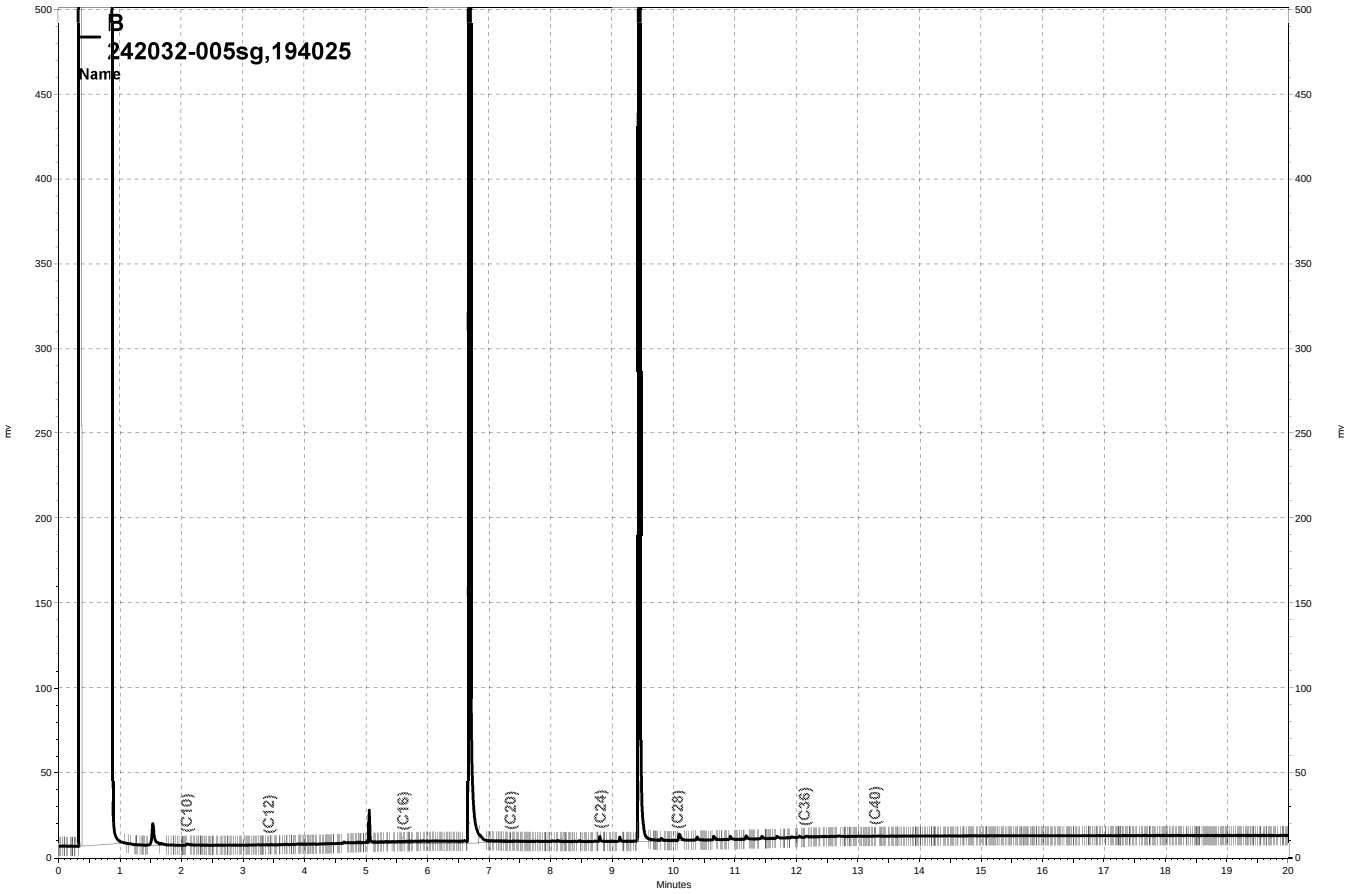

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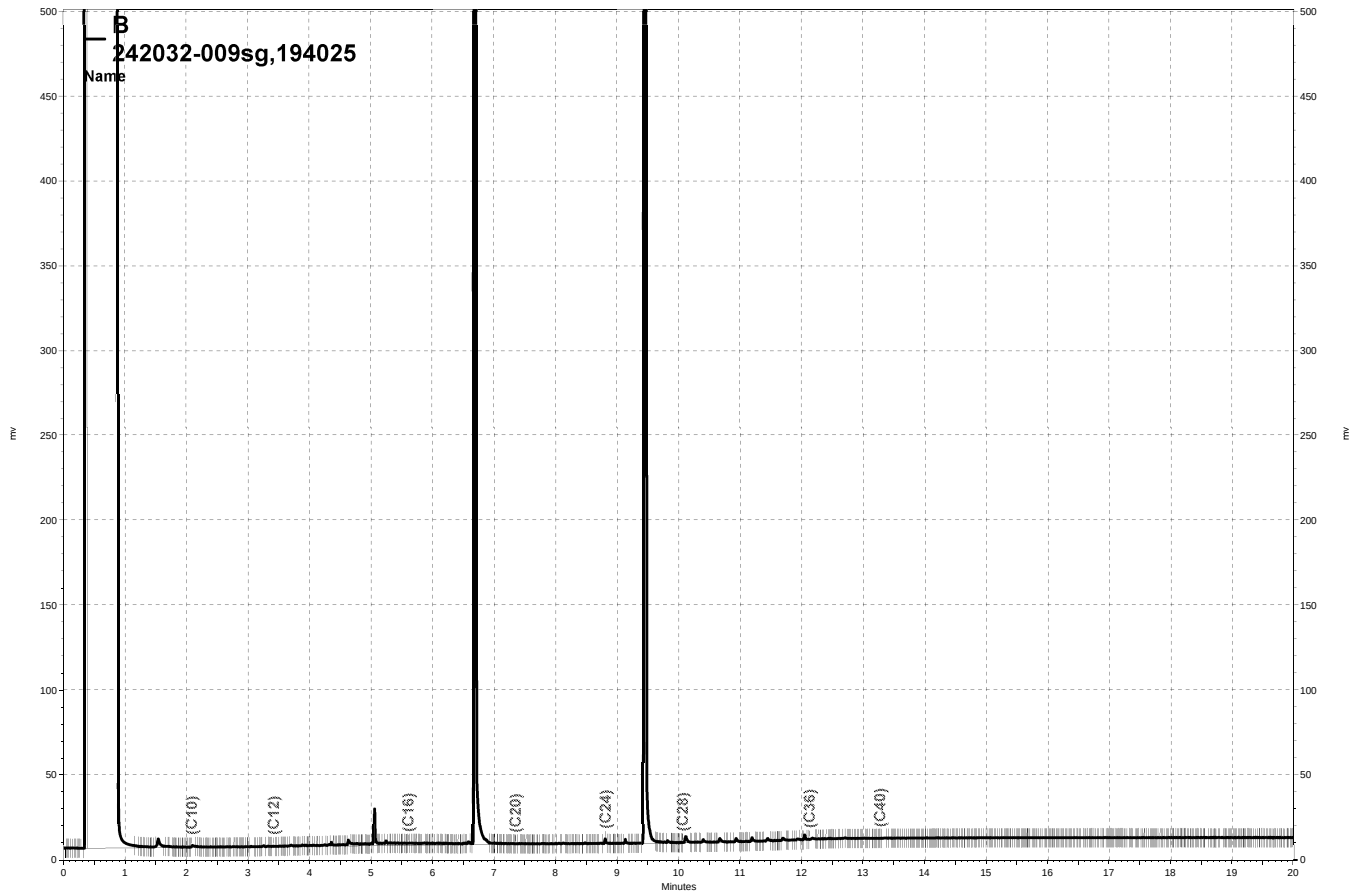

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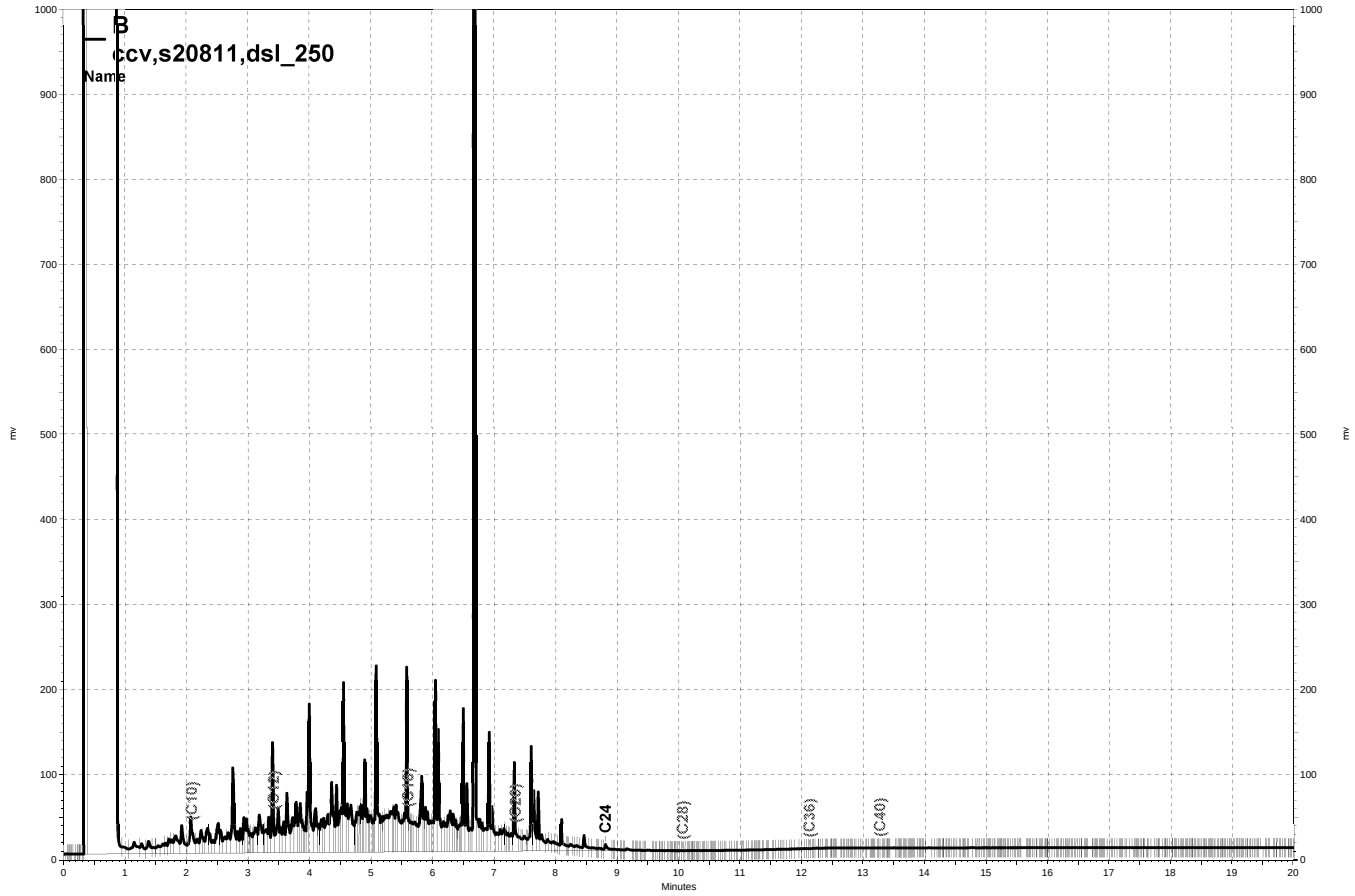

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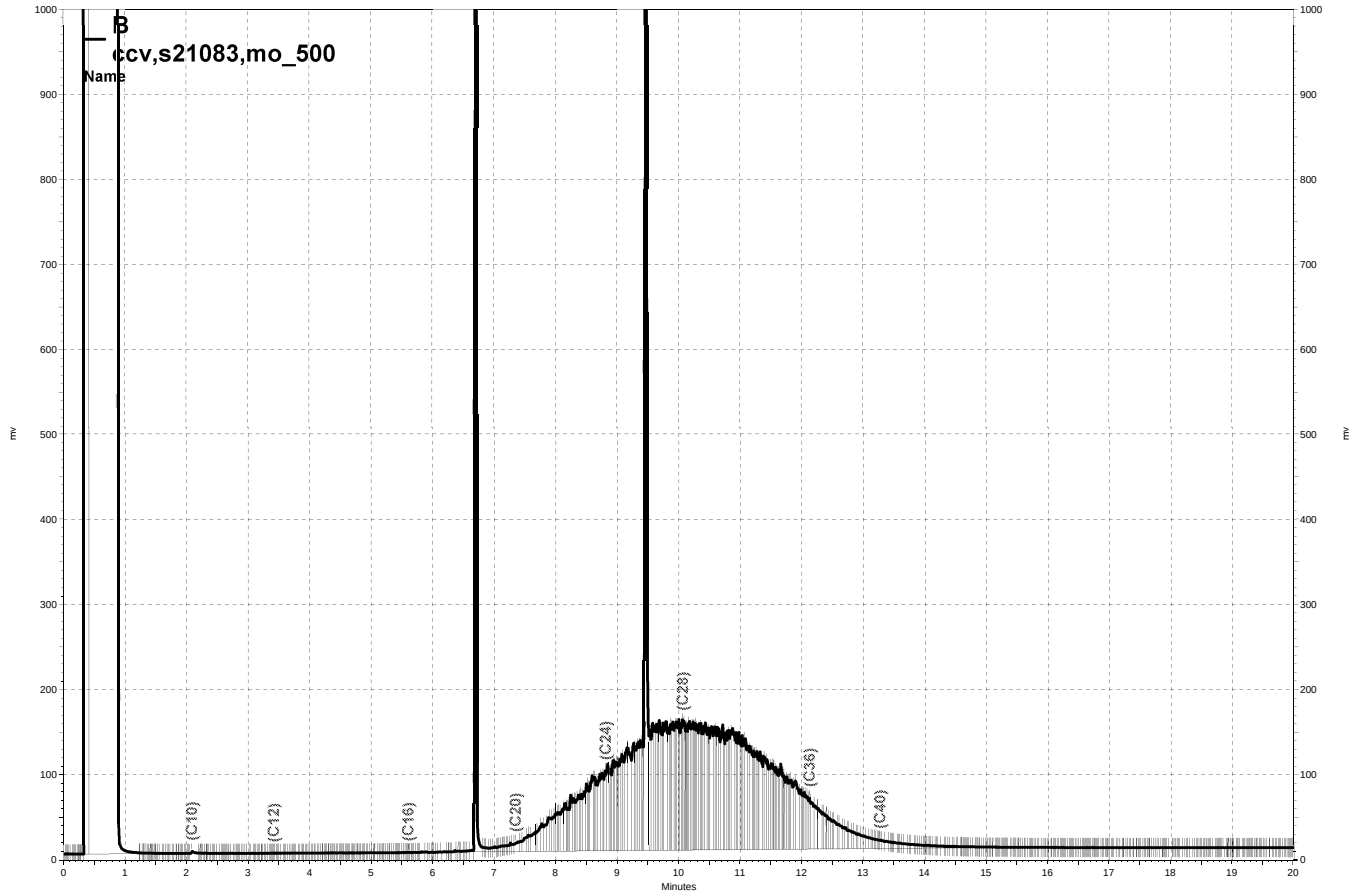

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Initial & Continuing Calibration Data

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 242032 GCSV Water: EPA 8015B

Inst : GC15B
Calnum : 162276981001
Units : mg/L

Name : DSL_192
Date : 10-JUL-2012 18:17
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	192b013	162276981013	DSL_10	10-JUL-2012 18:17	S19968
L2	192b014	162276981014	DSL_100	10-JUL-2012 18:45	S19945
L3	192b015	162276981015	DSL_500	10-JUL-2012 19:13	S19946
L4	192b016	162276981016	DSL_1000	10-JUL-2012 19:41	S19947
L5	192b017	162276981017	DSL_5000	10-JUL-2012 20:08	S19943
L6	192b018	162276981018	DSL_7500	10-JUL-2012 20:36	S19948

Analyte	L1	L2	L3	L4	L5	L6	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
Diesel C12-C24	43068	47538	47393	48335	46187	45695	AVRG		2.16E-5		46369	4	0.995	20	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D
Diesel C12-C24	10.000	-7	100.00	3	500.00	2	1000.0	4	5000.0	0	7500.0	-1

JDG 07/11/12 : Manually integrated fuel hump in multiple levels.

JDG 07/12/12 : RT has been fixed.

Analyst: JDG Date: 07/12/12 Reviewer: EAH Date: 07/12/12

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

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 242032 GCSV Water
EPA 8015B

Inst : GC15B
Calnum : 162276981001

Name : DSL_192
Cal Date : 10-JUL-2012

ICV 162276981020 (192b020 10-JUL-2012) stds: S19823

Analyte	Spiked	Quant	Units	%D	Max	Flags
Diesel C12-C24	500.0	479.8	mg/L	-4	15	

Analyst: JDG Date: 07/11/12 Reviewer: EAH Date: 07/12/12

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 242032 GCSV Water: EPA 8015B

Inst : GC15B
Calnum : 162281280001
Units : mg/L

Name : OTP-HEX_195
Date : 13-JUL-2012 17:42
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	195b011	162281280011	HEXOTP_5	13-JUL-2012 17:42	S19347
L2	195b012	162281280012	HEXOTP_10	13-JUL-2012 18:09	S19348
L3	195b013	162281280013	HEXOTP_25	13-JUL-2012 18:37	S19349
L4	195b014	162281280014	HEXOTP_50	13-JUL-2012 19:04	S19350
L5	195b015	162281280015	HEXOTP_100	13-JUL-2012 19:32	S19351
L6	195b016	162281280016	HEXOTP_200	13-JUL-2012 20:00	S19352

Analyte	L1	L2	L3	L4	L5	L6	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
o-Terphenyl	62022	61944	61801	62655	63080	61712	AVRG		1.61E-5		62202	1	0.995	20	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D
o-Terphenyl	5.0000	0	10.000	0	25.000	-1	50.000	1	100.00	1	200.00	-1

JDG 07/16/12 : Corrected automatically drawn baseline in multiple levels.

Analyst: JDG Date: 07/16/12 Reviewer: EAH Date: 07/16/12

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

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 242032 GCSV Water: EPA 8015B

Inst : GC15B
Calnum : 162508794002
Units : mg/L

Name : MO_353
Date : 18-DEC-2012 15:47
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	353b012	162508794012	MO_25	18-DEC-2012 15:47	S20816 (2X)
L2	353b013	162508794013	MO_50	18-DEC-2012 16:15	S20816
L3	353b014	162508794014	MO_250	18-DEC-2012 16:43	S20817
L4	353b015	162508794015	MO_500	18-DEC-2012 17:11	S20818
L5	353b016	162508794016	MO_1000	18-DEC-2012 17:38	S20819
L6	353b017	162508794017	MO_2500	18-DEC-2012 18:06	S20820 (2X)
L7	353b018	162508794018	MO_5000	18-DEC-2012 18:34	S20820

Analyte	L1	L2	L3	L4	L5	L6	L7	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
Motor Oil C24-C36	32460	40952	44808	49465	46855	40734	39000	AVRG		2.38E-5		42039	13	0.995	20	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D
Motor Oil C24-C36	25.000	**-23**	50.000	-3	250.00	7	500.00	18	1000.0	11	2500.0	-3	5000.0	-7

JDG 12/19/12 : Corrected automatically drawn baseline in multiple levels.

CB 12/19/12 : L1 below RL

Analyst: JDG Date: 12/19/12 Reviewer: CB Date: 12/19/12

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

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 242032 GCSV Water
EPA 8015B

Inst : GC15B Run Name : DSL_250 IDF : 1.0
Seqnum : 162511653003 File : 355b003 Time : 20-DEC-2012 08:28
Standards: S20811

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C12-C24	162276981001	10-JUL-2012	46369	44182	250.0	238.2	mg/L	-5	15	
o-Terphenyl	162281280001	13-JUL-2012	62202	64568	50.00	51.90	mg/L	4	15	

JDG 12/20/12 : Separated from coeluting peak.

Analyst: JDG Date: 12/20/12 Reviewer: CB Date: 12/21/12

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 242032 GCSV Water
EPA 8015B

Inst : GC15B Run Name : MO_500 IDF : 1.0
Seqnum : 162511653004 File : 355b004 Time : 20-DEC-2012 08:56
Standards: S21083

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Motor Oil C24-C36	162508794002	18-DEC-2012	42039	46939	500.0	558.3	mg/L	12	15	
o-Terphenyl	162281280001	13-JUL-2012	62202	67296	50.00	54.09	mg/L	8	15	

Analyst: JDG Date: 12/20/12 Reviewer: CB Date: 12/21/12

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 242032 GCSV Water
EPA 8015B

Inst : GC15B Run Name : DSL_500 IDF : 1.0
Seqnum : 162511653021 File : 355b021 Time : 20-DEC-2012 22:48
Standards: S20812

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C12-C24	162276981001	10-JUL-2012	46369	44343	500.0	478.2	mg/L	-4	15	
o-Terphenyl	162281280001	13-JUL-2012	62202	65761	50.00	52.86	mg/L	6	15	

JDG 12/21/12 : Corrected automatically drawn baseline.

Analyst: JDG Date: 12/21/12 Reviewer: CB Date: 12/21/12

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 242032 GCSV Water
EPA 8015B

Inst : GC15B Run Name : MO_500 IDF : 1.0
Seqnum : 162511653022 File : 355b022 Time : 20-DEC-2012 23:16
Standards: S21083

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Motor Oil C24-C36	162508794002	18-DEC-2012	42039	45993	500.0	547.0	mg/L	9	15	
o-Terphenyl	162281280001	13-JUL-2012	62202	67084	50.00	53.92	mg/L	8	15	

Analyst: JDG Date: 12/21/12 Reviewer: CB Date: 12/21/12

Logbooks & Sequences

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 162276981

Instrument : GC15B Begun : 07/10/12 08:21
Method : EPA 8015B SOP Version : TEH_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	192b001	X	PRIMER			07/10/12 08:21	1.0		
002	192b002	X	CMARKER			07/10/12 08:49	1.0	1	
003	192b003	X	MO_500			07/10/12 09:17	1.0	2	
004	192b004	X	DSL_500			07/10/12 09:45	1.0	3	
005	192b005	X	CMARKER			07/10/12 12:07	1.0	1	
006	192b006	X	MO_500			07/10/12 12:34	1.0	2	
007	192b007	X	DSL_500			07/10/12 13:02	1.0	3	
008	192b008	CCV	DSL_500			07/10/12 14:41	1.0	3	
009	192b009	CCV	MO_500			07/10/12 15:08	1.0	2	
010	192b010	CCV	DSL_500			07/10/12 15:55	1.0	3	
011	192b011	CCV	DSL_250			07/10/12 16:49	1.0	4	
012	192b012	IB	CALIB			07/10/12 17:50	1.0		
013	192b013	ICAL	DSL_10			07/10/12 18:17	1.0	5	
014	192b014	ICAL	DSL_100			07/10/12 18:45	1.0	6	
015	192b015	ICAL	DSL_500			07/10/12 19:13	1.0	7	
016	192b016	ICAL	DSL_1000			07/10/12 19:41	1.0	8	
017	192b017	ICAL	DSL_5000			07/10/12 20:08	1.0	9	
018	192b018	ICAL	DSL_7500			07/10/12 20:36	1.0	10	
019	192b019	IB	CALIB			07/10/12 21:03	1.0		
020	192b020	ICV	DSL_500			07/10/12 21:31	1.0	11	
021	192b021	X	ICV			07/10/12 21:59	1.0	11	
022	192b022	IB	CALIB			07/10/12 22:27	1.0		
023	192b023	CMARKER	C8-C50			07/10/12 22:55	1.0	1	
024	192b024	IB	CALIB			07/10/12 23:23	1.0		

JDG 07/11/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 24.

Standards used: 1=S20262 2=S20033 3=S20069 4=S20066 5=S19968 6=S19945 7=S19946 8=S19947 9=S19943 10=S19948 11=S19823

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 162281280

Instrument : GC15B Begun : 07/13/12 08:00
Method : EPA 8015B SOP Version : TEH_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	195b001	X	PRIMER			07/13/12 08:00	1.0		
002	195b002	X	CMARKER			07/13/12 08:28	1.0	1	
003	195b003	CCV	DSL_500			07/13/12 08:56	1.0	2	
004	195b004	CCV	MO_500			07/13/12 10:15	1.0	3	
005	195b005	LOQ	237608-007	Soil	188126	07/13/12 14:40	1.0		
006	195b006	BLANK	QC647456	Soil	188404	07/13/12 15:12	1.0		
007	195b007	CCV	MO_500			07/13/12 15:44	1.0	3	
008	195b008	CCV	DSL_250			07/13/12 16:12	1.0	4	
010	195b010	IB	CALIB			07/13/12 17:14	1.0		
011	195b011	ICAL	HEXOTP_5			07/13/12 17:42	1.0	5	
012	195b012	ICAL	HEXOTP_10			07/13/12 18:09	1.0	6	
013	195b013	ICAL	HEXOTP_25			07/13/12 18:37	1.0	7	
014	195b014	ICAL	HEXOTP_50			07/13/12 19:04	1.0	8	
015	195b015	ICAL	HEXOTP_100			07/13/12 19:32	1.0	9	
016	195b016	ICAL	HEXOTP_200			07/13/12 20:00	1.0	10	
017	195b017	IB	CALIB			07/13/12 20:28	1.0		

JDG 07/13/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 8.

JDG 07/16/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 9 through 17.

Standards used: 1=S20262 2=S20069 3=S20033 4=S20066 5=S19347 6=S19348 7=S19349 8=S19350 9=S19351 10=S19352

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 162508794

Instrument : GC15B Begun : 12/18/12 07:54
Method : EPA 8015B SOP Version : TEH_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	353b001	X	IB			12/18/12 07:54	1.0		
002	353b002	X	CMARKER			12/18/12 08:22	1.0	1	
003	353b003	X	DSL_250			12/18/12 08:49	1.0	2	
004	353b004	X	MO_500			12/18/12 09:17	1.0	3	
005	353b005	X	MO_500			12/18/12 09:46	1.0	3	
006	353b006	X	IB			12/18/12 12:23	1.0		
007	353b007	X	CMARKER			12/18/12 12:50	1.0	1	
008	353b008	CCV	MO_500			12/18/12 13:18	1.0	3	
009	353b009	CCV	DSL_250			12/18/12 13:46	1.0	2	
010	353b010	CCV	MO_500			12/18/12 14:48	1.0	3	
011	353b011	IB	CALIB			12/18/12 15:19	1.0		
012	353b012	ICAL	MO_25			12/18/12 15:47	1.0	4	
013	353b013	ICAL	MO_50			12/18/12 16:15	1.0	4	
014	353b014	ICAL	MO_250			12/18/12 16:43	1.0	5	
015	353b015	ICAL	MO_500			12/18/12 17:11	1.0	6	
016	353b016	ICAL	MO_1000			12/18/12 17:38	1.0	7	
017	353b017	ICAL	MO_2500			12/18/12 18:06	1.0	8	
018	353b018	ICAL	MO_5000			12/18/12 18:34	1.0	8	
019	353b019	IB	CALIB			12/18/12 19:02	1.0		
020	353b020	CMARKER	C8-C50			12/18/12 19:30	1.0	1	
021	353b021	IB	CALIB			12/18/12 19:58	1.0		

JDG 12/19/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 21.

Standards used: 1=S21036 2=S20811 3=S21083 4=S20816 5=S20817 6=S20818 7=S20819 8=S20820

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 162511653

Instrument : GC15B
Method : EPA 8015B

Begun : 12/20/12 07:33
SOP Version : TEH_rv13

#	File	Type	Sample ID	P	Matrix	Batch	Analyzed	IDF	Stds Used	
001	355b001	X	IB				12/20/12 07:33	1.0		
002	355b002	X	CMARKER				12/20/12 08:01	1.0	1	
003	355b003	CCV	DSL_250				12/20/12 08:28	1.0	2	
004	355b004	CCV	MO_500				12/20/12 08:56	1.0	3	
005	355b005	X	TANK CHECK: "TAKIS"				12/20/12 09:26	1.0		
006	355b006	X	TANK CHECK: "SILLY F				12/20/12 09:54	1.0		
007	355b007	BLANK	QC670866		Water	194025	12/20/12 16:19	1.0		
008	355b008	BLANK	QC670866	S	Water	194025	12/20/12 16:47	1.0		
009	355b009	LCS	QC670867	S	Water	194025	12/20/12 17:15	1.0		
010	355b010	MSS	242032-007	S	Water	194025	12/20/12 17:42	1.0		
011	355b011	MS	QC670868	S	Water	194025	12/20/12 18:10	1.0		
012	355b012	MSD	QC670869	S	Water	194025	12/20/12 18:38	1.0		
013	355b013	SAMPLE	242032-001	S	Water	194025	12/20/12 19:06	1.0		
014	355b014	SAMPLE	242032-003	S	Water	194025	12/20/12 19:34	1.0		
015	355b015	SAMPLE	242032-004	S	Water	194025	12/20/12 20:02	1.0		
016	355b016	SAMPLE	242032-005	S	Water	194025	12/20/12 20:29	1.0		
017	355b017	SAMPLE	242032-006	S	Water	194025	12/20/12 20:57	1.0		
018	355b018	SAMPLE	242032-008	S	Water	194025	12/20/12 21:25	1.0		
019	355b019	SAMPLE	242032-009	S	Water	194025	12/20/12 21:52	1.0		
020	355b020	X	CMARKER				12/20/12 22:20	1.0	1	
021	355b021	CCV	DSL_500				12/20/12 22:48	1.0	4	
022	355b022	CCV	MO_500				12/20/12 23:16	1.0	3	
023	355b023	SAMPLE	242031-001	S	Water	194025	12/20/12 23:44	1.0		
024	355b024	SAMPLE	242031-002	S	Water	194025	12/21/12 00:11	1.0		
025	355b025	SAMPLE	242031-003	S	Water	194025	12/21/12 00:39	1.0		
026	355b026	SAMPLE	242031-004	S	Water	194025	12/21/12 01:07	1.0		
027	355b027	SAMPLE	242044-001		Water	194025	12/21/12 01:34	1.0		
028	355b028	SAMPLE	242044-002		Water	194025	12/21/12 02:02	1.0		
029	355b029	SAMPLE	242044-003		Water	194025	12/21/12 02:30	1.0		
030	355b030	SAMPLE	242044-004		Water	194025	12/21/12 02:57	1.0		
031	355b031	SAMPLE	242044-005		Water	194025	12/21/12 03:25	1.0		
032	355b032	SAMPLE	242044-006		Water	194025	12/21/12 03:52	1.0		
033	355b033	CCV	DSL_250				12/21/12 04:20	1.0	2	
034	355b034	CCV	MO_500				12/21/12 04:47	1.0	3	

JDG 12/21/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 34.

Standards used: 1=S21367 2=S20811 3=S21083 4=S20812

SAMPLE PREPARATION SUMMARY

Batch # : 194025
Started By : MAW
Method : 3520C
Spike #1 ID : S21130

Prep Date : 19-DEC-2012 15:45
Spike #2 ID : S21185

Analysis : TEHM
Finished By : MA
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
242031-001		Water	510	2.5	1	0.004902	7	.5			3630C	TEHM	
242031-002		Water	510	2.5	1	0.004902	7	.5			3630C	TEHM	
242031-003		Water	510	2.5	1	0.004902	7	.5			3630C	TEHM	
242031-004		Water	510	2.5	1	0.004902	7	.5			3630C	TEHM	
242032-001		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
242032-003		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
242032-004		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
242032-005		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
242032-006		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
242032-007		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	mss
242032-008		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
242032-009		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
242044-001		Water	490	2.5	1	0.005102	7	.5				TEHM	Prepped 19-DEC-2012 17:05
242044-002		Water	500	2.5	1	0.005	7	.5				TEHM	Prepped 19-DEC-2012 17:05
242044-003		Water	500	2.5	1	0.005	7	.5				TEHM	Prepped 19-DEC-2012 17:05
242044-004		Water	420	2.5	1	0.005952	7	.5				TEHM	Prepped 19-DEC-2012 17:05
242044-005		Water	490	2.5	1	0.005102	7	.5				TEHM	Prepped 19-DEC-2012 17:05
242044-006		Water	440	2.5	1	0.005682	7	.5				TEHM	Prepped 19-DEC-2012 17:05
242044-007		Water	450	2.5	1	0.005556	7	.5				TEHM	Prepped 19-DEC-2012 17:05
QC670866	BLANK	Water	500	2.5	1	0.005		.5			3630C	TEHM	
QC670867	LCS	Water	500	2.5	1	0.005		.5	.5		3630C	TEHM	
QC670868	MS	Water	500	2.5	1	0.005	7	.5	.5		3630C	TEHM	
QC670869	MSD	Water	500	2.5	1	0.005	7	.5	.5		3630C	TEHM	

Analyst: CB Date: 12/21/12 Reviewer: SFL Date: 12/21/12

TEH (8015) Water Prep Log

Curtis & Tompkins, Ltd.

Page 52 BK 3364

LIMS Batch No: 194025
LIMS Analysis: TEHM
Date Extracted: 12/19/12

Extraction Method:
☒ 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
242031-001	B	☐ 500 ☑ 510	☑ 7 ☐	☑ 2.5 ☐	X	☑ ≤2pH	
002		☐ 500 ☑ 510	☑ 7 ☐	☑ 2.5 ☐	X	☑ ≤2pH	
003		☐ 500 ☑ 510	☑ 7 ☐	☑ 2.5 ☐	X	☑ ≤2pH	
004		☐ 500 ☑ 510	☑ 7 ☐	☑ 2.5 ☐	X	☑ ≤2pH	
242032-001	F	☑ 500 ☐	☑ 7 ☐	☑ 2.5 ☐	X	☑ ≤2pH	
003		☑ 500 ☐	☑ 7 ☐	☑ 2.5 ☐	X	☑ ≤2pH	
004		☑ 500 ☐	☑ 7 ☐	☑ 2.5 ☐	X	☑ ≤2pH	
005		☑ 500 ☐	☑ 7 ☐	☑ 2.5 ☐	X	☑ ≤2pH	
006		☑ 500 ☐	☑ 7 ☐	☑ 2.5 ☐	X	☑ ≤2pH	
007	L	☑ 500 ☐	☑ 7 ☐	☑ 2.5 ☐	X	☑ ≤2pH	MSS
008	F	☑ 500 ☐	☑ 7 ☐	☑ 2.5 ☐	X	☑ ≤2pH	
009		☑ 500 ☐	☑ 7 ☐	☑ 2.5 ☐	X	☑ ≤2pH	
MB QC670866	NA	☑ 500 ☐	☐ 7 ☑ NA	☑ 2.5 ☐	X	☑ ≤2pH	
LCS 7		☑ 500 ☐	☐ 7 ☑	☑ 2.5 ☐	X	☑ ≤2pH	
MS 8	K	☑ 500 ☐	☑ 7 ☐	☑ 2.5 ☐	X	☑ ≤2pH	
MSD 9		☑ 500 ☐	☑ 7 ☐	☑ 2.5 ☐	X	☑ ≤2pH	
242044-001	A	☐ 500 ☑ 490	☑ 7 ☐	☑ 2.5 ☐		☑ ≤2pH	*ADDED 1705
002		☑ 500 ☐	☑ 7 ☐	☑ 2.5 ☐		☑ ≤2pH	
003		☑ 500 ☐	☑ 7 ☐	☑ 2.5 ☐		☑ ≤2pH	
004		☐ 500 ☑ 420	☑ 7 ☐	☑ 2.5 ☐		☑ ≤2pH	
005		☐ 500 ☑ 440	☑ 7 ☐	☑ 2.5 ☐		☑ ≤2pH	
006		☐ 500 ☑ 440	☑ 7 ☐	☑ 2.5 ☐		☑ ≤2pH	
007		☐ 500 ☑ 450	☑ 7 ☐	☑ 2.5 ☐		☑ ≤2pH	
		☐ 500 ☐	☐ 7 ☐	☐ 2.5 ☐		☐ ≤2pH	

	Mfg & Lot# / LIMS # / Time	Date/ Initi
0.5 mL of TEH_SURR was added to all samples	S21130B	MAW 12/19/12
0.5 mL of TEH_SP was added to all spikes	S21185B	
pH of all samples adjusted to pH ≤ 2 with H_2SO_4	FS122650	
☒ 3520c: Samples were continually extracted about 450 mL of CH_2Cl_2	EM52160	
Extraction Start Time:	1545 / *1705	
Extraction End Time:	1010 / *1110	MA 12-20-12
☐ 3510c: Samples were extracted 3 times with 60 mL of CH_2Cl_2	N/A	
Extracts filtered through baked, CH2Cl2-rinsed granular Na2SO4	EM1142CS21	
Concentrated to final volume at temperature (degrees C)	100	
Relinquished to TEH Department	✓	

12/19/12

Extraction Chemist **Date**

Contined from Page ____
Continued on Page ____

12/20/12

Reviewed by **Date**

Curtis & Tompkins, Ltd. **Silica Gel Cleanup** **EPA 3630c**

Prep Chemist: MA
Cleanup Date: 12-20-12

Benchbook # **BK 3392**
Page 1

Sample #	Extraction Batch#	Initial Volume (mL)	Final Volume (mL)	Comments
242031-001	194025	☑ 1.0 ☐	☑ 1.0 ☐	
2		☑ 1.0 ☐	☑ 1.0 ☐	
3		☑ 1.0 ☐	☑ 1.0 ☐	
4		☑ 1.0 ☐	☑ 1.0 ☐	
242032-001		☑ 1.0 ☐	☑ 1.0 ☐	
3		☑ 1.0 ☐	☑ 1.0 ☐	
4		☑ 1.0 ☐	☑ 1.0 ☐	
5		☑ 1.0 ☐	☑ 1.0 ☐	
6		☑ 1.0 ☐	☑ 1.0 ☐	
7		☑ 1.0 ☐	☑ 1.0 ☐	
8		☑ 1.0 ☐	☑ 1.0 ☐	
9		☑ 1.0 ☐	☑ 1.0 ☐	
MB QC670866		☑ 1.0 ☐	☑ 1.0 ☐	
LCS 67		☑ 1.0 ☐	☑ 1.0 ☐	
MS 68		☑ 1.0 ☐	☑ 1.0 ☐	
MSD 69		☑ 1.0 ☐	☑ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
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		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	

	Mfg & Lot # / Time / Program	Initials / Date
☑ Extracts were cleaned up using C&T assembled 1.0 g columns	I 12X009	MA 12-20-12
☐ Extracts were cleaned up using — g cartridges	N/A	
Extracts were eluted with 4.0 mL CH_2Cl_2	EM52160	
Concentrated to volumes as noted above		

12-20-12
Extraction Chemist / Date

Continued from page ____
Continued on page ____

SFL 12/20/12
Reviewed by / Date

Case Narrative Addendum: Manual Integrations for 242032 GCSV (Water)

For SAMPLE 242032-003 (GC15B 355b014):
Corrected automatically drawn baseline.

For SAMPLE 242032-005 (GC15B 355b016):
Corrected automatically drawn baseline.

For CCV DSL_250 (GC15B 355b003):
Separated from coeluting peak.

For CCV DSL_500 (GC15B 355b021):
Corrected automatically drawn baseline.

For LCS QC670867 (GC15B 355b009):
Corrected automatically drawn baseline.

For MSD QC670869 (GC15B 355b012):
Corrected automatically drawn baseline for spike & dup.

For Calibration GC15B (162276981001):
Manually integrated fuel hump in multiple levels.

For ICV DSL_500 (GC15B 192b020):
Corrected automatically drawn baseline.

For Calibration GC15B (162281280001):
Corrected automatically drawn baseline in multiple levels.

For Calibration GC15B (162508794002):
Corrected automatically drawn baseline in multiple levels.

Laboratory Job Number 242032

ANALYTICAL REPORT

Semivolatile Organics by GC/MS SIM

Matrix: Water

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS SIM

Lab #:	242032	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	07193.0002	Analysis:	EPA 8270C-SIM
Field ID:	IR46MW58A-121712	Batch#:	193973
Lab ID:	242032-001	Sampled:	12/17/12
Matrix:	Water	Received:	12/18/12
Units:	ug/L	Prepared:	12/19/12
Diln Fac:	1.000	Analyzed:	12/20/12

Analyte	Result	RL	MDL
Naphthalene	ND	0.09	0.02
1-Methylnaphthalene	ND	0.09	0.02
2-Methylnaphthalene	ND	0.09	0.03
Acenaphthylene	ND	0.09	0.02
Acenaphthene	ND	0.09	0.02
Fluorene	ND	0.09	0.02
Phenanthrene	ND	0.09	0.02
Anthracene	ND	0.09	0.03
Fluoranthene	ND	0.09	0.02
Pyrene	ND	0.09	0.02
Benzo(a)anthracene	ND	0.09	0.02
Chrysene	ND	0.09	0.03
Benzo(b)fluoranthene	ND	0.09	0.02
Benzo(k)fluoranthene	ND	0.09	0.02
Benzo(a)pyrene	ND	0.09	0.02
Indeno(1,2,3-cd)pyrene	ND	0.09	0.02
Dibenz(a,h)anthracene	ND	0.09	0.02
Benzo(g,h,i)perylene	ND	0.09	0.02

Surrogate	%REC	Limits
Nitrobenzene-d5	100	45-127
2-Fluorobiphenyl	103	49-120
Terphenyl-d14	107	27-120

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS SIM

Lab #:	242032	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	07193.0002	Analysis:	EPA 8270C-SIM
Field ID:	IR46MW56A-121712	Batch#:	193973
Lab ID:	242032-003	Sampled:	12/17/12
Matrix:	Water	Received:	12/18/12
Units:	ug/L	Prepared:	12/19/12
Diln Fac:	1.000	Analyzed:	12/20/12

Analyte	Result	RL	MDL
Naphthalene	ND	0.09	0.02
1-Methylnaphthalene	ND	0.09	0.02
2-Methylnaphthalene	ND	0.09	0.03
Acenaphthylene	ND	0.09	0.02
Acenaphthene	ND	0.09	0.02
Fluorene	ND	0.09	0.02
Phenanthrene	ND	0.09	0.02
Anthracene	ND	0.09	0.03
Fluoranthene	ND	0.09	0.02
Pyrene	0.06 J	0.09	0.02
Benzo(a)anthracene	ND	0.09	0.02
Chrysene	ND	0.09	0.03
Benzo(b)fluoranthene	ND	0.09	0.02
Benzo(k)fluoranthene	ND	0.09	0.02
Benzo(a)pyrene	ND	0.09	0.02
Indeno(1,2,3-cd)pyrene	ND	0.09	0.02
Dibenz(a,h)anthracene	ND	0.09	0.02
Benzo(g,h,i)perylene	ND	0.09	0.02

Surrogate	%REC	Limits
Nitrobenzene-d5	94	45-127
2-Fluorobiphenyl	94	49-120
Terphenyl-d14	97	27-120

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS SIM

Lab #:	242032	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	07193.0002	Analysis:	EPA 8270C-SIM
Field ID:	IR46MW57A-121812	Batch#:	193973
Lab ID:	242032-004	Sampled:	12/18/12
Matrix:	Water	Received:	12/18/12
Units:	ug/L	Prepared:	12/19/12
Diln Fac:	1.000	Analyzed:	12/20/12

Analyte	Result	RL	MDL
Naphthalene	ND	0.09	0.02
1-Methylnaphthalene	ND	0.09	0.02
2-Methylnaphthalene	ND	0.09	0.03
Acenaphthylene	ND	0.09	0.02
Acenaphthene	ND	0.09	0.02
Fluorene	ND	0.09	0.02
Phenanthrene	ND	0.09	0.02
Anthracene	ND	0.09	0.03
Fluoranthene	ND	0.09	0.02
Pyrene	ND	0.09	0.02
Benzo(a)anthracene	ND	0.09	0.02
Chrysene	ND	0.09	0.03
Benzo(b)fluoranthene	ND	0.09	0.02
Benzo(k)fluoranthene	ND	0.09	0.02
Benzo(a)pyrene	ND	0.09	0.02
Indeno(1,2,3-cd)pyrene	ND	0.09	0.02
Dibenz(a,h)anthracene	ND	0.09	0.02
Benzo(g,h,i)perylene	ND	0.09	0.02

Surrogate	%REC	Limits
Nitrobenzene-d5	104	45-127
2-Fluorobiphenyl	96	49-120
Terphenyl-d14	96	27-120

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS SIM

Lab #:	242032	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	07193.0002	Analysis:	EPA 8270C-SIM
Field ID:	IR46MW59A-121812	Batch#:	193973
Lab ID:	242032-005	Sampled:	12/18/12
Matrix:	Water	Received:	12/18/12
Units:	ug/L	Prepared:	12/19/12
Diln Fac:	1.000	Analyzed:	12/20/12

Analyte	Result	RL	MDL
Naphthalene	ND	0.09	0.02
1-Methylnaphthalene	ND	0.09	0.02
2-Methylnaphthalene	ND	0.09	0.03
Acenaphthylene	ND	0.09	0.02
Acenaphthene	ND	0.09	0.02
Fluorene	ND	0.09	0.02
Phenanthrene	ND	0.09	0.02
Anthracene	ND	0.09	0.03
Fluoranthene	ND	0.09	0.02
Pyrene	ND	0.09	0.02
Benzo(a)anthracene	ND	0.09	0.02
Chrysene	ND	0.09	0.03
Benzo(b)fluoranthene	ND	0.09	0.02
Benzo(k)fluoranthene	ND	0.09	0.02
Benzo(a)pyrene	ND	0.09	0.02
Indeno(1,2,3-cd)pyrene	ND	0.09	0.02
Dibenz(a,h)anthracene	ND	0.09	0.02
Benzo(g,h,i)perylene	ND	0.09	0.02

Surrogate	%REC	Limits
Nitrobenzene-d5	116	45-127
2-Fluorobiphenyl	105	49-120
Terphenyl-d14	103	27-120

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS SIM

Lab #:	242032	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	07193.0002	Analysis:	EPA 8270C-SIM
Field ID:	IR46MW60A-121812	Batch#:	194084
Lab ID:	242032-006	Sampled:	12/18/12
Matrix:	Water	Received:	12/18/12
Units:	ug/L	Prepared:	12/21/12
Diln Fac:	1.000	Analyzed:	12/26/12

Analyte	Result	RL	MDL
Naphthalene	ND	0.1	0.02
1-Methylnaphthalene	ND	0.1	0.02
2-Methylnaphthalene	ND	0.1	0.02
Acenaphthylene	ND	0.1	0.02
Acenaphthene	ND	0.1	0.02
Fluorene	ND	0.1	0.02
Phenanthrene	ND	0.1	0.02
Anthracene	ND	0.1	0.02
Fluoranthene	ND	0.1	0.02
Pyrene	ND	0.1	0.02
Benzo(a)anthracene	ND	0.1	0.02
Chrysene	ND	0.1	0.02
Benzo(b)fluoranthene	ND	0.1	0.02
Benzo(k)fluoranthene	ND	0.1	0.02
Benzo(a)pyrene	ND	0.1	0.02
Indeno(1,2,3-cd)pyrene	ND	0.1	0.02
Dibenz(a,h)anthracene	ND	0.1	0.02
Benzo(g,h,i)perylene	ND	0.1	0.02

Surrogate	%REC	Limits
Nitrobenzene-d5	132 *	45-127
2-Fluorobiphenyl	127 *	49-120
Terphenyl-d14	148 *	27-120

*= Value outside of QC limits; see narrative
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS SIM

Lab #:	242032	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	07193.0002	Analysis:	EPA 8270C-SIM
Field ID:	IR46MW46A-121812	Batch#:	194084
Lab ID:	242032-007	Sampled:	12/18/12
Matrix:	Water	Received:	12/18/12
Units:	ug/L	Prepared:	12/21/12
Diln Fac:	1.000	Analyzed:	12/26/12

Analyte	Result	RL	MDL
Naphthalene	ND	0.1	0.02
1-Methylnaphthalene	ND	0.1	0.02
2-Methylnaphthalene	ND	0.1	0.03
Acenaphthylene	ND	0.1	0.02
Acenaphthene	ND	0.1	0.02
Fluorene	ND	0.1	0.02
Phenanthrene	ND	0.1	0.02
Anthracene	ND	0.1	0.03
Fluoranthene	ND	0.1	0.02
Pyrene	ND	0.1	0.02
Benzo(a)anthracene	ND	0.1	0.02
Chrysene	ND	0.1	0.03
Benzo(b)fluoranthene	ND	0.1	0.02
Benzo(k)fluoranthene	ND	0.1	0.02
Benzo(a)pyrene	ND	0.1	0.02
Indeno(1,2,3-cd)pyrene	ND	0.1	0.02
Dibenz(a,h)anthracene	ND	0.1	0.02
Benzo(g,h,i)perylene	ND	0.1	0.02

Surrogate	%REC	Limits
Nitrobenzene-d5	116	45-127
2-Fluorobiphenyl	115	49-120
Terphenyl-d14	114	27-120

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS SIM

Lab #:	242032	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	07193.0002	Analysis:	EPA 8270C-SIM
Field ID:	IR46MW47A-121812	Batch#:	193973
Lab ID:	242032-008	Sampled:	12/18/12
Matrix:	Water	Received:	12/18/12
Units:	ug/L	Prepared:	12/19/12
Diln Fac:	1.000	Analyzed:	12/20/12

Analyte	Result	RL	MDL
Naphthalene	ND	0.1	0.02
1-Methylnaphthalene	ND	0.1	0.02
2-Methylnaphthalene	ND	0.1	0.03
Acenaphthylene	ND	0.1	0.02
Acenaphthene	ND	0.1	0.02
Fluorene	ND	0.1	0.02
Phenanthrene	ND	0.1	0.02
Anthracene	ND	0.1	0.03
Fluoranthene	ND	0.1	0.02
Pyrene	ND	0.1	0.02
Benzo(a)anthracene	ND	0.1	0.02
Chrysene	ND	0.1	0.03
Benzo(b)fluoranthene	ND	0.1	0.02
Benzo(k)fluoranthene	ND	0.1	0.02
Benzo(a)pyrene	ND	0.1	0.02
Indeno(1,2,3-cd)pyrene	ND	0.1	0.02
Dibenz(a,h)anthracene	ND	0.1	0.02
Benzo(g,h,i)perylene	ND	0.1	0.02

Surrogate	%REC	Limits
Nitrobenzene-d5	87	45-127
2-Fluorobiphenyl	89	49-120
Terphenyl-d14	95	27-120

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS SIM

Lab #:	242032	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	07193.0002	Analysis:	EPA 8270C-SIM
Field ID:	IR99MW47A-121812	Batch#:	193973
Lab ID:	242032-009	Sampled:	12/18/12
Matrix:	Water	Received:	12/18/12
Units:	ug/L	Prepared:	12/19/12
Diln Fac:	1.000	Analyzed:	12/20/12

Analyte	Result	RL	MDL
Naphthalene	ND	0.1	0.02
1-Methylnaphthalene	ND	0.1	0.02
2-Methylnaphthalene	ND	0.1	0.03
Acenaphthylene	ND	0.1	0.02
Acenaphthene	ND	0.1	0.02
Fluorene	ND	0.1	0.02
Phenanthrene	ND	0.1	0.02
Anthracene	ND	0.1	0.03
Fluoranthene	ND	0.1	0.02
Pyrene	ND	0.1	0.02
Benzo(a)anthracene	ND	0.1	0.02
Chrysene	ND	0.1	0.03
Benzo(b)fluoranthene	ND	0.1	0.02
Benzo(k)fluoranthene	ND	0.1	0.02
Benzo(a)pyrene	ND	0.1	0.02
Indeno(1,2,3-cd)pyrene	ND	0.1	0.02
Dibenz(a,h)anthracene	ND	0.1	0.02
Benzo(g,h,i)perylene	ND	0.1	0.02

Surrogate	%REC	Limits
Nitrobenzene-d5	99	45-127
2-Fluorobiphenyl	101	49-120
Terphenyl-d14	108	27-120

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS SIM

Lab #:	242032	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	07193.0002	Analysis:	EPA 8270C-SIM
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC670666	Batch#:	193973
Matrix:	Water	Prepared:	12/18/12
Units:	ug/L	Analyzed:	12/19/12

Analyte	Result	RL	MDL
Naphthalene	ND	0.1	0.02
1-Methylnaphthalene	ND	0.1	0.02
2-Methylnaphthalene	ND	0.1	0.02
Acenaphthylene	ND	0.1	0.02
Acenaphthene	ND	0.1	0.02
Fluorene	ND	0.1	0.02
Phenanthrene	ND	0.1	0.02
Anthracene	ND	0.1	0.02
Fluoranthene	ND	0.1	0.02
Pyrene	ND	0.1	0.02
Benzo(a)anthracene	ND	0.1	0.02
Chrysene	ND	0.1	0.02
Benzo(b)fluoranthene	ND	0.1	0.02
Benzo(k)fluoranthene	ND	0.1	0.02
Benzo(a)pyrene	ND	0.1	0.02
Indeno(1,2,3-cd)pyrene	ND	0.1	0.02
Dibenz(a,h)anthracene	ND	0.1	0.02
Benzo(g,h,i)perylene	ND	0.1	0.02

Surrogate	%REC	Limits
Nitrobenzene-d5	93	45-127
2-Fluorobiphenyl	84	49-120
Terphenyl-d14	85	27-120

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS SIM

Lab #:	242032	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	07193.0002	Analysis:	EPA 8270C-SIM
Matrix:	Water	Batch#:	193973
Units:	ug/L	Prepared:	12/18/12
Diln Fac:	1.000	Analyzed:	12/21/12

Type: BS Lab ID: QC670667

Analyte	Spiked	Result	%REC	Limits
Naphthalene	1.000	1.158	116 *	40-115
1-Methylnaphthalene	1.000	1.079	108	40-115
2-Methylnaphthalene	1.000	1.136	114	40-115
Acenaphthylene	1.000	0.9621	96	40-115
Acenaphthene	1.000	1.036	104	40-115
Fluorene	1.000	1.025	102	40-115
Phenanthrene	1.000	1.168	117 *	40-115
Anthracene	1.000	1.098	110	40-115
Fluoranthene	1.000	1.069	107	40-115
Pyrene	1.000	1.043	104	40-115
Benzo(a)anthracene	1.000	0.8393	84	40-115
Chrysene	1.000	0.8581	86	40-115
Benzo(b)fluoranthene	1.000	0.9857	99	40-115
Benzo(k)fluoranthene	1.000	0.9644	96	40-115
Benzo(a)pyrene	1.000	1.002	100	40-115
Indeno(1,2,3-cd)pyrene	1.000	0.9062	91	40-115
Dibenz(a,h)anthracene	1.000	0.7596	76	40-115
Benzo(g,h,i)perylene	1.000	0.9707	97	40-115

Surrogate	%REC	Limits
Nitrobenzene-d5	105	45-127
2-Fluorobiphenyl	99	49-120
Terphenyl-d14	109	27-120

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

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS SIM

Lab #:	242032	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	07193.0002	Analysis:	EPA 8270C-SIM
Matrix:	Water	Batch#:	193973
Units:	ug/L	Prepared:	12/18/12
Diln Fac:	1.000	Analyzed:	12/21/12

Type: BSD Lab ID: QC670668

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Naphthalene	1.000	1.187	119 *	40-115	2	20
1-Methylnaphthalene	1.000	1.138	114	40-115	5	20
2-Methylnaphthalene	1.000	1.191	119 *	40-115	5	20
Acenaphthylene	1.000	1.024	102	40-115	6	20
Acenaphthene	1.000	1.085	108	40-115	5	20
Fluorene	1.000	1.085	109	40-115	6	20
Phenanthrene	1.000	1.227	123 *	40-115	5	20
Anthracene	1.000	1.143	114	40-115	4	20
Fluoranthene	1.000	1.135	113	40-115	6	20
Pyrene	1.000	1.105	110	40-115	6	20
Benzo(a)anthracene	1.000	0.9029	90	40-115	7	20
Chrysene	1.000	0.9136	91	40-115	6	20
Benzo(b)fluoranthene	1.000	1.026	103	40-115	4	20
Benzo(k)fluoranthene	1.000	1.004	100	40-115	4	20
Benzo(a)pyrene	1.000	1.047	105	40-115	4	20
Indeno(1,2,3-cd)pyrene	1.000	0.9531	95	40-115	5	20
Dibenz(a,h)anthracene	1.000	0.8098	81	40-115	6	20
Benzo(g,h,i)perylene	1.000	1.002	100	40-115	3	20

Surrogate	%REC	Limits
Nitrobenzene-d5	108	45-127
2-Fluorobiphenyl	104	49-120
Terphenyl-d14	116	27-120

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

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS SIM

Lab #:	242032	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	07193.0002	Analysis:	EPA 8270C-SIM
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC671092	Batch#:	194084
Matrix:	Water	Prepared:	12/21/12
Units:	ug/L	Analyzed:	12/26/12

Analyte	Result	RL	MDL
Naphthalene	ND	0.1	0.02
1-Methylnaphthalene	ND	0.1	0.02
2-Methylnaphthalene	ND	0.1	0.03
Acenaphthylene	ND	0.1	0.02
Acenaphthene	ND	0.1	0.02
Fluorene	ND	0.1	0.02
Phenanthrene	ND	0.1	0.02
Anthracene	ND	0.1	0.03
Fluoranthene	ND	0.1	0.02
Pyrene	ND	0.1	0.02
Benzo(a)anthracene	ND	0.1	0.02
Chrysene	ND	0.1	0.03
Benzo(b)fluoranthene	ND	0.1	0.02
Benzo(k)fluoranthene	ND	0.1	0.02
Benzo(a)pyrene	ND	0.1	0.02
Indeno(1,2,3-cd)pyrene	ND	0.1	0.02
Dibenz(a,h)anthracene	ND	0.1	0.02
Benzo(g,h,i)perylene	ND	0.1	0.03

Surrogate	%REC	Limits
Nitrobenzene-d5	113	45-127
2-Fluorobiphenyl	112	49-120
Terphenyl-d14	108	27-120

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS SIM

Lab #:	242032	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	07193.0002	Analysis:	EPA 8270C-SIM
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC671093	Batch#:	194084
Matrix:	Water	Prepared:	12/21/12
Units:	ug/L	Analyzed:	12/26/12

Analyte	Spiked	Result	%REC	Limits
Naphthalene	1.000	1.214	121 *	40-115
1-Methylnaphthalene	1.000	1.015	101	40-115
2-Methylnaphthalene	1.000	1.195	119 *	40-115
Acenaphthylene	1.000	1.015	102	40-115
Acenaphthene	1.000	1.016	102	40-115
Fluorene	1.000	1.058	106	40-115
Phenanthrene	1.000	1.135	114	40-115
Anthracene	1.000	1.046	105	40-115
Fluoranthene	1.000	1.073	107	40-115
Pyrene	1.000	0.8988	90	40-115
Benzo(a)anthracene	1.000	0.8375	84	40-115
Chrysene	1.000	0.8418	84	40-115
Benzo(b)fluoranthene	1.000	0.8725	87	40-115
Benzo(k)fluoranthene	1.000	0.9679	97	40-115
Benzo(a)pyrene	1.000	0.9291	93	40-115
Indeno(1,2,3-cd)pyrene	1.000	1.049	105	40-115
Dibenz(a,h)anthracene	1.000	0.8933	89	40-115
Benzo(g,h,i)perylene	1.000	1.078	108	40-115

Surrogate	%REC	Limits
Nitrobenzene-d5	110	45-127
2-Fluorobiphenyl	105	49-120
Terphenyl-d14	94	27-120

*= Value outside of QC limits; see narrative

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS SIM

Lab #:	242032	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	07193.0002	Analysis:	EPA 8270C-SIM
Field ID:	IR46MW46A-121812	Batch#:	194084
MSS Lab ID:	242032-007	Sampled:	12/18/12
Matrix:	Water	Received:	12/18/12
Units:	ug/L	Prepared:	12/21/12
Diln Fac:	1.000	Analyzed:	12/26/12

Type: MS Lab ID: QC671094

Analyte	MSS Result	Spiked	Result	%REC	Limits
Naphthalene	<0.02130	0.9709	1.022	105	40-115
1-Methylnaphthalene	<0.01923	0.9709	0.9965	103	40-115
2-Methylnaphthalene	<0.02885	0.9709	1.070	110	40-115
Acenaphthylene	<0.01923	0.9709	0.8876	91	40-115
Acenaphthene	<0.01923	0.9709	0.9555	98	40-115
Fluorene	<0.01923	0.9709	0.9758	101	40-115
Phenanthrene	<0.01923	0.9709	1.090	112	40-115
Anthracene	<0.02980	0.9709	1.016	105	40-115
Fluoranthene	<0.01923	0.9709	1.068	110	40-115
Pyrene	<0.02304	0.9709	1.054	109	40-115
Benzo(a)anthracene	<0.01923	0.9709	0.8307	86	40-115
Chrysene	<0.02624	0.9709	0.8531	88	40-115
Benzo(b)fluoranthene	<0.01923	0.9709	0.9036	93	40-115
Benzo(k)fluoranthene	<0.01923	0.9709	0.8934	92	40-115
Benzo(a)pyrene	<0.01923	0.9709	0.9371	97	40-115
Indeno(1,2,3-cd)pyrene	<0.01923	0.9709	0.9213	95	40-115
Dibenz(a,h)anthracene	<0.01923	0.9709	0.7717	79	40-115
Benzo(g,h,i)perylene	<0.02431	0.9709	1.011	104	40-115

Surrogate	%REC	Limits
Nitrobenzene-d5	95	45-127
2-Fluorobiphenyl	97	49-120
Terphenyl-d14	115	27-120

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

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS SIM

Lab #:	242032	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	07193.0002	Analysis:	EPA 8270C-SIM
Field ID:	IR46MW46A-121812	Batch#:	194084
MSS Lab ID:	242032-007	Sampled:	12/18/12
Matrix:	Water	Received:	12/18/12
Units:	ug/L	Prepared:	12/21/12
Diln Fac:	1.000	Analyzed:	12/26/12

Type: MSD Lab ID: QC671095

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Naphthalene	0.9434	1.114	118 *	40-115	11	20
1-Methylnaphthalene	0.9434	1.079	114	40-115	11	20
2-Methylnaphthalene	0.9434	1.142	121 *	40-115	9	20
Acenaphthylene	0.9434	0.9296	99	40-115	7	20
Acenaphthene	0.9434	0.9888	105	40-115	6	20
Fluorene	0.9434	0.9937	105	40-115	5	20
Phenanthrene	0.9434	1.112	118 *	40-115	5	20
Anthracene	0.9434	1.033	110	40-115	5	20
Fluoranthene	0.9434	1.088	115	40-115	5	20
Pyrene	0.9434	1.063	113	40-115	4	20
Benzo(a)anthracene	0.9434	0.8366	89	40-115	4	20
Chrysene	0.9434	0.8734	93	40-115	5	20
Benzo(b)fluoranthene	0.9434	0.9427	100	40-115	7	20
Benzo(k)fluoranthene	0.9434	0.9072	96	40-115	4	20
Benzo(a)pyrene	0.9434	0.9743	103	40-115	7	20
Indeno(1,2,3-cd)pyrene	0.9434	0.9529	101	40-115	6	20
Dibenz(a,h)anthracene	0.9434	0.8107	86	40-115	8	20
Benzo(g,h,i)perylene	0.9434	1.053	112	40-115	7	20

Surrogate	%REC	Limits
Nitrobenzene-d5	110	45-127
2-Fluorobiphenyl	107	49-120
Terphenyl-d14	120	27-120

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

Initial & Continuing Calibration Data

CURTIS & TOMPKINS DFTPP TUNE FOR 242032 MSSIM Water
EPA 8270C

Inst : MSBNA02 Run Name : DFTPP IDF : 1.0
Seqnum : 512467299005 File : ukj05 Time : 19-NOV-2012 17:15

Standards: S20709

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	34100	53.45	
68	< 2% of mass 69	0	0.00	
69		36982	100.00	
70	< 2% of mass 69	158	0.43	
127	40% - 60% of mass 198	32677	51.22	
197	< 1% of mass 198	0	0.00	
198		63802	100.00	
199	5% - 9% of mass 198	4158	6.52	
275	10% - 30% of mass 198	10122	15.86	
365	> 1% of mass 198	1025	1.61	
441	Present, < mass 443	6370	74.53	
442	> 40% and < 100% of mass 198	44637	69.96	
443	17% - 23% of mass 442	8547	19.15	

Analyst: LLH Date: 11/20/12 Reviewer: LW Date: 11/20/12

CURTIS & TOMPKINS DFTPP TUNE FOR 242032 MSSIM Water
EPA 8270C

Inst : MSBNA02 Run Name : DFTPP IDF : 1.0
Seqnum : 512512276001 File : ulk01 Time : 20-DEC-2012 17:56

Standards: S21344

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	18371	48.97	
68	< 2% of mass 69	0	0.00	
69		19599	100.00	
70	< 2% of mass 69	102	0.52	
127	40% - 60% of mass 198	19695	52.50	
197	< 1% of mass 198	0	0.00	
198		37514	100.00	
199	5% - 9% of mass 198	2552	6.80	
275	10% - 30% of mass 198	6636	17.69	
365	> 1% of mass 198	664	1.77	
441	Present, < mass 443	4723	70.11	
442	> 40% and < 100% of mass 198	35176	93.77	
443	17% - 23% of mass 442	6737	19.15	

Analyst: KMH Date: 12/20/12 Reviewer: LW Date: 12/21/12

CURTIS & TOMPKINS DFTPP TUNE FOR 242032 MSSIM Water
EPA 8270C

Inst : MSBNA02 Run Name : DFTPP IDF : 1.0
Seqnum : 512520538001 File : ulq01 Time : 26-DEC-2012 11:38

Standards: S21344

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	19366	44.43	
68	< 2% of mass 69	0	0.00	
69		19691	100.00	
70	< 2% of mass 69	75	0.38	
127	40% - 60% of mass 198	22214	50.96	
197	< 1% of mass 198	0	0.00	
198		43589	100.00	
199	5% - 9% of mass 198	2841	6.52	
275	10% - 30% of mass 198	7921	18.17	
365	> 1% of mass 198	659	1.51	
441	Present, < mass 443	5848	69.08	
442	> 40% and < 100% of mass 198	42464	97.42	
443	17% - 23% of mass 442	8466	19.94	

Analyst: KMH Date: 12/26/12 Reviewer: LLH Date: 12/27/12

CURTIS & TOMPKINS DFTPP TUNE FOR 242032 MSSIM Water
EPA 8270C

Inst : MSBNA03 Run Name : DFTPP IDF : 1.0
Seqnum : 522448434004 File : vk604 Time : 06-NOV-2012 11:45

Standards: S20709

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	163900	49.17	
68	< 2% of mass 69	0	0.00	
69		183488	100.00	
70	< 2% of mass 69	1052	0.57	
127	40% - 60% of mass 198	180016	54.00	
197	< 1% of mass 198	0	0.00	
198		333333	100.00	
199	5% - 9% of mass 198	23333	7.00	
275	10% - 30% of mass 198	93997	28.20	
365	> 1% of mass 198	11088	3.33	
441	Present, < mass 443	47237	85.44	
442	> 40% and < 100% of mass 198	284970	85.49	
443	17% - 23% of mass 442	55285	19.40	

Analyst: LLH Date: 11/06/12 Reviewer: LW Date: 11/07/12

CURTIS & TOMPKINS DFTPP TUNE FOR 242032 MSSIM Water
EPA 8270C

Inst : MSBNA03 Run Name : DFTPP IDF : 1.0
Seqnum : 522510337001 File : vlj01 Time : 19-DEC-2012 09:37

Standards: S21344

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	98061	43.39	
68	< 2% of mass 69	0	0.00	
69		111226	100.00	
70	< 2% of mass 69	428	0.38	
127	40% - 60% of mass 198	127077	56.23	
197	< 1% of mass 198	0	0.00	
198		226005	100.00	
199	5% - 9% of mass 198	15781	6.98	
275	10% - 30% of mass 198	62650	27.72	
365	> 1% of mass 198	6645	2.94	
441	Present, < mass 443	30856	80.29	
442	> 40% and < 100% of mass 198	190165	84.14	
443	17% - 23% of mass 442	38432	20.21	

Analyst: KMH Date: 12/19/12 Reviewer: LLH Date: 12/19/12

CURTIS & TOMPKINS DFTPP TUNE FOR 242032 MSSIM Water
EPA 8270C

Inst : MSBNA03 Run Name : DFTPP IDF : 1.0
Seqnum : 522513207001 File : vll01 Time : 21-DEC-2012 09:27

Standards: S21344

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	99572	41.73	
68	< 2% of mass 69	0	0.00	
69		112042	100.00	
70	< 2% of mass 69	679	0.61	
127	40% - 60% of mass 198	131925	55.29	
197	< 1% of mass 198	0	0.00	
198		238592	100.00	
199	5% - 9% of mass 198	16716	7.01	
275	10% - 30% of mass 198	68293	28.62	
365	> 1% of mass 198	7431	3.11	
441	Present, < mass 443	31434	77.74	
442	> 40% and < 100% of mass 198	202090	84.70	
443	17% - 23% of mass 442	40434	20.01	

Analyst: KMH Date: 12/21/12 Reviewer: LW Date: 12/21/12

CURTIS & TOMPKINS DFTPP TUNE FOR 242032 MSSIM Water
EPA 8270C

Inst : MSBNA03 Run Name : DFTPP IDF : 1.0
Seqnum : 522520478007 File : vlq07 Time : 26-DEC-2012 14:54

Standards: S21344

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	18109	45.18	
68	< 2% of mass 69	0	0.00	
69		19277	100.00	
70	< 2% of mass 69	104	0.54	
127	40% - 60% of mass 198	21408	53.41	
197	< 1% of mass 198	0	0.00	
198		40082	100.00	
199	5% - 9% of mass 198	2751	6.86	
275	10% - 30% of mass 198	10996	27.43	
365	> 1% of mass 198	1261	3.15	
441	Present, < mass 443	4759	79.03	
442	> 40% and < 100% of mass 198	28549	71.23	
443	17% - 23% of mass 442	6022	21.09	

Analyst: KMH Date: 12/26/12 Reviewer: LLH Date: 12/27/12

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 242032 MSSIM Water: EPA 8270C-SIM

Inst : MSBNA02
Calnum : 512467299001
Units : ug/mL

Name : 2PAHSIM
Date : 19-NOV-2012 17:40
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	ukj06	512467299006	ICAL	19-NOV-2012 17:40	S20547
L2	ukj07	512467299007	ICAL	19-NOV-2012 18:17	S20548
L3	ukj08	512467299008	ICAL	19-NOV-2012 18:58	S20549
L4	ukj09	512467299009	ICAL	19-NOV-2012 19:40	S20550
L5	ukj10	512467299010	ICAL	19-NOV-2012 20:25	S20551
L6	ukj11	512467299011	ICAL	19-NOV-2012 21:08	S20552
L7	ukj12	512467299012	ICAL	19-NOV-2012 21:52	S20553

Analyte	L1	L2	L3	L4	L5	L6	L7	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Naphthalene	1.0143	0.9695	1.0252	1.0162	0.9630m	0.9311m	0.8512m	AVRG		1.03390		0.9672	6	15	0.05	0.99	
2-Methylnaphthalene	0.5693	0.5499	0.5499	0.5782	0.5758	0.5986	0.5458m	AVRG		1.76433		0.5668	3	15	0.05	0.99	
1-Methylnaphthalene	0.7725m	0.7330m	0.7136m	0.6742m	0.6720m	0.5947m	0.5382m	AVRG		1.48991		0.6712	12	15	0.05	0.99	
Acenaphthylene	1.7996m	1.7627	1.7432m	1.7451m	1.7023m	1.7008m	1.5505m	AVRG		0.58313		1.7149	5	15	0.05	0.99	
Acenaphthene	1.0716m	1.0753m	1.0842m	1.0875m	1.0342m	1.0160m	0.9453m	AVRG		0.95705		1.0449	5	15	0.05	0.99	
Fluorene	1.1412	1.1082	1.1098	1.1027	1.0399	1.1273	1.0194	AVRG		0.91521		1.0926	4	15	0.05	0.99	
Phenanthrene	1.0278	1.0426	1.0438	1.1511	1.0571	1.0520	0.9758	AVRG		0.95233		1.0501	5	15	0.05	0.99	
Anthracene	1.2398m	1.2534m	1.1276m	1.2024m	1.1160m	1.0841m	0.9312m	AVRG		0.88000		1.1364	10	15	0.05	0.99	
Fluoranthene	1.1415m	1.1059m	1.1175m	1.0883m	1.0727m	0.9858m	0.8813m	AVRG		0.94686		1.0561	9	15	0.05	0.99	
Pyrene	1.8226m	1.7911m	1.6205m	1.5468m	1.6273m	1.4400m	1.3828m	AVRG		0.62327		1.6044	10	15	0.05	0.99	
Benzo(a)anthracene	1.2334	1.1768	1.1128	1.1053	1.1262	1.1091	1.0583	AVRG		0.88363		1.1317	5	15	0.05	0.99	
Chrysene	1.2772m	1.2744m	1.1481m	1.1464m	1.2049m	1.1084m	1.0167m	AVRG		0.85616		1.1680	8	15	0.05	0.99	
Benzo(b)fluoranthene	1.2945	1.3011	1.1442	1.2261	1.2197	1.1065	1.1566	AVRG		0.82854		1.2069	6	15	0.05	0.99	
Benzo(k)fluoranthene	1.4734m	1.4739m	1.2514m	1.3500m	1.2703m	1.4107m	1.3162m	AVRG		0.73330		1.3637	7	15	0.05	0.99	
Benzo(a)pyrene	1.0599	1.0849	1.0064m	1.0156m	1.0710	1.0229	0.9849	AVRG		0.96611		1.0351	4	15	0.05	0.99	
Indeno(1,2,3-cd)pyrene	0.9427	0.9815	0.8909	0.8846	0.9646	1.0001	0.9783	AVRG		1.05378		0.9490	5	15	0.05	0.99	
Dibenz(a,h)anthracene	0.7483	0.7239	0.6877	0.6791	0.7516	0.7846	0.7787	AVRG		1.35820		0.7363	6	15	0.05	0.99	
Benzo(g,h,i)perylene	0.9062	0.8700	0.8523	0.8586	0.9140	0.8798	0.9071	AVRG		1.13122		0.8840	3	15	0.05	0.99	
Nitrobenzene-d5	0.2216m	0.2122m	0.2323m	0.2347m	0.2462m	0.2486	0.2374	AVRG		4.28681		0.2333	6	15	0.05	0.99	
2-Fluorobiphenyl	1.1557	1.3012	1.2387	1.3192	1.2438	1.2173	1.1014m	AVRG		0.81611		1.2253	6	15	0.05	0.99	
Terphenyl-d14	0.9363m	0.9331m	0.7931m	0.7649m	0.8719m	0.7351m	0.6756m	AVRG		1.22591		0.8157	12	15	0.05	0.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D
Naphthalene	0.1000	5	0.2000	0	0.5000	6	1.0000	5	2.0000	0	5.0000	-4	10.000	-12
2-Methylnaphthalene	0.1000	0	0.2000	-3	0.5000	-3	1.0000	2	2.0000	2	5.0000	6	10.000	-4
1-Methylnaphthalene	0.1000	15	0.2000	9	0.5000	6	1.0000	0	2.0000	0	5.0000	-11	10.000	-20
Acenaphthylene	0.1000	5	0.2000	3	0.5000	2	1.0000	2	2.0000	-1	5.0000	-1	10.000	-10
Acenaphthene	0.1000	3	0.2000	3	0.5000	4	1.0000	4	2.0000	-1	5.0000	-3	10.000	-10
Fluorene	0.1000	4	0.2000	1	0.5000	2	1.0000	1	2.0000	-5	5.0000	3	10.000	-7
Phenanthrene	0.1000	-2	0.2000	-1	0.5000	-1	1.0000	10	2.0000	1	5.0000	0	10.000	-7
Anthracene	0.1000	9	0.2000	10	0.5000	-1	1.0000	6	2.0000	-2	5.0000	-5	10.000	-18
Fluoranthene	0.1000	8	0.2000	5	0.5000	6	1.0000	3	2.0000	2	5.0000	-7	10.000	-17
Pyrene	0.1000	14	0.2000	12	0.5000	1	1.0000	-4	2.0000	1	5.0000	-10	10.000	-14
Benzo(a)anthracene	0.1000	9	0.2000	4	0.5000	-2	1.0000	-2	2.0000	0	5.0000	-2	10.000	-6
Chrysene	0.1000	9	0.2000	9	0.5000	-2	1.0000	-2	2.0000	3	5.0000	-5	10.000	-13
Benzo(b)fluoranthene	0.1000	7	0.2000	8	0.5000	-5	1.0000	2	2.0000	1	5.0000	-8	10.000	-4
Benzo(k)fluoranthene	0.1000	8	0.2000	8	0.5000	-8	1.0000	-1	2.0000	-7	5.0000	3	10.000	-3
Benzo(a)pyrene	0.1000	2	0.2000	5	0.5000	-3	1.0000	-2	2.0000	3	5.0000	-1	10.000	-5
Indeno(1,2,3-cd)pyrene	0.1000	-1	0.2000	3	0.5000	-6	1.0000	-7	2.0000	2	5.0000	5	10.000	3
Dibenz(a,h)anthracene	0.1000	2	0.2000	-2	0.5000	-7	1.0000	-8	2.0000	2	5.0000	7	10.000	6
Benzo(g,h,i)perylene	0.1000	3	0.2000	-2	0.5000	-4	1.0000	-3	2.0000	3	5.0000	0	10.000	3
Nitrobenzene-d5	0.1000	-5	0.2000	-9	0.5000	0	1.0000	1	2.0000	6	5.0000	7	10.000	2
2-Fluorobiphenyl	0.1000	-6	0.2000	6	0.5000	1	1.0000	8	2.0000	2	5.0000	-1	10.000	-10
Terphenyl-d14	0.1000	15	0.2000	14	0.5000	-3	1.0000	-6	2.0000	7	5.0000	-10	10.000	-17

LLH 11/20/12 [Naphthalene-d8]: Corrected automatically drawn baseline in multiple levels.

LLH 11/20/12 [Acenaphthene-d10]: Corrected automatically drawn baseline in all levels.

LLH 11/20/12 [Chrysene-d12]: Corrected automatically drawn baseline in all levels.

LLH 11/20/12 [Perylene-d12]: Corrected automatically drawn baseline in all levels.

LLH 11/20/12 [1,4-Dioxane]: Corrected automatically drawn baseline in multiple levels.

LLH 11/20/12 [Nitrobenzene-d5]: Corrected automatically drawn baseline in multiple levels.

LLH 11/20/12 [Naphthalene]: Corrected automatically drawn baseline in multiple levels.

LLH 11/20/12 [2-Methylnaphthalene]: Corrected automatically drawn baseline in ICAL (ukj12).

LLH 11/20/12 [1-Methylnaphthalene]: Corrected automatically drawn baseline in all levels.

LLH 11/20/12 [2-Fluorobiphenyl]: Corrected automatically drawn baseline in ICAL (ukj12).

LLH 11/20/12 [Acenaphthylene]: Corrected automatically drawn baseline in multiple levels.

LLH 11/20/12 [Acenaphthene]: Corrected automatically drawn baseline in all levels.

LLH 11/20/12 [Anthracene]: Corrected automatically drawn baseline in all levels.

LLH 11/20/12 [Fluoranthene]: Corrected automatically drawn baseline in all levels.

LLH 11/20/12 [Pyrene]: Corrected automatically drawn baseline in all levels.

LLH 11/20/12 [Terphenyl-d14]: Corrected automatically drawn baseline in all levels.

LLH 11/20/12 [Chrysene]: Corrected automatically drawn baseline in all levels.

LLH 11/20/12 [Benzo(k)fluoranthene]: Corrected automatically drawn baseline in all levels.

LLH 11/20/12 [Benzo(a)pyrene]: Corrected fronting or tailing peak integration in multiple levels.

Analyst: LLH Date: 11/20/12 Reviewer: LW Date: 11/20/12

m=manual integration

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

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 242032 MSSIM Water
EPA 8270C-SIM

Inst : MSBNA02 Name : 2PAHSIM
Calnum : 512467299001 Cal Date : 19-NOV-2012

ICV 512467299013 (ukj13 19-NOV-2012) stds: S20103

Analyte	Spiked	Quant	Units	%D	Max	Flags
Naphthalene	1.000	1.120	ug/mL	12	30	
2-Methylnaphthalene	1.000	1.159	ug/mL	16	30	
1-Methylnaphthalene	1.000	1.150	ug/mL	15	30	m
Acenaphthylene	1.000	1.018	ug/mL	2	30	m
Acenaphthene	1.000	0.9837	ug/mL	-2	20	m
Fluorene	1.000	0.9708	ug/mL	-3	30	
Phenanthrene	1.000	1.035	ug/mL	3	30	
Anthracene	1.000	0.9916	ug/mL	-1	30	m
Fluoranthene	1.000	0.9987	ug/mL	0	20	m
Pyrene	1.000	1.055	ug/mL	5	30	m
Benzo(a)anthracene	1.000	0.9621	ug/mL	-4	30	
Chrysene	1.000	1.031	ug/mL	3	30	m
Benzo(b)fluoranthene	1.000	0.9930	ug/mL	-1	30	
Benzo(k)fluoranthene	1.000	1.066	ug/mL	7	30	m
Benzo(a)pyrene	1.000	0.8937	ug/mL	-11	20	m
Indeno(1,2,3-cd)pyrene	1.000	0.9696	ug/mL	-3	30	
Dibenz(a,h)anthracene	1.000	0.9466	ug/mL	-5	30	
Benzo(g,h,i)perylene	1.000	0.9394	ug/mL	-6	30	

Analyst: LLH Date: 11/20/12 Reviewer: LW Date: 11/20/12

m=manual integration

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 242032 MSSIM Water: EPA 8270C-SIM

Inst : MSBNA03
Calnum : 522448434001
Units : ug/mL

Name : 3PAHSIM
Date : 06-NOV-2012 12:04
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	vk605	522448434005	ICAL	06-NOV-2012 12:04	S20547
L2	vk606	522448434006	ICAL	06-NOV-2012 12:39	S20548
L3	vk607	522448434007	ICAL	06-NOV-2012 13:14	S20549
L4	vk608	522448434008	ICAL	06-NOV-2012 13:47	S20550
L5	vk609	522448434009	ICAL	06-NOV-2012 14:20	S20551
L6	vk610	522448434010	ICAL	06-NOV-2012 14:53	S20552
L7	vk611	522448434011	ICAL	06-NOV-2012 15:27	S20553

Analyte	L1	L2	L3	L4	L5	L6	L7	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Naphthalene	0.9822	1.0002	0.9796	0.9643	0.9252	0.8675	0.8122	AVRG		1.07178		0.9330	7	15	0.05	0.99	
2-Methylnaphthalene	0.7339	0.7403	0.7046	0.6808	0.6419	0.5950	0.5576	AVRG		1.50405		0.6649	10	15	0.05	0.99	
1-Methylnaphthalene	0.7309	0.7138	0.6705	0.6451	0.6151	0.5715	0.5356	AVRG		1.56159		0.6404	11	15	0.05	0.99	
Acenaphthylene	1.9682	1.9285	1.8602	1.8230	1.7658	1.6395	1.5551	AVRG		0.55821		1.7915	8	15	0.05	0.99	
Acenaphthene	1.0923	1.0728	1.0322	1.0168	0.9927	0.9517	0.9160	AVRG		0.98945		1.0107	6	15	0.05	0.99	
Fluorene	1.4682	1.3980	1.2925	1.2536	1.2056	1.1181	1.0627	AVRG		0.79557		1.2570	12	15	0.05	0.99	
Phenanthrene	1.0607	1.0187	0.9363	0.9278	0.8953	0.8376	0.7927	AVRG		1.08206		0.9242	10	15	0.05	0.99	
Anthracene	1.0483	0.9964	0.9062	0.8994	0.8762	0.8233	0.7702	AVRG		1.10760		0.9029	11	15	0.05	0.99	
Fluoranthene	1.3610	1.2889	1.1540	1.1228	1.0603	0.9728	0.9061	AVRG		0.88992		1.1237	14	15	0.05	0.99	
Pyrene	1.4763	1.3651	1.2365	1.2062	1.1684	1.0736	1.0109	AVRG		0.81997		1.2196	13	15	0.05	0.99	
Benzo(a)anthracene	1.3195	1.2216	1.1268	1.1281	1.1098	1.0473	0.9866	AVRG		0.88164		1.1343	10	15	0.05	0.99	
Chrysene	1.1716m	1.1115m	1.0403m	1.0431m	1.0261m	0.9594	0.8969	AVRG		0.96568		1.0355	9	15	0.05	0.99	
Benzo(b)fluoranthene	1.3706	1.3110	1.1859	1.2070	1.1430	1.0615	1.0495	AVRG		0.84049		1.1898	10	15	0.05	0.99	
Benzo(k)fluoranthene	1.2971m	1.2452m	1.1099m	1.1924m	1.1851	1.1165	1.0270	AVRG		0.85646		1.1676	8	15	0.05	0.99	
Benzo(a)pyrene	1.1733	1.1202	1.0201	1.0374	1.0450	0.9982	0.9742	AVRG		0.95001		1.0526	7	15	0.05	0.99	
Indeno(1,2,3-cd)pyrene	1.0715	1.0354	0.9628	0.9702	0.9642	0.9340	0.9248	AVRG		1.01998		0.9804	5	15	0.05	0.99	
Dibenz(a,h)anthracene	0.8446	0.8229	0.7539	0.7670	0.7703	0.7603	0.7585	AVRG		1.27795		0.7825	5	15	0.05	0.99	
Benzo(g,h,i)perylene	0.9177	0.8909	0.8161	0.8225	0.8035	0.7585	0.7480	AVRG		1.21585		0.8225	8	15	0.05	0.99	
Nitrobenzene-d5	0.2623	0.2609	0.2554	0.2626	0.2576	0.2585	0.2562	AVRG		3.86018		0.2591	1	15	0.05	0.99	
2-Fluorobiphenyl	1.5316	1.5203	1.4585	1.4016	1.3358	1.2374	1.1492	AVRG		0.72657		1.3763	10	15	0.05	0.99	
Terphenyl-d14	0.9523	0.8863	0.8098	0.7945	0.7735	0.7328	0.6953	AVRG		1.24013		0.8064	11	15	0.05	0.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D
Naphthalene	0.1000	5	0.2000	7	0.5000	5	1.0000	3	2.0000	-1	5.0000	-7	10.000	-13
2-Methylnaphthalene	0.1000	10	0.2000	11	0.5000	6	1.0000	2	2.0000	-3	5.0000	-11	10.000	-16
1-Methylnaphthalene	0.1000	14	0.2000	11	0.5000	5	1.0000	1	2.0000	-4	5.0000	-11	10.000	-16
Acenaphthylene	0.1000	10	0.2000	8	0.5000	4	1.0000	2	2.0000	-1	5.0000	-8	10.000	-13
Acenaphthene	0.1000	8	0.2000	6	0.5000	2	1.0000	1	2.0000	-2	5.0000	-6	10.000	-9
Fluorene	0.1000	17	0.2000	11	0.5000	3	1.0000	0	2.0000	-4	5.0000	-11	10.000	-15
Phenanthrene	0.1000	15	0.2000	10	0.5000	1	1.0000	0	2.0000	-3	5.0000	-9	10.000	-14
Anthracene	0.1000	16	0.2000	10	0.5000	0	1.0000	0	2.0000	-3	5.0000	-9	10.000	-15
Fluoranthene	0.1000	**21**	0.2000	15	0.5000	3	1.0000	0	2.0000	-6	5.0000	-13	10.000	-19
Pyrene	0.1000	**21**	0.2000	12	0.5000	1	1.0000	-1	2.0000	-4	5.0000	-12	10.000	-17
Benzo(a)anthracene	0.1000	16	0.2000	8	0.5000	-1	1.0000	-1	2.0000	-2	5.0000	-8	10.000	-13
Chrysene	0.1000	13	0.2000	7	0.5000	0	1.0000	1	2.0000	-1	5.0000	-7	10.000	-13
Benzo(b)fluoranthene	0.1000	15	0.2000	10	0.5000	0	1.0000	1	2.0000	-4	5.0000	-11	10.000	-12
Benzo(k)fluoranthene	0.1000	11	0.2000	7	0.5000	-5	1.0000	2	2.0000	1	5.0000	-4	10.000	-12
Benzo(a)pyrene	0.1000	11	0.2000	6	0.5000	-3	1.0000	-1	2.0000	-1	5.0000	-5	10.000	-7
Indeno(1,2,3-cd)pyrene	0.1000	9	0.2000	6	0.5000	-2	1.0000	-1	2.0000	-2	5.0000	-5	10.000	-6
Dibenz(a,h)anthracene	0.1000	8	0.2000	5	0.5000	-4	1.0000	-2	2.0000	-2	5.0000	-3	10.000	-3
Benzo(g,h,i)perylene	0.1000	12	0.2000	8	0.5000	-1	1.0000	0	2.0000	-2	5.0000	-8	10.000	-9
Nitrobenzene-d5	0.1000	1	0.2000	1	0.5000	-1	1.0000	1	2.0000	-1	5.0000	0	10.000	-1
2-Fluorobiphenyl	0.1000	11	0.2000	10	0.5000	6	1.0000	2	2.0000	-3	5.0000	-10	10.000	-17
Terphenyl-d14	0.1000	18	0.2000	10	0.5000	0	1.0000	-1	2.0000	-4	5.0000	-9	10.000	-14

LLH 11/06/12 [1,4-Dioxane]: Corrected automatically drawn baseline in multiple levels.

LLH 11/06/12 [Chrysene]: Corrected automatically drawn baseline in multiple levels.

LLH 11/06/12 [Benzo(k)fluoranthene]: Corrected automatically drawn baseline in multiple levels.

Analyst: LLH Date: 11/06/12 Reviewer: LW Date: 11/07/12

m=manual integration

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

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 242032 MSSIM Water
EPA 8270C-SIM

Inst : MSBNA03 Name : 3PAHSIM
Calnum : 522448434001 Cal Date : 06-NOV-2012

ICV 522448434012 (vk612 06-NOV-2012) stds: S20103

Analyte	Spiked	Quant	Units	%D	Max	Flags
Naphthalene	1.000	1.047	ug/mL	5	30	
2-Methylnaphthalene	1.000	1.039	ug/mL	4	30	
1-Methylnaphthalene	1.000	1.012	ug/mL	1	30	
Acenaphthylene	1.000	1.032	ug/mL	3	30	
Acenaphthene	1.000	1.015	ug/mL	2	20	
Fluorene	1.000	1.007	ug/mL	1	30	
Phenanthrene	1.000	1.030	ug/mL	3	30	
Anthracene	1.000	1.005	ug/mL	1	30	
Fluoranthene	1.000	1.021	ug/mL	2	20	
Pyrene	1.000	0.9836	ug/mL	-2	30	
Benzo(a)anthracene	1.000	0.9842	ug/mL	-2	30	
Chrysene	1.000	1.025	ug/mL	3	30	
Benzo(b)fluoranthene	1.000	1.027	ug/mL	3	30	
Benzo(k)fluoranthene	1.000	0.9631	ug/mL	-4	30	
Benzo(a)pyrene	1.000	0.8909	ug/mL	-11	20	
Indeno(1,2,3-cd)pyrene	1.000	1.047	ug/mL	5	30	
Dibenz(a,h)anthracene	1.000	1.043	ug/mL	4	30	
Benzo(g,h,i)perylene	1.000	1.052	ug/mL	5	30	

Analyst: LLH Date: 11/06/12 Reviewer: LW Date: 11/07/12

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 242032 MSSIM Water
EPA 8270C-SIM

Inst : MSBNA02 Run Name : PAHDIOX IDF : 1.0
Seqnum : 512512276002 File : ulk02 Time : 20-DEC-2012 18:17
Cal : 512467299001 Caldate : 19-NOV-2012
Standards: S20549

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Naphthalene	0.9672	1.1010	0.5000	0.5691	ug/mL	14	30	0.0500	
2-Methylnaphthalene	0.5668	0.5614	0.5000	0.4953	ug/mL	-1	30	0.0500	
1-Methylnaphthalene	0.6712	0.7199	0.5000	0.5363	ug/mL	7	30	0.0500	
Acenaphthylene	1.7149	1.6461	0.5000	0.4799	ug/mL	-4	30	0.0500	
Acenaphthene	1.0449	1.0325	0.5000	0.4941	ug/mL	-1	20	0.0500	m
Fluorene	1.0926	1.0686	0.5000	0.4890	ug/mL	-2	30	0.0500	
Phenanthrene	1.0501	0.9939	0.5000	0.4733	ug/mL	-5	30	0.0500	
Anthracene	1.1364	1.0928	0.5000	0.4808	ug/mL	-4	30	0.0500	
Fluoranthene	1.0561	1.0556	0.5000	0.4997	ug/mL	0	20	0.0500	m
Pyrene	1.6044	1.3975	0.5000	0.4355	ug/mL	-13	30	0.0500	
Benzo(a)anthracene	1.1317	1.0049	0.5000	0.4440	ug/mL	-11	30	0.0500	
Chrysene	1.1680	1.1694	0.5000	0.5006	ug/mL	0	30	0.0500	
Benzo(b)fluoranthene	1.2069	1.0698	0.5000	0.4432	ug/mL	-11	30	0.0500	
Benzo(k)fluoranthene	1.3637	1.4650	0.5000	0.5371	ug/mL	7	30	0.0500	
Benzo(a)pyrene	1.0351	0.9821	0.5000	0.4744	ug/mL	-5	20	0.0500	m
Indeno(1,2,3-cd)pyrene	0.9490	1.0638	0.5000	0.5605	ug/mL	12	30	0.0500	
Dibenz(a,h)anthracene	0.7363	0.8476	0.5000	0.5756	ug/mL	15	30	0.0500	
Benzo(g,h,i)perylene	0.8840	1.0190	0.5000	0.5764	ug/mL	15	30	0.0500	
Nitrobenzene-d5	0.2333	0.2471	0.5000	0.5297	ug/mL	6	30	0.0500	m
2-Fluorobiphenyl	1.2253	1.2137	0.5000	0.4953	ug/mL	-1	30	0.0500	
Terphenyl-d14	0.8157	0.7024	0.5000	0.4305	ug/mL	-14	30	0.0500	

KMH 12/20/12 [1,4-Dichlorobenzene-d4]: Corrected automatically drawn baseline.

KMH 12/20/12 [Naphthalene-d8]: Corrected automatically drawn baseline.

KMH 12/20/12 [Acenaphthene-d10]: Corrected automatically drawn baseline.

KMH 12/20/12 [Chrysene-d12]: Corrected automatically drawn baseline.

KMH 12/20/12 [1,4-Dioxane]: Corrected automatically drawn baseline.

KMH 12/20/12 [Nitrobenzene-d5]: Corrected automatically drawn baseline.

KMH 12/20/12 [Acenaphthene]: Corrected automatically drawn baseline.

KMH 12/20/12 [Fluoranthene]: Corrected automatically drawn baseline.

KMH 12/20/12 [Benzo(a)pyrene]: Corrected automatically drawn baseline.

Analyst: KMH Date: 12/20/12 Reviewer: LW Date: 12/21/12

m=manual integration

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 242032 MSSIM Water
EPA 8270C-SIM

Inst : MSBNA02 Run Name : PAHDIOX IDF : 1.0
Seqnum : 512520538002 File : ulq02 Time : 26-DEC-2012 12:04
Cal : 512467299001 Caldate : 19-NOV-2012
Standards: S20551

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Naphthalene	0.9672	1.0273	2.000	2.124	ug/mL	6	30	0.0500	m
2-Methylnaphthalene	0.5668	0.5913	2.000	2.086	ug/mL	4	30	0.0500	
1-Methylnaphthalene	0.6712	0.6583	2.000	1.962	ug/mL	-2	30	0.0500	
Acenaphthylene	1.7149	1.7527	2.000	2.044	ug/mL	2	30	0.0500	m
Acenaphthene	1.0449	1.0171	2.000	1.947	ug/mL	-3	20	0.0500	
Fluorene	1.0926	1.1192	2.000	2.049	ug/mL	2	30	0.0500	
Phenanthrene	1.0501	1.0231	2.000	1.949	ug/mL	-3	30	0.0500	
Anthracene	1.1364	0.9736	2.000	1.714	ug/mL	-14	30	0.0500	m
Fluoranthene	1.0561	1.0517	2.000	1.992	ug/mL	0	20	0.0500	
Pyrene	1.6044	1.4596	2.000	1.820	ug/mL	-9	30	0.0500	
Benzo(a)anthracene	1.1317	1.1259	2.000	1.990	ug/mL	-1	30	0.0500	
Chrysene	1.1680	1.1487	2.000	1.967	ug/mL	-2	30	0.0500	m
Benzo(b)fluoranthene	1.2069	1.0692	2.000	1.772	ug/mL	-11	30	0.0500	
Benzo(k)fluoranthene	1.3637	1.5291	2.000	2.243	ug/mL	12	30	0.0500	
Benzo(a)pyrene	1.0351	1.0381	2.000	2.006	ug/mL	0	20	0.0500	m
Indeno(1,2,3-cd)pyrene	0.9490	1.1770	2.000	2.481	ug/mL	**24**	30	0.0500	!c+
Dibenz(a,h)anthracene	0.7363	0.9326	2.000	2.533	ug/mL	**27**	30	0.0500	!c+
Benzo(g,h,i)perylene	0.8840	1.0441	2.000	2.362	ug/mL	18	30	0.0500	
Nitrobenzene-d5	0.2333	0.2519	2.000	2.160	ug/mL	8	30	0.0500	m
2-Fluorobiphenyl	1.2253	1.2650	2.000	2.065	ug/mL	3	30	0.0500	
Terphenyl-d14	0.8157	0.6858	2.000	1.682	ug/mL	-16	30	0.0500	

KMH 12/26/12 [1,4-Dichlorobenzene-d4]: Corrected automatically drawn baseline.

KMH 12/26/12 [Naphthalene-d8]: Corrected automatically drawn baseline.

KMH 12/26/12 [Chrysene-d12]: Corrected automatically drawn baseline.

KMH 12/26/12 [Nitrobenzene-d5]: Corrected automatically drawn baseline.

KMH 12/26/12 [Naphthalene]: Corrected automatically drawn baseline.

KMH 12/26/12 [Acenaphthylene]: Corrected automatically drawn baseline.

KMH 12/26/12 [Anthracene]: Corrected automatically drawn baseline.

KMH 12/26/12 [Chrysene]: Corrected automatically drawn baseline.

KMH 12/26/12 [Benzo(a)pyrene]: Corrected automatically drawn baseline.

Analyst: KMH Date: 12/26/12 Reviewer: LLH Date: 12/27/12

!=warning +=high bias c=CCV m=manual integration

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 242032 MSSIM Water
EPA 8270C-SIM

Inst : MSBNA03 Run Name : PAHDIOX IDF : 1.0
Seqnum : 522510337002 File : vlj02 Time : 19-DEC-2012 10:07
Cal : 522448434001 Caldate : 06-NOV-2012
Standards: S20551

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Naphthalene	0.9330	0.9784	2.000	2.097	ug/mL	5	30	0.0500	
2-Methylnaphthalene	0.6649	0.6605	2.000	1.987	ug/mL	-1	30	0.0500	
1-Methylnaphthalene	0.6404	0.6556	2.000	2.048	ug/mL	2	30	0.0500	
Acenaphthylene	1.7915	1.6779	2.000	1.873	ug/mL	-6	30	0.0500	
Acenaphthene	1.0107	1.0317	2.000	2.042	ug/mL	2	20	0.0500	
Fluorene	1.2570	1.2014	2.000	1.912	ug/mL	-4	30	0.0500	
Phenanthrene	0.9242	0.9722	2.000	2.104	ug/mL	5	30	0.0500	
Anthracene	0.9029	0.9180	2.000	2.034	ug/mL	2	30	0.0500	
Fluoranthene	1.1237	1.1045	2.000	1.966	ug/mL	-2	20	0.0500	
Pyrene	1.2196	1.1702	2.000	1.919	ug/mL	-4	30	0.0500	
Benzo(a)anthracene	1.1343	1.0378	2.000	1.830	ug/mL	-9	30	0.0500	
Chrysene	1.0355	1.0300	2.000	1.989	ug/mL	-1	30	0.0500	
Benzo(b)fluoranthene	1.1898	1.1641	2.000	1.957	ug/mL	-2	30	0.0500	
Benzo(k)fluoranthene	1.1676	1.2095	2.000	2.072	ug/mL	4	30	0.0500	
Benzo(a)pyrene	1.0526	1.0645	2.000	2.023	ug/mL	1	20	0.0500	
Indeno(1,2,3-cd)pyrene	0.9804	1.0157	2.000	2.072	ug/mL	4	30	0.0500	
Dibenz(a,h)anthracene	0.7825	0.8303	2.000	2.122	ug/mL	6	30	0.0500	
Benzo(g,h,i)perylene	0.8225	0.8753	2.000	2.129	ug/mL	6	30	0.0500	
Nitrobenzene-d5	0.2591	0.2335	2.000	1.803	ug/mL	-10	30	0.0500	
2-Fluorobiphenyl	1.3763	1.3232	2.000	1.923	ug/mL	-4	30	0.0500	
Terphenyl-d14	0.8064	0.7313	2.000	1.814	ug/mL	-9	30	0.0500	

Analyst: KMH Date: 12/19/12 Reviewer: LLH Date: 12/19/12

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 242032 MSSIM Water
EPA 8270C-SIM

Inst : MSBNA03 Run Name : PAHDIOX IDF : 1.0
Seqnum : 522513207002 File : vll02 Time : 21-DEC-2012 09:50
Cal : 522448434001 Caldate : 06-NOV-2012
Standards: S20550

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Naphthalene	0.9330	0.9909	1.000	1.062	ug/mL	6	30	0.0500	
2-Methylnaphthalene	0.6649	0.6750	1.000	1.015	ug/mL	2	30	0.0500	
1-Methylnaphthalene	0.6404	0.6710	1.000	1.048	ug/mL	5	30	0.0500	
Acenaphthylene	1.7915	1.6960	1.000	0.9467	ug/mL	-5	30	0.0500	
Acenaphthene	1.0107	1.0314	1.000	1.021	ug/mL	2	20	0.0500	
Fluorene	1.2570	1.2771	1.000	1.016	ug/mL	2	30	0.0500	
Phenanthrene	0.9242	0.9803	1.000	1.061	ug/mL	6	30	0.0500	
Anthracene	0.9029	0.9177	1.000	1.016	ug/mL	2	30	0.0500	
Fluoranthene	1.1237	1.1124	1.000	0.9900	ug/mL	-1	20	0.0500	
Pyrene	1.2196	1.1712	1.000	0.9603	ug/mL	-4	30	0.0500	
Benzo(a)anthracene	1.1343	1.0067	1.000	0.8875	ug/mL	-11	30	0.0500	
Chrysene	1.0355	1.0184	1.000	0.9835	ug/mL	-2	30	0.0500	
Benzo(b)fluoranthene	1.1898	1.2252	1.000	1.030	ug/mL	3	30	0.0500	
Benzo(k)fluoranthene	1.1676	1.1587	1.000	0.9924	ug/mL	-1	30	0.0500	
Benzo(a)pyrene	1.0526	1.0701	1.000	1.017	ug/mL	2	20	0.0500	
Indeno(1,2,3-cd)pyrene	0.9804	0.9636	1.000	0.9828	ug/mL	-2	30	0.0500	
Dibenz(a,h)anthracene	0.7825	0.7910	1.000	1.011	ug/mL	1	30	0.0500	
Benzo(g,h,i)perylene	0.8225	0.8116	1.000	0.9868	ug/mL	-1	30	0.0500	
Nitrobenzene-d5	0.2591	0.2236	1.000	0.8630	ug/mL	-14	30	0.0500	
2-Fluorobiphenyl	1.3763	1.3659	1.000	0.9924	ug/mL	-1	30	0.0500	
Terphenyl-d14	0.8064	0.7209	1.000	0.8940	ug/mL	-11	30	0.0500	

Analyst: KMH Date: 12/21/12 Reviewer: LW Date: 12/21/12

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 242032 MSSIM Water
EPA 8270C-SIM

Inst : MSBNA03 Run Name : PAHDIOX IDF : 1.0
Seqnum : 522520478008 File : vlq08 Time : 26-DEC-2012 15:14
Cal : 522448434001 Caldate : 06-NOV-2012
Standards: S20551

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Naphthalene	0.9330	0.9517	2.000	2.040	ug/mL	2	30	0.0500	
2-Methylnaphthalene	0.6649	0.6611	2.000	1.989	ug/mL	-1	30	0.0500	
1-Methylnaphthalene	0.6404	0.6585	2.000	2.057	ug/mL	3	30	0.0500	
Acenaphthylene	1.7915	1.6313	2.000	1.821	ug/mL	-9	30	0.0500	
Acenaphthene	1.0107	1.0091	2.000	1.997	ug/mL	0	20	0.0500	
Fluorene	1.2570	1.2351	2.000	1.965	ug/mL	-2	30	0.0500	
Phenanthrene	0.9242	0.9472	2.000	2.050	ug/mL	2	30	0.0500	
Anthracene	0.9029	0.9013	2.000	1.997	ug/mL	0	30	0.0500	
Fluoranthene	1.1237	1.1152	2.000	1.985	ug/mL	-1	20	0.0500	
Pyrene	1.2196	1.1642	2.000	1.909	ug/mL	-5	30	0.0500	
Benzo(a)anthracene	1.1343	1.0434	2.000	1.840	ug/mL	-8	30	0.0500	
Chrysene	1.0355	1.0142	2.000	1.959	ug/mL	-2	30	0.0500	
Benzo(b)fluoranthene	1.1898	1.1623	2.000	1.954	ug/mL	-2	30	0.0500	
Benzo(k)fluoranthene	1.1676	1.1012	2.000	1.886	ug/mL	-6	30	0.0500	
Benzo(a)pyrene	1.0526	1.0403	2.000	1.977	ug/mL	-1	20	0.0500	
Indeno(1,2,3-cd)pyrene	0.9804	0.9971	2.000	2.034	ug/mL	2	30	0.0500	
Dibenz(a,h)anthracene	0.7825	0.8197	2.000	2.095	ug/mL	5	30	0.0500	
Benzo(g,h,i)perylene	0.8225	0.8477	2.000	2.061	ug/mL	3	30	0.0500	
Nitrobenzene-d5	0.2591	0.2324	2.000	1.794	ug/mL	-10	30	0.0500	
2-Fluorobiphenyl	1.3763	1.3403	2.000	1.948	ug/mL	-3	30	0.0500	
Terphenyl-d14	0.8064	0.7375	2.000	1.829	ug/mL	-9	30	0.0500	

Analyst: KMH Date: 12/26/12 Reviewer: LLH Date: 12/27/12

Logbooks & Sequences

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 512512276

Date : 12/20/12
Sequence : MSBNA02 ulk

Reference : ulk02
Analyzed : 12/20/12 18:17

#	Type	Sample ID	DCBZ14D4	RT	NAPHD8	RT	ACEND10	RT	PHEND10	RT	CHYD12	RT	PERYD12	RT
		CCV+CCV/BS+CCV/LCS+ICV+ICV/BS+ICV/CCV+ICV/LCS+RCCV+RICV STD	12797	8.02	51249	9.57	26538	11.83	36524	13.77	26821	17.33	22294	19.28
		LOWER LIMIT	6399	7.52	25625	9.07	13269	11.33	18262	13.27	13411	16.83	11147	18.78
		UPPER LIMIT	25594	8.52	102498	10.07	53076	12.33	73048	14.27	53642	17.83	44588	19.78
002	CCV	PAHDIOX	12797	8.02	51249	9.57	26538	11.83	36524	13.77	26821	17.33	22294	19.28
003	BS	QC670667	12905	8.01	54259	9.57	26940	11.83	37738	13.77	28603	17.33	25587	19.28
004	BSD	QC670668	11762	8.01	48011	9.57	24946	11.83	32376	13.77	24575	17.33	22185	19.28
005	SAMPLE	242032-001	13198	8.01	60661	9.57	30760	11.83	41857	13.77	30773	17.33	31065	19.28
006	SAMPLE	242032-003	12826	8.01	56111	9.57	29992	11.83	39768	13.77	31136	17.35	28916	19.28
007	SAMPLE	242032-004	14956	8.01	61415	9.57	33527	11.83	43858	13.77	32955	17.34	32915	19.28
008	SAMPLE	242032-005	13203	8.01	51483	9.57	28020	11.83	40329	13.77	29273	17.35	29554	19.28
009	SAMPLE	242032-008	12341	8.02	57339	9.57	28187	11.83	37547	13.77	26287	17.34	26922	19.29
010	SAMPLE	242032-009	14525	8.01	67308	9.57	32670	11.83	46038	13.77	31924	17.35	31997	19.29
011	SAMPLE	242031-001	17666	8.01	69596	9.57	42333	11.83	48098	13.77	37044	17.35	28532	19.29
012	SAMPLE	242031-003	15442	8.01	66282	9.57	38043	11.83	43372	13.77	33850	17.35	24132	19.29
013	SAMPLE	242031-004	15258	8.01	157589 *	9.57	39277	11.83	44305	13.79	31016	17.36	14331	19.31

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 512520538

Date : 12/26/12
Sequence : MSBNA02 ulq

Reference : ulq02
Analyzed : 12/26/12 12:04

#	Type	Sample ID	DCBZ14D4	RT	NAPHD8	RT	ACEND10	RT	PHEND10	RT	CHYD12	RT	PERYD12	RT
		CCV+CCV/BS+CCV/LCS+ICV+ICV/BS+ICV/CCV+ICV/LCS+RCCV+RICV STD	12950	8.02	48771	9.57	24829	11.83	35361	13.77	25139	17.33	23130	19.28
		LOWER LIMIT	6475	7.52	24386	9.07	12415	11.33	17681	13.27	12570	16.83	11565	18.78
		UPPER LIMIT	25900	8.52	97542	10.07	49658	12.33	70722	14.27	50278	17.83	46260	19.78
002	CCV	PAHDIOX	12950	8.02	48771	9.57	24829	11.83	35361	13.77	25139	17.33	23130	19.28
003	BLANK	QC671092	12045	8.02	47264	9.57	23740	11.83	31213	13.77	27391	17.35	21605	19.28
004	LCS	QC671093	13947	8.01	53744	9.57	28495	11.83	36677	13.77	30258	17.34	26414	19.28
005	MSS	242032-007	11861	8.01	50494	9.57	25290	11.83	30934	13.77	25930	17.34	21075	19.28
006	MS	QC671094	12925	8.01	50514	9.57	26145	11.83	33700	13.77	28765	17.33	23803	19.29
007	MSD	QC671095	13593	8.01	56139	9.57	28458	11.83	38579	13.77	31308	17.33	26600	19.28
008	SAMPLE	242032-006	11637	8.01	48894	9.57	26137	11.83	36977	13.77	25448	17.34	22595	19.29
009	SAMPLE	242062-002	12649	8.01	51785	9.57	30928	11.83	38733	13.77	29731	17.33	27481	19.28
010	SAMPLE	242085-002	10731	8.02	48436	9.57	22754	11.83	30344	13.77	26525	17.33	21766	19.28
011	SAMPLE	242085-003	11338	8.01	48317	9.57	23247	11.82	30330	13.77	24060	17.34	19798	19.28
012	SAMPLE	242085-004	11136	8.02	48380	9.57	24306	11.82	33640	13.77	23495	17.33	20811	19.28

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 522510337

Date : 12/19/12
Sequence : MSBNA03 vlj

Reference : vlj02
Analyzed : 12/19/12 10:07

#	Type	Sample ID	DCBZ14D4	RT	NAPHD8	RT	ACEND10	RT	PHEND10	RT	CHYD12	RT	PERYD12	RT
		CCV+CCV/BS+CCV/LCS+ICV+ICV/BS+ICV/CCV+ICV/LCS+RCCV+RICV STD	20736	7.36	74303	8.98	43222	11.27	79933	13.22	74638	16.65	63224	18.38
		LOWER LIMIT	10368	6.86	37152	8.48	21611	10.77	39967	12.72	37319	16.15	31612	17.88
		UPPER LIMIT	41472	7.86	148606	9.48	86444	11.77	159866	13.72	149276	17.15	126448	18.88
002	CCV	PAHDIOX	20736	7.36	74303	8.98	43222	11.27	79933	13.22	74638	16.65	63224	18.38
003	SAMPLE	241994-001	18546	7.36	59876	8.98	36794	11.29	67395	13.24	62133	16.68	43513	18.40
004	SAMPLE	241938-018	18872	7.36	72372	8.97	50915	11.27	108935	13.22	95585	16.66	78155	18.38
005	SAMPLE	241938-019	19061	7.36	73240	8.98	50891	11.27	105156	13.21	87933	16.65	73617	18.38
006	SAMPLE	241952-017	19155	7.36	73680	8.98	50246	11.27	101054	13.22	76529	16.66	53790	18.39
007	SAMPLE	241952-019	19158	7.36	73084	8.98	49338	11.27	101432	13.22	88781	16.65	60684	18.38
008	SAMPLE	241952-024	18519	7.36	71209	8.98	49273	11.27	104067	13.22	90375	16.65	60785	18.38
009	SAMPLE	241952-028	18894	7.36	72660	8.97	47996	11.27	90282	13.22	70354	16.66	46230	18.39
010	BLANK	QC670666	19903	7.36	74683	8.97	52223	11.27	109589	13.22	103502	16.65	70718	18.38
011	BS	QC670667	19378	7.36	73001	8.98	49329	11.27	107054	13.22	99291	16.65	72540	18.38
012	BSD	QC670668	20661	7.36	76901	8.98	52111	11.27	112769	13.22	102933	16.65	76056	18.38
013	SAMPLE	242003-001	20219	7.36	79050	8.98	55781	11.27	115389	13.22	112508	16.65	80141	18.38
014	SAMPLE	241970-002	22160	7.36	83752	8.98	57624	11.27	120916	13.22	115416	16.65	84549	18.38
015	SAMPLE	241970-001	19758	7.35	72043	8.98	47999	11.27	79194	13.22	71169	16.67	47151	18.39

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 522513207

Date : 12/21/12
Sequence : MSBNA03 vll

Reference : vll02
Analyzed : 12/21/12 09:50

#	Type	Sample ID	DCBZ14D4	RT	NAPHD8	RT	ACEND10	RT	PHEND10	RT	CHYD12	RT	PERYD12	RT
		CCV+CCV/BS+CCV/LCS+ICV+ICV/BS+ICV/CCV+ICV/LCS+RCCV+RICV STD	21565	7.36	75719	8.98	44912	11.28	83271	13.22	79796	16.66	61217	18.39
		LOWER LIMIT	10783	6.86	37860	8.48	22456	10.78	41636	12.72	39898	16.16	30609	17.89
		UPPER LIMIT	43130	7.86	151438	9.48	89824	11.78	166542	13.72	159592	17.16	122434	18.89
002	CCV	PAHDIOX	21565	7.36	75719	8.98	44912	11.28	83271	13.22	79796	16.66	61217	18.39
003	BS	QC670667	17460	7.36	61771	8.98	39186	11.27	69332	13.23	69068	16.66	54958	18.39
004	BSD	QC670668	17940	7.36	64278	8.98	40910	11.27	73019	13.22	72837	16.66	58620	18.39
005	BLANK	QC670978	15589	7.37	58737	8.98	37787	11.28	67398	13.22	68676	16.66	52318	18.39
006	LCS	QC670979	16177	7.37	59888	8.98	37360	11.27	68369	13.22	71732	16.66	60664	18.39
007	BLANK	QC670978	15304	7.37	58706	8.98	41469	11.28	90210	13.22	85946	16.66	67344	18.39
008	LCS	QC670979	18796	7.35	72893	8.98	50097	11.28	113193	13.22	111865	16.66	93275	18.39

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 522520478

Date : 12/26/12
Sequence : MSBNA03 vlq

Reference : vlq08
Analyzed : 12/26/12 15:14

#	Type	Sample ID	DCBZ14D4	RT	NAPHD8	RT	ACEND10	RT	PHEND10	RT	CHYD12	RT	PERYD12	RT
		CCV+CCV/BS+CCV/LCS+ICV+ICV/BS+ICV/CCV+ICV/LCS+RCCV+RICV STD	34008	7.36	119623	8.98	70383	11.27	136497	13.22	128477	16.66	107209	18.38
		LOWER LIMIT	17004	6.86	59812	8.48	35192	10.77	68249	12.72	64239	16.16	53605	17.88
		UPPER LIMIT	68016	7.86	239246	9.48	140766	11.77	272994	13.72	256954	17.16	214418	18.88
008	CCV	PAHDIOX	34008	7.36	119623	8.98	70383	11.27	136497	13.22	128477	16.66	107209	18.38
009	LCS	QC671093	23587	7.36	84529	8.98	53853	11.27	101457	13.22	101264	16.65	83162	18.38
011	MS	QC670991	25485	7.36	90802	8.98	58015	11.27	108565	13.22	101462	16.65	85988	18.38
012	MSD	QC670992	25255	7.36	91602	8.98	57466	11.27	107640	13.22	100782	16.65	87220	18.38
013	MS	QC670993	25659	7.36	91458	8.98	58818	11.27	110021	13.22	107464	16.65	93001	18.38
014	MSD	QC670994	25500	7.36	90782	8.98	58279	11.27	108805	13.22	109945	16.65	97023	18.38
015	MS	QC671094	23830	7.36	86023	8.98	54503	11.27	105143	13.22	102478	16.65	92172	18.38
016	MSD	QC671095	24353	7.36	88348	8.98	56524	11.27	108479	13.22	106055	16.65	92978	18.38
017	SAMPLE	242032-006	24453	7.35	89018	8.97	57960	11.27	101620	13.22	81049	16.66	79747	18.38
022	MS	QC670980	23750	7.36	85236	8.98	53971	11.27	99843	13.22	81413	16.66	37647 *	18.39
023	MSD	QC670981	23712	7.36	87384	8.98	54635	11.27	102051	13.22	80679	16.66	35233 *	18.39

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 512467299

Instrument : MSBNA02 Begun : 11/19/12 12:19
Method : EPA 8270C, EPA 8270C-SIM SOP Version : 8270-SIM_rv0, bna_rv.9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	ukj01	TUN	DFTPP			11/19/12 12:19	1.0	1	
002	ukj02	CCV	PAHDIOX			11/19/12 12:50	1.0	2	
003	ukj03	CCV	PAHDIOX			11/19/12 14:03	1.0	2	
004	ukj04	TUN	DFTPP			11/19/12 15:03	1.0	1	
005	ukj05	TUN	DFTPP			11/19/12 17:15	1.0	1	
006	ukj06	ICAL	ICAL			11/19/12 17:40	1.0	3	
007	ukj07	ICAL	ICAL			11/19/12 18:17	1.0	4	
008	ukj08	ICAL	ICAL			11/19/12 18:58	1.0	2	
009	ukj09	ICAL	ICAL			11/19/12 19:40	1.0	5	
010	ukj10	ICAL	ICAL			11/19/12 20:25	1.0	6	
011	ukj11	ICAL	ICAL			11/19/12 21:08	1.0	7	
012	ukj12	ICAL	ICAL			11/19/12 21:52	1.0	8	
013	ukj13	ICV	SIMICV			11/19/12 22:34	1.0	9	

LLH 11/20/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 001 through 013.

Standards used: 1=S20709 2=S20549 3=S20547 4=S20548 5=S20550 6=S20551 7=S20552 8=S20553 9=S20103

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 512512276

Instrument : MSBNA02 Begun : 12/20/12 17:56
Method : EPA 8270C, EPA 8270C-SIM SOP Version : 8270-SIM_rv0, bna_rv.9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	ulk01	TUN	DFTPP			12/20/12 17:56	1.0	1	
002	ulk02	CCV	PAHDIOX			12/20/12 18:17	1.0	2	
003	ulk03	BS	QC670667	Water	193973	12/20/12 18:53	1.0	3	
004	ulk04	BSD	QC670668	Water	193973	12/20/12 19:29	1.0	3	spk
005	ulk05	SAMPLE	242032-001	Water	193973	12/20/12 20:03	1.0	3	spk
006	ulk06	SAMPLE	242032-003	Water	193973	12/20/12 20:39	1.0	3	spk
007	ulk07	SAMPLE	242032-004	Water	193973	12/20/12 21:15	1.0	3	spk
008	ulk08	SAMPLE	242032-005	Water	193973	12/20/12 21:53	1.0	3	spk
009	ulk09	SAMPLE	242032-008	Water	193973	12/20/12 22:31	1.0	3	spk
010	ulk10	SAMPLE	242032-009	Water	193973	12/20/12 23:08	1.0	3	spk
011	ulk11	SAMPLE	242031-001	Water	193973	12/20/12 23:46	1.0	3	spk
012	ulk12	SAMPLE	242031-003	Water	193973	12/21/12 00:24	1.0	3	spk
013	ulk13	SAMPLE	242031-004	Water	193973	12/21/12 00:58	1.0	3	spk

KMH 12/21/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 13.

Standards used: 1=S21344 2=S20549 3=S21127

Flags used: spk=5% spike rule

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CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 512520538

Instrument : MSBNA02 Begun : 12/26/12 11:38
Method : EPA 8270C, EPA 8270C-SIM SOP Version : 8270-SIM_rv0, bna_rv.9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	ulq01	TUN	DFTPP			12/26/12 11:38	1.0	1	
002	ulq02	CCV	PAHDIOX			12/26/12 12:04	1.0	2	
003	ulq03	BLANK	QC671092	Water	194084	12/26/12 12:51	1.0	3	
004	ulq04	LCS	QC671093	Water	194084	12/26/12 13:29	1.0	3	spk
005	ulq05	MSS	242032-007	Water	194084	12/26/12 14:07	1.0	3	spk
006	ulq06	MS	QC671094	Water	194084	12/26/12 14:44	1.0	3	
007	ulq07	MSD	QC671095	Water	194084	12/26/12 15:21	1.0	3	
008	ulq08	SAMPLE	242032-006	Water	194084	12/26/12 15:59	1.0	3	spk
009	ulq09	SAMPLE	242062-002	Water	194057	12/26/12 16:36	1.0	3	2:MTNPH1=23
010	ulq10	SAMPLE	242085-002	Water	194084	12/26/12 17:11	1.0	3	
011	ulq11	SAMPLE	242085-003	Water	194084	12/26/12 17:47	1.0	3	
012	ulq12	SAMPLE	242085-004	Water	194084	12/26/12 18:23	1.0	3	

KMH 12/27/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 12.

Standards used: 1=S21344 2=S20551 3=S21127

Flags used: spk=5% spike rule

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CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 522448434

Instrument : MSBNA03 Begun : 11/06/12 09:54
Method : EPA 8270C, EPA 8270C-SIM SOP Version : 8270-SIM_rv0, bna_rv.9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	vk601	TUN	DFTPP			11/06/12 09:54	1.0	1	
002	vk602	CCV	RTCHECK			11/06/12 10:12	1.0	2	
003	vk603	CCV	RTCHECK			11/06/12 10:53	1.0	2	
004	vk604	TUN	DFTPP			11/06/12 11:45	1.0	1	
005	vk605	ICAL	ICAL			11/06/12 12:04	1.0	3	
006	vk606	ICAL	ICAL			11/06/12 12:39	1.0	4	
007	vk607	ICAL	ICAL			11/06/12 13:14	1.0	5	
008	vk608	ICAL	ICAL			11/06/12 13:47	1.0	6	
009	vk609	ICAL	ICAL			11/06/12 14:20	1.0	2	
010	vk610	ICAL	ICAL			11/06/12 14:53	1.0	7	
011	vk611	ICAL	ICAL			11/06/12 15:27	1.0	8	
012	vk612	ICV	SIMICV			11/06/12 16:04	1.0	9	
013	vk613	LOD	209076-035	Soil	191646	11/06/12 17:26	1.0	10	
014	vk614	LOD	218623-046	Water	192271	11/06/12 18:03	1.0	10	
015	vk615	LOD	218623-047	Water	192271	11/06/12 18:40	1.0	10	
016	vk616	LOD	209076-036	Soil	191256	11/06/12 19:15	1.0	10	

LLH 11/06/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 001 through 012.

KMH 11/07/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 13 through 16.

Standards used: 1=S20709 2=S20551 3=S20547 4=S20548 5=S20549 6=S20550 7=S20552 8=S20553 9=S20103 10=S20880

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 522510337

Instrument : MSBNA03 Begun : 12/19/12 09:37
Method : EPA 8270C, EPA 8270C-SIM SOP Version : 8270-SIM_rv0, bna_rv.9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	vlj01	TUN	DFTPP			12/19/12 09:37	1.0	1	
002	vlj02	CCV	PAHDIOX			12/19/12 10:07	1.0	2	
003	vlj03	SAMPLE	241994-001	Miscell.	193976	12/19/12 10:51	1.0	3	1:MTNPH2=10
004	vlj04	SAMPLE	241938-018	Soil	193976	12/19/12 11:30	1.0	3	
005	vlj05	SAMPLE	241938-019	Soil	193976	12/19/12 12:17	1.0	3	
006	vlj06	SAMPLE	241952-017	Soil	193976	12/19/12 12:55	2.0	3	
007	vlj07	SAMPLE	241952-019	Soil	193976	12/19/12 13:35	5.0	3	
008	vlj08	SAMPLE	241952-024	Soil	193976	12/19/12 14:12	10.0	3	
009	vlj09	SAMPLE	241952-028	Soil	193976	12/19/12 14:51	1.0	3	
010	vlj10	BLANK	QC670666	Water	193973	12/19/12 15:40	1.0	3	
011	vlj11	BS	QC670667	Water	193973	12/19/12 16:14	1.0	3	spk
012	vlj12	BSD	QC670668	Water	193973	12/19/12 16:49	1.0	3	spk
013	vlj13	SAMPLE	242003-001	Water	193973	12/19/12 17:25	1.0	3	
014	vlj14	SAMPLE	241970-002	Water	193973	12/19/12 18:03	1.0	3	
015	vlj15	SAMPLE	241970-001	Water	193973	12/19/12 18:48	1.0	3	

LLH 12/19/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 001 through 009.

KMH 12/20/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 4 through 15.

Standards used: 1=S21344 2=S20551 3=S21127

Flags used: spk=5% spike rule

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 522513207

Instrument : MSBNA03 Begun : 12/21/12 09:27
Method : EPA 8270C, EPA 8270C-SIM SOP Version : 8270-SIM_rv0, bna_rv.9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	vll01	TUN	DFTPP			12/21/12 09:27	1.0	1	
002	vll02	CCV	PAHDIOX			12/21/12 09:50	1.0	2	
003	vll03	BS	QC670667	Water	193973	12/21/12 10:28	1.0	3	spk
004	vll04	BSD	QC670668	Water	193973	12/21/12 11:08	1.0	3	spk
005	vll05	BLANK	QC670978	Soil	194055	12/21/12 11:46	1.0	3	
006	vll06	LCS	QC670979	Soil	194055	12/21/12 12:31	1.0	3	spk
007	vll07	BLANK	QC670978	Soil	194055	12/21/12 13:09	1.0	3	
008	vll08	LCS	QC670979	Soil	194055	12/21/12 13:45	1.0	3	
009	vll09	TUN	DFTPP			12/21/12 14:49	1.0	1	
010	vll10	CCV	PAHDIOX			12/21/12 15:16	1.0	2	
011	vll11	BLANK	QC670989	Water	194057	12/21/12 15:56	1.0	3	
012	vll12	LCS	QC670990	Water	194057	12/21/12 16:37	1.0	3	spk
013	vll13	LCS	QC670990	Water	194057	12/21/12 17:17	1.0	3	
014	vll14	MSS	242062-004	Water	194057	12/21/12 17:57	1.0	3	
015	vll15	MS	QC670991	Water	194057	12/21/12 18:39	1.0	3	
016	vll16	MSD	QC670992	Water	194057	12/21/12 19:16	1.0	3	
017	vll17	MSS	242062-007	Water	194057	12/21/12 19:50	1.0	3	
018	vll18	MS	QC670993	Water	194057	12/21/12 20:24	1.0	3	
019	vll19	MSD	QC670994	Water	194057	12/21/12 20:59	1.0	3	
020	vll20	SAMPLE	242047-007	Water	194057	12/21/12 21:32	1.0	3	
021	vll21	SAMPLE	242069-001	Water	194057	12/21/12 22:06	1.0	3	
022	vll22	SAMPLE	242069-002	Water	194057	12/21/12 22:41	1.0	3	
023	vll23	SAMPLE	242069-003	Water	194057	12/21/12 23:14	1.0	3	
024	vll24	SAMPLE	242069-004	Water	194057	12/21/12 23:49	1.0	3	
025	vll25	SAMPLE	242062-001	Water	194057	12/22/12 00:25	1.0	3	
026	vll26	SAMPLE	242062-002	Water	194057	12/22/12 01:01	1.0	3	2:MTNPH1=23
027	vll27	SAMPLE	242031-001	Water	193973	12/22/12 01:37	1.0	3	spk
028	vll28	SAMPLE	242031-003	Water	193973	12/22/12 02:14	1.0	3	spk
029	vll29	SAMPLE	242031-004	Water	193973	12/22/12 02:48	3.0	3	spk

KMH 12/26/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 29.

Standards used: 1=S21344 2=S20550 3=S21127

Flags used: spk=5% spike rule

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 522520478

Instrument : MSBNA03 Begun : 12/26/12 10:38
Method : EPA 8270C, EPA 8270C-SIM SOP Version : 8270-SIM_rv0, bna_rv.9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	vlq01	TUN	DFTPP			12/26/12 10:38	1.0	1	
002	vlq02	CCV	PAHDIOX			12/26/12 11:03	1.0	2	
003	vlq03	TUN	DFTPP			12/26/12 11:38	1.0	1	
004	vlq04	CCV	PAHDIOX			12/26/12 12:03	1.0	2	
005	vlq05	TUN	DFTPP			12/26/12 12:30	1.0	1	
006	vlq06	CCV	PAHDIOX			12/26/12 12:59	1.0	2	
007	vlq07	TUN	DFTPP			12/26/12 14:54	1.0	1	
008	vlq08	CCV	PAHDIOX			12/26/12 15:14	1.0	2	
009	vlq09	LCS	QC671093	Water	194084	12/26/12 15:47	1.0	3	spk
010	vlq10	CHECK	SPIKECHECK			12/26/12 16:21	1.0	4 3	
011	vlq11	MS	QC670991	Water	194057	12/26/12 16:59	1.0	3	
012	vlq12	MSD	QC670992	Water	194057	12/26/12 17:33	1.0	3	
013	vlq13	MS	QC670993	Water	194057	12/26/12 18:09	1.0	3	
014	vlq14	MSD	QC670994	Water	194057	12/26/12 18:44	1.0	3	
015	vlq15	MS	QC671094	Water	194084	12/26/12 19:27	1.0	3	
016	vlq16	MSD	QC671095	Water	194084	12/26/12 20:07	1.0	3	
017	vlq17	SAMPLE	242032-006	Water	194084	12/26/12 20:47	1.0	3	spk
018	vlq18	SAMPLE	242055-005	Soil	194055	12/26/12 21:27	1.0	3	
019	vlq19	SAMPLE	242055-004	Soil	194055	12/26/12 22:05	1.0	3	
020	vlq20	SAMPLE	242055-001	Soil	194055	12/26/12 22:49	1.0	3	
021	vlq21	MSS	242055-003	Soil	194055	12/26/12 23:33	2.0	3	
022	vlq22	MS	QC670980	Soil	194055	12/27/12 00:09	2.0	3	
023	vlq23	MSD	QC670981	Soil	194055	12/27/12 00:46	2.0	3	
024	vlq24	SAMPLE	242055-002	Soil	194055	12/27/12 01:27	1.0	3	

KMH 12/26/12 : increased em after runs 2 & 4, pressure dropped during run 6

KMH 12/27/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 24.

Standards used: 1=S21344 2=S20551 3=S21127 4=S21400

Flags used: spk=5% spike rule

SAMPLE PREPARATION SUMMARY

Batch # : 193973 Analysis : 8270-SIM
Started By : TFB Prep Date : 18-DEC-2012 12:00 Finished By : BEY
Method : 3520C SOP Version : 8270_SIM_rv1 Units : mL
Spike #1 ID : S20717 Spike #2 ID : S20716

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
241970-001		Water	1070	1	1	0.0009346	7	1				8270-SIM	
241970-002		Water	1070	1	1	0.0009346	7	1				8270-SIM	
242003-001		Water	1070	1	1	0.0009346	7	1				14DIOXANE	
242031-001		Water	1070	1	1	0.0009346	7	1				8270-SIM	Prepped 19-DEC-2012 11:45
242031-002		Water	1070		1	0	7	1				(rebatched)	Prepped 19-DEC-2012 11:45
242031-003		Water	1060	1	1	0.0009434	7	1				8270-SIM	Prepped 19-DEC-2012 11:45
242031-004		Water	1070	1	1	0.0009346	7	1				8270-SIM	Prepped 19-DEC-2012 11:45
242032-001		Water	1070	1	1	0.0009346	7	1				8270-SIM	Prepped 19-DEC-2012 11:45
242032-003		Water	1070	1	1	0.0009346	7	1				8270-SIM	Prepped 19-DEC-2012 11:45
242032-004		Water	1060	1	1	0.0009434	7	1				8270-SIM	Prepped 19-DEC-2012 11:45
242032-005		Water	1060	1	1	0.0009434	7	1				8270-SIM	Prepped 19-DEC-2012 11:45
242032-006		Water	1040		1	0	7	1				(rebatched)	Prepped 19-DEC-2012 11:45
242032-007		Water	1040		1	0	7	1				(rebatched)	Prepped 19-DEC-2012 11:45
242032-008		Water	1020	1	1	0.0009804	7	1				8270-SIM	Prepped 19-DEC-2012 11:45
242032-009		Water	1040	1	1	0.0009615	7	1				8270-SIM	Prepped 19-DEC-2012 11:45
QC670666	BLANK	Water	1000	1	1	0.001		1				8270-SIM	
QC670667	BS	Water	1000	1	1	0.001		1	1			8270-SIM	
QC670668	BSD	Water	1000	1	1	0.001		1	1			8270-SIM	
QC670839	MS	Water	1040		1	0.0009615	7	1	1			8270-SIM	Prepped 19-DEC-2012 11:45
QC670840	MSD	Water	1040		1	0	7	1	1			8270-SIM	Prepped 19-DEC-2012 11:45

KMH 12/21/12 : Matrix spikes QC670839,QC670840 (batch 193973) were not reported because the parent sample was reextracted in another batch.

KMH 12/21/12 : BS/BSD out high samples are ND, J value, 1 sample that may have hits the spikes that are out are not reported for that job (242031)

Analyst: KMH Date: 12/21/12 Reviewer: LW Date: 12/21/12

BNA (8270 & 625) Water Prep Log **Curtis & Tompkins, Ltd.**

Page 61 **BK 3365**

LIMS Batch No: 193973 Extraction Method:
LIMS Analysis: 8270-SIM/14DIOXANE ☒ EPA 3520c cont. L/L
Date Extracted: 12/18/12 ☐ _____

Sample #	Container ID	Volume of Sample (mL)	Sample pH	Final Volume (mL)	Confirmed pH ≤2	Comments
241970-001	J	1070	☒7 ☐	☒1.0 ☐	☒ ≤2	
↓ -002	↓	1070	☒7 ☐	☒1.0 ☐	☒ ≤2	
242003-001	D	1070	☒7 ☐	☒1.0 ☐	☒ ≤2	
MB QC670666	N/A	1000	☐7 ☒N/A	☒1.0 ☐	☒ ≤2	
BS 7	↓	1000	☐7 ☒	☒1.0 ☐	☒ ≤2	
BSD 8	↓	1000	☐7 ☒	☒1.0 ☐	☒ ≤2	
242031-001	E	1070	☒7 ☐	☒1.0 ☐	☒ ≤2	* added 12/19/12 @1145
-002	↓	1070	☒7 ☐	☐1.0 ☐	☒ ≤2	↓
-003	↓	1060	☒7 ☐	☒1.0 ☐	☒ ≤2	↓
-004	↓	1070	☒7 ☐	☒1.0 ☐	☒ ≤2	↓
242032-001	D	1070	☒7 ☐	☒1.0 ☐	☒ ≤2	↓
-003	↓	1070	☒7 ☐	☒1.0 ☐	☒ ≤2	↓
-004	↓	1060	☒7 ☐	☒1.0 ☐	☒ ≤2	↓
-005	↓	1060	☒7 ☐	☒1.0 ☐	☒ ≤2	↓
-006	↓	1040	☒7 ☐	☐1.0 ☐	☒ ≤2	↓
-007	G	1040	☒7 ☐	☐1.0 ☐	☒ ≤2	MSS
-008	D	1020	☒7 ☐	☒1.0 ☐	☒ ≤2	↓
-009	↓	1040	☒7 ☐	☒1.0 ☐	☒ ≤2	↓
MS QC670839	H	1040	☒7 ☐	☐1.0 ☐	☒ ≤2	↓
MSD 40	I	1040	☒7 ☐	☐1.0 ☐	☒ ≤2	↓
			☐7 ☐	☐1.0 ☐	☐ ≤2	
			☐7 ☐	☐1.0 ☐	☐ ≤2	
			☐7 ☐	☐1.0 ☐	☐ ≤2	
			☐7 ☐	☐1.0 ☐	☐ ≤2	

	Lot# / LIMS # / Time	Date/ Initials
1.0 mL of surrogate solution was added to all samples	S20717B	TFB 12/18/12
1.0 mL of matrix spiking solution was added to all spikes	S20716A	↓
pH of all samples adjusted to pH ≤ 2 with H_2SO_4	FS122650	↓
Cont. L/L extracted with 450mL of CH_2Cl_2	EM52160	↓
Extraction Start Time:	1200 / *1145	↓
Extraction End Time:	830 / *850	DDC 12/19/12 / DDC 12/20/12
pH of all samples adjusted to pH ≥ 11 with 10 N NaOH	NA	BEY 12/19/12
Extraction Start Time:	↓	↓
Extraction End Time:	↓	↓
Extracts filtered through baked, CH2Cl2-rinsed granular Na2SO4	EM1142C521	↓
Concentrated to final volume at temperature (degrees C)	70	↓
Relinquished to BNA department	✓	↓

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Extraction Chemist **Date** Continued on Page /

[signature] 12/21/12
Reviewed by **Date**

SAMPLE PREPARATION SUMMARY

Batch # : 194084 Analysis : 8270-SIM
Started By : TFB Prep Date : 21-DEC-2012 12:00 Finished By : MAW
Method : 3520C SOP Version : 8270_SIM_rv1 Units : mL
Spike #1 ID : S20717 Spike #2 ID : S20716

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
242031-002		Water	1000	1	1	0.001	7	1				8270-SIM	re-ex
242032-006		Water	1030	1	1	0.0009709	7	1				8270-SIM	re-ex
242032-007		Water	1040	1	1	0.0009615	7	1				8270-SIM	re-ex; MSS
242074-002		Water	1070	1	1	0.0009346	7	1				8270-SIM	
242074-003		Water	1070	1	1	0.0009346	7	1				8270-SIM	
242074-004		Water	1070	1	1	0.0009346	7	1				8270-SIM	
242074-005		Water	1070	1	1	0.0009346	7	1				8270-SIM	
242085-002		Water	1070	1	1	0.0009346	7	1				8270-SIM	
242085-003		Water	1000	1	1	0.001	7	1				8270-SIM	
242085-004		Water	960	1	1	0.001042	7	1				8270-SIM	
242085-005		Water	1060	1	1	0.0009434	7	1				8270-SIM	
QC671092	BLANK	Water	1000	1	1	0.001		1				8270-SIM	
QC671093	LCS	Water	1000	1	1	0.001		1	1			8270-SIM	
QC671094	MS	Water	1030	1	1	0.0009709	7	1	1			8270-SIM	re-ex
QC671095	MSD	Water	1060	1	1	0.0009434	7	1	1			8270-SIM	re-ex

Analyst: KMH Date: 12/27/12 Reviewer: LLH Date: 12/27/12

BNA (8270 & 625) Water Prep Log **Curtis & Tompkins, Ltd.**

LIMS Batch No: 194084 Extraction Method:
LIMS Analysis: 8270-SIM ☑ EPA 3520c cont. L/L
Date Extracted: 12/21/12 ☐ _____

Sample #	Container ID	Volume of Sample (mL)	Sample pH	Final Volume (mL)	Confirmed pH <2	Comments
242031-002	G	1000	☑7 ☐	☑ 1.0 ☐	☑ ≤2	re-ex
242032-006	G	1030	☑7 ☐	☑ 1.0 ☐	☑ ≤2	↓
↓ -007	J	1040	☑7 ☐	☑ 1.0 ☐	☑ ≤2	↓ ; MSS
242074-002	G	1070	☑7 ☐	☑ 1.0 ☐	☑ ≤2	
↓ -003	↓	1070	☑7 ☐	☑ 1.0 ☐	☑ ≤2	
↓ -004	↓	1070	☑7 ☐	☑ 1.0 ☐	☑ ≤2	
↓ -005	↓	1070	☑7 ☐	☑ 1.0 ☐	☑ ≤2	
242085-002	K	1070	☑7 ☐	☑ 1.0 ☐	☑ ≤2	
↓ -003	B	1000	☑7 ☐	☑ 1.0 ☐	☑ ≤2	
↓ -004	↓	960	☑7 ☐	☑ 1.0 ☐	☑ ≤2	
↓ -005	K	1060	☑7 ☐	☑ 1.0 ☐	☑ ≤2	
MB QC671092	N/A	1000	☐7 ☑ N/A	☑ 1.0 ☐	☑ ≤2	
~~BS~~ LCS 3	↓	1000	☐7 ☑ ↓	☑ 1.0 ☐	☑ ≤2	
~~BSF~~ MS 4	M	1030	☑7 ☐	☑ 1.0 ☐	☑ ≤2	re-ex
MSD ↓ 5	N	1060	☑7 ☐	☑ 1.0 ☐	☑ ≤2	↓
			☐7 ☐	☐ 1.0 ☐	☐ ≤2	
			☐7 ☐	☐ 1.0 ☐	☐ ≤2	
			☐7 ☐	☐ 1.0 ☐	☐ ≤2	
			☐7 ☐	☐ 1.0 ☐	☐ ≤2	
			☐7 ☐	☐ 1.0 ☐	☐ ≤2	
			☐7 ☐	☐ 1.0 ☐	☐ ≤2	
			☐7 ☐	☐ 1.0 ☐	☐ ≤2	
			☐7 ☐	☐ 1.0 ☐	☐ ≤2	
			☐7 ☐	☐ 1.0 ☐	☐ ≤2	

TFB 12/21/12

	Lot# / LIMS # / Time	Date/ Initials
1.0 mL of surrogate solution was added to all samples	S20717B	TFB 12/21/12
1.0 mL of matrix spiking solution was added to all spikes	S20716E	↓
pH of all samples adjusted to pH ≤ 2 with H_2SO_4	FS122650	↓
Cont. L/L extracted with 450mL of CH_2Cl_2	EM52160	↓
Extraction Start Time:	1200	↓
Extraction End Time:	900	MA 12.22.12
pH of all samples adjusted to pH ≥ 11 with 10 N NaOH	NA	MAW 12/22/12
Extraction Start Time:	↓	↓
Extraction End Time:	↓	↓
Extracts filtered through baked, CH2Cl2-rinsed granular Na2SO4	EM1142C521	↓
Concentrated to final volume at temperature (degrees C)	70	↓
Relinquished to BNA department	✓	↓

12/21/12
Extraction Chemist **Date**

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12/27/12
Reviewed by **Date**

Case Narrative Addendum: Manual Integrations for 242032 MSSIM (Water)

For SAMPLE 242032-003 (MSBNA02 ulk06):
Chrysene-d12: Corrected automatically drawn baseline.
Naphthalene-d8: Corrected automatically drawn baseline.

For SAMPLE 242032-004 (MSBNA02 ulk07):
Chrysene-d12: Corrected automatically drawn baseline.
Naphthalene-d8: Corrected automatically drawn baseline.
Nitrobenzene-d5: Corrected automatically drawn baseline.

For SAMPLE 242032-005 (MSBNA02 ulk08):
Naphthalene-d8: Corrected automatically drawn baseline.

For SAMPLE 242032-006 (MSBNA03 vlq17):
Phenanthrene: Corrected automatically drawn baseline.

For CCV PAHDIOX (MSBNA02 ulk02):
Acenaphthene-d10: Corrected automatically drawn baseline.
Acenaphthene: Corrected automatically drawn baseline.
Benzo(a)pyrene: Corrected automatically drawn baseline.
Chrysene-d12: Corrected automatically drawn baseline.
1,4-Dichlorobenzene-d4: Corrected automatically drawn baseline.
1,4-Dioxane: Corrected automatically drawn baseline.
Fluoranthene: Corrected automatically drawn baseline.
Naphthalene-d8: Corrected automatically drawn baseline.
Nitrobenzene-d5: Corrected automatically drawn baseline.

For CCV PAHDIOX (MSBNA02 ulq02):
Acenaphthylene: Corrected automatically drawn baseline.
Anthracene: Corrected automatically drawn baseline.
Benzo(a)pyrene: Corrected automatically drawn baseline.
Chrysene: Corrected automatically drawn baseline.
Chrysene-d12: Corrected automatically drawn baseline.
1,4-Dichlorobenzene-d4: Corrected automatically drawn baseline.
Naphthalene: Corrected automatically drawn baseline.
Naphthalene-d8: Corrected automatically drawn baseline.
Nitrobenzene-d5: Corrected automatically drawn baseline.

For BLANK QC671092 (MSBNA02 ulq03):
Acenaphthene-d10: Corrected automatically drawn baseline.
1,4-Dichlorobenzene-d4: Corrected automatically drawn baseline.
Nitrobenzene-d5: Corrected automatically drawn baseline.

For LCS QC671093 (MSBNA02 ulq04):
Acenaphthene-d10: Corrected automatically drawn baseline.
Acenaphthylene: Corrected automatically drawn baseline.
Anthracene: Corrected automatically drawn baseline.
Benzo(a)pyrene: Corrected automatically drawn baseline.
Chrysene-d12: Corrected automatically drawn baseline.
1,4-Dioxane: Corrected automatically drawn baseline.
1-Methylnaphthalene: Corrected automatically drawn baseline.
Naphthalene-d8: Corrected automatically drawn baseline.
Nitrobenzene-d5: Corrected automatically drawn baseline.
Terphenyl-d14: Corrected automatically drawn baseline.

For Calibration MSBNA03 (522448434001):
Benzo(k)fluoranthene: Corrected automatically drawn baseline in multiple levels.
Chrysene: Corrected automatically drawn baseline in multiple levels.
1,4-Dioxane: Corrected automatically drawn baseline in multiple levels.

For Calibration MSBNA02 (512467299001):
Acenaphthene-d10: Corrected automatically drawn baseline in all levels.
Acenaphthene: Corrected automatically drawn baseline in all levels.
Acenaphthylene: Corrected automatically drawn baseline in multiple levels.
Anthracene: Corrected automatically drawn baseline in all levels.
Benzo(a)pyrene: Corrected fronting or tailing peak integration in multiple levels.
Benzo(k)fluoranthene: Corrected automatically drawn baseline in all levels.
Chrysene: Corrected automatically drawn baseline in all levels.
Chrysene-d12: Corrected automatically drawn baseline in all levels.
1,4-Dioxane: Corrected automatically drawn baseline in multiple levels.
Fluoranthene: Corrected automatically drawn baseline in all levels.
1-Methylnaphthalene: Corrected automatically drawn baseline in all levels.
2-Methylnaphthalene: Corrected automatically drawn baseline in ICAL (ukj12).
Naphthalene: Corrected automatically drawn baseline in multiple levels.
Naphthalene-d8: Corrected automatically drawn baseline in multiple levels.
Nitrobenzene-d5: Corrected automatically drawn baseline in multiple levels.
Perylene-d12: Corrected automatically drawn baseline in all levels.
2-Fluorobiphenyl: Corrected automatically drawn baseline in ICAL (ukj12).
Terphenyl-d14: Corrected automatically drawn baseline in all levels.
Pyrene: Corrected automatically drawn baseline in all levels.

For ICV SIMICV (MSBNA02 ukj13):
Acenaphthene-d10: Corrected automatically drawn baseline.
Acenaphthene: Corrected automatically drawn baseline.
Acenaphthylene: Corrected automatically drawn baseline.
Anthracene: Corrected automatically drawn baseline.
Benzo(a)pyrene: Corrected fronting or tailing peak integration.
Benzo(k)fluoranthene: Corrected automatically drawn baseline.
Chrysene: Corrected automatically drawn baseline.
Chrysene-d12: Corrected automatically drawn baseline.
1,4-Dioxane: Corrected automatically drawn baseline.
Fluoranthene: Corrected automatically drawn baseline.
1-Methylnaphthalene: Corrected automatically drawn baseline.
Naphthalene-d8: Corrected automatically drawn baseline.
Perylene-d12: Corrected automatically drawn baseline.
Terphenyl-d14: Corrected automatically drawn baseline.
Pyrene: Corrected automatically drawn baseline.

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 242064
ANALYTICAL REPORT

Innovative Technical Solutions,Inc.	Project : 07193.0002
2730 Shadelands Drive	Location : Hunters Point Parcel B Fall 2012 GW
Walnut Creek, CA 94598	Level : III

Sample ID	Lab ID
EB-121812	242064-001
TB-121812	242064-002
IR46MW48A-121912	242064-003
IR24MW07A-121912	242064-004
IR24MW05A-121912	242064-005
IR24MW28A-121912	242064-006
IR99MW28A-121912	242064-007

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

Signature: _____ Date: 12/27/2012

Mike J. Dahlquist
Project Manager
(510) 486-0900

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**242064**
Client:	**Innovative Technical Solutions,Inc.**
Project:	**07193.0002**
Location:	**Hunters Point Parcel B Fall 2012 GW**
Request Date:	**12/19/12**
Samples Received:	**12/19/12**

This data package contains sample and QC results for seven water samples, requested for the above referenced project on 12/19/12. 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.

Semivolatile Organics by GC/MS SIM (EPA 8270C-SIM):
No analytical problems were encountered.

Chain of Custody

242064

007402

ITSI
2730 Shadelands Drive, Suite 100
Walnut Creek, California 94598
(925) 946-3100 (925) 256-8998 (fax)

Local Address: ITSI
HPNS, SF, CA

Chain-Of-Custody

Project Name and Number: 07193.0002 005680
Project Manager: Ken Leonard
Site Location: Hunters Point Parcel B Fall 2012 GW

Laboratory Name: Curtis + Tompkins
Address: 2323 5th St. Berkeley, CA 94710
Contact Name: Mike Dahlquist
Phone: 510-486-0900

Date:
Page: of

Analysis:

Preservative: HCl - -

Container Type: 40ml 1LA 1LA

Temp blank inside cooler

	Sample I.D.	Date	Time	Sample Depth	No. of Containers	Sample Matrix	8021 TVH/BTEX/MTBE	TPH-D/MO	PAH 8270 SIM	Special Instructions/Comments
1	EB-121812	12/18/12	1625		7	GW	3	2	2	
2	TB-121812	12/18/12	1615		2	GW	2			
3	IR46MW48A-121912	12/19/12	830		7	GW	3	2	2	
	~~IR24MW05A-121912~~	~~12/19/12~~	~~950~~		~~7~~	~~GW~~	~~3~~	~~2~~	~~2~~	
4	IR24MW07A-121912	12/19/12	950		7	GW	3	2	2	
5	IR24MW05A-121912	12/19/12	1305		7	GW	3	2	2	
6	IR24MW28A-121912	12/19/12	1510		7	GW	3	2	2	
7	IR99MW28A-121912	12/19/12	1515		7	GW	3	2	2	

Sampled By: Kimberly Tom
Signature:
Special Instructions:

Send Results to: rflynn@itsi.com
(w/fax #) kleonard@itsi.com
Turnaround Time: Standard

Sampler: Kimberly Tom

Relinquished By/Affiliation:	Date:	Time:
Kimberly Tom / ITSI	12/19/12	1335
[signature]	12/19/12	1820

Courier/Airbill No.:

Received By/Affiliation:	Date:	Time:
[signature] GST	12/19/12	1335
[signature]	12/19/12	1820

Original – Laboratory Yellow – Field/Office

Graphics/Stationery/chain_custody0408.ai

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 242064 Date Received 12/19/12 Number of coolers 3
Client ITSI Project 07193 0002

Date Opened 12/19 By (print) P.S. (sign) P.S.
Date Logged in 1 By (print) [illegible] (sign) [illegible]

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 6 Name SIGNATURE Date 19 DEC 12
2B. Were custody seals intact upon arrival? _____ YES NO N/A
3. Were custody papers dry and intact when received? _____ YES NO
4. Were custody papers filled out properly (ink, signed, etc)? _____ YES NO
5. Is the project identifiable from custody papers? (If so fill out top of form) ___ YES NO
6. Indicate the packing in cooler: (if other, describe) _____

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

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

Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C) 1.9, 2.1

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

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

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

COMMENTS

_____

Rev 10, 11/11

Laboratory Job Number 242064

ANALYTICAL REPORT

TPH-Purgeables and/or BTXE by GC

Matrix: Water

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	242064	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 5030B
Project#:	07193.0002		

Field ID:	EB-121812	Batch#:	194056
Lab ID:	242064-001	Sampled:	12/18/12
Matrix:	Water	Received:	12/19/12
Units:	ug/L	Analyzed:	12/21/12
Diln Fac:	1.000		

Analyte	Result	RL	MDL	Analysis
Gasoline C6-C12	13 J	50	10	EPA 8015B
MTBE	ND	2.0	0.57	EPA 8021B
Benzene	ND	0.50	0.10	EPA 8021B
Toluene	ND	0.50	0.11	EPA 8021B
Ethylbenzene	ND	0.50	0.10	EPA 8021B
m,p-Xylenes	ND	0.50	0.14	EPA 8021B
o-Xylene	0.22 J	0.50	0.14	EPA 8021B
Xylene (total)	0.22 J	0.50		EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	99	75-124	EPA 8015B
Bromofluorobenzene (PID)	102	62-134	EPA 8021B

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	242064	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 5030B
Project#:	07193.0002		
Field ID:	TB-121812	Batch#:	194056
Lab ID:	242064-002	Sampled:	12/18/12
Matrix:	Water	Received:	12/19/12
Units:	ug/L	Analyzed:	12/21/12
Diln Fac:	1.000		

Analyte	Result	RL	MDL	Analysis
Gasoline C6-C12	ND	50	10	EPA 8015B
MTBE	ND	2.0	0.57	EPA 8021B
Benzene	ND	0.50	0.10	EPA 8021B
Toluene	ND	0.50	0.11	EPA 8021B
Ethylbenzene	ND	0.50	0.10	EPA 8021B
m,p-Xylenes	ND	0.50	0.14	EPA 8021B
o-Xylene	ND	0.50	0.11	EPA 8021B
Xylene (total)	ND	0.50		EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	97	75-124	EPA 8015B
Bromofluorobenzene (PID)	101	62-134	EPA 8021B

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	242064	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 5030B
Project#:	07193.0002		

Field ID:	IR46MW48A-121912	Batch#:	194056
Lab ID:	242064-003	Sampled:	12/19/12
Matrix:	Water	Received:	12/19/12
Units:	ug/L	Analyzed:	12/20/12
Diln Fac:	1.000		

Analyte	Result	RL	MDL	Analysis
Gasoline C6-C12	ND	50	10	EPA 8015B
MTBE	ND	2.0	0.57	EPA 8021B
Benzene	ND	0.50	0.10	EPA 8021B
Toluene	ND	0.50	0.11	EPA 8021B
Ethylbenzene	ND	0.50	0.10	EPA 8021B
m,p-Xylenes	ND	0.50	0.14	EPA 8021B
o-Xylene	ND	0.50	0.11	EPA 8021B
Xylene (total)	ND	0.50		EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	98	75-124	EPA 8015B
Bromofluorobenzene (PID)	102	62-134	EPA 8021B

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	242064	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 5030B
Project#:	07193.0002		

Field ID:	IR24MW07A-121912	Batch#:	194056
Lab ID:	242064-004	Sampled:	12/19/12
Matrix:	Water	Received:	12/19/12
Units:	ug/L	Analyzed:	12/20/12
Diln Fac:	1.000		

Analyte	Result	RL	MDL	Analysis
Gasoline C6-C12	ND	50	10	EPA 8015B
MTBE	ND	2.0	0.57	EPA 8021B
Benzene	ND	0.50	0.10	EPA 8021B
Toluene	ND	0.50	0.11	EPA 8021B
Ethylbenzene	ND	0.50	0.10	EPA 8021B
m,p-Xylenes	ND	0.50	0.14	EPA 8021B
o-Xylene	ND	0.50	0.11	EPA 8021B
Xylene (total)	ND	0.50		EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	98	75-124	EPA 8015B
Bromofluorobenzene (PID)	103	62-134	EPA 8021B

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	242064	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 5030B
Project#:	07193.0002		
Field ID:	IR24MW05A-121912	Batch#:	194056
Lab ID:	242064-005	Sampled:	12/19/12
Matrix:	Water	Received:	12/19/12
Units:	ug/L	Analyzed:	12/21/12
Diln Fac:	1.000		

Analyte	Result	RL	MDL	Analysis
Gasoline C6-C12	11 J	50	10	EPA 8015B
MTBE	ND	2.0	0.57	EPA 8021B
Benzene	ND	0.50	0.10	EPA 8021B
Toluene	ND	0.50	0.11	EPA 8021B
Ethylbenzene	ND	0.50	0.10	EPA 8021B
m,p-Xylenes	ND	0.50	0.14	EPA 8021B
o-Xylene	ND	0.50	0.11	EPA 8021B
Xylene (total)	ND	0.50		EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	99	75-124	EPA 8015B
Bromofluorobenzene (PID)	101	62-134	EPA 8021B

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	242064	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 5030B
Project#:	07193.0002		
Field ID:	IR24MW28A-121912	Batch#:	194056
Lab ID:	242064-006	Sampled:	12/19/12
Matrix:	Water	Received:	12/19/12
Units:	ug/L	Analyzed:	12/21/12
Diln Fac:	1.000		

Analyte	Result	RL	MDL	Analysis
Gasoline C6-C12	11 J	50	10	EPA 8015B
MTBE	2.1	2.0	0.40	EPA 8021B
Benzene	ND	0.50	0.10	EPA 8021B
Toluene	ND	0.50	0.11	EPA 8021B
Ethylbenzene	ND	0.50	0.10	EPA 8021B
m,p-Xylenes	ND	0.50	0.14	EPA 8021B
o-Xylene	ND	0.50	0.11	EPA 8021B
Xylene (total)	ND	0.50		EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	95	75-124	EPA 8015B
Bromofluorobenzene (PID)	98	62-134	EPA 8021B

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	242064	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 5030B
Project#:	07193.0002		

Field ID:	IR99MW28A-121912	Batch#:	194056
Lab ID:	242064-007	Sampled:	12/19/12
Matrix:	Water	Received:	12/19/12
Units:	ug/L	Analyzed:	12/21/12
Diln Fac:	1.000		

Analyte	Result	RL	MDL	Analysis
Gasoline C6-C12	ND	50	10	EPA 8015B
MTBE	ND	2.0	0.57	EPA 8021B
Benzene	ND	0.50	0.10	EPA 8021B
Toluene	ND	0.50	0.11	EPA 8021B
Ethylbenzene	ND	0.50	0.10	EPA 8021B
m,p-Xylenes	ND	0.50	0.14	EPA 8021B
o-Xylene	ND	0.50	0.11	EPA 8021B
Xylene (total)	ND	0.50		EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	96	75-124	EPA 8015B
Bromofluorobenzene (PID)	100	62-134	EPA 8021B

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	242064	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 5030B
Project#:	07193.0002	Analysis:	EPA 8021B
Matrix:	Water	Batch#:	194056
Units:	ug/L	Analyzed:	12/20/12
Diln Fac:	1.000		

Type: BS Lab ID: QC670983

Analyte	Spiked	Result	%REC	Limits
MTBE	10.00	8.902	89	70-130
Benzene	10.00	9.658	97	70-130
Toluene	10.00	9.772	98	70-130
Ethylbenzene	10.00	9.437	94	70-130
m,p-Xylenes	10.00	10.20	102	70-130
o-Xylene	10.00	9.330	93	70-130

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	92	62-134

Type: BSD Lab ID: QC670984

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	10.00	10.89	109	70-130	20	20
Benzene	10.00	9.388	94	70-130	3	20
Toluene	10.00	9.596	96	70-130	2	20
Ethylbenzene	10.00	9.511	95	70-130	1	20
m,p-Xylenes	10.00	10.33	103	70-130	1	20
o-Xylene	10.00	9.728	97	70-130	4	20

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	92	62-134

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	242064	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 5030B
Project#:	07193.0002	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC670985	Batch#:	194056
Matrix:	Water	Analyzed:	12/20/12
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C6-C12	1,000	957.0	96	65-135

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	90	75-124

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	242064	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 5030B
Project#:	07193.0002		
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC670986	Batch#:	194056
Matrix:	Water	Analyzed:	12/20/12
Units:	ug/L		

Analyte	Result	RL	MDL	Analysis
Gasoline C6-C12	ND	50	10	EPA 8015B
MTBE	ND	2.0	0.57	EPA 8021B
Benzene	ND	0.50	0.10	EPA 8021B
Toluene	ND	0.50	0.11	EPA 8021B
Ethylbenzene	ND	0.50	0.10	EPA 8021B
m,p-Xylenes	ND	0.50	0.14	EPA 8021B
o-Xylene	ND	0.50	0.11	EPA 8021B
Xylene (total)	ND	0.50		EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	88	75-124	EPA 8015B
Bromofluorobenzene (PID)	92	62-134	EPA 8021B

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	242064	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 5030B
Project#:	07193.0002	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	194056
MSS Lab ID:	242062-004	Sampled:	12/18/12
Matrix:	Water	Received:	12/19/12
Units:	ug/L	Analyzed:	12/20/12
Diln Fac:	1.000		

Type: MS Lab ID: QC670987

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C6-C12	13.16	2,000	1,897	94	65-135

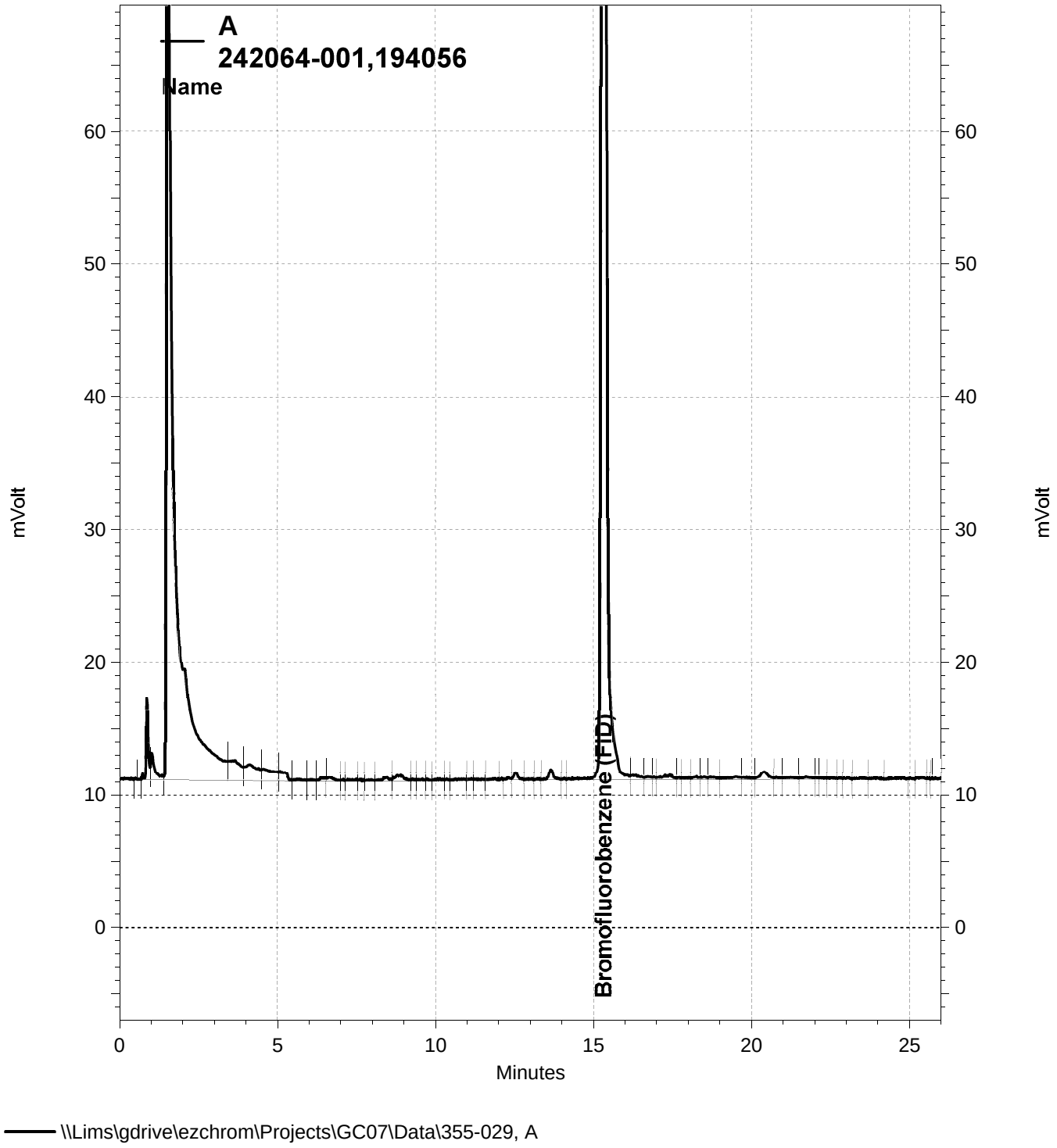
Surrogate	%REC	Limits
Bromofluorobenzene (FID)	103	75-124

Type: MSD Lab ID: QC670988

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C6-C12	2,000	1,864	93	65-135	2	20

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	99	75-124

RPD= Relative Percent Difference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242064-001,194056
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Bromofluorobenzene (FID)
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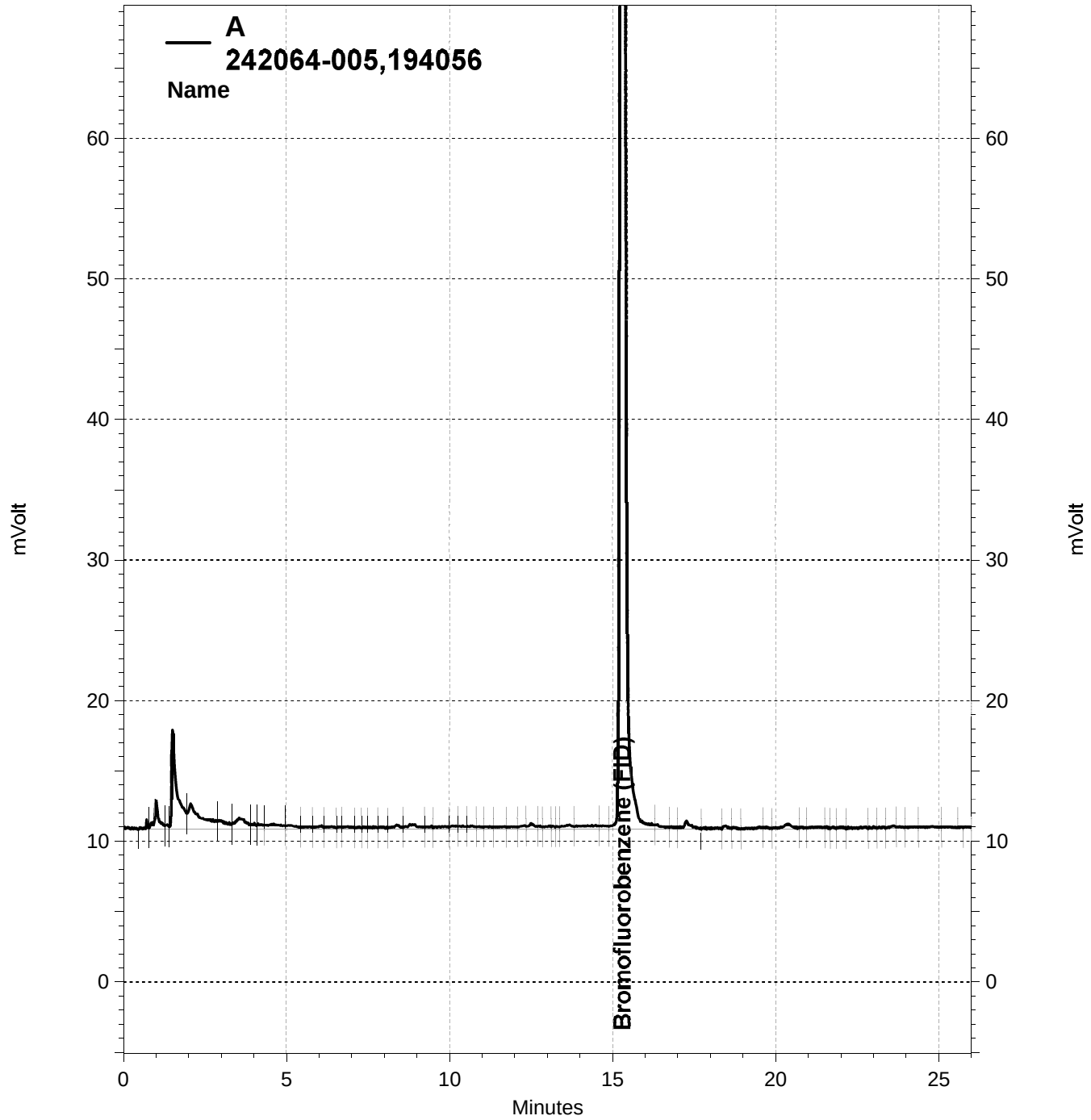

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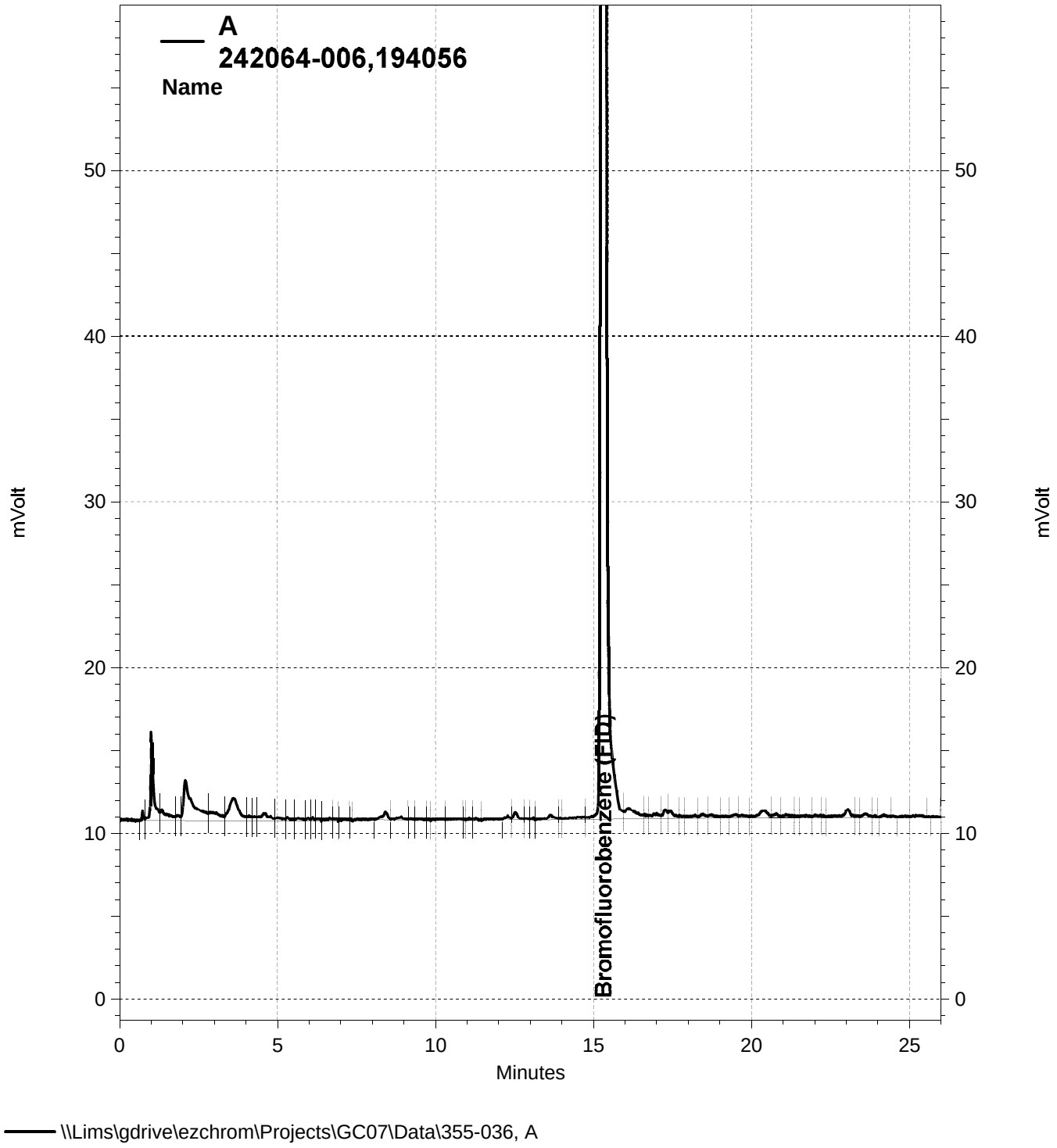
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242064-006,194056
Name
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Bromofluorobenzene (FID)
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Minutes
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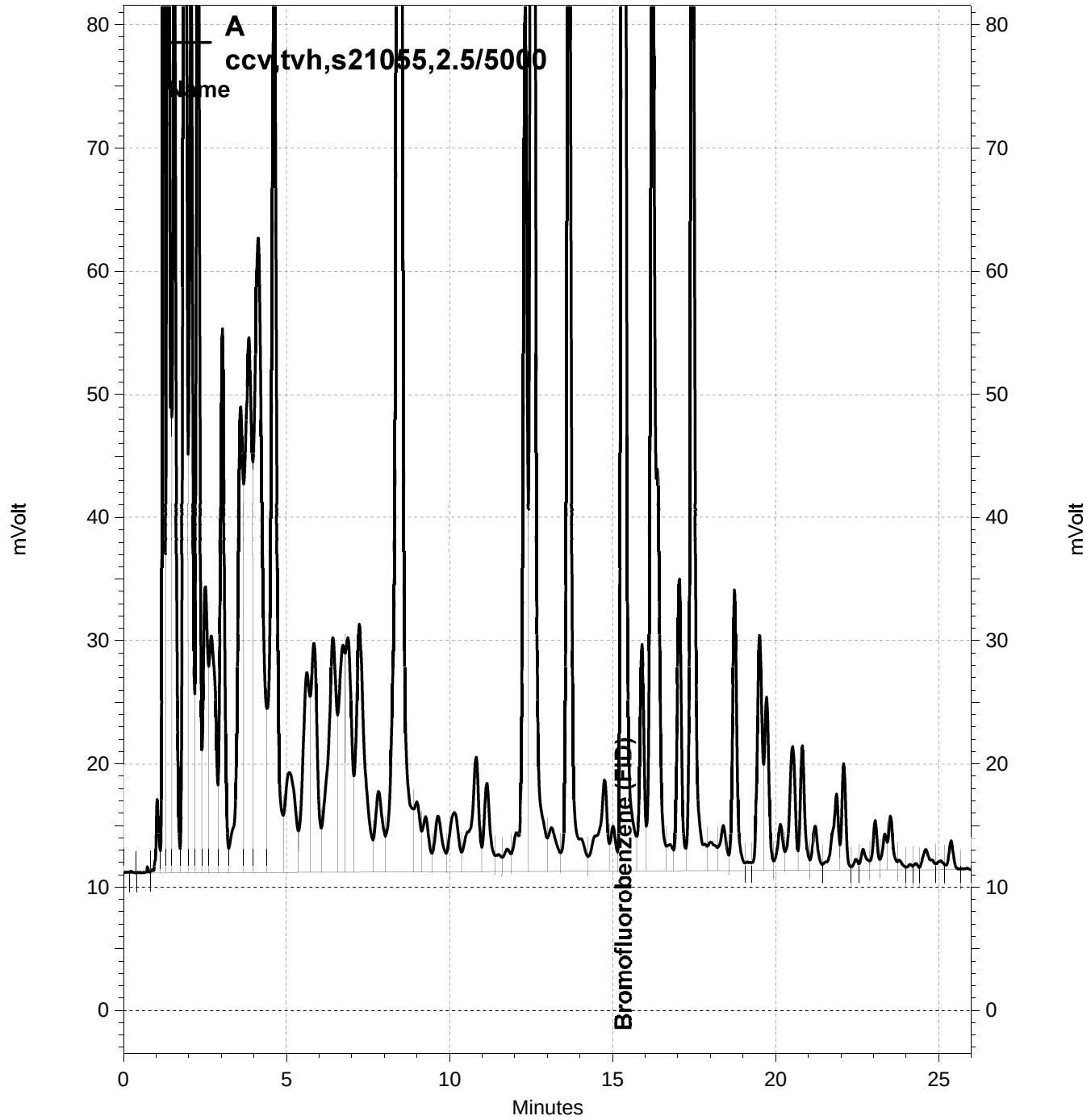

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Initial & Continuing Calibration Data

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 242064 GCVOA Water: EPA 8015B

Inst : GC07
Calnum : 322382210001
Units : ng

Name : tvh_265
Date : 21-SEP-2012 15:00
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	265_006	322382210006	TVH_14	21-SEP-2012 15:00	S20355 (1000X), S20276 (5000X)
L2	265_007	322382210007	TVH_15	21-SEP-2012 15:39	S20354 (1000X), S20276 (5000X)
L3	265_008	322382210008	TVH_16	21-SEP-2012 16:18	S20353 (1000X), S20276 (5000X)
L4	265_009	322382210009	TVH_17	21-SEP-2012 16:56	S20352 (2000X), S20276 (5000X)
L5	265_010	322382210010	TVH_18	21-SEP-2012 17:35	S20352 (1000X), S20276 (5000X)

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
Gasoline C6-C12	A	4206.9	3453.0	3465.9	3455.2	3387.0	AVRG		2.78E-4		3593.6	10	0.995	20	
Bromofluorobenzene (FID)	A	2287.3	2182.1	2331.8	2535.3	2661.8	AVRG		4.17E-4		2399.7	8	0.995	20	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Gasoline C6-C12	A	250.00	17	2500.0	-4	10000	-4	25000	-4	50000	-6
Bromofluorobenzene (FID)	A	900.00	-5	900.00	-9	900.00	-3	900.00	6	900.00	11

MAC 09/24/12 [Bromofluorobenzene (FID) A]: Separated from coeluting peak in TVH_14 (265_006).

DJA 09/25/12 : Added calibration report of BFB.

DJA: 09/25/12 MAC: 09/26/12 EAH: 09/26/12

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

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 242064 GCVOA Water
EPA 8015B

Inst : GC07 Name : tvh_265
Calnum : 322382210001 Cal Date : 21-SEP-2012

ICV 322382210012 (265_012 21-SEP-2012) stds: S20463 (1000X), S20276 (5000X)

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Gasoline C6-C12	A	10000	9357	ng	-6	15	

Analyst: MAC Date: 09/24/12 Reviewer: EAH Date: 09/24/12

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 242064 GCVOA Water: EPA 8021B

Inst : GC07
Calnum : 322422427001
Units : ng

Name : mbtxe/bfb_293
Date : 20-OCT-2012 17:45
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	293_039	322422427039	BTXE_1	20-OCT-2012 17:45	S20843 (1000X), S20862 (5000X)
L2	293_040	322422427040	MBTXE_2	20-OCT-2012 18:24	S20842 (1250X), S20862 (5000X)
L3	293_041	322422427041	MBTXE_3	20-OCT-2012 19:01	S20842 (500X), S20862 (5000X)
L4	293_042	322422427042	MBTXE_4	20-OCT-2012 19:40	S20842 (125X), S20862 (5000X)
L5	293_043	322422427043	MBTXE_5	20-OCT-2012 20:19	S20841 (1000X), S20862 (5000X)
L6	293_044	322422427044	MBTXE_6	20-OCT-2012 20:57	S20841 (500X), S20862 (5000X)
L7	293_045	322422427045	MBTXE_7	20-OCT-2012 21:35	S20841 (250X), S20862 (5000X)
L8	293_046	322422427046	MTBE_7	20-OCT-2012 22:14	S19756 (500X), S20862 (5000X)

Analyte	Ch	L1	L2	L3	L4	L5	L6	L7	L8	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
MTBE	B		10978	10287	10323	11187	11356	10158	10245	AVRG		9.39E-5		10648	5	0.995	20	
Benzene	B	27259	27057	25941	25743	27568	27190	26383		AVRG		3.74E-5		26734	3	0.995	20	
Toluene	B	26029	26613	24382	24384	26005	25493	24638		AVRG		3.94E-5		25363	4	0.995	20	
Ethylbenzene	B	20339	20730	19228	19710	21988	21049	21176		AVRG		4.85E-5		20603	5	0.995	20	
m,p-Xylenes	B	30520	28975	26376	26472	26750	26458	24928		AVRG		3.67E-5		27211	7	0.995	20	
o-Xylene	B	23159	23005	21924	22275	23363	22776	22159		AVRG		4.41E-5		22666	2	0.995	20	
Bromofluorobenzene (PID)	B	18868	18693	18498	19114	19773	19923	20369	19451	AVRG		5.17E-5		19336	3	0.995	20	
MTBE	C		657.00	707.40	807.95	971.73	968.03	844.99	814.41	AVRG		0.00121		824.50	14	0.995	20	
Benzene	C	1767.2	2038.9	2080.1	2251.3	2461.9	2389.8	2286.5		AVRG		4.58E-4		2182.2	11	0.995	20	
Toluene	C	1664.0	1861.3	1889.4	2062.6	2229.3	2172.7	2096.3		AVRG		5.01E-4		1996.5	10	0.995	20	
Ethylbenzene	C	1383.6	1612.5	1594.6	1768.8	1923.8	1884.9	1822.0		AVRG		5.84E-4		1712.9	11	0.995	20	
m,p-Xylenes	C	1890.8	2036.2	1985.8	2149.4	2251.4	2183.1	2112.3		AVRG		4.79E-4		2087.0	6	0.995	20	
o-Xylene	C	1917.2	1824.5	1810.2	1905.9	1980.1	1924.4	1866.8		AVRG		5.29E-4		1889.9	3	0.995	20	
Bromofluorobenzene (PID)	C	1702.2	1673.0	1642.4	1673.5	1654.2	1624.6	1628.4	1658.3	AVRG		6.03E-4		1657.1	2	0.995	20	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D
MTBE	B			10.000	3	25.000	-3	100.00	-3	500.00	5	1000.0	7	2000.0	-5	5000.0	-4
Benzene	B	2.5000	2	10.000	1	25.000	-3	100.00	-4	500.00	3	1000.0	2	2000.0	-1		
Toluene	B	2.5000	3	10.000	5	25.000	-4	100.00	-4	500.00	3	1000.0	1	2000.0	-3		
Ethylbenzene	B	2.5000	-1	10.000	1	25.000	-7	100.00	-4	500.00	7	1000.0	2	2000.0	3		
m,p-Xylenes	B	2.5000	12	10.000	6	25.000	-3	100.00	-3	500.00	-2	1000.0	-3	2000.0	-8		
o-Xylene	B	2.5000	2	10.000	1	25.000	-3	100.00	-2	500.00	3	1000.0	0	2000.0	-2		
Bromofluorobenzene (PID)	B	900.00	-2	900.00	-3	900.00	-4	900.00	-1	900.00	2	900.00	3	900.00	5	900.00	1
MTBE	C			10.000	-20	25.000	-14	100.00	-2	500.00	18	1000.0	17	2000.0	2	5000.0	-1
Benzene	C	2.5000	-19	10.000	-7	25.000	-5	100.00	3	500.00	13	1000.0	10	2000.0	5		
Toluene	C	2.5000	-17	10.000	-7	25.000	-5	100.00	3	500.00	12	1000.0	9	2000.0	5		
Ethylbenzene	C	2.5000	-19	10.000	-6	25.000	-7	100.00	3	500.00	12	1000.0	10	2000.0	6		
m,p-Xylenes	C	2.5000	-9	10.000	-2	25.000	-5	100.00	3	500.00	8	1000.0	5	2000.0	1		
o-Xylene	C	2.5000	1	10.000	-3	25.000	-4	100.00	1	500.00	5	1000.0	2	2000.0	-1		
Bromofluorobenzene (PID)	C	900.00	3	900.00	1	900.00	-1	900.00	1	900.00	0	900.00	-2	900.00	-2	900.00	0

DJA 10/22/12 : Had to RR levels 6 and 7 for the mbtxe ical b/c the autosampler stopped at file 37.

DJA 10/22/12 : Corrected automatically drawn baseline for Ch. B in multiple levels.

DJA 10/22/12 : Corrected automatically drawn baseline for Ch. C in MBTXE_7 (293_045).

EAH 10/23/12 : DJA10/23/12 09:01RR levels 1 and 2 for the mbtxe ical b/c the autosampler stopped at file 37.

Analyst: DJA Date: 10/22/12 Reviewer: EAH Date: 10/23/12

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

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 242064 GCVOA Water
EPA 8021B

Inst : GC07 Name : mbtxe/bfb_293
Calnum : 322422427001 Cal Date : 20-OCT-2012

ICV 322422427048 (293_048 20-OCT-2012) stds: S20462 (1000X), S20862 (5000X)

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
MTBE	B	100.0	98.07	ng	-2	15	
Benzene	B	100.0	95.92	ng	-4	15	
Toluene	B	100.0	94.31	ng	-6	15	
Ethylbenzene	B	100.0	94.98	ng	-5	15	
m,p-Xylenes	B	200.0	186.2	ng	-7	15	
o-Xylene	B	100.0	98.36	ng	-2	15	
MTBE	C	100.0	98.28	ng	-2	15	
Benzene	C	100.0	102.5	ng	2	15	
Toluene	C	100.0	100.6	ng	1	15	
Ethylbenzene	C	100.0	100.9	ng	1	15	
m,p-Xylenes	C	200.0	207.3	ng	4	15	
o-Xylene	C	100.0	99.26	ng	-1	15	

Analyst: DJA Date: 10/22/12 Reviewer: EAH Date: 10/22/12

CURTIS & TOMPKINS SPIKE USER REPORT FOR 242064 GCVOA Water
EPA 8015B

Inst : GC07 Run Name : QC670985 IDF : 1.0
Seqnum : 322511870002.3 File : 355_002 Time : 20-DEC-2012 11:49
Cal : 322382210001 Caldate : 21-SEP-2012
Standards: S21055 (2000X), S20862 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Gasoline C6-C12	A	3593.6	3439.2	5000	4785	ng	-4	15	u
Bromofluorobenzene (FID)	A	2399.7	2165.7	900.0	812.2	ng	-10	15	u

DJA 12/21/12 : ccv/lcs,qc670985,194056 [general version]

Analyst: DJA Date: 12/26/12 Reviewer: EAH Date: 12/26/12

u=use

CURTIS & TOMPKINS SPIKE USER REPORT FOR 242064 GCVOA Water
EPA 8021B

Inst : GC07 Run Name : QC670983 IDF : 1.0
Seqnum : 322511870003.3 File : 355_003 Time : 20-DEC-2012 12:27
Cal : 322422427001 Caldate : 20-OCT-2012
Standards: S21041 (2000X), S20862 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
MTBE	C	824.50	733.94	50.00	44.51	ng	-11	15	u
MTBE	B	10648	10194	50.00	47.87	ng	-4	15	
Benzene	C	2182.2	2107.6	50.00	48.29	ng	-3	15	u
Benzene	B	26734	26033	50.00	48.69	ng	-3	15	
Toluene	C	1996.5	1950.9	50.00	48.86	ng	-2	15	u
Toluene	B	25363	24765	50.00	48.82	ng	-2	15	
Ethylbenzene	C	1712.9	1616.5	50.00	47.19	ng	-6	15	u
Ethylbenzene	B	20603	19599	50.00	47.56	ng	-5	15	
m,p-Xylenes	C	2087.0	2128.3	50.00	50.99	ng	2	15	u
m,p-Xylenes	B	27211	27495	50.00	50.52	ng	1	15	
o-Xylene	C	1889.9	1763.3	50.00	46.65	ng	-7	15	u
o-Xylene	B	22666	21873	50.00	48.25	ng	-3	15	
Bromofluorobenzene (PID)	C	1657.1	1528.5	900.0	830.2	ng	-8	15	u
Bromofluorobenzene (PID)	B	19336	17921	900.0	834.1	ng	-7	15	

DJA 12/21/12 : ccv/bs,qc670983,194056 [general version]

Analyst: DJA Date: 12/26/12 Reviewer: EAH Date: 12/26/12

u=use

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 242064 GCVOA Water
EPA 8015B

Inst : GC07 Run Name : TVH IDF : 1.0
Seqnum : 322511870007 File : 355_007 Time : 20-DEC-2012 16:00
Cal : 322382210001 Caldate : 21-SEP-2012
Standards: S21055 (2000X), S20862 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Gasoline C6-C12	A	3593.6	3360.9	5000	4676	ng	-6	15	
Bromofluorobenzene (FID)	A	2399.7	1965.1	900.0	737.0	ng	**-18**	15	c-

DJA 12/21/12 [Bromofluorobenzene (FID) A]: Passes control limits. [general version]

DJA 12/21/12 [Bromofluorobenzene (FID) A]: Passes control limits.

Analyst: DJA Date: 12/21/12 Reviewer: TW Date: 12/21/12

-=low bias c=CCV

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 242064 GCVOA Water
EPA 8015B

Inst : GC07 Run Name : TVH IDF : 1.0
Seqnum : 322511870007.2 File : 355_007 Time : 20-DEC-2012 16:00
Cal : 322382210001 Caldate : 21-SEP-2012
Standards: S21055 (2000X), S20862 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Gasoline C6-C12	A	3593.6	3360.9	5000	4676	ng	-6	15	
Bromofluorobenzene (FID)	A	2399.7	1965.1	900.0	737.0	ng	**-18**	15	c-

DJA 12/21/12 [Bromofluorobenzene (FID) A]: Passes control limits.

Analyst: TW Date: 12/21/12 * Reviewer: DJA Date: 12/26/12

-=low bias c=CCV

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 242064 GCVOA Water
EPA 8021B

Inst : GC07 Run Name : BTXE IDF : 1.0
Seqnum : 322511870018 File : 355_018 Time : 20-DEC-2012 23:05
Cal : 322422427001 Caldate : 20-OCT-2012
Standards: S21041 (1000X), S20862 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
MTBE	B	10648	10587	100.0	99.43	ng	-1	15	
Benzene	B	26734	25451	100.0	95.20	ng	-5	15	
Toluene	B	25363	24003	100.0	94.64	ng	-5	15	
Ethylbenzene	B	20603	19489	100.0	94.59	ng	-5	15	
m,p-Xylenes	B	27211	26552	100.0	97.58	ng	-2	15	
o-Xylene	B	22666	21971	100.0	96.93	ng	-3	15	
Bromofluorobenzene (PID)	B	19336	20055	900.0	933.5	ng	4	15	
MTBE	C	824.50	886.57	100.0	107.5	ng	8	15	
Benzene	C	2182.2	2284.5	100.0	104.7	ng	5	15	
Toluene	C	1996.5	2068.5	100.0	103.6	ng	4	15	
Ethylbenzene	C	1712.9	1757.0	100.0	102.6	ng	3	15	
m,p-Xylenes	C	2087.0	2241.0	100.0	107.4	ng	7	15	
o-Xylene	C	1889.9	1919.0	100.0	101.5	ng	2	15	
Bromofluorobenzene (PID)	C	1657.1	1761.4	900.0	956.7	ng	6	15	

DJA: 12/21/12 TW: 12/21/12 EAH: 12/26/12

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 242064 GCVOA Water
EPA 8015B

Inst : GC07 Run Name : TVH IDF : 1.0
Seqnum : 322511870019 File : 355_019 Time : 20-DEC-2012 23:44
Cal : 322382210001 Caldate : 21-SEP-2012
Standards: S21055 (1000X), S20862 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Gasoline C6-C12	A	3593.6	3228.2	10000	8983	ng	-10	15	
Bromofluorobenzene (FID)	A	2399.7	2164.6	900.0	811.8	ng	-10	15	

DJA: 12/21/12 TW: 12/21/12 EAH: 12/26/12

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 242064 GCVOA Water
EPA 8021B

Inst : GC07 Run Name : BTXE IDF : 1.0
Seqnum : 322511870021 File : 355_021 Time : 21-DEC-2012 01:02
Cal : 322422427001 Caldate : 20-OCT-2012
Standards: S21041 (1000X), S20862 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
MTBE	B	10648	9137.6	100.0	85.82	ng	-14	15	
Benzene	B	26734	24082	100.0	90.08	ng	-10	15	
Toluene	B	25363	22822	100.0	89.98	ng	-10	15	
Ethylbenzene	B	20603	18680	100.0	90.67	ng	-9	15	
m,p-Xylenes	B	27211	24571	100.0	90.30	ng	-10	15	
o-Xylene	B	22666	20156	100.0	88.93	ng	-11	15	
Bromofluorobenzene (PID)	B	19336	17011	900.0	791.8	ng	-12	15	
MTBE	C	824.50	699.08	100.0	84.79	ng	-15	15	
Benzene	C	2182.2	2043.9	100.0	93.66	ng	-6	15	
Toluene	C	1996.5	1866.0	100.0	93.46	ng	-7	15	
Ethylbenzene	C	1712.9	1584.4	100.0	92.50	ng	-8	15	
m,p-Xylenes	C	2087.0	2026.2	100.0	97.09	ng	-3	15	
o-Xylene	C	1889.9	1696.5	100.0	89.77	ng	-10	15	
Bromofluorobenzene (PID)	C	1657.1	1465.7	900.0	796.1	ng	-12	15	

DJA: 12/21/12 TW: 12/21/12 EAH: 12/26/12

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 242064 GCVOA Water
EPA 8015B

Inst : GC07 Run Name : TVH IDF : 1.0
Seqnum : 322511870022 File : 355_022 Time : 21-DEC-2012 01:41
Cal : 322382210001 Caldate : 21-SEP-2012
Standards: S21055 (1000X), S20862 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Gasoline C6-C12	A	3593.6	3254.5	10000	9056	ng	-9	15	
Bromofluorobenzene (FID)	A	2399.7	2151.8	900.0	807.0	ng	-10	15	

DJA: 12/21/12 TW: 12/21/12 EAH: 12/26/12

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 242064 GCVOA Water
EPA 8021B

Inst : GC07 Run Name : BTXE IDF : 1.0
Seqnum : 322511870033 File : 355_033 Time : 21-DEC-2012 08:42
Cal : 322422427001 Caldate : 20-OCT-2012
Standards: S21041 (666.7X), S20862 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
MTBE	B	10648	9572.7	150.0	134.9	ng	-10	15	
Benzene	B	26734	25875	150.0	145.2	ng	-3	15	
Toluene	B	25363	24356	150.0	144.0	ng	-4	15	
Ethylbenzene	B	20603	20031	150.0	145.8	ng	-3	15	
m,p-Xylenes	B	27211	26290	150.0	144.9	ng	-3	15	
o-Xylene	B	22666	22130	150.0	146.5	ng	-2	15	
Bromofluorobenzene (PID)	B	19336	19306	900.0	898.6	ng	0	15	
MTBE	C	824.50	781.46	150.0	142.2	ng	-5	15	
Benzene	C	2182.2	2241.9	150.0	154.1	ng	3	15	
Toluene	C	1996.5	2029.2	150.0	152.5	ng	2	15	
Ethylbenzene	C	1712.9	1717.0	150.0	150.4	ng	0	15	
m,p-Xylenes	C	2087.0	2165.2	150.0	155.6	ng	4	15	
o-Xylene	C	1889.9	1860.1	150.0	147.6	ng	-2	15	
Bromofluorobenzene (PID)	C	1657.1	1654.4	900.0	898.6	ng	0	15	

DJA: 12/21/12 TW: 12/21/12 EAH: 12/26/12

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 242064 GCVOA Water
EPA 8015B

Inst : GC07 Run Name : TVH IDF : 1.0
Seqnum : 322511870034 File : 355_034 Time : 21-DEC-2012 09:20
Cal : 322382210001 Caldate : 21-SEP-2012
Standards: S21055 (666.7X), S20862 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Gasoline C6-C12	A	3593.6	3185.2	15000	13300	ng	-11	15	
Bromofluorobenzene (FID)	A	2399.7	2144.0	900.0	804.1	ng	-11	15	

DJA: 12/21/12 TW: 12/21/12 EAH: 12/26/12

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 242064 GCVOA Water
EPA 8021B

Inst : GC07 Run Name : BTXE IDF : 1.0
Seqnum : 322511870037 File : 355_037 Time : 21-DEC-2012 11:17
Cal : 322422427001 Caldate : 20-OCT-2012
Standards: S21041 (1000X), S20862 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
MTBE	B	10648	10377	100.0	97.46	ng	-3	15	
Benzene	B	26734	25902	100.0	96.89	ng	-3	15	
Toluene	B	25363	24669	100.0	97.26	ng	-3	15	
Ethylbenzene	B	20603	19712	100.0	95.68	ng	-4	15	
m,p-Xylenes	B	27211	27113	100.0	99.64	ng	0	15	
o-Xylene	B	22666	22447	100.0	99.04	ng	-1	15	
Bromofluorobenzene (PID)	B	19336	19841	900.0	923.5	ng	3	15	
MTBE	C	824.50	803.62	100.0	97.47	ng	-3	15	
Benzene	C	2182.2	2194.8	100.0	100.6	ng	1	15	
Toluene	C	1996.5	2008.4	100.0	100.6	ng	1	15	
Ethylbenzene	C	1712.9	1699.5	100.0	99.22	ng	-1	15	
m,p-Xylenes	C	2087.0	2179.7	100.0	104.4	ng	4	15	
o-Xylene	C	1889.9	1879.7	100.0	99.46	ng	-1	15	
Bromofluorobenzene (PID)	C	1657.1	1693.7	900.0	919.9	ng	2	15	

DJA: 12/21/12 TW: 12/21/12 EAH: 12/26/12

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 242064 GCVOA Water
EPA 8015B

Inst : GC07 Run Name : TVH IDF : 1.0
Seqnum : 322511870038 File : 355_038 Time : 21-DEC-2012 11:55
Cal : 322382210001 Caldate : 21-SEP-2012
Standards: S21055 (1000X), S20862 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Gasoline C6-C12	A	3593.6	3268.3	10000	9095	ng	-9	15	
Bromofluorobenzene (FID)	A	2399.7	2267.2	900.0	850.3	ng	-6	15	

DJA: 12/21/12 TW: 12/21/12 EAH: 12/26/12

Logbooks & Sequences

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 322382210

Instrument : GC07 Begun : 09/21/12 10:10
Method : EPA 8015B, EPA 8021B SOP Version : TVH_BTXE_rv14

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	265_001	CCV	TVH			09/21/12 10:10	1.0	1 2	
002	265_002	CCV	TVH			09/21/12 11:06	1.0	1 2	
003	265_003	CCV	BTXE			09/21/12 11:44	1.0	3 2	
004	265_004	CCV	BTXE			09/21/12 12:30	1.0	3 2	
005	265_005	IB	CALIB			09/21/12 14:21	1.0	2	
006	265_006	ICAL	TVH_14			09/21/12 15:00	1.0	4 2	
007	265_007	ICAL	TVH_15			09/21/12 15:39	1.0	5 2	
008	265_008	ICAL	TVH_16			09/21/12 16:18	1.0	6 2	
009	265_009	ICAL	TVH_17			09/21/12 16:56	1.0	7 2	
010	265_010	ICAL	TVH_18			09/21/12 17:35	1.0	7 2	
011	265_011	X	IB			09/21/12 18:13	1.0	2	
012	265_012	ICV	TVH			09/21/12 18:52	1.0	8 2	
013	265_013	X	ICV			09/21/12 19:30	1.0	8 2	
014	265_014	CMARKER				09/21/12 20:09	1.0	9 2	
015	265_015	BLANK	QC657714	Water	190860	09/21/12 20:48	1.0	2	
016	265_016	CCV				09/21/12 21:27	1.0	2 3	
017	265_017	IDOC	QC657715	Water	190860	09/21/12 22:06	1.0	2 3	
018	265_018	IDOC	QC657716	Water	190860	09/21/12 22:45	1.0	2 3	
019	265_019	IDOC	QC657717	Water	190860	09/21/12 23:22	1.0	2 3	
020	265_020	IDOC	QC657718	Water	190860	09/22/12 00:01	1.0	2 3	
021	265_021	CCV	BTXE	Water		09/22/12 00:40	1.0	3 2	
022	265_022	BLANK	QC657720	Soil	190861	09/22/12 01:18	1.0	2	
023	265_023	CCV				09/22/12 01:57	1.0	2 3	
024	265_024	IDOC	QC657721	Soil	190861	09/22/12 02:36	1.0	2 3	
025	265_025	IDOC	QC657722	Soil	190861	09/22/12 03:15	1.0	2 3	
026	265_026	IDOC	QC657723	Soil	190861	09/22/12 03:54	1.0	2 3	
027	265_027	IDOC	QC657724	Soil	190861	09/22/12 04:32	1.0	2 3	
028	265_028	CCV	BTXE	Soil		09/22/12 05:10	1.0	3 2	

MAC 09/24/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 28.

Reviewed by: MAC Date: 09/24/12

Standards used: 1=S20263 2=S20276 3=S20258 4=S20355 5=S20354 6=S20353 7=S20352 8=S20463 9=S19631

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CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 322422427

Instrument : GC07 Begun : 10/19/12 08:27
Method : EPA 8015B, EPA 8021B SOP Version : TVH_BTXE_rv14

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	293_001	X	CMARK			10/19/12 08:27	1.0	1 2	
002	293_002	CCV	TVH			10/19/12 09:06	1.0	3 2	
003	293_003	X	IB			10/19/12 10:08	1.0	2	
004	293_004	X	BTXE			10/19/12 11:22	1.0	4 2	
005	293_005	CCV/LCS	QC661877	Water	191877	10/19/12 12:47	1.0	3 2	
006	293_006	BLANK	QC661878	Water	191877	10/19/12 13:46	1.0	2	
007	293_007	MSS	240521-001	Water	191877	10/19/12 14:50	1.0	2	
008	293_008	MS	QC661879	Water	191877	10/19/12 15:29	1.0	3 2	
009	293_009	MSD	QC661880	Water	191877	10/19/12 16:07	1.0	3 2	
010	293_010	SAMPLE	240521-002	Water	191877	10/19/12 16:45	1.0	2	
011	293_011	LOD	214826-034	Water	191877	10/19/12 17:24	1.0	5 2	
012	293_012	MSS	240527-001	Water	191877	10/19/12 20:13	1.0	2	
013	293_013	MS	QC662001	Water	191877	10/19/12 20:51	1.0	3 2	
014	293_014	MSD	QC662002	Water	191877	10/19/12 21:30	1.0	3 2	
015	293_015	SAMPLE	240530-001	Water	191877	10/19/12 22:08	1.0	2	
016	293_016	SAMPLE	240529-002	Water	191877	10/19/12 22:47	1.0	2	
017	293_017	SAMPLE	240529-001	Water	191877	10/19/12 23:25	1.0	2	
018	293_018	CCV	TVH			10/20/12 00:04	1.0	3 2	
019	293_019	X	TVH			10/20/12 00:42	1.0	3 2	
020	293_020	X	CMARK			10/20/12 01:20	1.0	1 2	
021	293_021	CCV	MINSP			10/20/12 01:58	1.0	6 2	
022	293_022	CCV	MINSP			10/20/12 02:37	1.0	6 2	
023	293_023	SAMPLE	240534-001	Water	191877	10/20/12 03:15	1.0	2	
024	293_024	SAMPLE	240534-002	Water	191877	10/20/12 03:53	1.0	2	
025	293_025	SAMPLE	240534-003	Water	191877	10/20/12 04:31	1.0	2	
026	293_026	SAMPLE	240534-004	Water	191877	10/20/12 05:08	1.0	2	
027	293_027	SAMPLE	240534-005	Water	191877	10/20/12 05:47	1.0	2	
028	293_028	SAMPLE	240534-006	Water	191877	10/20/12 06:26	1.0	2	
029	293_029	SAMPLE	240534-007	Water	191877	10/20/12 07:04	1.0	2	
030	293_030	CCV	TVH			10/20/12 07:43	1.0	3 2	
031	293_031	CCV	MINSP			10/20/12 08:21	1.0	6 2	
032	293_032	CCV	TVH			10/20/12 09:00	1.0	3 2	
033	293_033	CCV	MINSP			10/20/12 09:38	1.0	6 2	
034	293_034	X	CMARK			10/20/12 10:17	1.0	1 2	
035	293_035	X	ICALIB			10/20/12 10:56	1.0	2	
036	293_036	X	BTXE_1			10/20/12 11:34	1.0	7 2	
037	293_037	X	MBTXE_2			10/20/12 12:13	1.0	8 2	
038	293_038	IB	ICALIB			10/20/12 17:08	1.0	2	
039	293_039	ICAL	BTXE_1			10/20/12 17:45	1.0	7 2	
040	293_040	ICAL	MBTXE_2			10/20/12 18:24	1.0	8 2	
041	293_041	ICAL	MBTXE_3			10/20/12 19:01	1.0	8 2	
042	293_042	ICAL	MBTXE_4			10/20/12 19:40	1.0	8 2	
043	293_043	ICAL	MBTXE_5			10/20/12 20:19	1.0	9 2	
044	293_044	ICAL	MBTXE_6			10/20/12 20:57	1.0	9 2	
045	293_045	ICAL	MBTXE_7			10/20/12 21:35	1.0	9 2	
046	293_046	ICAL	MTBE_7			10/20/12 22:14	1.0	10 2	
047	293_047	X	IB			10/20/12 22:53	1.0	2	
048	293_048	ICV	MBTXE			10/20/12 23:30	1.0	11 2	
049	293_049	X	ICV			10/21/12 00:09	1.0	11 2	

DJA 10/22/12 : Had to RR levels 6 and 7 for the mbtxe ical b/c the autosampler stopped at file 37.

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 322422427

Instrument : GC07 Begun : 10/19/12 08:27
Method : EPA 8015B, EPA 8021B SOP Version : TVH_BTXE_rv14

DJA 10/22/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 49.

Reviewed by: DJA Date: 10/22/12

Standards used: 1=S20705 2=S20862 3=S20263 4=S20258 5=S20965 6=S20988 7=S20843 8=S20842 9=S20841 10=S19756 11=S20462

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 322511870

Instrument : GC07 Begun : 12/20/12 11:10
Method : EPA 8015B, EPA 8021B SOP Version : TVH_BTXE_rv14

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	355_001	X	BTXE			12/20/12 11:10	1.0	1 2	
002	355_002	CCV/LCS	QC670985	Water	194056	12/20/12 11:49	1.0	3 2	
003	355_003	CCV/BS	QC670983	Water	194056	12/20/12 12:27	1.0	1 2	
004	355_004	BSD	QC670984	Water	194056	12/20/12 13:56	1.0	1 2	
005	355_005	BLANK	QC670986	Water	194056	12/20/12 14:42	1.0	2	
006	355_006	X	CMARK			12/20/12 15:21	1.0	4 2	
007	355_007	CCV	TVH			12/20/12 16:00	1.0	3 2	
008	355_008	SAMPLE	242062-001	Water	194056	12/20/12 16:39	1.0	2	
009	355_009	SAMPLE	242062-002	Water	194056	12/20/12 17:17	1.0	2	
010	355_010	SAMPLE	242062-003	Water	194056	12/20/12 17:55	1.0	2	
011	355_011	MSS	242062-004	Water	194056	12/20/12 18:33	1.0	2	
012	355_012	MS	QC670987	Water	194056	12/20/12 19:11	1.0	3 2	
013	355_013	MSD	QC670988	Water	194056	12/20/12 19:49	1.0	3 2	
014	355_014	SAMPLE	242053-001	Water	194056	12/20/12 20:28	1.0	2	
015	355_015	SAMPLE	242055-006	Water	194056	12/20/12 21:08	1.0	2	
016	355_016	SAMPLE	242064-003	Water	194056	12/20/12 21:47	1.0	2	
017	355_017	SAMPLE	242064-004	Water	194056	12/20/12 22:26	1.0	2	
018	355_018	CCV	BTXE			12/20/12 23:05	1.0	1 2	
019	355_019	CCV	TVH			12/20/12 23:44	1.0	3 2	
020	355_020	X	CMARK			12/21/12 00:23	1.0	4 2	
021	355_021	CCV	BTXE			12/21/12 01:02	1.0	1 2	
022	355_022	CCV	TVH			12/21/12 01:41	1.0	3 2	
023	355_023	SAMPLE	242057-001	Water	194056	12/21/12 02:18	1.0	2	
024	355_024	SAMPLE	242057-002	Water	194056	12/21/12 02:56	1.0	2	
025	355_025	SAMPLE	242057-003	Water	194056	12/21/12 03:35	1.0	2	
026	355_026	SAMPLE	242057-004	Water	194056	12/21/12 04:14	1.0	2	
027	355_027	SAMPLE	242057-005	Water	194056	12/21/12 04:52	1.0	2	
028	355_028	SAMPLE	242057-006	Water	194056	12/21/12 05:30	1.0	2	
029	355_029	SAMPLE	242064-001	Water	194056	12/21/12 06:08	1.0	2	
030	355_030	SAMPLE	242064-002	Water	194056	12/21/12 06:46	1.0	2	
031	355_031	SAMPLE	242064-007	Water	194056	12/21/12 07:25	1.0	2	
032	355_032	SAMPLE	242064-005	Water	194056	12/21/12 08:04	1.0	2	
033	355_033	CCV	BTXE			12/21/12 08:42	1.0	1 2	
034	355_034	CCV	TVH			12/21/12 09:20	1.0	3 2	
035	355_035	X	CMARK			12/21/12 09:58	1.0	4 2	
036	355_036	SAMPLE	242064-006	Water	194056	12/21/12 10:38	1.0	2	
037	355_037	CCV	BTXE			12/21/12 11:17	1.0	1 2	
038	355_038	CCV	TVH	Water		12/21/12 11:55	1.0	3 2	
039	355_039	X	CMARK			12/21/12 12:34	1.0	4 2	

DJA 12/21/12 : Opening CM ran at the end of the last sequence.

DJA 12/21/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 39.

TW 12/21/12 : C- flags due to CCV with BFB -18% = passes control limits, ok to report.

Reviewed by: DJA Date: 12/21/12

Standards used: 1=S21041 2=S20862 3=S21055 4=S20705

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REPORTING SUMMARY FOR 242064 GCVOA Water

Sample ID	Analyte	Inst ID	Ch	Date & Time
242064-001	Gasoline C6-C12	GC07	A	12/21/12 06:08
242064-001	MTBE	GC07	C	12/21/12 06:08
242064-001	Benzene	GC07	C	12/21/12 06:08
242064-001	Toluene	GC07	C	12/21/12 06:08
242064-001	Ethylbenzene	GC07	C	12/21/12 06:08
242064-001	m,p-Xylenes	GC07	C	12/21/12 06:08
242064-001	o-Xylene	GC07	B	12/21/12 06:08
242064-001	Bromofluorobenzene (FID)	GC07	A	12/21/12 06:08
242064-001	Bromofluorobenzene (PID)	GC07	C	12/21/12 06:08
242064-001	Xylene (total)	GC07	C	12/21/12 06:08
242064-002	Gasoline C6-C12	GC07	A	12/21/12 06:46
242064-002	MTBE	GC07	C	12/21/12 06:46
242064-002	Benzene	GC07	C	12/21/12 06:46
242064-002	Toluene	GC07	C	12/21/12 06:46
242064-002	Ethylbenzene	GC07	C	12/21/12 06:46
242064-002	m,p-Xylenes	GC07	C	12/21/12 06:46
242064-002	o-Xylene	GC07	C	12/21/12 06:46
242064-002	Bromofluorobenzene (FID)	GC07	A	12/21/12 06:46
242064-002	Bromofluorobenzene (PID)	GC07	C	12/21/12 06:46
242064-002	Xylene (total)	GC07	C	12/21/12 06:46
242064-003	Gasoline C6-C12	GC07	A	12/20/12 21:47
242064-003	MTBE	GC07	C	12/20/12 21:47
242064-003	Benzene	GC07	C	12/20/12 21:47
242064-003	Toluene	GC07	C	12/20/12 21:47
242064-003	Ethylbenzene	GC07	C	12/20/12 21:47
242064-003	m,p-Xylenes	GC07	C	12/20/12 21:47
242064-003	o-Xylene	GC07	C	12/20/12 21:47
242064-003	Bromofluorobenzene (FID)	GC07	A	12/20/12 21:47
242064-003	Bromofluorobenzene (PID)	GC07	C	12/20/12 21:47
242064-003	Xylene (total)	GC07	C	12/20/12 21:47
242064-004	Gasoline C6-C12	GC07	A	12/20/12 22:26
242064-004	MTBE	GC07	C	12/20/12 22:26
242064-004	Benzene	GC07	C	12/20/12 22:26
242064-004	Toluene	GC07	C	12/20/12 22:26
242064-004	Ethylbenzene	GC07	C	12/20/12 22:26
242064-004	m,p-Xylenes	GC07	C	12/20/12 22:26
242064-004	o-Xylene	GC07	C	12/20/12 22:26
242064-004	Bromofluorobenzene (FID)	GC07	A	12/20/12 22:26
242064-004	Bromofluorobenzene (PID)	GC07	C	12/20/12 22:26
242064-004	Xylene (total)	GC07	C	12/20/12 22:26
242064-005	Gasoline C6-C12	GC07	A	12/21/12 08:04
242064-005	MTBE	GC07	C	12/21/12 08:04
242064-005	Benzene	GC07	C	12/21/12 08:04
242064-005	Toluene	GC07	C	12/21/12 08:04
242064-005	Ethylbenzene	GC07	C	12/21/12 08:04
242064-005	m,p-Xylenes	GC07	C	12/21/12 08:04
242064-005	o-Xylene	GC07	C	12/21/12 08:04
242064-005	Bromofluorobenzene (FID)	GC07	A	12/21/12 08:04
242064-005	Bromofluorobenzene (PID)	GC07	C	12/21/12 08:04
242064-005	Xylene (total)	GC07	C	12/21/12 08:04

REPORTING SUMMARY FOR 242064 GCVOA Water

Sample ID	Analyte	Inst ID	Ch	Date & Time
242064-006	Gasoline C6-C12	GC07	A	12/21/12 10:38
242064-006	MTBE	GC07	B	12/21/12 10:38
242064-006	Benzene	GC07	C	12/21/12 10:38
242064-006	Toluene	GC07	C	12/21/12 10:38
242064-006	Ethylbenzene	GC07	C	12/21/12 10:38
242064-006	m,p-Xylenes	GC07	C	12/21/12 10:38
242064-006	o-Xylene	GC07	C	12/21/12 10:38
242064-006	Bromofluorobenzene (FID)	GC07	A	12/21/12 10:38
242064-006	Bromofluorobenzene (PID)	GC07	C	12/21/12 10:38
242064-006	Xylene (total)	GC07	C	12/21/12 10:38
242064-007	Gasoline C6-C12	GC07	A	12/21/12 07:25
242064-007	MTBE	GC07	C	12/21/12 07:25
242064-007	Benzene	GC07	C	12/21/12 07:25
242064-007	Toluene	GC07	C	12/21/12 07:25
242064-007	Ethylbenzene	GC07	C	12/21/12 07:25
242064-007	m,p-Xylenes	GC07	C	12/21/12 07:25
242064-007	o-Xylene	GC07	C	12/21/12 07:25
242064-007	Bromofluorobenzene (FID)	GC07	A	12/21/12 07:25
242064-007	Bromofluorobenzene (PID)	GC07	C	12/21/12 07:25
242064-007	Xylene (total)	GC07	C	12/21/12 07:25
QC670983	MTBE	GC07	C	12/20/12 12:27
QC670983	Benzene	GC07	C	12/20/12 12:27
QC670983	Toluene	GC07	C	12/20/12 12:27
QC670983	Ethylbenzene	GC07	C	12/20/12 12:27
QC670983	m,p-Xylenes	GC07	C	12/20/12 12:27
QC670983	o-Xylene	GC07	C	12/20/12 12:27
QC670983	Bromofluorobenzene (PID)	GC07	C	12/20/12 12:27
QC670984	MTBE	GC07	C	12/20/12 13:56
QC670984	Benzene	GC07	C	12/20/12 13:56
QC670984	Toluene	GC07	C	12/20/12 13:56
QC670984	Ethylbenzene	GC07	C	12/20/12 13:56
QC670984	m,p-Xylenes	GC07	C	12/20/12 13:56
QC670984	o-Xylene	GC07	C	12/20/12 13:56
QC670984	Bromofluorobenzene (PID)	GC07	C	12/20/12 13:56
QC670985	Gasoline C6-C12	GC07	A	12/20/12 11:49
QC670985	Bromofluorobenzene (FID)	GC07	A	12/20/12 11:49
QC670986	Gasoline C6-C12	GC07	A	12/20/12 14:42
QC670986	MTBE	GC07	C	12/20/12 14:42
QC670986	Benzene	GC07	C	12/20/12 14:42
QC670986	Toluene	GC07	C	12/20/12 14:42
QC670986	Ethylbenzene	GC07	C	12/20/12 14:42
QC670986	m,p-Xylenes	GC07	C	12/20/12 14:42
QC670986	o-Xylene	GC07	C	12/20/12 14:42
QC670986	Bromofluorobenzene (FID)	GC07	A	12/20/12 14:42
QC670986	Bromofluorobenzene (PID)	GC07	C	12/20/12 14:42
QC670986	Xylene (total)	GC07	C	12/20/12 14:42
QC670987	Gasoline C6-C12	GC07	A	12/20/12 19:11

REPORTING SUMMARY FOR 242064 GCVOA Water

Sample ID	Analyte	Inst ID	Ch	Date & Time
QC670987	Bromofluorobenzene (FID)	GC07	A	12/20/12 19:11
QC670988	Gasoline C6-C12	GC07	A	12/20/12 19:49
QC670988	Bromofluorobenzene (FID)	GC07	A	12/20/12 19:49

Case Narrative Addendum: Manual Integrations for 242064 GCVOA (Water)

For SAMPLE 242064-001 (GC07 355_029):
Corrected automatically drawn baseline for Ch. B.

For Calibration GC07 (322382210001):
Bromofluorobenzene (FID) (Ch. A): Separated from coeluting peak in TVH_14 (265_006).

For Calibration GC07 (322422427001):
Corrected automatically drawn baseline for Ch. B in multiple levels.
Corrected automatically drawn baseline for Ch. C in MBTXE_7 (293_045).

Laboratory Job Number 242064

ANALYTICAL REPORT

TPH-Extractables by GC

Matrix: Water

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	242064	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	07193.0002	Analysis:	EPA 8015B
Matrix:	Water	Received:	12/19/12
Units:	ug/L	Prepared:	12/20/12
Diln Fac:	1.000	Analyzed:	12/21/12
Batch#:	194050		

Field ID: EB-121812 Sampled: 12/18/12
Type: SAMPLE Cleanup Method: EPA 3630C
Lab ID: 242064-001

Analyte	Result	RL	MDL
Diesel C12-C24	ND	50	16
Motor Oil C24-C36	ND	300	84

Surrogate	%REC	Limits
o-Terphenyl	116	61-134

Field ID: IR46MW48A-121912 Sampled: 12/19/12
Type: SAMPLE Cleanup Method: EPA 3630C
Lab ID: 242064-003

Analyte	Result	RL	MDL
Diesel C12-C24	ND	50	16
Motor Oil C24-C36	ND	300	84

Surrogate	%REC	Limits
o-Terphenyl	113	61-134

Field ID: IR24MW07A-121912 Sampled: 12/19/12
Type: SAMPLE Cleanup Method: EPA 3630C
Lab ID: 242064-004

Analyte	Result	RL	MDL
Diesel C12-C24	530	50	16
Motor Oil C24-C36	ND	300	84

Surrogate	%REC	Limits
o-Terphenyl	105	61-134

Field ID: IR24MW05A-121912 Sampled: 12/19/12
Type: SAMPLE Cleanup Method: EPA 3630C
Lab ID: 242064-005

Analyte	Result	RL	MDL
Diesel C12-C24	35 J	50	16
Motor Oil C24-C36	ND	300	84

Surrogate	%REC	Limits
o-Terphenyl	106	61-134

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	242064	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	07193.0002	Analysis:	EPA 8015B
Matrix:	Water	Received:	12/19/12
Units:	ug/L	Prepared:	12/20/12
Diln Fac:	1.000	Analyzed:	12/21/12
Batch#:	194050		

Field ID:	IR24MW28A-121912	Sampled:	12/19/12
Type:	SAMPLE	Cleanup Method:	EPA 3630C
Lab ID:	242064-006		

Analyte	Result	RL	MDL
Diesel C12-C24	32 J	50	16
Motor Oil C24-C36	ND	300	84

Surrogate	%REC	Limits
o-Terphenyl	106	61-134

Field ID:	IR99MW28A-121912	Sampled:	12/19/12
Type:	SAMPLE	Cleanup Method:	EPA 3630C
Lab ID:	242064-007		

Analyte	Result	RL	MDL
Diesel C12-C24	40 J	50	16
Motor Oil C24-C36	ND	300	84

Surrogate	%REC	Limits
o-Terphenyl	133	61-134

Type:	BLANK	Cleanup Method:	EPA 3630C
Lab ID:	QC670957		

Analyte	Result	RL	MDL
Diesel C12-C24	ND	50	16
Motor Oil C24-C36	ND	300	84

Surrogate	%REC	Limits
o-Terphenyl	117	61-134

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	242064	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	07193.0002	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC670958	Batch#:	194050
Matrix:	Water	Prepared:	12/20/12
Units:	ug/L	Analyzed:	12/21/12

Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits
Diesel C12-C24	2,500	2,129	85	65-135

Surrogate	%REC	Limits
o-Terphenyl	108	61-134

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	242064	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	07193.0002	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	194050
MSS Lab ID:	242062-004	Sampled:	12/18/12
Matrix:	Water	Received:	12/19/12
Units:	ug/L	Prepared:	12/20/12
Diln Fac:	1.000	Analyzed:	12/21/12

Type: MS Cleanup Method: EPA 3630C
Lab ID: QC670959

Analyte	MSS Result	Spiked	Result	%REC	Limits
Diesel C12-C24	<16.49	2,500	2,352	94	65-135

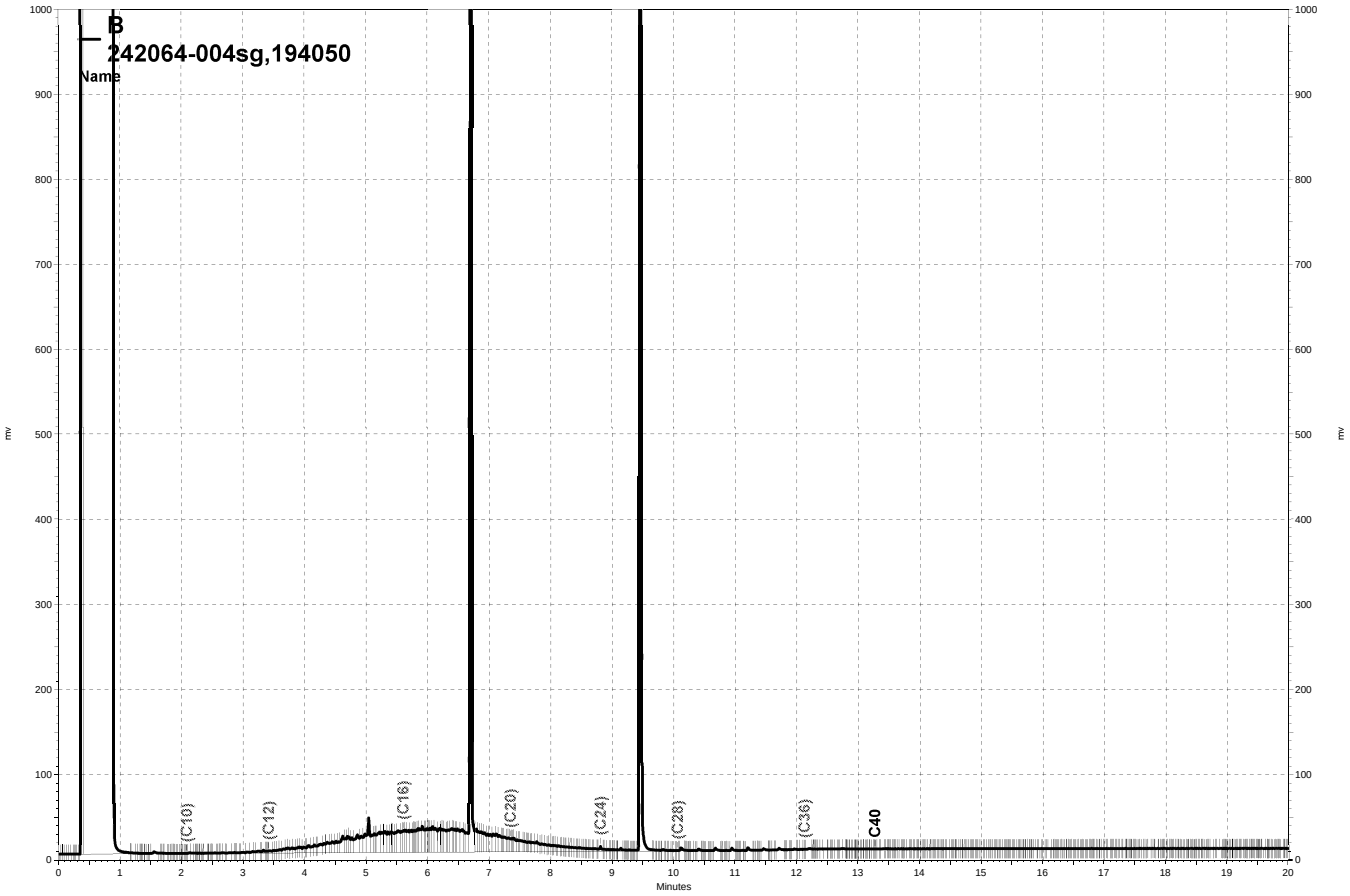
Surrogate	%REC	Limits
o-Terphenyl	115	61-134

Type: MSD Cleanup Method: EPA 3630C
Lab ID: QC670960

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C12-C24	2,500	2,408	96	65-135	2	20

Surrogate	%REC	Limits
o-Terphenyl	119	61-134

RPD= Relative Percent Difference



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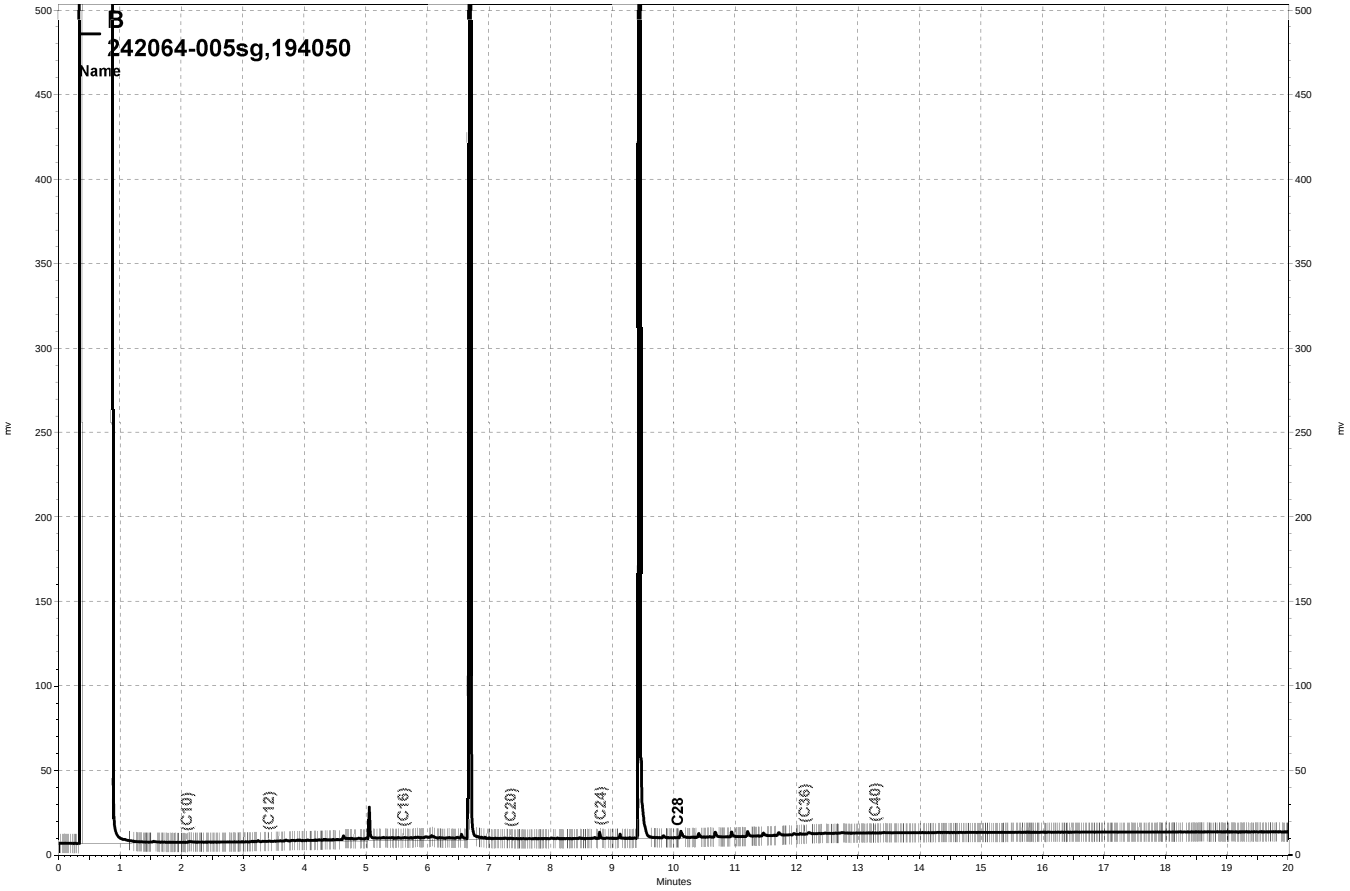

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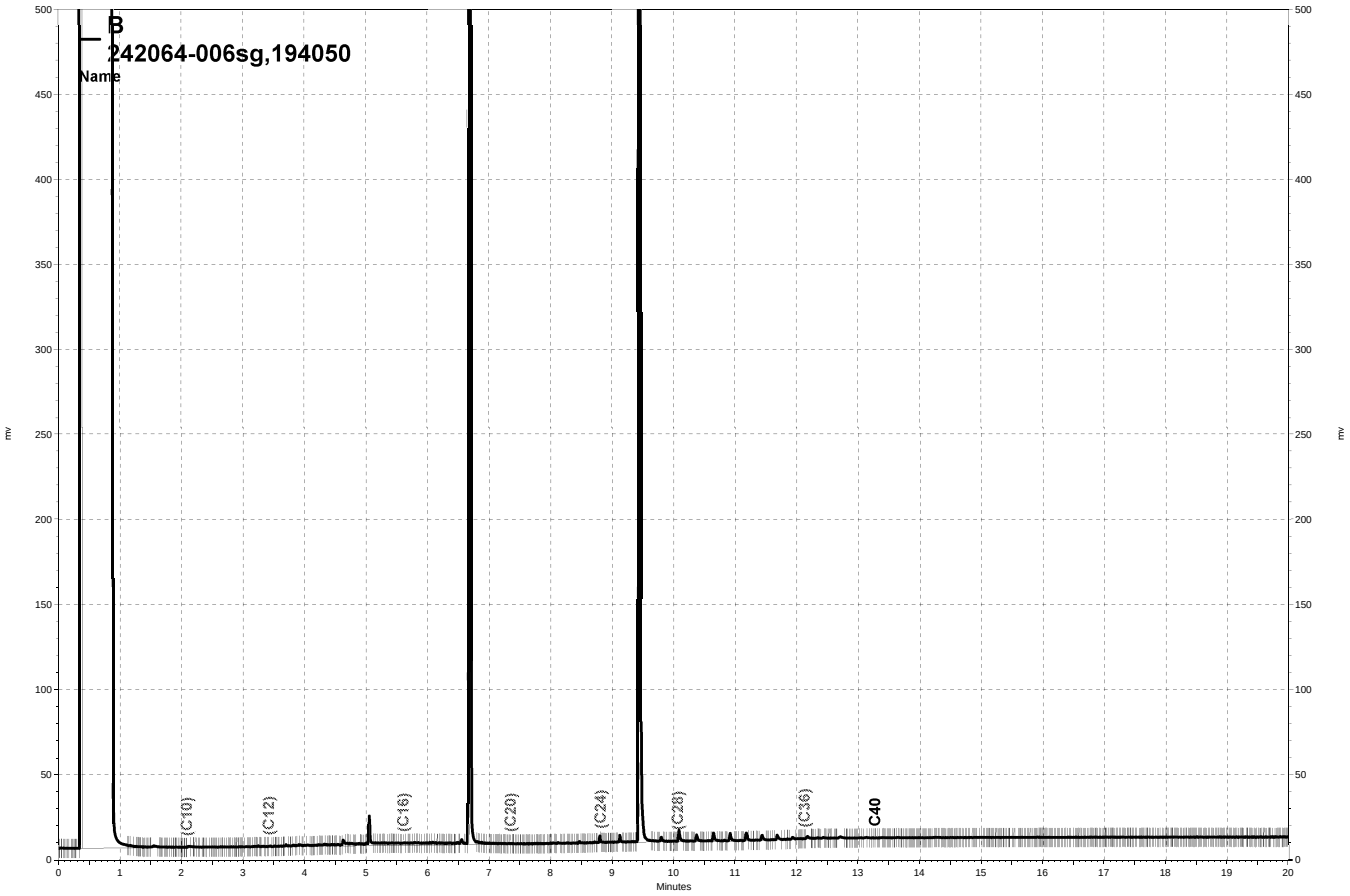

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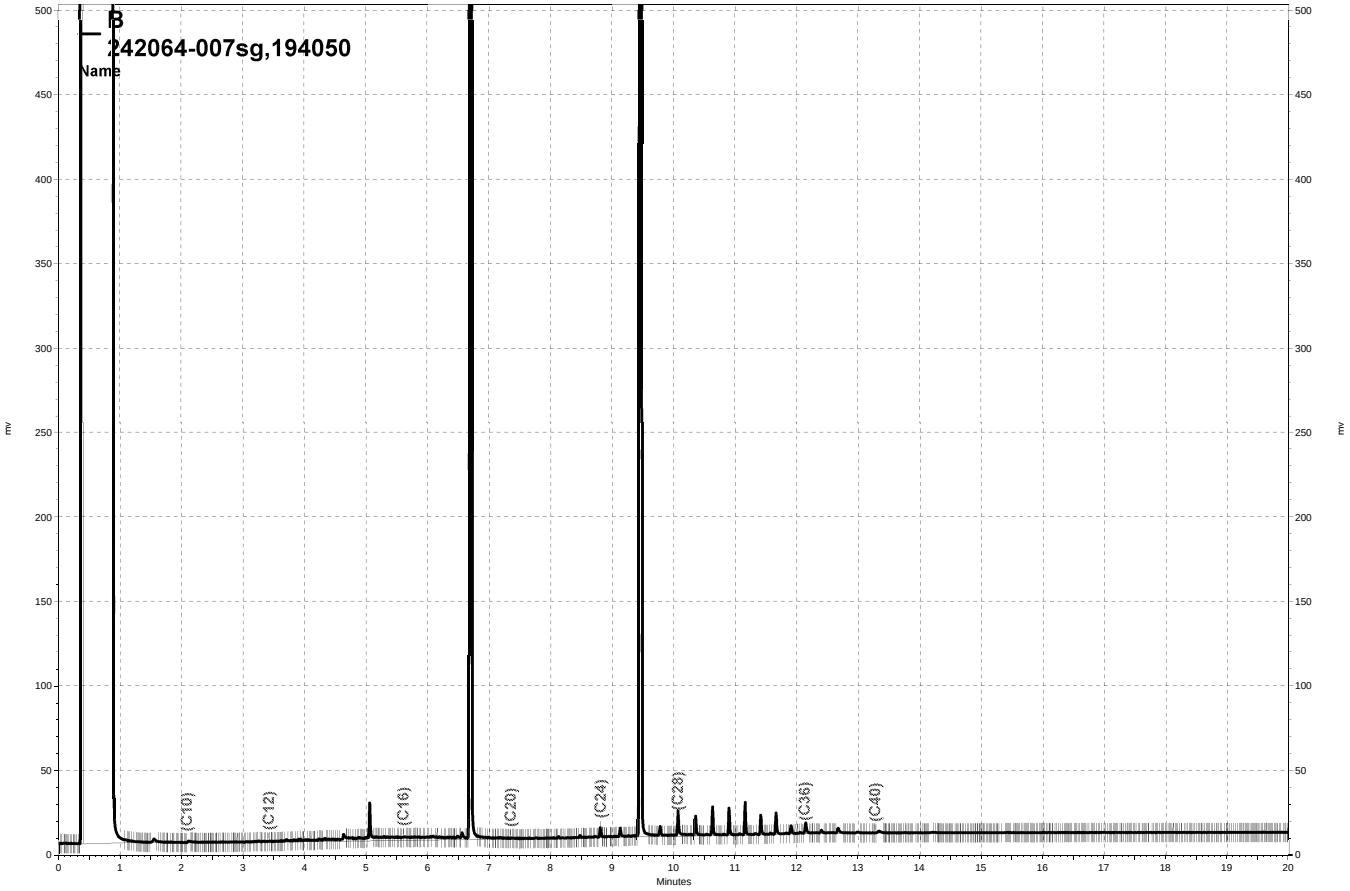

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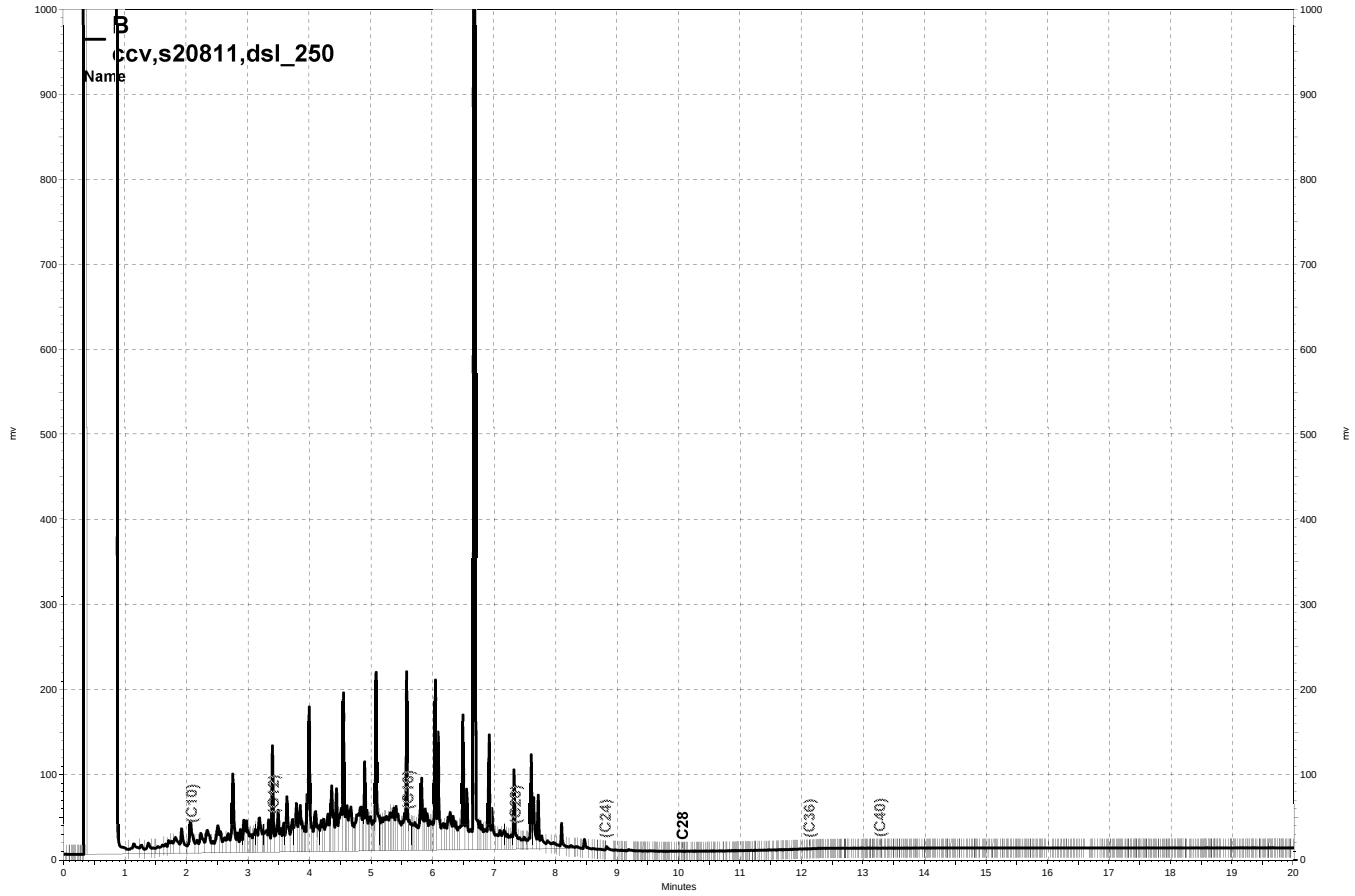

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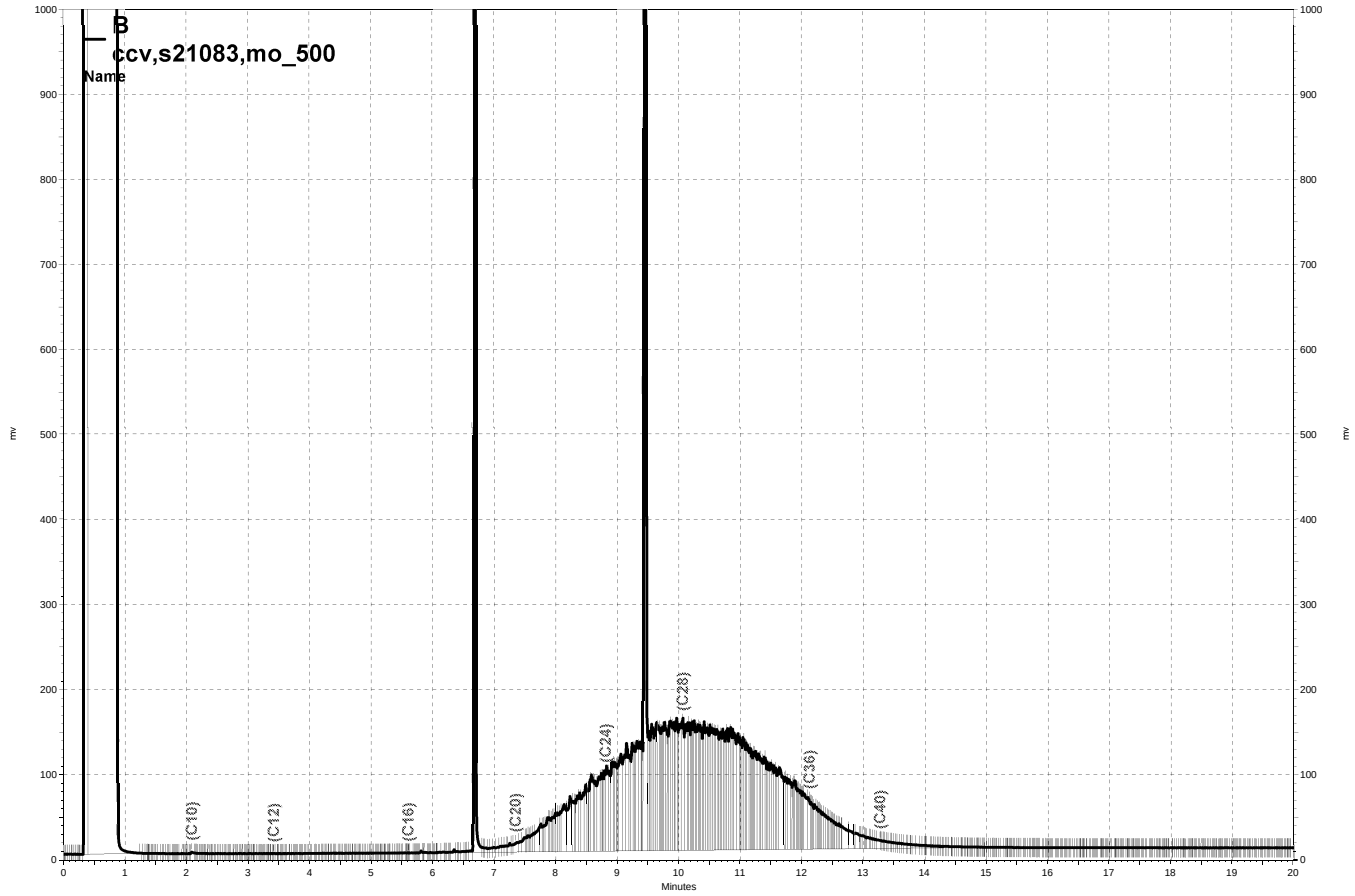

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Initial & Continuing Calibration Data

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 242064 GCSV Water: EPA 8015B

Inst : GC15B
Calnum : 162276981001
Units : mg/L

Name : DSL_192
Date : 10-JUL-2012 18:17
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	192b013	162276981013	DSL_10	10-JUL-2012 18:17	S19968
L2	192b014	162276981014	DSL_100	10-JUL-2012 18:45	S19945
L3	192b015	162276981015	DSL_500	10-JUL-2012 19:13	S19946
L4	192b016	162276981016	DSL_1000	10-JUL-2012 19:41	S19947
L5	192b017	162276981017	DSL_5000	10-JUL-2012 20:08	S19943
L6	192b018	162276981018	DSL_7500	10-JUL-2012 20:36	S19948

Analyte	L1	L2	L3	L4	L5	L6	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
Diesel C12-C24	43068	47538	47393	48335	46187	45695	AVRG		2.16E-5		46369	4	0.995	20	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D
Diesel C12-C24	10.000	-7	100.00	3	500.00	2	1000.0	4	5000.0	0	7500.0	-1

JDG 07/11/12 : Manually integrated fuel hump in multiple levels.

JDG 07/12/12 : RT has been fixed.

Analyst: JDG Date: 07/12/12 Reviewer: EAH Date: 07/12/12

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

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 242064 GCSV Water
EPA 8015B

Inst : GC15B
Calnum : 162276981001

Name : DSL_192
Cal Date : 10-JUL-2012

ICV 162276981020 (192b020 10-JUL-2012) stds: S19823

Analyte	Spiked	Quant	Units	%D	Max	Flags
Diesel C12-C24	500.0	479.8	mg/L	-4	15	

Analyst: JDG Date: 07/11/12 Reviewer: EAH Date: 07/12/12

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 242064 GCSV Water: EPA 8015B

Inst : GC15B
Calnum : 162281280001
Units : mg/L

Name : OTP-HEX_195
Date : 13-JUL-2012 17:42
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	195b011	162281280011	HEXOTP_5	13-JUL-2012 17:42	S19347
L2	195b012	162281280012	HEXOTP_10	13-JUL-2012 18:09	S19348
L3	195b013	162281280013	HEXOTP_25	13-JUL-2012 18:37	S19349
L4	195b014	162281280014	HEXOTP_50	13-JUL-2012 19:04	S19350
L5	195b015	162281280015	HEXOTP_100	13-JUL-2012 19:32	S19351
L6	195b016	162281280016	HEXOTP_200	13-JUL-2012 20:00	S19352

Analyte	L1	L2	L3	L4	L5	L6	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
o-Terphenyl	62022	61944	61801	62655	63080	61712	AVRG		1.61E-5		62202	1	0.995	20	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D
o-Terphenyl	5.0000	0	10.000	0	25.000	-1	50.000	1	100.00	1	200.00	-1

JDG 07/16/12 : Corrected automatically drawn baseline in multiple levels.

Analyst: JDG Date: 07/16/12 Reviewer: EAH Date: 07/16/12

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

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 242064 GCSV Water: EPA 8015B

Inst : GC15B
Calnum : 162508794002
Units : mg/L

Name : MO_353
Date : 18-DEC-2012 15:47
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	353b012	162508794012	MO_25	18-DEC-2012 15:47	S20816 (2X)
L2	353b013	162508794013	MO_50	18-DEC-2012 16:15	S20816
L3	353b014	162508794014	MO_250	18-DEC-2012 16:43	S20817
L4	353b015	162508794015	MO_500	18-DEC-2012 17:11	S20818
L5	353b016	162508794016	MO_1000	18-DEC-2012 17:38	S20819
L6	353b017	162508794017	MO_2500	18-DEC-2012 18:06	S20820 (2X)
L7	353b018	162508794018	MO_5000	18-DEC-2012 18:34	S20820

Analyte	L1	L2	L3	L4	L5	L6	L7	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
Motor Oil C24-C36	32460	40952	44808	49465	46855	40734	39000	AVRG		2.38E-5		42039	13	0.995	20	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D
Motor Oil C24-C36	25.000	**-23**	50.000	-3	250.00	7	500.00	18	1000.0	11	2500.0	-3	5000.0	-7

JDG 12/19/12 : Corrected automatically drawn baseline in multiple levels.

CB 12/19/12 : L1 below RL

Analyst: JDG Date: 12/19/12 Reviewer: CB Date: 12/19/12

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

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 242064 GCSV Water
EPA 8015B

Inst : GC15B Run Name : DSL_250 IDF : 1.0
Seqnum : 162513078003 File : 356b003 Time : 21-DEC-2012 08:13
Standards: S20811

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C12-C24	162276981001	10-JUL-2012	46369	39524	250.0	213.1	mg/L	-15	15	
o-Terphenyl	162281280001	13-JUL-2012	62202	62510	50.00	50.25	mg/L	0	15	

JDG 12/21/12 : Corrected automatically drawn baseline.

Analyst: JDG Date: 12/21/12 Reviewer: SFL Date: 12/26/12

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 242064 GCSV Water
EPA 8015B

Inst : GC15B Run Name : MO_500 IDF : 1.0
Seqnum : 162513078004 File : 356b004 Time : 21-DEC-2012 08:41
Standards: S21083

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Motor Oil C24-C36	162508794002	18-DEC-2012	42039	47060	500.0	559.7	mg/L	12	15	
o-Terphenyl	162281280001	13-JUL-2012	62202	67440	50.00	54.21	mg/L	8	15	

JDG 12/21/12 : Manually integrated fuel hump.

Analyst: JDG Date: 12/21/12 Reviewer: SFL Date: 12/26/12

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 242064 GCSV Water
EPA 8015B

Inst : GC15B Run Name : DSL_1000 IDF : 1.0
Seqnum : 162513078018 File : 356b018 Time : 21-DEC-2012 19:23
Standards: S20813

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C12-C24	162276981001	10-JUL-2012	46369	42313	1000	912.5	mg/L	-9	15	
o-Terphenyl	162281280001	13-JUL-2012	62202	65583	50.00	52.72	mg/L	5	15	

SFL 12/26/12 : Corrected automatically drawn baseline.

Analyst: JDG Date: 12/26/12 Reviewer: SFL Date: 12/26/12

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 242064 GCSV Water
EPA 8015B

Inst : GC15B Run Name : MO_500 IDF : 1.0
Seqnum : 162513078019 File : 356b019 Time : 21-DEC-2012 19:51
Standards: S21366

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Motor Oil C24-C36	162508794002	18-DEC-2012	42039	42023	500.0	499.8	mg/L	0	15	
o-Terphenyl	162281280001	13-JUL-2012	62202	61199	50.00	49.19	mg/L	-2	15	

JDG 12/26/12 : Manually integrated fuel hump.

Analyst: JDG Date: 12/26/12 Reviewer: SFL Date: 12/26/12

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 242064 GCSV Water
EPA 8015B

Inst : GC15B Run Name : DSL_500 IDF : 1.0
Seqnum : 162513078031 File : 356b031 Time : 22-DEC-2012 01:23
Standards: S20812

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C12-C24	162276981001	10-JUL-2012	46369	46225	500.0	498.4	mg/L	0	15	
o-Terphenyl	162281280001	13-JUL-2012	62202	68021	50.00	54.68	mg/L	9	15	

JDG 12/26/12 : Corrected automatically drawn baseline.

Analyst: JDG Date: 12/26/12 Reviewer: EAH Date: 12/27/12

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 242064 GCSV Water
EPA 8015B

Inst : GC15B Run Name : MO_500 IDF : 1.0
Seqnum : 162513078032 File : 356b032 Time : 22-DEC-2012 01:50
Standards: S21366

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Motor Oil C24-C36	162508794002	18-DEC-2012	42039	44403	500.0	528.1	mg/L	6	15	
o-Terphenyl	162281280001	13-JUL-2012	62202	64434	50.00	51.79	mg/L	4	15	

JDG 12/27/12 : Manually integrated fuel hump.

Analyst: JDG Date: 12/26/12 Reviewer: EAH Date: 12/27/12

Logbooks & Sequences

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 162276981

Instrument : GC15B Begun : 07/10/12 08:21
Method : EPA 8015B SOP Version : TEH_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	192b001	X	PRIMER			07/10/12 08:21	1.0		
002	192b002	X	CMARKER			07/10/12 08:49	1.0	1	
003	192b003	X	MO_500			07/10/12 09:17	1.0	2	
004	192b004	X	DSL_500			07/10/12 09:45	1.0	3	
005	192b005	X	CMARKER			07/10/12 12:07	1.0	1	
006	192b006	X	MO_500			07/10/12 12:34	1.0	2	
007	192b007	X	DSL_500			07/10/12 13:02	1.0	3	
008	192b008	CCV	DSL_500			07/10/12 14:41	1.0	3	
009	192b009	CCV	MO_500			07/10/12 15:08	1.0	2	
010	192b010	CCV	DSL_500			07/10/12 15:55	1.0	3	
011	192b011	CCV	DSL_250			07/10/12 16:49	1.0	4	
012	192b012	IB	CALIB			07/10/12 17:50	1.0		
013	192b013	ICAL	DSL_10			07/10/12 18:17	1.0	5	
014	192b014	ICAL	DSL_100			07/10/12 18:45	1.0	6	
015	192b015	ICAL	DSL_500			07/10/12 19:13	1.0	7	
016	192b016	ICAL	DSL_1000			07/10/12 19:41	1.0	8	
017	192b017	ICAL	DSL_5000			07/10/12 20:08	1.0	9	
018	192b018	ICAL	DSL_7500			07/10/12 20:36	1.0	10	
019	192b019	IB	CALIB			07/10/12 21:03	1.0		
020	192b020	ICV	DSL_500			07/10/12 21:31	1.0	11	
021	192b021	X	ICV			07/10/12 21:59	1.0	11	
022	192b022	IB	CALIB			07/10/12 22:27	1.0		
023	192b023	CMARKER	C8-C50			07/10/12 22:55	1.0	1	
024	192b024	IB	CALIB			07/10/12 23:23	1.0		

JDG 07/11/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 24.

Standards used: 1=S20262 2=S20033 3=S20069 4=S20066 5=S19968 6=S19945 7=S19946 8=S19947 9=S19943 10=S19948 11=S19823

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 162281280

Instrument : GC15B Begun : 07/13/12 08:00
Method : EPA 8015B SOP Version : TEH_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	195b001	X	PRIMER			07/13/12 08:00	1.0		
002	195b002	X	CMARKER			07/13/12 08:28	1.0	1	
003	195b003	CCV	DSL_500			07/13/12 08:56	1.0	2	
004	195b004	CCV	MO_500			07/13/12 10:15	1.0	3	
005	195b005	LOQ	237608-007	Soil	188126	07/13/12 14:40	1.0		
006	195b006	BLANK	QC647456	Soil	188404	07/13/12 15:12	1.0		
007	195b007	CCV	MO_500			07/13/12 15:44	1.0	3	
008	195b008	CCV	DSL_250			07/13/12 16:12	1.0	4	
010	195b010	IB	CALIB			07/13/12 17:14	1.0		
011	195b011	ICAL	HEXOTP_5			07/13/12 17:42	1.0	5	
012	195b012	ICAL	HEXOTP_10			07/13/12 18:09	1.0	6	
013	195b013	ICAL	HEXOTP_25			07/13/12 18:37	1.0	7	
014	195b014	ICAL	HEXOTP_50			07/13/12 19:04	1.0	8	
015	195b015	ICAL	HEXOTP_100			07/13/12 19:32	1.0	9	
016	195b016	ICAL	HEXOTP_200			07/13/12 20:00	1.0	10	
017	195b017	IB	CALIB			07/13/12 20:28	1.0		

JDG 07/13/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 8.

JDG 07/16/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 9 through 17.

Standards used: 1=S20262 2=S20069 3=S20033 4=S20066 5=S19347 6=S19348 7=S19349 8=S19350 9=S19351 10=S19352

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 162508794

Instrument : GC15B Begun : 12/18/12 07:54
Method : EPA 8015B SOP Version : TEH_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	353b001	X	IB			12/18/12 07:54	1.0		
002	353b002	X	CMARKER			12/18/12 08:22	1.0	1	
003	353b003	X	DSL_250			12/18/12 08:49	1.0	2	
004	353b004	X	MO_500			12/18/12 09:17	1.0	3	
005	353b005	X	MO_500			12/18/12 09:46	1.0	3	
006	353b006	X	IB			12/18/12 12:23	1.0		
007	353b007	X	CMARKER			12/18/12 12:50	1.0	1	
008	353b008	CCV	MO_500			12/18/12 13:18	1.0	3	
009	353b009	CCV	DSL_250			12/18/12 13:46	1.0	2	
010	353b010	CCV	MO_500			12/18/12 14:48	1.0	3	
011	353b011	IB	CALIB			12/18/12 15:19	1.0		
012	353b012	ICAL	MO_25			12/18/12 15:47	1.0	4	
013	353b013	ICAL	MO_50			12/18/12 16:15	1.0	4	
014	353b014	ICAL	MO_250			12/18/12 16:43	1.0	5	
015	353b015	ICAL	MO_500			12/18/12 17:11	1.0	6	
016	353b016	ICAL	MO_1000			12/18/12 17:38	1.0	7	
017	353b017	ICAL	MO_2500			12/18/12 18:06	1.0	8	
018	353b018	ICAL	MO_5000			12/18/12 18:34	1.0	8	
019	353b019	IB	CALIB			12/18/12 19:02	1.0		
020	353b020	CMARKER	C8-C50			12/18/12 19:30	1.0	1	
021	353b021	IB	CALIB			12/18/12 19:58	1.0		

JDG 12/19/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 21.

Standards used: 1=S21036 2=S20811 3=S21083 4=S20816 5=S20817 6=S20818 7=S20819 8=S20820

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 162513078

Instrument : GC15B Begun : 12/21/12 07:18
Method : EPA 8015B SOP Version : TEH_rv13

#	File	Type	Sample ID	P	Matrix	Batch	Analyzed	IDF	Stds Used	
001	356b001	X	IB				12/21/12 07:18	1.0		
002	356b002	X	CMARKER				12/21/12 07:46	1.0	1	
003	356b003	CCV	DSL_250				12/21/12 08:13	1.0	2	
004	356b004	CCV	MO_500				12/21/12 08:41	1.0	3	
005	356b005	BLANK	QC670957		Water	194050	12/21/12 13:21	1.0		
006	356b006	BLANK	QC670957	S	Water	194050	12/21/12 13:49	1.0		
007	356b007	LCS	QC670958	S	Water	194050	12/21/12 14:17	1.0		
008	356b008	MSS	242062-004	S	Water	194050	12/21/12 14:45	1.0		
009	356b009	MS	QC670959	S	Water	194050	12/21/12 15:12	1.0		
010	356b010	MSD	QC670960	S	Water	194050	12/21/12 15:40	1.0		
011	356b011	MSS	242062-007	S	Water	194050	12/21/12 16:08	1.0		
012	356b012	MS	QC670961	S	Water	194050	12/21/12 16:36	1.0		
013	356b013	MSD	QC670962	S	Water	194050	12/21/12 17:04	1.0		
014	356b014	SAMPLE	242062-001	S	Water	194050	12/21/12 17:32	1.0		
015	356b015	SAMPLE	242062-002	S	Water	194050	12/21/12 17:59	1.0		
016	356b016	SAMPLE	242062-003	S	Water	194050	12/21/12 18:27	1.0		
017	356b017	SAMPLE	242062-006	S	Water	194050	12/21/12 18:55	1.0		
018	356b018	CCV	DSL_1000				12/21/12 19:23	1.0	4	
019	356b019	CCV	MO_500				12/21/12 19:51	1.0	5	
020	356b020	SAMPLE	242064-001	S	Water	194050	12/21/12 20:19	1.0		
021	356b021	SAMPLE	242064-003	S	Water	194050	12/21/12 20:46	1.0		
022	356b022	SAMPLE	242064-004	S	Water	194050	12/21/12 21:14	1.0		
023	356b023	SAMPLE	242064-005	S	Water	194050	12/21/12 21:42	1.0		
024	356b024	SAMPLE	242064-006	S	Water	194050	12/21/12 22:09	1.0		
025	356b025	SAMPLE	242064-007	S	Water	194050	12/21/12 22:37	1.0		
026	356b026	SAMPLE	242057-001		Water	194050	12/21/12 23:05	1.0		
027	356b027	SAMPLE	242057-002		Water	194050	12/21/12 23:32	1.0		
028	356b028	SAMPLE	242057-003		Water	194050	12/22/12 00:00	1.0		
029	356b029	SAMPLE	242057-004		Water	194050	12/22/12 00:28	1.0		
030	356b030	X	CMARKER				12/22/12 00:55	1.0	1	
031	356b031	CCV	DSL_500				12/22/12 01:23	1.0	6	
032	356b032	CCV	MO_500				12/22/12 01:50	1.0	5	

JDG 12/26/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 32.

Standards used: 1=S21367 2=S20811 3=S21083 4=S20813 5=S21366 6=S20812

SAMPLE PREPARATION SUMMARY

Batch # : 194050
Started By : TFB
Method : 3520C
Spike #1 ID : S21130

Prep Date : 20-DEC-2012 12:30
SOP Version : TEH_3520_rv12
Spike #2 ID : S21185

Analysis : TEH
Finished By : MA
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
242057-001		Water	500	2.5	1	0.005	7	.5				TEH	
242057-002		Water	500	2.5	1	0.005	7	.5				TEH	
242057-003		Water	500	2.5	1	0.005	7	.5				TEH	
242057-004		Water	500	2.5	1	0.005	7	.5				TEH	
242057-005		Water	500	2.5	1	0.005	7	.5				TEH	
242057-006		Water	500	2.5	1	0.005	7	.5				TEH	
242062-001		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
242062-002		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
242062-003		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
242062-004		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	MSS - 1
242062-006		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
242062-007		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	MSS - 2
242064-001		Water	500	2.5	1	0.005	5	.5			3630C	TEHM	
242064-003		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
242064-004		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
242064-005		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
242064-006		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
242064-007		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
QC670957	BLANK	Water	500	2.5	1	0.005		.5			3630C		
QC670958	LCS	Water	500	2.5	1	0.005		.5	.5		3630C		
QC670959	MS	Water	500	2.5	1	0.005	7	.5	.5		3630C		
QC670960	MSD	Water	500	2.5	1	0.005	7	.5	.5		3630C		
QC670961	MS	Water	500	2.5	1	0.005	7	.5	.5		3630C		
QC670962	MSD	Water	500	2.5	1	0.005	7	.5	.5		3630C		

Analyst: SFL Date: 12/26/12 Reviewer: JDG Date: 12/27/12

TEH (8015) Water Prep Log

Curtis & Tompkins, Ltd.

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LIMS Batch No: 194050
LIMS Analysis: TEHM
Date Extracted: 12/20/12

Extraction Method:
☑ 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
242057-001	D	☑ 500 ☐	☑ 7 ☐	☑ 2.5 ☐		☑ ≤2pH	
-002		☑ 500 ☐	☑ 7 ☐	☑ 2.5 ☐		☑ ≤2pH	
-003		☑ 500 ☐	☑ 7 ☐	☑ 2.5 ☐		☑ ≤2pH	
-004		☑ 500 ☐	☑ 7 ☐	☑ 2.5 ☐		☑ ≤2pH	
-005		☑ 500 ☐	☑ 7 ☐	☑ 2.5 ☐		☑ ≤2pH	
-006		☑ 500 ☐	☑ 7 ☐	☑ 2.5 ☐		☑ ≤2pH	
242062-001	H	☑ 500 ☐	☑ 7 ☐	☑ 2.5 ☐	X	☑ ≤2pH	
-002		☑ 500 ☐	☑ 7 ☐	☑ 2.5 ☐		☑ ≤2pH	
-003		☑ 500 ☐	☑ 7 ☐	☑ 2.5 ☐		☑ ≤2pH	
-004	V	☑ 500 ☐	☑ 7 ☐	☑ 2.5 ☐		☑ ≤2pH	MSS-1
-006	B	☑ 500 ☐	☑ 7 ☐	☑ 2.5 ☐		☑ ≤2pH	
-007	D	☑ 500 ☐	☑ 7 ☐	☑ 2.5 ☐		☑ ≤2pH	MSS-2
242064-001	D	☑ 500 ☐	☐ 7 ☑ 5	☑ 2.5 ☐		☑ ≤2pH	
-003		☑ 500 ☐	☑ 7 ☐	☑ 2.5 ☐		☑ ≤2pH	
-004		☑ 500 ☐	☑ 7 ☐	☑ 2.5 ☐		☑ ≤2pH	
-005		☑ 500 ☐	☑ 7 ☐	☑ 2.5 ☐		☑ ≤2pH	
-006		☑ 500 ☐	☑ 7 ☐	☑ 2.5 ☐		☑ ≤2pH	
-007		☑ 500 ☐	☑ 7 ☐	☑ 2.5 ☐		☑ ≤2pH	
MB QC670957	N/A	☑ 500 ☐	☐ 7 ☑ NA	☑ 2.5 ☐		☑ ≤2pH	
LCS 58		☑ 500 ☐	☐ 7 ☑	☑ 2.5 ☐		☑ ≤2pH	
MS[1] 59	W	☑ 500 ☐	☑ 7 ☐	☑ 2.5 ☐		☑ ≤2pH	
MSD[1] 60	X	☑ 500 ☐	☑ 7 ☐	☑ 2.5 ☐		☑ ≤2pH	
MS[2] 61	E	☑ 500 ☐	☑ 7 ☐	☑ 2.5 ☐		☑ ≤2pH	
MSD[2] 62	F	☑ 500 ☐	☑ 7 ☐	☑ 2.5 ☐		☑ ≤2pH	

	Mfg & Lot# / LIMS # / Time	Date/ Initials
0.5 mL of TEH_SURR was added to all samples	S21130B	TFB 12/20/12
0.5 mL of TEH_SP was added to all spikes	S21185B	
pH of all samples adjusted to pH ≤ 2 with H_2SO_4	FS122650	
☑ 3520c: Samples were continually extracted about 450 mL of CH_2Cl_2	EM52140	
Extraction Start Time:	1230	
Extraction End Time:	740	MA 12.21.12
☐ 3510c: Samples were extracted 3 times with 60 mL of CH_2Cl_2	N/A	
Extracts filtered through baked, CH2Cl2-rinsed granular Na2SO4	EM114205 21	
Concentrated to final volume at temperature (degrees C)	100	
Relinquished to TEH Department		

12/20/12
Extraction Chemist **Date**

Contined from Page ____
Continued on Page ____

12/26/12
Reviewed by **Date**

Curtis & Tompkins, Ltd. **Silica Gel Cleanup** **EPA 3630c**

Prep Chemist: MA
Cleanup Date: 12-21-12

Benchbook # BK 3392
Page 2

Sample #	Extraction Batch#	Initial Volume (mL)	Final Volume (mL)	Comments
242062-001	194050	☑ 1.0 ☐	☑ 1.0 ☐	
2		☑ 1.0 ☐	☑ 1.0 ☐	
3		☑ 1.0 ☐	☑ 1.0 ☐	
4		☑ 1.0 ☐	☑ 1.0 ☐	
6		☑ 1.0 ☐	☑ 1.0 ☐	
7		☑ 1.0 ☐	☑ 1.0 ☐	
242064-001		☑ 1.0 ☐	☑ 1.0 ☐	
3		☑ 1.0 ☐	☑ 1.0 ☐	
4		☑ 1.0 ☐	☑ 1.0 ☐	
5		☑ 1.0 ☐	☑ 1.0 ☐	
6		☑ 1.0 ☐	☑ 1.0 ☐	
7		☑ 1.0 ☐	☑ 1.0 ☐	
MB QC670957		☑ 1.0 ☐	☑ 1.0 ☐	
LCS 58		☑ 1.0 ☐	☑ 1.0 ☐	
MS 59		☑ 1.0 ☐	☑ 1.0 ☐	
MSD 60		☑ 1.0 ☐	☑ 1.0 ☐	
MS 61		☑ 1.0 ☐	☑ 1.0 ☐	
MSD 62		☑ 1.0 ☐	☑ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	ICK 12/26/12

	Mfg & Lot # / Time / Program	Initials / Date
☑ Extracts were cleaned up using C&T assembled 1.0 g columns	I12X009	MA 12-21-12
☐ Extracts were cleaned up using ___ g cartridges	N/A	
Extracts were eluted with 40 mL CH_2Cl_2	EM52160	
Concentrated to volumes as noted above		

12-21-12

Extraction Chemist / Date

Continued from page ___
Continued on page ___

12/26/12

Reviewed by / Date

Case Narrative Addendum: Manual Integrations for 242064 GCSV (Water)

For SAMPLE 242064-004 (GC15B 356b022):
Manually integrated fuel hump.

For SAMPLE 242064-005 (GC15B 356b023):
Corrected automatically drawn baseline.

For SAMPLE 242064-006 (GC15B 356b024):
Corrected automatically drawn baseline.

For SAMPLE 242064-007 (GC15B 356b025):
Corrected automatically drawn baseline.

For CCV DSL_1000 (GC15B 356b018):
Corrected automatically drawn baseline.

For CCV DSL_250 (GC15B 356b003):
Corrected automatically drawn baseline.

For CCV DSL_500 (GC15B 356b031):
Corrected automatically drawn baseline.

For CCV MO_500 (GC15B 356b019):
Manually integrated fuel hump.

For CCV MO_500 (GC15B 356b004):
Manually integrated fuel hump.

For CCV MO_500 (GC15B 356b032):
Manually integrated fuel hump.

For BLANK QC670957 (GC15B 356b006):
Corrected automatically drawn baseline.

For LCS QC670958 (GC15B 356b007):
Corrected automatically drawn baseline.

For MSD QC670960 (GC15B 356b010):
Corrected automatically drawn baseline for spike & dup.

For Calibration GC15B (162276981001):
Manually integrated fuel hump in multiple levels.

For ICV DSL_500 (GC15B 192b020):
Corrected automatically drawn baseline.

For Calibration GC15B (162281280001):
Corrected automatically drawn baseline in multiple levels.

For Calibration GC15B (162508794002):
Corrected automatically drawn baseline in multiple levels.

Laboratory Job Number 242064

ANALYTICAL REPORT

Semivolatile Organics by GC/MS SIM

Matrix: Water

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS SIM

Lab #:	242064	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	07193.0002	Analysis:	EPA 8270C-SIM
Field ID:	EB-121812	Batch#:	194057
Lab ID:	242064-001	Sampled:	12/18/12
Matrix:	Water	Received:	12/19/12
Units:	ug/L	Prepared:	12/20/12
Diln Fac:	1.000	Analyzed:	12/21/12

Analyte	Result	RL	MDL
Naphthalene	ND	0.1	0.02
1-Methylnaphthalene	ND	0.1	0.02
2-Methylnaphthalene	ND	0.1	0.03
Acenaphthylene	ND	0.1	0.02
Acenaphthene	ND	0.1	0.02
Fluorene	ND	0.1	0.02
Phenanthrene	ND	0.1	0.02
Anthracene	ND	0.1	0.03
Fluoranthene	ND	0.1	0.02
Pyrene	ND	0.1	0.02
Benzo(a)anthracene	ND	0.1	0.02
Chrysene	ND	0.1	0.03
Benzo(b)fluoranthene	ND	0.1	0.02
Benzo(k)fluoranthene	ND	0.1	0.02
Benzo(a)pyrene	ND	0.1	0.02
Indeno(1,2,3-cd)pyrene	ND	0.1	0.02
Dibenz(a,h)anthracene	ND	0.1	0.02
Benzo(g,h,i)perylene	ND	0.1	0.02

Surrogate	%REC	Limits
Nitrobenzene-d5	73	45-127
2-Fluorobiphenyl	69	49-120
Terphenyl-d14	54	27-120

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS SIM

Lab #:	242064	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	07193.0002	Analysis:	EPA 8270C-SIM
Field ID:	IR46MW48A-121912	Batch#:	194057
Lab ID:	242064-003	Sampled:	12/19/12
Matrix:	Water	Received:	12/19/12
Units:	ug/L	Prepared:	12/20/12
Diln Fac:	1.000	Analyzed:	12/21/12

Analyte	Result	RL	MDL
Naphthalene	ND	0.1	0.02
1-Methylnaphthalene	ND	0.1	0.02
2-Methylnaphthalene	ND	0.1	0.03
Acenaphthylene	ND	0.1	0.02
Acenaphthene	ND	0.1	0.02
Fluorene	ND	0.1	0.02
Phenanthrene	ND	0.1	0.02
Anthracene	ND	0.1	0.03
Fluoranthene	ND	0.1	0.02
Pyrene	ND	0.1	0.02
Benzo(a)anthracene	ND	0.1	0.02
Chrysene	ND	0.1	0.03
Benzo(b)fluoranthene	ND	0.1	0.02
Benzo(k)fluoranthene	ND	0.1	0.02
Benzo(a)pyrene	ND	0.1	0.02
Indeno(1,2,3-cd)pyrene	ND	0.1	0.02
Dibenz(a,h)anthracene	ND	0.1	0.02
Benzo(g,h,i)perylene	ND	0.1	0.02

Surrogate	%REC	Limits
Nitrobenzene-d5	72	45-127
2-Fluorobiphenyl	66	49-120
Terphenyl-d14	60	27-120

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS SIM

Lab #:	242064	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	07193.0002	Analysis:	EPA 8270C-SIM
Field ID:	IR24MW07A-121912	Batch#:	194057
Lab ID:	242064-004	Sampled:	12/19/12
Matrix:	Water	Received:	12/19/12
Units:	ug/L	Prepared:	12/20/12
Diln Fac:	1.000	Analyzed:	12/21/12

Analyte	Result	RL	MDL
Naphthalene	ND	0.1	0.02
1-Methylnaphthalene	ND	0.1	0.02
2-Methylnaphthalene	ND	0.1	0.03
Acenaphthylene	ND	0.1	0.02
Acenaphthene	ND	0.1	0.02
Fluorene	ND	0.1	0.02
Phenanthrene	ND	0.1	0.02
Anthracene	ND	0.1	0.03
Fluoranthene	ND	0.1	0.02
Pyrene	0.05 J	0.1	0.02
Benzo(a)anthracene	ND	0.1	0.02
Chrysene	ND	0.1	0.03
Benzo(b)fluoranthene	ND	0.1	0.02
Benzo(k)fluoranthene	ND	0.1	0.02
Benzo(a)pyrene	ND	0.1	0.02
Indeno(1,2,3-cd)pyrene	ND	0.1	0.02
Dibenz(a,h)anthracene	ND	0.1	0.02
Benzo(g,h,i)perylene	ND	0.1	0.03

Surrogate	%REC	Limits
Nitrobenzene-d5	66	45-127
2-Fluorobiphenyl	62	49-120
Terphenyl-d14	57	27-120

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS SIM

Lab #:	242064	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	07193.0002	Analysis:	EPA 8270C-SIM
Field ID:	IR24MW05A-121912	Batch#:	194057
Lab ID:	242064-005	Sampled:	12/19/12
Matrix:	Water	Received:	12/19/12
Units:	ug/L	Prepared:	12/20/12
Diln Fac:	1.000	Analyzed:	12/21/12

Analyte	Result	RL	MDL
Naphthalene	ND	0.1	0.02
1-Methylnaphthalene	ND	0.1	0.02
2-Methylnaphthalene	ND	0.1	0.03
Acenaphthylene	ND	0.1	0.02
Acenaphthene	ND	0.1	0.02
Fluorene	ND	0.1	0.02
Phenanthrene	ND	0.1	0.02
Anthracene	ND	0.1	0.03
Fluoranthene	ND	0.1	0.02
Pyrene	ND	0.1	0.02
Benzo(a)anthracene	ND	0.1	0.02
Chrysene	ND	0.1	0.03
Benzo(b)fluoranthene	ND	0.1	0.02
Benzo(k)fluoranthene	ND	0.1	0.02
Benzo(a)pyrene	ND	0.1	0.02
Indeno(1,2,3-cd)pyrene	ND	0.1	0.02
Dibenz(a,h)anthracene	ND	0.1	0.02
Benzo(g,h,i)perylene	ND	0.1	0.02

Surrogate	%REC	Limits
Nitrobenzene-d5	82	45-127
2-Fluorobiphenyl	64	49-120
Terphenyl-d14	39	27-120

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS SIM

Lab #:	242064	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	07193.0002	Analysis:	EPA 8270C-SIM
Field ID:	IR24MW28A-121912	Batch#:	194057
Lab ID:	242064-006	Sampled:	12/19/12
Matrix:	Water	Received:	12/19/12
Units:	ug/L	Prepared:	12/20/12
Diln Fac:	1.000	Analyzed:	12/21/12

Analyte	Result	RL	MDL
Naphthalene	ND	0.1	0.02
1-Methylnaphthalene	ND	0.1	0.02
2-Methylnaphthalene	ND	0.1	0.03
Acenaphthylene	ND	0.1	0.02
Acenaphthene	ND	0.1	0.02
Fluorene	ND	0.1	0.02
Phenanthrene	ND	0.1	0.02
Anthracene	ND	0.1	0.03
Fluoranthene	0.02 J	0.1	0.02
Pyrene	0.03 J	0.1	0.02
Benzo(a)anthracene	ND	0.1	0.02
Chrysene	ND	0.1	0.03
Benzo(b)fluoranthene	ND	0.1	0.02
Benzo(k)fluoranthene	ND	0.1	0.02
Benzo(a)pyrene	ND	0.1	0.02
Indeno(1,2,3-cd)pyrene	ND	0.1	0.02
Dibenz(a,h)anthracene	ND	0.1	0.02
Benzo(g,h,i)perylene	ND	0.1	0.02

Surrogate	%REC	Limits
Nitrobenzene-d5	77	45-127
2-Fluorobiphenyl	66	49-120
Terphenyl-d14	58	27-120

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS SIM

Lab #:	242064	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	07193.0002	Analysis:	EPA 8270C-SIM
Field ID:	IR99MW28A-121912	Batch#:	194057
Lab ID:	242064-007	Sampled:	12/19/12
Matrix:	Water	Received:	12/19/12
Units:	ug/L	Prepared:	12/20/12
Diln Fac:	1.000	Analyzed:	12/21/12

Analyte	Result	RL	MDL
Naphthalene	ND	0.1	0.02
1-Methylnaphthalene	ND	0.1	0.02
2-Methylnaphthalene	ND	0.1	0.03
Acenaphthylene	ND	0.1	0.02
Acenaphthene	ND	0.1	0.02
Fluorene	ND	0.1	0.02
Phenanthrene	ND	0.1	0.02
Anthracene	ND	0.1	0.03
Fluoranthene	0.02 J	0.1	0.02
Pyrene	0.02 J	0.1	0.02
Benzo(a)anthracene	ND	0.1	0.02
Chrysene	ND	0.1	0.03
Benzo(b)fluoranthene	ND	0.1	0.02
Benzo(k)fluoranthene	ND	0.1	0.02
Benzo(a)pyrene	ND	0.1	0.02
Indeno(1,2,3-cd)pyrene	ND	0.1	0.02
Dibenz(a,h)anthracene	ND	0.1	0.02
Benzo(g,h,i)perylene	ND	0.1	0.02

Surrogate	%REC	Limits
Nitrobenzene-d5	69	45-127
2-Fluorobiphenyl	58	49-120
Terphenyl-d14	51	27-120

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS SIM

Lab #:	242064	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	07193.0002	Analysis:	EPA 8270C-SIM
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC670989	Batch#:	194057
Matrix:	Water	Prepared:	12/20/12
Units:	ug/L	Analyzed:	12/21/12

Analyte	Result	RL	MDL
Naphthalene	ND	0.1	0.02
1-Methylnaphthalene	ND	0.1	0.02
2-Methylnaphthalene	ND	0.1	0.02
Acenaphthylene	ND	0.1	0.02
Acenaphthene	ND	0.1	0.02
Fluorene	ND	0.1	0.02
Phenanthrene	ND	0.1	0.02
Anthracene	ND	0.1	0.02
Fluoranthene	ND	0.1	0.02
Pyrene	ND	0.1	0.02
Benzo(a)anthracene	ND	0.1	0.02
Chrysene	ND	0.1	0.02
Benzo(b)fluoranthene	ND	0.1	0.02
Benzo(k)fluoranthene	ND	0.1	0.02
Benzo(a)pyrene	ND	0.1	0.02
Indeno(1,2,3-cd)pyrene	ND	0.1	0.02
Dibenz(a,h)anthracene	ND	0.1	0.02
Benzo(g,h,i)perylene	ND	0.1	0.02

Surrogate	%REC	Limits
Nitrobenzene-d5	54	45-127
2-Fluorobiphenyl	61	49-120
Terphenyl-d14	61	27-120

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS SIM

Lab #:	242064	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	07193.0002	Analysis:	EPA 8270C-SIM
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC670990	Batch#:	194057
Matrix:	Water	Prepared:	12/20/12
Units:	ug/L	Analyzed:	12/21/12

Analyte	Spiked	Result	%REC	Limits
Naphthalene	1.000	0.9980	100	40-115
1-Methylnaphthalene	1.000	0.9510	95	40-115
2-Methylnaphthalene	1.000	0.9832	98	40-115
Acenaphthylene	1.000	0.8364	84	40-115
Acenaphthene	1.000	0.9233	92	40-115
Fluorene	1.000	0.9138	91	40-115
Phenanthrene	1.000	1.032	103	40-115
Anthracene	1.000	0.9662	97	40-115
Fluoranthene	1.000	0.9631	96	40-115
Pyrene	1.000	0.9206	92	40-115
Benzo(a)anthracene	1.000	0.7386	74	40-115
Chrysene	1.000	0.7658	77	40-115
Benzo(b)fluoranthene	1.000	0.8569	86	40-115
Benzo(k)fluoranthene	1.000	0.8568	86	40-115
Benzo(a)pyrene	1.000	0.8543	85	40-115
Indeno(1,2,3-cd)pyrene	1.000	0.8277	83	40-115
Dibenz(a,h)anthracene	1.000	0.7036	70	40-115
Benzo(g,h,i)perylene	1.000	0.9118	91	40-115

Surrogate	%REC	Limits
Nitrobenzene-d5	83	45-127
2-Fluorobiphenyl	89	49-120
Terphenyl-d14	98	27-120

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS SIM

Lab #:	242064	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	07193.0002	Analysis:	EPA 8270C-SIM
Field ID:	ZZZZZZZZZZ	Batch#:	194057
MSS Lab ID:	242062-004	Sampled:	12/18/12
Matrix:	Water	Received:	12/19/12
Units:	ug/L	Prepared:	12/20/12
Diln Fac:	1.000	Analyzed:	12/26/12

Type: MS Lab ID: QC670991

Analyte	MSS Result	Spiked	Result	%REC	Limits
Naphthalene	<0.01923	0.9434	0.7618	81	40-115
1-Methylnaphthalene	<0.01923	0.9434	0.7517	80	40-115
2-Methylnaphthalene	<0.01923	0.9434	0.7938	84	40-115
Acenaphthylene	<0.01923	0.9434	0.6471	69	40-115
Acenaphthene	<0.01923	0.9434	0.7058	75	40-115
Fluorene	<0.01923	0.9434	0.7433	79	40-115
Phenanthrene	<0.01923	0.9434	0.8231	87	40-115
Anthracene	<0.01923	0.9434	0.7268	77	40-115
Fluoranthene	<0.01923	0.9434	0.8075	86	40-115
Pyrene	<0.01923	0.9434	0.8223	87	40-115
Benzo(a)anthracene	<0.01923	0.9434	0.6195	66	40-115
Chrysene	<0.01923	0.9434	0.6485	69	40-115
Benzo(b)fluoranthene	<0.01923	0.9434	0.7090	75	40-115
Benzo(k)fluoranthene	<0.01923	0.9434	0.6642	70	40-115
Benzo(a)pyrene	<0.01923	0.9434	0.6986	74	40-115
Indeno(1,2,3-cd)pyrene	<0.01923	0.9434	0.7055	75	40-115
Dibenz(a,h)anthracene	<0.01923	0.9434	0.6000	64	40-115
Benzo(g,h,i)perylene	<0.01923	0.9434	0.7641	81	40-115

Surrogate	%REC	Limits
Nitrobenzene-d5	70	45-127
2-Fluorobiphenyl	75	49-120
Terphenyl-d14	72	27-120

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS SIM

Lab #:	242064	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	07193.0002	Analysis:	EPA 8270C-SIM
Field ID:	ZZZZZZZZZZ	Batch#:	194057
MSS Lab ID:	242062-004	Sampled:	12/18/12
Matrix:	Water	Received:	12/19/12
Units:	ug/L	Prepared:	12/20/12
Diln Fac:	1.000	Analyzed:	12/26/12

Type: MSD Lab ID: QC670992

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Naphthalene	0.9346	0.8739	94	40-115	15	20
1-Methylnaphthalene	0.9346	0.8409	90	40-115	12	20
2-Methylnaphthalene	0.9346	0.9017	96	40-115	14	20
Acenaphthylene	0.9346	0.7507	80	40-115	16	20
Acenaphthene	0.9346	0.8122	87	40-115	15	20
Fluorene	0.9346	0.8323	89	40-115	12	20
Phenanthrene	0.9346	0.9083	97	40-115	11	20
Anthracene	0.9346	0.7906	85	40-115	9	20
Fluoranthene	0.9346	0.8720	93	40-115	9	20
Pyrene	0.9346	0.8868	95	40-115	8	20
Benzo(a)anthracene	0.9346	0.6666	71	40-115	8	20
Chrysene	0.9346	0.7014	75	40-115	9	20
Benzo(b)fluoranthene	0.9346	0.7378	79	40-115	5	20
Benzo(k)fluoranthene	0.9346	0.7225	77	40-115	9	20
Benzo(a)pyrene	0.9346	0.7442	80	40-115	7	20
Indeno(1,2,3-cd)pyrene	0.9346	0.7587	81	40-115	8	20
Dibenz(a,h)anthracene	0.9346	0.6540	70	40-115	10	20
Benzo(g,h,i)perylene	0.9346	0.8462	91	40-115	11	20

Surrogate	%REC	Limits
Nitrobenzene-d5	86	45-127
2-Fluorobiphenyl	86	49-120
Terphenyl-d14	81	27-120

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS SIM

Lab #:	242064	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	07193.0002	Analysis:	EPA 8270C-SIM
Field ID:	ZZZZZZZZZZ	Batch#:	194057
MSS Lab ID:	242062-007	Sampled:	12/18/12
Matrix:	Water	Received:	12/19/12
Units:	ug/L	Prepared:	12/20/12
Diln Fac:	1.000	Analyzed:	12/26/12

Type: MS Lab ID: QC670993

Analyte	MSS Result	Spiked	Result	%REC	Limits
Naphthalene	<0.01869	0.9434	0.9484	101	40-115
1-Methylnaphthalene	<0.01869	0.9434	0.9174	97	40-115
2-Methylnaphthalene	<0.01869	0.9434	0.9665	102	40-115
Acenaphthylene	<0.01869	0.9434	0.8004	85	40-115
Acenaphthene	<0.01869	0.9434	0.7337	78	40-115
Fluorene	<0.01869	0.9434	0.8540	91	40-115
Phenanthrene	<0.01869	0.9434	0.9377	99	40-115
Anthracene	<0.01869	0.9434	0.7652	81	40-115
Fluoranthene	<0.01869	0.9434	0.8742	93	40-115
Pyrene	<0.01869	0.9434	0.8277	88	40-115
Benzo(a)anthracene	<0.01869	0.9434	0.6643	70	40-115
Chrysene	<0.01869	0.9434	0.6878	73	40-115
Benzo(b)fluoranthene	<0.01869	0.9434	0.7552	80	40-115
Benzo(k)fluoranthene	<0.01869	0.9434	0.7193	76	40-115
Benzo(a)pyrene	<0.01869	0.9434	0.7579	80	40-115
Indeno(1,2,3-cd)pyrene	<0.01869	0.9434	0.7422	79	40-115
Dibenz(a,h)anthracene	<0.01869	0.9434	0.6351	67	40-115
Benzo(g,h,i)perylene	<0.01869	0.9434	0.8202	87	40-115

Surrogate	%REC	Limits
Nitrobenzene-d5	92	45-127
2-Fluorobiphenyl	90	49-120
Terphenyl-d14	71	27-120

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS SIM

Lab #:	242064	Location:	Hunters Point Parcel B Fall 2012 GW
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	07193.0002	Analysis:	EPA 8270C-SIM
Field ID:	ZZZZZZZZZZ	Batch#:	194057
MSS Lab ID:	242062-007	Sampled:	12/18/12
Matrix:	Water	Received:	12/19/12
Units:	ug/L	Prepared:	12/20/12
Diln Fac:	1.000	Analyzed:	12/26/12

Type: MSD Lab ID: QC670994

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Naphthalene	0.9346	0.8634	92	40-115	8	20
1-Methylnaphthalene	0.9346	0.8310	89	40-115	9	20
2-Methylnaphthalene	0.9346	0.8904	95	40-115	7	20
Acenaphthylene	0.9346	0.7187	77	40-115	10	20
Acenaphthene	0.9346	0.6701	72	40-115	8	20
Fluorene	0.9346	0.7937	85	40-115	6	20
Phenanthrene	0.9346	0.8782	94	40-115	6	20
Anthracene	0.9346	0.6987	75	40-115	8	20
Fluoranthene	0.9346	0.8324	89	40-115	4	20
Pyrene	0.9346	0.7563	81	40-115	8	20
Benzo(a)anthracene	0.9346	0.6104	65	40-115	8	20
Chrysene	0.9346	0.6612	71	40-115	3	20
Benzo(b)fluoranthene	0.9346	0.6815	73	40-115	9	20
Benzo(k)fluoranthene	0.9346	0.6793	73	40-115	5	20
Benzo(a)pyrene	0.9346	0.7070	76	40-115	6	20
Indeno(1,2,3-cd)pyrene	0.9346	0.7050	75	40-115	4	20
Dibenz(a,h)anthracene	0.9346	0.5967	64	40-115	5	20
Benzo(g,h,i)perylene	0.9346	0.7720	83	40-115	5	20

Surrogate	%REC	Limits
Nitrobenzene-d5	83	45-127
2-Fluorobiphenyl	82	49-120
Terphenyl-d14	59	27-120

RPD= Relative Percent Difference

Initial & Continuing Calibration Data

CURTIS & TOMPKINS DFTPP TUNE FOR 242064 MSSIM Water
EPA 8270C

Inst : MSBNA02 Run Name : DFTPP IDF : 1.0
Seqnum : 512467299005 File : ukj05 Time : 19-NOV-2012 17:15

Standards: S20709

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	34100	53.45	
68	< 2% of mass 69	0	0.00	
69		36982	100.00	
70	< 2% of mass 69	158	0.43	
127	40% - 60% of mass 198	32677	51.22	
197	< 1% of mass 198	0	0.00	
198		63802	100.00	
199	5% - 9% of mass 198	4158	6.52	
275	10% - 30% of mass 198	10122	15.86	
365	> 1% of mass 198	1025	1.61	
441	Present, < mass 443	6370	74.53	
442	> 40% and < 100% of mass 198	44637	69.96	
443	17% - 23% of mass 442	8547	19.15	

Analyst: LLH Date: 11/20/12 Reviewer: LW Date: 11/20/12

CURTIS & TOMPKINS DFTPP TUNE FOR 242064 MSSIM Water
EPA 8270C / EPA 8270C-SIM

Inst : MSBNA02 Run Name : DFTPP IDF : 1.0
Seqnum : 512513624001 File : ull01 Time : 21-DEC-2012 16:24

Standards: S21344

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	22819	48.18	
68	< 2% of mass 69	0	0.00	
69		22349	100.00	
70	< 2% of mass 69	18	0.08	
127	40% - 60% of mass 198	23906	50.48	
197	< 1% of mass 198	0	0.00	
198		47362	100.00	
199	5% - 9% of mass 198	3020	6.38	
275	10% - 30% of mass 198	8282	17.49	
365	> 1% of mass 198	660	1.39	
441	Present, < mass 443	5326	70.34	
442	> 40% and < 100% of mass 198	38811	81.95	
443	17% - 23% of mass 442	7572	19.51	

Analyst: KMH Date: 12/21/12 Reviewer: LLH Date: 12/27/12

CURTIS & TOMPKINS DFTPP TUNE FOR 242064 MSSIM Water
EPA 8270C

Inst : MSBNA03 Run Name : DFTPP IDF : 1.0
Seqnum : 522448434004 File : vk604 Time : 06-NOV-2012 11:45

Standards: S20709

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	163900	49.17	
68	< 2% of mass 69	0	0.00	
69		183488	100.00	
70	< 2% of mass 69	1052	0.57	
127	40% - 60% of mass 198	180016	54.00	
197	< 1% of mass 198	0	0.00	
198		333333	100.00	
199	5% - 9% of mass 198	23333	7.00	
275	10% - 30% of mass 198	93997	28.20	
365	> 1% of mass 198	11088	3.33	
441	Present, < mass 443	47237	85.44	
442	> 40% and < 100% of mass 198	284970	85.49	
443	17% - 23% of mass 442	55285	19.40	

Analyst: LLH Date: 11/06/12 Reviewer: LW Date: 11/07/12

CURTIS & TOMPKINS DFTPP TUNE FOR 242064 MSSIM Water
EPA 8270C

Inst : MSBNA03 Run Name : DFTPP IDF : 1.0
Seqnum : 522513207009 File : vll09 Time : 21-DEC-2012 14:49

Standards: S21344

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	50128	43.27	
68	< 2% of mass 69	0	0.00	
69		53313	100.00	
70	< 2% of mass 69	222	0.42	
127	40% - 60% of mass 198	63416	54.74	
197	< 1% of mass 198	0	0.00	
198		115842	100.00	
199	5% - 9% of mass 198	8154	7.04	
275	10% - 30% of mass 198	31685	27.35	
365	> 1% of mass 198	3563	3.08	
441	Present, < mass 443	13915	83.60	
442	> 40% and < 100% of mass 198	86370	74.56	
443	17% - 23% of mass 442	16645	19.27	

Analyst: KMH Date: 12/21/12 Reviewer: LLH Date: 12/27/12

CURTIS & TOMPKINS DFTPP TUNE FOR 242064 MSSIM Water
EPA 8270C

Inst : MSBNA03 Run Name : DFTPP IDF : 1.0
Seqnum : 522520478007 File : vlq07 Time : 26-DEC-2012 14:54

Standards: S21344

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	18109	45.18	
68	< 2% of mass 69	0	0.00	
69		19277	100.00	
70	< 2% of mass 69	104	0.54	
127	40% - 60% of mass 198	21408	53.41	
197	< 1% of mass 198	0	0.00	
198		40082	100.00	
199	5% - 9% of mass 198	2751	6.86	
275	10% - 30% of mass 198	10996	27.43	
365	> 1% of mass 198	1261	3.15	
441	Present, < mass 443	4759	79.03	
442	> 40% and < 100% of mass 198	28549	71.23	
443	17% - 23% of mass 442	6022	21.09	

Analyst: KMH Date: 12/26/12 Reviewer: LLH Date: 12/27/12

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 242064 MSSIM Water: EPA 8270C-SIM

Inst : MSBNA02
Calnum : 512467299001
Units : ug/mL

Name : 2PAHSIM
Date : 19-NOV-2012 17:40
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	ukj06	512467299006	ICAL	19-NOV-2012 17:40	S20547
L2	ukj07	512467299007	ICAL	19-NOV-2012 18:17	S20548
L3	ukj08	512467299008	ICAL	19-NOV-2012 18:58	S20549
L4	ukj09	512467299009	ICAL	19-NOV-2012 19:40	S20550
L5	ukj10	512467299010	ICAL	19-NOV-2012 20:25	S20551
L6	ukj11	512467299011	ICAL	19-NOV-2012 21:08	S20552
L7	ukj12	512467299012	ICAL	19-NOV-2012 21:52	S20553

Analyte	L1	L2	L3	L4	L5	L6	L7	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Naphthalene	1.0143	0.9695	1.0252	1.0162	0.9630m	0.9311m	0.8512m	AVRG		1.03390		0.9672	6	15	0.05	0.99	
2-Methylnaphthalene	0.5693	0.5499	0.5499	0.5782	0.5758	0.5986	0.5458m	AVRG		1.76433		0.5668	3	15	0.05	0.99	
1-Methylnaphthalene	0.7725m	0.7330m	0.7136m	0.6742m	0.6720m	0.5947m	0.5382m	AVRG		1.48991		0.6712	12	15	0.05	0.99	
Acenaphthylene	1.7996m	1.7627	1.7432m	1.7451m	1.7023m	1.7008m	1.5505m	AVRG		0.58313		1.7149	5	15	0.05	0.99	
Acenaphthene	1.0716m	1.0753m	1.0842m	1.0875m	1.0342m	1.0160m	0.9453m	AVRG		0.95705		1.0449	5	15	0.05	0.99	
Fluorene	1.1412	1.1082	1.1098	1.1027	1.0399	1.1273	1.0194	AVRG		0.91521		1.0926	4	15	0.05	0.99	
Phenanthrene	1.0278	1.0426	1.0438	1.1511	1.0571	1.0520	0.9758	AVRG		0.95233		1.0501	5	15	0.05	0.99	
Anthracene	1.2398m	1.2534m	1.1276m	1.2024m	1.1160m	1.0841m	0.9312m	AVRG		0.88000		1.1364	10	15	0.05	0.99	
Fluoranthene	1.1415m	1.1059m	1.1175m	1.0883m	1.0727m	0.9858m	0.8813m	AVRG		0.94686		1.0561	9	15	0.05	0.99	
Pyrene	1.8226m	1.7911m	1.6205m	1.5468m	1.6273m	1.4400m	1.3828m	AVRG		0.62327		1.6044	10	15	0.05	0.99	
Benzo(a)anthracene	1.2334	1.1768	1.1128	1.1053	1.1262	1.1091	1.0583	AVRG		0.88363		1.1317	5	15	0.05	0.99	
Chrysene	1.2772m	1.2744m	1.1481m	1.1464m	1.2049m	1.1084m	1.0167m	AVRG		0.85616		1.1680	8	15	0.05	0.99	
Benzo(b)fluoranthene	1.2945	1.3011	1.1442	1.2261	1.2197	1.1065	1.1566	AVRG		0.82854		1.2069	6	15	0.05	0.99	
Benzo(k)fluoranthene	1.4734m	1.4739m	1.2514m	1.3500m	1.2703m	1.4107m	1.3162m	AVRG		0.73330		1.3637	7	15	0.05	0.99	
Benzo(a)pyrene	1.0599	1.0849	1.0064m	1.0156m	1.0710	1.0229	0.9849	AVRG		0.96611		1.0351	4	15	0.05	0.99	
Indeno(1,2,3-cd)pyrene	0.9427	0.9815	0.8909	0.8846	0.9646	1.0001	0.9783	AVRG		1.05378		0.9490	5	15	0.05	0.99	
Dibenz(a,h)anthracene	0.7483	0.7239	0.6877	0.6791	0.7516	0.7846	0.7787	AVRG		1.35820		0.7363	6	15	0.05	0.99	
Benzo(g,h,i)perylene	0.9062	0.8700	0.8523	0.8586	0.9140	0.8798	0.9071	AVRG		1.13122		0.8840	3	15	0.05	0.99	
Nitrobenzene-d5	0.2216m	0.2122m	0.2323m	0.2347m	0.2462m	0.2486	0.2374	AVRG		4.28681		0.2333	6	15	0.05	0.99	
2-Fluorobiphenyl	1.1557	1.3012	1.2387	1.3192	1.2438	1.2173	1.1014m	AVRG		0.81611		1.2253	6	15	0.05	0.99	
Terphenyl-d14	0.9363m	0.9331m	0.7931m	0.7649m	0.8719m	0.7351m	0.6756m	AVRG		1.22591		0.8157	12	15	0.05	0.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D
Naphthalene	0.1000	5	0.2000	0	0.5000	6	1.0000	5	2.0000	0	5.0000	-4	10.000	-12
2-Methylnaphthalene	0.1000	0	0.2000	-3	0.5000	-3	1.0000	2	2.0000	2	5.0000	6	10.000	-4
1-Methylnaphthalene	0.1000	15	0.2000	9	0.5000	6	1.0000	0	2.0000	0	5.0000	-11	10.000	-20
Acenaphthylene	0.1000	5	0.2000	3	0.5000	2	1.0000	2	2.0000	-1	5.0000	-1	10.000	-10
Acenaphthene	0.1000	3	0.2000	3	0.5000	4	1.0000	4	2.0000	-1	5.0000	-3	10.000	-10
Fluorene	0.1000	4	0.2000	1	0.5000	2	1.0000	1	2.0000	-5	5.0000	3	10.000	-7
Phenanthrene	0.1000	-2	0.2000	-1	0.5000	-1	1.0000	10	2.0000	1	5.0000	0	10.000	-7
Anthracene	0.1000	9	0.2000	10	0.5000	-1	1.0000	6	2.0000	-2	5.0000	-5	10.000	-18
Fluoranthene	0.1000	8	0.2000	5	0.5000	6	1.0000	3	2.0000	2	5.0000	-7	10.000	-17
Pyrene	0.1000	14	0.2000	12	0.5000	1	1.0000	-4	2.0000	1	5.0000	-10	10.000	-14
Benzo(a)anthracene	0.1000	9	0.2000	4	0.5000	-2	1.0000	-2	2.0000	0	5.0000	-2	10.000	-6
Chrysene	0.1000	9	0.2000	9	0.5000	-2	1.0000	-2	2.0000	3	5.0000	-5	10.000	-13
Benzo(b)fluoranthene	0.1000	7	0.2000	8	0.5000	-5	1.0000	2	2.0000	1	5.0000	-8	10.000	-4
Benzo(k)fluoranthene	0.1000	8	0.2000	8	0.5000	-8	1.0000	-1	2.0000	-7	5.0000	3	10.000	-3
Benzo(a)pyrene	0.1000	2	0.2000	5	0.5000	-3	1.0000	-2	2.0000	3	5.0000	-1	10.000	-5
Indeno(1,2,3-cd)pyrene	0.1000	-1	0.2000	3	0.5000	-6	1.0000	-7	2.0000	2	5.0000	5	10.000	3
Dibenz(a,h)anthracene	0.1000	2	0.2000	-2	0.5000	-7	1.0000	-8	2.0000	2	5.0000	7	10.000	6
Benzo(g,h,i)perylene	0.1000	3	0.2000	-2	0.5000	-4	1.0000	-3	2.0000	3	5.0000	0	10.000	3
Nitrobenzene-d5	0.1000	-5	0.2000	-9	0.5000	0	1.0000	1	2.0000	6	5.0000	7	10.000	2
2-Fluorobiphenyl	0.1000	-6	0.2000	6	0.5000	1	1.0000	8	2.0000	2	5.0000	-1	10.000	-10
Terphenyl-d14	0.1000	15	0.2000	14	0.5000	-3	1.0000	-6	2.0000	7	5.0000	-10	10.000	-17

LLH 11/20/12 [Naphthalene-d8]: Corrected automatically drawn baseline in multiple levels.

LLH 11/20/12 [Acenaphthene-d10]: Corrected automatically drawn baseline in all levels.

LLH 11/20/12 [Chrysene-d12]: Corrected automatically drawn baseline in all levels.

LLH 11/20/12 [Perylene-d12]: Corrected automatically drawn baseline in all levels.

LLH 11/20/12 [1,4-Dioxane]: Corrected automatically drawn baseline in multiple levels.

LLH 11/20/12 [Nitrobenzene-d5]: Corrected automatically drawn baseline in multiple levels.

LLH 11/20/12 [Naphthalene]: Corrected automatically drawn baseline in multiple levels.

LLH 11/20/12 [2-Methylnaphthalene]: Corrected automatically drawn baseline in ICAL (ukj12).

LLH 11/20/12 [1-Methylnaphthalene]: Corrected automatically drawn baseline in all levels.

LLH 11/20/12 [2-Fluorobiphenyl]: Corrected automatically drawn baseline in ICAL (ukj12).

LLH 11/20/12 [Acenaphthylene]: Corrected automatically drawn baseline in multiple levels.

LLH 11/20/12 [Acenaphthene]: Corrected automatically drawn baseline in all levels.

LLH 11/20/12 [Anthracene]: Corrected automatically drawn baseline in all levels.

LLH 11/20/12 [Fluoranthene]: Corrected automatically drawn baseline in all levels.

LLH 11/20/12 [Pyrene]: Corrected automatically drawn baseline in all levels.

LLH 11/20/12 [Terphenyl-d14]: Corrected automatically drawn baseline in all levels.

LLH 11/20/12 [Chrysene]: Corrected automatically drawn baseline in all levels.

LLH 11/20/12 [Benzo(k)fluoranthene]: Corrected automatically drawn baseline in all levels.

LLH 11/20/12 [Benzo(a)pyrene]: Corrected fronting or tailing peak integration in multiple levels.

Analyst: LLH Date: 11/20/12 Reviewer: LW Date: 11/20/12

m=manual integration

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

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 242064 MSSIM Water
EPA 8270C-SIM

Inst : MSBNA02 Name : 2PAHSIM
Calnum : 512467299001 Cal Date : 19-NOV-2012

ICV 512467299013 (ukj13 19-NOV-2012) stds: S20103

Analyte	Spiked	Quant	Units	%D	Max	Flags
Naphthalene	1.000	1.120	ug/mL	12	30	
2-Methylnaphthalene	1.000	1.159	ug/mL	16	30	
1-Methylnaphthalene	1.000	1.150	ug/mL	15	30	m
Acenaphthylene	1.000	1.018	ug/mL	2	30	m
Acenaphthene	1.000	0.9837	ug/mL	-2	20	m
Fluorene	1.000	0.9708	ug/mL	-3	30	
Phenanthrene	1.000	1.035	ug/mL	3	30	
Anthracene	1.000	0.9916	ug/mL	-1	30	m
Fluoranthene	1.000	0.9987	ug/mL	0	20	m
Pyrene	1.000	1.055	ug/mL	5	30	m
Benzo(a)anthracene	1.000	0.9621	ug/mL	-4	30	
Chrysene	1.000	1.031	ug/mL	3	30	m
Benzo(b)fluoranthene	1.000	0.9930	ug/mL	-1	30	
Benzo(k)fluoranthene	1.000	1.066	ug/mL	7	30	m
Benzo(a)pyrene	1.000	0.8937	ug/mL	-11	20	m
Indeno(1,2,3-cd)pyrene	1.000	0.9696	ug/mL	-3	30	
Dibenz(a,h)anthracene	1.000	0.9466	ug/mL	-5	30	
Benzo(g,h,i)perylene	1.000	0.9394	ug/mL	-6	30	

Analyst: LLH Date: 11/20/12 Reviewer: LW Date: 11/20/12

m=manual integration

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 242064 MSSIM Water: EPA 8270C-SIM

Inst : MSBNA03
Calnum : 522448434001
Units : ug/mL

Name : 3PAHSIM
Date : 06-NOV-2012 12:04
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	vk605	522448434005	ICAL	06-NOV-2012 12:04	S20547
L2	vk606	522448434006	ICAL	06-NOV-2012 12:39	S20548
L3	vk607	522448434007	ICAL	06-NOV-2012 13:14	S20549
L4	vk608	522448434008	ICAL	06-NOV-2012 13:47	S20550
L5	vk609	522448434009	ICAL	06-NOV-2012 14:20	S20551
L6	vk610	522448434010	ICAL	06-NOV-2012 14:53	S20552
L7	vk611	522448434011	ICAL	06-NOV-2012 15:27	S20553

Analyte	L1	L2	L3	L4	L5	L6	L7	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Naphthalene	0.9822	1.0002	0.9796	0.9643	0.9252	0.8675	0.8122	AVRG		1.07178		0.9330	7	15	0.05	0.99	
2-Methylnaphthalene	0.7339	0.7403	0.7046	0.6808	0.6419	0.5950	0.5576	AVRG		1.50405		0.6649	10	15	0.05	0.99	
1-Methylnaphthalene	0.7309	0.7138	0.6705	0.6451	0.6151	0.5715	0.5356	AVRG		1.56159		0.6404	11	15	0.05	0.99	
Acenaphthylene	1.9682	1.9285	1.8602	1.8230	1.7658	1.6395	1.5551	AVRG		0.55821		1.7915	8	15	0.05	0.99	
Acenaphthene	1.0923	1.0728	1.0322	1.0168	0.9927	0.9517	0.9160	AVRG		0.98945		1.0107	6	15	0.05	0.99	
Fluorene	1.4682	1.3980	1.2925	1.2536	1.2056	1.1181	1.0627	AVRG		0.79557		1.2570	12	15	0.05	0.99	
Phenanthrene	1.0607	1.0187	0.9363	0.9278	0.8953	0.8376	0.7927	AVRG		1.08206		0.9242	10	15	0.05	0.99	
Anthracene	1.0483	0.9964	0.9062	0.8994	0.8762	0.8233	0.7702	AVRG		1.10760		0.9029	11	15	0.05	0.99	
Fluoranthene	1.3610	1.2889	1.1540	1.1228	1.0603	0.9728	0.9061	AVRG		0.88992		1.1237	14	15	0.05	0.99	
Pyrene	1.4763	1.3651	1.2365	1.2062	1.1684	1.0736	1.0109	AVRG		0.81997		1.2196	13	15	0.05	0.99	
Benzo(a)anthracene	1.3195	1.2216	1.1268	1.1281	1.1098	1.0473	0.9866	AVRG		0.88164		1.1343	10	15	0.05	0.99	
Chrysene	1.1716m	1.1115m	1.0403m	1.0431m	1.0261m	0.9594	0.8969	AVRG		0.96568		1.0355	9	15	0.05	0.99	
Benzo(b)fluoranthene	1.3706	1.3110	1.1859	1.2070	1.1430	1.0615	1.0495	AVRG		0.84049		1.1898	10	15	0.05	0.99	
Benzo(k)fluoranthene	1.2971m	1.2452m	1.1099m	1.1924m	1.1851	1.1165	1.0270	AVRG		0.85646		1.1676	8	15	0.05	0.99	
Benzo(a)pyrene	1.1733	1.1202	1.0201	1.0374	1.0450	0.9982	0.9742	AVRG		0.95001		1.0526	7	15	0.05	0.99	
Indeno(1,2,3-cd)pyrene	1.0715	1.0354	0.9628	0.9702	0.9642	0.9340	0.9248	AVRG		1.01998		0.9804	5	15	0.05	0.99	
Dibenz(a,h)anthracene	0.8446	0.8229	0.7539	0.7670	0.7703	0.7603	0.7585	AVRG		1.27795		0.7825	5	15	0.05	0.99	
Benzo(g,h,i)perylene	0.9177	0.8909	0.8161	0.8225	0.8035	0.7585	0.7480	AVRG		1.21585		0.8225	8	15	0.05	0.99	
Nitrobenzene-d5	0.2623	0.2609	0.2554	0.2626	0.2576	0.2585	0.2562	AVRG		3.86018		0.2591	1	15	0.05	0.99	
2-Fluorobiphenyl	1.5316	1.5203	1.4585	1.4016	1.3358	1.2374	1.1492	AVRG		0.72657		1.3763	10	15	0.05	0.99	
Terphenyl-d14	0.9523	0.8863	0.8098	0.7945	0.7735	0.7328	0.6953	AVRG		1.24013		0.8064	11	15	0.05	0.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D
Naphthalene	0.1000	5	0.2000	7	0.5000	5	1.0000	3	2.0000	-1	5.0000	-7	10.000	-13
2-Methylnaphthalene	0.1000	10	0.2000	11	0.5000	6	1.0000	2	2.0000	-3	5.0000	-11	10.000	-16
1-Methylnaphthalene	0.1000	14	0.2000	11	0.5000	5	1.0000	1	2.0000	-4	5.0000	-11	10.000	-16
Acenaphthylene	0.1000	10	0.2000	8	0.5000	4	1.0000	2	2.0000	-1	5.0000	-8	10.000	-13
Acenaphthene	0.1000	8	0.2000	6	0.5000	2	1.0000	1	2.0000	-2	5.0000	-6	10.000	-9
Fluorene	0.1000	17	0.2000	11	0.5000	3	1.0000	0	2.0000	-4	5.0000	-11	10.000	-15
Phenanthrene	0.1000	15	0.2000	10	0.5000	1	1.0000	0	2.0000	-3	5.0000	-9	10.000	-14
Anthracene	0.1000	16	0.2000	10	0.5000	0	1.0000	0	2.0000	-3	5.0000	-9	10.000	-15
Fluoranthene	0.1000	**21**	0.2000	15	0.5000	3	1.0000	0	2.0000	-6	5.0000	-13	10.000	-19
Pyrene	0.1000	**21**	0.2000	12	0.5000	1	1.0000	-1	2.0000	-4	5.0000	-12	10.000	-17
Benzo(a)anthracene	0.1000	16	0.2000	8	0.5000	-1	1.0000	-1	2.0000	-2	5.0000	-8	10.000	-13
Chrysene	0.1000	13	0.2000	7	0.5000	0	1.0000	1	2.0000	-1	5.0000	-7	10.000	-13
Benzo(b)fluoranthene	0.1000	15	0.2000	10	0.5000	0	1.0000	1	2.0000	-4	5.0000	-11	10.000	-12
Benzo(k)fluoranthene	0.1000	11	0.2000	7	0.5000	-5	1.0000	2	2.0000	1	5.0000	-4	10.000	-12
Benzo(a)pyrene	0.1000	11	0.2000	6	0.5000	-3	1.0000	-1	2.0000	-1	5.0000	-5	10.000	-7
Indeno(1,2,3-cd)pyrene	0.1000	9	0.2000	6	0.5000	-2	1.0000	-1	2.0000	-2	5.0000	-5	10.000	-6
Dibenz(a,h)anthracene	0.1000	8	0.2000	5	0.5000	-4	1.0000	-2	2.0000	-2	5.0000	-3	10.000	-3
Benzo(g,h,i)perylene	0.1000	12	0.2000	8	0.5000	-1	1.0000	0	2.0000	-2	5.0000	-8	10.000	-9
Nitrobenzene-d5	0.1000	1	0.2000	1	0.5000	-1	1.0000	1	2.0000	-1	5.0000	0	10.000	-1
2-Fluorobiphenyl	0.1000	11	0.2000	10	0.5000	6	1.0000	2	2.0000	-3	5.0000	-10	10.000	-17
Terphenyl-d14	0.1000	18	0.2000	10	0.5000	0	1.0000	-1	2.0000	-4	5.0000	-9	10.000	-14

LLH 11/06/12 [1,4-Dioxane]: Corrected automatically drawn baseline in multiple levels.

LLH 11/06/12 [Chrysene]: Corrected automatically drawn baseline in multiple levels.

LLH 11/06/12 [Benzo(k)fluoranthene]: Corrected automatically drawn baseline in multiple levels.

Analyst: LLH Date: 11/06/12 Reviewer: LW Date: 11/07/12

m=manual integration

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

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 242064 MSSIM Water
EPA 8270C-SIM

Inst : MSBNA03 Name : 3PAHSIM
Calnum : 522448434001 Cal Date : 06-NOV-2012

ICV 522448434012 (vk612 06-NOV-2012) stds: S20103

Analyte	Spiked	Quant	Units	%D	Max	Flags
Naphthalene	1.000	1.047	ug/mL	5	30	
2-Methylnaphthalene	1.000	1.039	ug/mL	4	30	
1-Methylnaphthalene	1.000	1.012	ug/mL	1	30	
Acenaphthylene	1.000	1.032	ug/mL	3	30	
Acenaphthene	1.000	1.015	ug/mL	2	20	
Fluorene	1.000	1.007	ug/mL	1	30	
Phenanthrene	1.000	1.030	ug/mL	3	30	
Anthracene	1.000	1.005	ug/mL	1	30	
Fluoranthene	1.000	1.021	ug/mL	2	20	
Pyrene	1.000	0.9836	ug/mL	-2	30	
Benzo(a)anthracene	1.000	0.9842	ug/mL	-2	30	
Chrysene	1.000	1.025	ug/mL	3	30	
Benzo(b)fluoranthene	1.000	1.027	ug/mL	3	30	
Benzo(k)fluoranthene	1.000	0.9631	ug/mL	-4	30	
Benzo(a)pyrene	1.000	0.8909	ug/mL	-11	20	
Indeno(1,2,3-cd)pyrene	1.000	1.047	ug/mL	5	30	
Dibenz(a,h)anthracene	1.000	1.043	ug/mL	4	30	
Benzo(g,h,i)perylene	1.000	1.052	ug/mL	5	30	

Analyst: LLH Date: 11/06/12 Reviewer: LW Date: 11/07/12

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 242064 MSSIM Water
EPA 8270C-SIM

Inst : MSBNA02 Run Name : PAHDIOX IDF : 1.0
Seqnum : 512513624002 File : ull02 Time : 21-DEC-2012 16:47
Cal : 512467299001 Caldate : 19-NOV-2012
Standards: S20550

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Naphthalene	0.9672	1.1528	1.000	1.192	ug/mL	19	30	0.0500	
2-Methylnaphthalene	0.5668	0.6216	1.000	1.097	ug/mL	10	30	0.0500	
1-Methylnaphthalene	0.6712	0.7132	1.000	1.063	ug/mL	6	30	0.0500	
Acenaphthylene	1.7149	1.7698	1.000	1.032	ug/mL	3	30	0.0500	m
Acenaphthene	1.0449	1.0534	1.000	1.008	ug/mL	1	20	0.0500	
Fluorene	1.0926	1.1898	1.000	1.089	ug/mL	9	30	0.0500	
Phenanthrene	1.0501	1.0937	1.000	1.042	ug/mL	4	30	0.0500	
Anthracene	1.1364	1.1879	1.000	1.045	ug/mL	5	30	0.0500	m
Fluoranthene	1.0561	1.1494	1.000	1.088	ug/mL	9	20	0.0500	
Pyrene	1.6044	1.4033	1.000	0.8746	ug/mL	-13	30	0.0500	
Benzo(a)anthracene	1.1317	1.1620	1.000	1.027	ug/mL	3	30	0.0500	
Chrysene	1.1680	1.1101	1.000	0.9504	ug/mL	-5	30	0.0500	m
Benzo(b)fluoranthene	1.2069	0.9890	1.000	0.8194	ug/mL	-18	30	0.0500	
Benzo(k)fluoranthene	1.3637	1.5136	1.000	1.110	ug/mL	11	30	0.0500	
Benzo(a)pyrene	1.0351	0.9515	1.000	0.9193	ug/mL	-8	20	0.0500	m
Indeno(1,2,3-cd)pyrene	0.9490	1.1384	1.000	1.200	ug/mL	20	30	0.0500	
Dibenz(a,h)anthracene	0.7363	0.8855	1.000	1.203	ug/mL	20	30	0.0500	
Benzo(g,h,i)perylene	0.8840	1.0422	1.000	1.179	ug/mL	18	30	0.0500	
Nitrobenzene-d5	0.2333	0.2619	1.000	1.123	ug/mL	12	30	0.0500	
2-Fluorobiphenyl	1.2253	1.2972	1.000	1.059	ug/mL	6	30	0.0500	
Terphenyl-d14	0.8157	0.6624	1.000	0.8121	ug/mL	-19	30	0.0500	

KMH 12/21/12 [1,4-Dichlorobenzene-d4]: Corrected automatically drawn baseline.

KMH 12/21/12 [Acenaphthylene]: Corrected automatically drawn baseline.

KMH 12/21/12 [Anthracene]: Corrected automatically drawn baseline.

KMH 12/21/12 [Chrysene]: Corrected automatically drawn baseline.

KMH 12/21/12 [Benzo(a)pyrene]: Corrected automatically drawn baseline.

Analyst: KMH Date: 12/21/12 Reviewer: LLH Date: 12/27/12

m=manual integration

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 242064 MSSIM Water
EPA 8270C-SIM

Inst : MSBNA03 Run Name : PAHDIOX IDF : 1.0
Seqnum : 522513207010 File : vll10 Time : 21-DEC-2012 15:16
Cal : 522448434001 Caldate : 06-NOV-2012
Standards: S20550

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Naphthalene	0.9330	0.9794	1.000	1.050	ug/mL	5	30	0.0500	
2-Methylnaphthalene	0.6649	0.6786	1.000	1.021	ug/mL	2	30	0.0500	
1-Methylnaphthalene	0.6404	0.6607	1.000	1.032	ug/mL	3	30	0.0500	
Acenaphthylene	1.7915	1.6880	1.000	0.9423	ug/mL	-6	30	0.0500	
Acenaphthene	1.0107	1.0270	1.000	1.016	ug/mL	2	20	0.0500	
Fluorene	1.2570	1.2627	1.000	1.005	ug/mL	0	30	0.0500	
Phenanthrene	0.9242	0.9731	1.000	1.053	ug/mL	5	30	0.0500	
Anthracene	0.9029	0.9185	1.000	1.017	ug/mL	2	30	0.0500	
Fluoranthene	1.1237	1.1458	1.000	1.020	ug/mL	2	20	0.0500	
Pyrene	1.2196	1.1757	1.000	0.9640	ug/mL	-4	30	0.0500	
Benzo(a)anthracene	1.1343	1.0605	1.000	0.9350	ug/mL	-6	30	0.0500	
Chrysene	1.0355	1.0180	1.000	0.9831	ug/mL	-2	30	0.0500	
Benzo(b)fluoranthene	1.1898	1.1680	1.000	0.9817	ug/mL	-2	30	0.0500	
Benzo(k)fluoranthene	1.1676	1.1554	1.000	0.9895	ug/mL	-1	30	0.0500	
Benzo(a)pyrene	1.0526	1.0678	1.000	1.014	ug/mL	1	20	0.0500	
Indeno(1,2,3-cd)pyrene	0.9804	1.0202	1.000	1.041	ug/mL	4	30	0.0500	
Dibenz(a,h)anthracene	0.7825	0.8286	1.000	1.059	ug/mL	6	30	0.0500	
Benzo(g,h,i)perylene	0.8225	0.8685	1.000	1.056	ug/mL	6	30	0.0500	
Nitrobenzene-d5	0.2591	0.2332	1.000	0.9001	ug/mL	-10	30	0.0500	
2-Fluorobiphenyl	1.3763	1.3506	1.000	0.9813	ug/mL	-2	30	0.0500	
Terphenyl-d14	0.8064	0.7414	1.000	0.9194	ug/mL	-8	30	0.0500	

Analyst: KMH Date: 12/21/12 Reviewer: LLH Date: 12/27/12

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 242064 MSSIM Water
EPA 8270C-SIM

Inst : MSBNA03 Run Name : PAHDIOX IDF : 1.0
Seqnum : 522520478008 File : vlq08 Time : 26-DEC-2012 15:14
Cal : 522448434001 Caldate : 06-NOV-2012
Standards: S20551

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Naphthalene	0.9330	0.9517	2.000	2.040	ug/mL	2	30	0.0500	
2-Methylnaphthalene	0.6649	0.6611	2.000	1.989	ug/mL	-1	30	0.0500	
1-Methylnaphthalene	0.6404	0.6585	2.000	2.057	ug/mL	3	30	0.0500	
Acenaphthylene	1.7915	1.6313	2.000	1.821	ug/mL	-9	30	0.0500	
Acenaphthene	1.0107	1.0091	2.000	1.997	ug/mL	0	20	0.0500	
Fluorene	1.2570	1.2351	2.000	1.965	ug/mL	-2	30	0.0500	
Phenanthrene	0.9242	0.9472	2.000	2.050	ug/mL	2	30	0.0500	
Anthracene	0.9029	0.9013	2.000	1.997	ug/mL	0	30	0.0500	
Fluoranthene	1.1237	1.1152	2.000	1.985	ug/mL	-1	20	0.0500	
Pyrene	1.2196	1.1642	2.000	1.909	ug/mL	-5	30	0.0500	
Benzo(a)anthracene	1.1343	1.0434	2.000	1.840	ug/mL	-8	30	0.0500	
Chrysene	1.0355	1.0142	2.000	1.959	ug/mL	-2	30	0.0500	
Benzo(b)fluoranthene	1.1898	1.1623	2.000	1.954	ug/mL	-2	30	0.0500	
Benzo(k)fluoranthene	1.1676	1.1012	2.000	1.886	ug/mL	-6	30	0.0500	
Benzo(a)pyrene	1.0526	1.0403	2.000	1.977	ug/mL	-1	20	0.0500	
Indeno(1,2,3-cd)pyrene	0.9804	0.9971	2.000	2.034	ug/mL	2	30	0.0500	
Dibenz(a,h)anthracene	0.7825	0.8197	2.000	2.095	ug/mL	5	30	0.0500	
Benzo(g,h,i)perylene	0.8225	0.8477	2.000	2.061	ug/mL	3	30	0.0500	
Nitrobenzene-d5	0.2591	0.2324	2.000	1.794	ug/mL	-10	30	0.0500	
2-Fluorobiphenyl	1.3763	1.3403	2.000	1.948	ug/mL	-3	30	0.0500	
Terphenyl-d14	0.8064	0.7375	2.000	1.829	ug/mL	-9	30	0.0500	

Analyst: KMH Date: 12/26/12 Reviewer: LLH Date: 12/27/12

Logbooks & Sequences

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 512513624

Date : 12/21/12 Reference : ull02
Sequence : MSBNA02 ull Analyzed : 12/21/12 16:47

#	Type	Sample ID	DCBZ14D4	RT	NAPHD8	RT	ACEND10	RT	PHEND10	RT	CHYD12	RT	PERYD12	RT
		CCV+CCV/BS+CCV/LCS+ICV+ICV/BS+ICV/CCV+ICV/LCS+RCCV+RICV STD	20289	8.02	73733	9.57	38068	11.83	52584	13.79	43272	17.35	42576	19.30
		LOWER LIMIT	10145	7.52	36867	9.07	19034	11.33	26292	13.29	21636	16.85	21288	18.80
		UPPER LIMIT	40578	8.52	147466	10.07	76136	12.33	105168	14.29	86544	17.85	85152	19.80
002	CCV	PAHDIOX	20289	8.02	73733	9.57	38068	11.83	52584	13.79	43272	17.35	42576	19.30
003	SAMPLE	242064-001	15110	8.02	68438	9.57	35447	11.83	52463	13.79	42624	17.34	33232	19.29
004	SAMPLE	242064-003	16707	8.02	67942	9.57	41319	11.83	66047	13.77	46496	17.34	42321	19.29
005	SAMPLE	242064-004	16757	8.01	69569	9.57	41882	11.83	69487	13.79	49158	17.36	43177	19.31
006	SAMPLE	242064-005	17340	8.01	66730	9.57	42708	11.83	67015	13.79	48831	17.34	48231	19.31
007	SAMPLE	242064-006	14921	8.01	64779	9.57	35919	11.83	58060	13.77	38720	17.35	37872	19.29
008	SAMPLE	242064-007	14410	8.01	61670	9.57	34463	11.83	54111	13.77	39382	17.34	37296	19.30
009	SAMPLE	242062-003	15840	8.01	62218	9.57	37144	11.83	58621	13.77	41483	17.35	38774	19.30
010	SAMPLE	242062-006	13086	8.02	58899	9.57	31042	11.83	47716	13.77	33758	17.35	32703	19.30

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 522513207

Date : 12/21/12
Sequence : MSBNA03 vll

Reference : vll10
Analyzed : 12/21/12 15:16

#	Type	Sample ID	DCBZ14D4	RT	NAPHD8	RT	ACEND10	RT	PHEND10	RT	CHYD12	RT	PERYD12	RT
		CCV+CCV/BS+CCV/LCS+ICV+ICV/BS+ICV/CCV+ICV/LCS+RCCV+RICV STD	26372	7.36	93720	8.98	56544	11.27	107472	13.22	104487	16.66	86843	18.39
		LOWER LIMIT	13186	6.86	46860	8.48	28272	10.77	53736	12.72	52244	16.16	43422	17.89
		UPPER LIMIT	52744	7.86	187440	9.48	113088	11.77	214944	13.72	208974	17.16	173686	18.89
010	CCV	PAHDIOX	26372	7.36	93720	8.98	56544	11.27	107472	13.22	104487	16.66	86843	18.39
011	BLANK	QC670989	20462	7.36	77461	8.98	54295	11.27	120005	13.22	110751	16.66	86027	18.39
012	LCS	QC670990	20316	7.36	75458	8.98	51777	11.27	114721	13.22	106217	16.66	85025	18.39
013	LCS	QC670990	16796	7.36	61185	8.98	38103	11.27	69420	13.22	70063	16.66	57028	18.39
014	MSS	242062-004	20086	7.36	76213	8.98	54606	11.27	119417	13.22	103130	16.66	89022	18.39
015	MS	QC670991	21728	7.36	81489	8.98	55998	11.27	126168	13.22	107034	16.66	91959	18.39
016	MSD	QC670992	20992	7.36	79685	8.98	54356	11.27	121811	13.22	104535	16.66	93344	18.39
017	MSS	242062-007	20447	7.36	77877	8.98	55633	11.27	120352	13.22	110527	16.66	95880	18.38
018	MS	QC670993	19988	7.36	75763	8.98	52818	11.27	118789	13.22	105242	16.66	91995	18.39
019	MSD	QC670994	20912	7.36	77913	8.98	55080	11.27	121466	13.22	108679	16.66	97042	18.38
020	SAMPLE	242047-007	19926	7.36	74569	8.98	54776	11.27	117975	13.22	109303	16.66	89608	18.38
021	SAMPLE	242069-001	19253	7.36	73317	8.98	52170	11.27	118136	13.22	106662	16.66	85247	18.38
022	SAMPLE	242069-002	19316	7.36	74271	8.98	52635	11.27	118177	13.22	108757	16.66	86237	18.38
023	SAMPLE	242069-003	19161	7.36	73642	8.98	52982	11.27	117671	13.22	108447	16.66	83350	18.38
024	SAMPLE	242069-004	18252	7.36	70584	8.98	51019	11.27	115097	13.22	107396	16.66	86873	18.38
025	SAMPLE	242062-001	20260	7.36	76791	8.98	54843	11.27	116874	13.22	92297	16.66	89029	18.39
026	SAMPLE	242062-002	16854	7.36	59993	8.98	72586	11.27	105338	13.22	102080	16.66	97027	18.39
027	SAMPLE	242031-001	18331	7.36	65586	8.98	43892	11.27	63612	13.22	58281	16.66	49283	18.39
028	SAMPLE	242031-003	17902	7.36	62921	8.98	43552	11.27	61551	13.22	57757	16.66	46853	18.39
029	SAMPLE	242031-004	15949	7.36	57913	8.98	33321	11.27	58035	13.22	53747	16.67	44989	18.39

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 522520478

Date : 12/26/12
Sequence : MSBNA03 vlq

Reference : vlq08
Analyzed : 12/26/12 15:14

#	Type	Sample ID	DCBZ14D4	RT	NAPHD8	RT	ACEND10	RT	PHEND10	RT	CHYD12	RT	PERYD12	RT
		CCV+CCV/BS+CCV/LCS+ICV+ICV/BS+ICV/CCV+ICV/LCS+RCCV+RICV STD	34008	7.36	119623	8.98	70383	11.27	136497	13.22	128477	16.66	107209	18.38
		LOWER LIMIT	17004	6.86	59812	8.48	35192	10.77	68249	12.72	64239	16.16	53605	17.88
		UPPER LIMIT	68016	7.86	239246	9.48	140766	11.77	272994	13.72	256954	17.16	214418	18.88
008	CCV	PAHDIOX	34008	7.36	119623	8.98	70383	11.27	136497	13.22	128477	16.66	107209	18.38
009	LCS	QC671093	23587	7.36	84529	8.98	53853	11.27	101457	13.22	101264	16.65	83162	18.38
011	MS	QC670991	25485	7.36	90802	8.98	58015	11.27	108565	13.22	101462	16.65	85988	18.38
012	MSD	QC670992	25255	7.36	91602	8.98	57466	11.27	107640	13.22	100782	16.65	87220	18.38
013	MS	QC670993	25659	7.36	91458	8.98	58818	11.27	110021	13.22	107464	16.65	93001	18.38
014	MSD	QC670994	25500	7.36	90782	8.98	58279	11.27	108805	13.22	109945	16.65	97023	18.38
015	MS	QC671094	23830	7.36	86023	8.98	54503	11.27	105143	13.22	102478	16.65	92172	18.38
016	MSD	QC671095	24353	7.36	88348	8.98	56524	11.27	108479	13.22	106055	16.65	92978	18.38
017	SAMPLE	242032-006	24453	7.35	89018	8.97	57960	11.27	101620	13.22	81049	16.66	79747	18.38
022	MS	QC670980	23750	7.36	85236	8.98	53971	11.27	99843	13.22	81413	16.66	37647 *	18.39
023	MSD	QC670981	23712	7.36	87384	8.98	54635	11.27	102051	13.22	80679	16.66	35233 *	18.39

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 512467299

Instrument : MSBNA02 Begun : 11/19/12 12:19
Method : EPA 8270C, EPA 8270C-SIM SOP Version : 8270-SIM_rv0, bna_rv.9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	ukj01	TUN	DFTPP			11/19/12 12:19	1.0	1	
002	ukj02	CCV	PAHDIOX			11/19/12 12:50	1.0	2	
003	ukj03	CCV	PAHDIOX			11/19/12 14:03	1.0	2	
004	ukj04	TUN	DFTPP			11/19/12 15:03	1.0	1	
005	ukj05	TUN	DFTPP			11/19/12 17:15	1.0	1	
006	ukj06	ICAL	ICAL			11/19/12 17:40	1.0	3	
007	ukj07	ICAL	ICAL			11/19/12 18:17	1.0	4	
008	ukj08	ICAL	ICAL			11/19/12 18:58	1.0	2	
009	ukj09	ICAL	ICAL			11/19/12 19:40	1.0	5	
010	ukj10	ICAL	ICAL			11/19/12 20:25	1.0	6	
011	ukj11	ICAL	ICAL			11/19/12 21:08	1.0	7	
012	ukj12	ICAL	ICAL			11/19/12 21:52	1.0	8	
013	ukj13	ICV	SIMICV			11/19/12 22:34	1.0	9	

LLH 11/20/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 001 through 013.

Standards used: 1=S20709 2=S20549 3=S20547 4=S20548 5=S20550 6=S20551 7=S20552 8=S20553 9=S20103

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 512513624

Instrument : MSBNA02 Begun : 12/21/12 16:24
Method : EPA 8270C, EPA 8270C-SIM SOP Version : 8270-SIM_rv0, bna_rv.9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	ull01	TUN	DFTPP			12/21/12 16:24	1.0	1	
002	ull02	CCV	PAHDIOX			12/21/12 16:47	1.0	2	
003	ull03	SAMPLE	242064-001	Water	194057	12/21/12 17:25	1.0	3	
004	ull04	SAMPLE	242064-003	Water	194057	12/21/12 18:05	1.0	3	
005	ull05	SAMPLE	242064-004	Water	194057	12/21/12 18:44	1.0	3	
006	ull06	SAMPLE	242064-005	Water	194057	12/21/12 19:24	1.0	3	
007	ull07	SAMPLE	242064-006	Water	194057	12/21/12 19:59	1.0	3	
008	ull08	SAMPLE	242064-007	Water	194057	12/21/12 20:33	1.0	3	
009	ull09	SAMPLE	242062-003	Water	194057	12/21/12 21:08	1.0	3	1:MTNPH1=17
010	ull10	SAMPLE	242062-006	Water	194057	12/21/12 21:44	1.0	3	
011	ull11	SAMPLE	242055-005	Soil	194055	12/21/12 22:19	1.0	3	
012	ull12	SAMPLE	242055-004	Soil	194055	12/21/12 22:53	1.0	3	
013	ull13	MSS	242055-003	Soil	194055	12/21/12 23:31	3.0	3	

KMH 12/26/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 13.

Standards used: 1=S21344 2=S20550 3=S21127

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 522448434

Instrument : MSBNA03 Begun : 11/06/12 09:54
Method : EPA 8270C, EPA 8270C-SIM SOP Version : 8270-SIM_rv0, bna_rv.9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	vk601	TUN	DFTPP			11/06/12 09:54	1.0	1	
002	vk602	CCV	RTCHECK			11/06/12 10:12	1.0	2	
003	vk603	CCV	RTCHECK			11/06/12 10:53	1.0	2	
004	vk604	TUN	DFTPP			11/06/12 11:45	1.0	1	
005	vk605	ICAL	ICAL			11/06/12 12:04	1.0	3	
006	vk606	ICAL	ICAL			11/06/12 12:39	1.0	4	
007	vk607	ICAL	ICAL			11/06/12 13:14	1.0	5	
008	vk608	ICAL	ICAL			11/06/12 13:47	1.0	6	
009	vk609	ICAL	ICAL			11/06/12 14:20	1.0	2	
010	vk610	ICAL	ICAL			11/06/12 14:53	1.0	7	
011	vk611	ICAL	ICAL			11/06/12 15:27	1.0	8	
012	vk612	ICV	SIMICV			11/06/12 16:04	1.0	9	
013	vk613	LOD	209076-035	Soil	191646	11/06/12 17:26	1.0	10	
014	vk614	LOD	218623-046	Water	192271	11/06/12 18:03	1.0	10	
015	vk615	LOD	218623-047	Water	192271	11/06/12 18:40	1.0	10	
016	vk616	LOD	209076-036	Soil	191256	11/06/12 19:15	1.0	10	

LLH 11/06/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 001 through 012.

KMH 11/07/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 13 through 16.

Standards used: 1=S20709 2=S20551 3=S20547 4=S20548 5=S20549 6=S20550 7=S20552 8=S20553 9=S20103 10=S20880

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 522513207

Instrument : MSBNA03 Begun : 12/21/12 09:27
Method : EPA 8270C, EPA 8270C-SIM SOP Version : 8270-SIM_rv0, bna_rv.9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	vll01	TUN	DFTPP			12/21/12 09:27	1.0	1	
002	vll02	CCV	PAHDIOX			12/21/12 09:50	1.0	2	
003	vll03	BS	QC670667	Water	193973	12/21/12 10:28	1.0	3	spk
004	vll04	BSD	QC670668	Water	193973	12/21/12 11:08	1.0	3	spk
005	vll05	BLANK	QC670978	Soil	194055	12/21/12 11:46	1.0	3	
006	vll06	LCS	QC670979	Soil	194055	12/21/12 12:31	1.0	3	spk
007	vll07	BLANK	QC670978	Soil	194055	12/21/12 13:09	1.0	3	
008	vll08	LCS	QC670979	Soil	194055	12/21/12 13:45	1.0	3	
009	vll09	TUN	DFTPP			12/21/12 14:49	1.0	1	
010	vll10	CCV	PAHDIOX			12/21/12 15:16	1.0	2	
011	vll11	BLANK	QC670989	Water	194057	12/21/12 15:56	1.0	3	
012	vll12	LCS	QC670990	Water	194057	12/21/12 16:37	1.0	3	
013	vll13	LCS	QC670990	Water	194057	12/21/12 17:17	1.0	3	
014	vll14	MSS	242062-004	Water	194057	12/21/12 17:57	1.0	3	
015	vll15	MS	QC670991	Water	194057	12/21/12 18:39	1.0	3	
016	vll16	MSD	QC670992	Water	194057	12/21/12 19:16	1.0	3	
017	vll17	MSS	242062-007	Water	194057	12/21/12 19:50	1.0	3	
018	vll18	MS	QC670993	Water	194057	12/21/12 20:24	1.0	3	
019	vll19	MSD	QC670994	Water	194057	12/21/12 20:59	1.0	3	
020	vll20	SAMPLE	242047-007	Water	194057	12/21/12 21:32	1.0	3	
021	vll21	SAMPLE	242069-001	Water	194057	12/21/12 22:06	1.0	3	
022	vll22	SAMPLE	242069-002	Water	194057	12/21/12 22:41	1.0	3	
023	vll23	SAMPLE	242069-003	Water	194057	12/21/12 23:14	1.0	3	
024	vll24	SAMPLE	242069-004	Water	194057	12/21/12 23:49	1.0	3	
025	vll25	SAMPLE	242062-001	Water	194057	12/22/12 00:25	1.0	3	
026	vll26	SAMPLE	242062-002	Water	194057	12/22/12 01:01	1.0	3	2:MTNPH1=23
027	vll27	SAMPLE	242031-001	Water	193973	12/22/12 01:37	1.0	3	spk
028	vll28	SAMPLE	242031-003	Water	193973	12/22/12 02:14	1.0	3	spk
029	vll29	SAMPLE	242031-004	Water	193973	12/22/12 02:48	3.0	3	spk

KMH 12/26/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 29.

Standards used: 1=S21344 2=S20550 3=S21127

Flags used: spk=5% spike rule

Page 1 of 1

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 522520478

Instrument : MSBNA03 Begun : 12/26/12 10:38
Method : EPA 8270C, EPA 8270C-SIM SOP Version : 8270-SIM_rv0, bna_rv.9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	vlq01	TUN	DFTPP			12/26/12 10:38	1.0	1	
002	vlq02	CCV	PAHDIOX			12/26/12 11:03	1.0	2	
003	vlq03	TUN	DFTPP			12/26/12 11:38	1.0	1	
004	vlq04	CCV	PAHDIOX			12/26/12 12:03	1.0	2	
005	vlq05	TUN	DFTPP			12/26/12 12:30	1.0	1	
006	vlq06	CCV	PAHDIOX			12/26/12 12:59	1.0	2	
007	vlq07	TUN	DFTPP			12/26/12 14:54	1.0	1	
008	vlq08	CCV	PAHDIOX			12/26/12 15:14	1.0	2	
009	vlq09	LCS	QC671093	Water	194084	12/26/12 15:47	1.0	3	spk
010	vlq10	CHECK	SPIKECHECK			12/26/12 16:21	1.0	4 3	
011	vlq11	MS	QC670991	Water	194057	12/26/12 16:59	1.0	3	
012	vlq12	MSD	QC670992	Water	194057	12/26/12 17:33	1.0	3	
013	vlq13	MS	QC670993	Water	194057	12/26/12 18:09	1.0	3	
014	vlq14	MSD	QC670994	Water	194057	12/26/12 18:44	1.0	3	
015	vlq15	MS	QC671094	Water	194084	12/26/12 19:27	1.0	3	
016	vlq16	MSD	QC671095	Water	194084	12/26/12 20:07	1.0	3	
017	vlq17	SAMPLE	242032-006	Water	194084	12/26/12 20:47	1.0	3	spk
018	vlq18	SAMPLE	242055-005	Soil	194055	12/26/12 21:27	1.0	3	
019	vlq19	SAMPLE	242055-004	Soil	194055	12/26/12 22:05	1.0	3	
020	vlq20	SAMPLE	242055-001	Soil	194055	12/26/12 22:49	1.0	3	
021	vlq21	MSS	242055-003	Soil	194055	12/26/12 23:33	2.0	3	
022	vlq22	MS	QC670980	Soil	194055	12/27/12 00:09	2.0	3	
023	vlq23	MSD	QC670981	Soil	194055	12/27/12 00:46	2.0	3	
024	vlq24	SAMPLE	242055-002	Soil	194055	12/27/12 01:27	1.0	3	

KMH 12/26/12 : increased em after runs 2 & 4, pressure dropped during run 6

KMH 12/27/12 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 24.

Standards used: 1=S21344 2=S20551 3=S21127 4=S21400

Flags used: spk=5% spike rule

SAMPLE PREPARATION SUMMARY

Batch # : 194057
Started By : TFB
Method : 3520C
Spike #1 ID : S20717

Prep Date : 20-DEC-2012 15:45
Spike #2 ID : S20716

Analysis : 14DIOXANE
Finished By : ICK
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
242047-007		Water	1040	1	1	0.0009615	7	1				14DIOXANE	
242062-001		Water	1060	1	1	0.0009434	7	1				8270-SIM	
242062-002		Water	1070	1	1	0.0009346	7	1				8270-SIM	
242062-003		Water	1040	1	1	0.0009615	7	1				8270-SIM	
242062-004		Water	1040	1	1	0.0009615	7	1				8270-SIM	MSS-1
242062-006		Water	1060	1	1	0.0009434	7	1				8270-SIM	
242062-007		Water	1070	1	1	0.0009346	7	1				8270-SIM	MSS-2
242064-001		Water	1020	1	1	0.0009804	7	1				8270-SIM	
242064-003		Water	1050	1	1	0.0009524	7	1				8270-SIM	
242064-004		Water	1000	1	1	0.001	7	1				8270-SIM	
242064-005		Water	1050	1	1	0.0009524	7	1				8270-SIM	
242064-006		Water	1050	1	1	0.0009524	7	1				8270-SIM	
242064-007		Water	1020	1	1	0.0009804	7	1				8270-SIM	
242069-001		Water	1050	1	1	0.0009524	7	1				14DIOXANE	
242069-002		Water	1050	1	1	0.0009524	7	1				14DIOXANE	
242069-003		Water	1050	1	1	0.0009524	7	1				14DIOXANE	
242069-004		Water	1050	1	1	0.0009524	7	1				14DIOXANE	
QC670989	BLANK	Water	1000	1	1	0.001		1				8270-SIM	
QC670990	LCS	Water	1000	1	1	0.001		1	1			8270-SIM	
QC670991	MS	Water	1060	1	1	0.0009434	7	1	1			8270-SIM	
QC670992	MSD	Water	1070	1	1	0.0009346	7	1	1			8270-SIM	
QC670993	MS	Water	1060	1	1	0.0009434	7	1	1			8270-SIM	
QC670994	MSD	Water	1070	1	1	0.0009346	7	1	1			8270-SIM	

Analyst: KMH Date: 12/27/12 Reviewer: LLH Date: 12/27/12

BNA (8270 & 625) Water Prep Log **Curtis & Tompkins, Ltd.**

LIMS Batch No: 194057 Extraction Method:
LIMS Analysis: 8270-SIM/14DIOXANE ☑ EPA 3520c cont. L/L
Date Extracted: 12/20/12 ☐ _____

Sample #	Container ID	Volume of Sample (mL)	Sample pH	Final Volume (mL)	Confirmed pH <2	Comments
242047-007	F	1040	☑7 ☐	☑1.0 ☐	☑ ≤2	
242062-001	J	1060	☑7 ☐	☑1.0 ☐	☑ ≤2	
-002		1070	☑7 ☐	☑1.0 ☐	☑ ≤2	
-003		1040	☑7 ☐	☑1.0 ☐	☑ ≤2	
-004	AB	1040	☑7 ☐	☑1.0 ☐	☑ ≤2	MSS-1
-006	F	1060	☑7 ☐	☑1.0 ☐	☑ ≤2	
-007	P	1070	☑7 ☐	☑1.0 ☐	☑ ≤2	MSS-2
242064-001	E	1020	☑7 ☐	☑1.0 ☐	☑ ≤2	
-003		1050	☑7 ☐	☑1.0 ☐	☑ ≤2	
-004		1000	☑7 ☐	☑1.0 ☐	☑ ≤2	
-005		1050	☑7 ☐	☑1.0 ☐	☑ ≤2	
-006		1050	☑7 ☐	☑1.0 ☐	☑ ≤2	
-007		1020	☑7 ☐	☑1.0 ☐	☑ ≤2	
242069-001	G	1050	☑7 ☐	☑1.0 ☐	☑ ≤2	
-002	D	1050	☑7 ☐	☑1.0 ☐	☑ ≤2	
-003		1050	☑7 ☐	☑1.0 ☐	☑ ≤2	
-004		1050	☑7 ☐	☑1.0 ☐	☑ ≤2	
MB QC670990	N/A	1000	☐7 ☑NA	☑1.0 ☐	☑ ≤2	
LCS 1		1000	☐7 ☐	☑1.0 ☐	☑ ≤2	
MS¹ 2	AC	1060	☑7 ☐	☑1.0 ☐	☑ ≤2	
MSD¹ 3	AD	1070	☑7 ☐	☑1.0 ☐	☑ ≤2	
MS² 4	Q	1060	☑7 ☐	☑1.0 ☐	☑ ≤2	
MSD² 5	R	1070	☑7 ☐	☑1.0 ☐	☑ ≤2	
			☐7 ☐	☐1.0 ☐	☐ ≤2	DMH 12/21/12

	Lot# / LIMS # / Time	Date/ Initials
1.0 mL of surrogate solution was added to all samples	S20717B	TFB 12/20/12
1.0 mL of matrix spiking solution was added to all spikes	S20716A	
pH of all samples adjusted to pH ≤ 2 with H_2SO_4	FS122650	
Cont. L/L extracted with 450mL of CH_2Cl_2	EM52160	
Extraction Start Time:	1545	
Extraction End Time:	1000	ICK 12/21/12
pH of all samples adjusted to pH ≥ 11 with 10 N NaOH	N/A	
Extraction Start Time:		
Extraction End Time:		
Extracts filtered through baked, CH2Cl2-rinsed granular Na2SO4	EM1142C521	
Concentrated to final volume at temperature (degrees C)	70	
Relinquished to BNA department	✓	

12/20/12
Extraction Chemist **Date**

Contined from Page ____
Continued on Page ____

DMH 12/21/12
Reviewed by **Date**

Case Narrative Addendum: Manual Integrations for 242064 MSSIM (Water)

For SAMPLE 242064-003 (MSBNA02 ull04):
Chrysene-d12: Corrected automatically drawn baseline.
Naphthalene-d8: Corrected automatically drawn baseline.
Nitrobenzene-d5: Corrected automatically drawn baseline.

For SAMPLE 242064-004 (MSBNA02 ull05):
Pyrene: Corrected automatically drawn baseline.

For SAMPLE 242064-006 (MSBNA02 ull07):
Chrysene-d12: Corrected automatically drawn baseline.
Fluoranthene: Corrected automatically drawn baseline.
Pyrene: Corrected automatically drawn baseline.

For SAMPLE 242064-007 (MSBNA02 ull08):
Chrysene-d12: Corrected automatically drawn baseline.
Fluoranthene: Corrected automatically drawn baseline.
Phenanthrene: Picked or reassigned peak.

For CCV PAHDIOX (MSBNA02 ull02):
Acenaphthylene: Corrected automatically drawn baseline.
Anthracene: Corrected automatically drawn baseline.
Benzo(a)pyrene: Corrected automatically drawn baseline.
Chrysene: Corrected automatically drawn baseline.
1,4-Dichlorobenzene-d4: Corrected automatically drawn baseline.

For MSD QC670992 (MSBNA03 vlq12):
1,4-Dioxane: Corrected automatically drawn baseline for spike & dup.

For MSD QC670994 (MSBNA03 vlq14):
1,4-Dioxane: Corrected automatically drawn baseline for dup.

For Calibration MSBNA03 (522448434001):
Benzo(k)fluoranthene: Corrected automatically drawn baseline in multiple levels.
Chrysene: Corrected automatically drawn baseline in multiple levels.
1,4-Dioxane: Corrected automatically drawn baseline in multiple levels.

For Calibration MSBNA02 (512467299001):
Acenaphthene-d10: Corrected automatically drawn baseline in all levels.
Acenaphthene: Corrected automatically drawn baseline in all levels.
Acenaphthylene: Corrected automatically drawn baseline in multiple levels.
Anthracene: Corrected automatically drawn baseline in all levels.
Benzo(a)pyrene: Corrected fronting or tailing peak integration in multiple levels.
Benzo(k)fluoranthene: Corrected automatically drawn baseline in all levels.
Chrysene: Corrected automatically drawn baseline in all levels.
Chrysene-d12: Corrected automatically drawn baseline in all levels.
1,4-Dioxane: Corrected automatically drawn baseline in multiple levels.
Fluoranthene: Corrected automatically drawn baseline in all levels.
1-Methylnaphthalene: Corrected automatically drawn baseline in all levels.
2-Methylnaphthalene: Corrected automatically drawn baseline in ICAL (ukj12).
Naphthalene: Corrected automatically drawn baseline in multiple levels.
Naphthalene-d8: Corrected automatically drawn baseline in multiple levels.
Nitrobenzene-d5: Corrected automatically drawn baseline in multiple levels.
Perylene-d12: Corrected automatically drawn baseline in all levels.

2-Fluorobiphenyl: Corrected automatically drawn baseline in ICAL (ukj12).
Terphenyl-d14: Corrected automatically drawn baseline in all levels.
Pyrene: Corrected automatically drawn baseline in all levels.

For ICV SIMICV (MSBNA02 ukj13):
Acenaphthene-d10: Corrected automatically drawn baseline.
Acenaphthene: Corrected automatically drawn baseline.
Acenaphthylene: Corrected automatically drawn baseline.
Anthracene: Corrected automatically drawn baseline.
Benzo(a)pyrene: Corrected fronting or tailing peak integration.
Benzo(k)fluoranthene: Corrected automatically drawn baseline.
Chrysene: Corrected automatically drawn baseline.
Chrysene-d12: Corrected automatically drawn baseline.
1,4-Dioxane: Corrected automatically drawn baseline.
Fluoranthene: Corrected automatically drawn baseline.
1-Methylnaphthalene: Corrected automatically drawn baseline.
Naphthalene-d8: Corrected automatically drawn baseline.
Perylene-d12: Corrected automatically drawn baseline.
Terphenyl-d14: Corrected automatically drawn baseline.
Pyrene: Corrected automatically drawn baseline.

APPENDIX C

DATA VALIDATION REPORTS

Due to large size, this appendix is provided on CD only

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"Truth through Science"

Veridian Environmental, Inc

DATA VALIDATION REPORT

ITSI
HUNTERS POINT SHIPYARD, PARCEL B
SAN FRANCISCO, CALIFORNIA

Curtis & Tompkins Laboratories
SDG: **235203**

May 7, 2012

Prepared for:

INNOVATIVE TECHNICAL SOLUTIONS, INC
2730 Shadelands Drive, Suite 100
Walnut Creek, California 94598

Prepared by:

VERIDIAN ENVIRONMENTAL, INC.
1111 Kennedy Place
Suite 2
Davis, California 95616

DATA VALIDATION REPORT

ITSI
HUNTERS POINT SHIPYARD, PARCEL B
SAN FRANCISCO, CALIFORNIA

May 7, 2012

Name	Position	Signature/Date
Veridian Environmental, Inc.		
Prepared by:		
Tracy A. Young	**Senior Quality Assurance Chemist**	Tracy A. Young 5-7-2012
Ann Lack	**Senior Quality Assurance Chemist**	Ann Lack 5-7-2012
Reviewed and Approved by:		
Charlotte R. Symms	**President**	Charlotte R. Symms 5/7/2012

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ATTACHMENTS

ATTACHMENT A ADR AND QRT REPORTS

ATTACHMENT B PROJECT CORRESPONDENCE

ACRONYMS

Acronym	Definition
%D	Percent Difference
%REC	Percent Recovery
%RSD	Percent Relative Standard Deviation
%S	Percent Solids
ARRF	Average Relative Response Factor
BFB	Bromofluorobenzene
BNA	Base Neutral Acid
CA	Corrective Action
CARD	CLP Analytical Results Database
CCC	Calibration Check Analytes
CCB	Continuing Calibration Blank
CCV	Continuing Calibration Verification
CF	Calibration Factor
CLP	Contract Laboratory Program
COC	Chain-of-Custody
CRDL	Contract Required Detection Limit
CRQL	Contract Required Quantitation Limit
C&T	Curtis & Tompkins Laboratories, LLC
DO	Diluted Out
DOC	Date of Collection
DOD	Department of Defense
DQI	Data Quality Indicator
DQO	Data Quality Objective
DRO	Diesel Range Organics
DVR	Data Validation Report
EDD	Electronic Data Deliverable
FID	Flame Ionization Detector
GC	Gas Chromatography
GC/ECD	Gas Chromatography/Electron Capture Detector
GC/MS	Gas Chromatography/Mass Spectrometry
GPC	Gel Permeation Chromatography
HPS	Hunters Point Shipyard
ICAL	Initial Calibration
ICV	Initial Calibration Verification
IS	Internal Standard
ITSI	Innovative Technical Solutions, Inc.
GRO	Gas Range Organics
kg	Kilogram
LCS	Laboratory Control Sample

Acronym	Definition
LCSD	Laboratory Control Sample Duplicate
l	Liter
LL	Lower Limit
LLC	Limited Liability Company
MB	Method Blank
MDL	Method Detection Limit
ml	Milliliter
MO	Motor Oil
MRL	Method Reporting Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
MTBE	Methyl tert-butyl ether
µg	Microgram
NAPL	Non-Aqueous Phase Liquid
NAVFAC	Naval Facilities Engineering Command
ND	Non-detect or Not Detect
NEDD	Navy Electronic Data Deliverable
NFG	National Functional Guidelines
NIST	National Institute of Standards and Technology
NPS	Non Project Sample
NQW	No Qualification Warranted
NTC	Non Target Compound
OERR	Office of Emergency and Remedial Response
OSWER	Office of Solid Waste and Emergency Response
PAL	Project Action Limit
PAH	Polycyclic Aromatic Hydrocarbons
PID	Photoionization Detector
PQOs	Project Quality Objectives
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference
RRF	Relative Response Factor
RRT	Relative Retention Time
RSD	Relative Standard Deviation
RT	Retention Time
SDG	Sample Delivery Group
SOP	Standard Operating Procedure
SOW	Statement of Work

Acronym	Definition
SPCC	System Performance Check Analytes
SSV	Second Source Verification
SVOC	Semivolatile Organic Compound
Surr	Surrogate
TAL	Target Analyte List
TCL	Target Compound List
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
TSS	Total Suspended Solids
UL	Upper Limit
µg/L	Micrograms per liter
USACE	United States Army Corp of Engineers
U.S. EPA	United States Environmental Protection Agency
VEI	Veridian Environmental, Inc.
VOC	Volatile Organic Compound

DATA QUALIFIER REASON CODES

Code	Reason Code	Description
A	Serial dilution	Serial dilution
A1	Ambient Blank	Ambient Blank
B1	Blank	A common laboratory artifact was detected in the sample at a concentration less than 10X the concentration detected in the associated method blank.
B2	Calibration Blank	Calibration Blank
B3	Calibration Blank - Negative	Calibration Blank - Negative
B4	Negative Blank	Negative Blank
B5	The analyte was found in blank and sample	The analyte was found in an associated blank as well as in the sample.
C1	Diluted Out	Diluted Out
C10	Continuing Calibration Verification RRF	Continuing Calibration Verification RRF
C11	Continuing Calibration Verification	Continuing Calibration Verification percent recovery, percent difference, or percent drift
C2	Flag Parent Only	Flag Parent Only
C2S	Flag Parent (Soil); Batch (Water)	Flag Parent (Soil); Batch (Water)
C3	No Action	No Action
C4	No QC Outliers	No QC Outliers
C5	One or both values <5x RL	One or both values <5x RL
C6	Recalculated Value	Recalculated Value
C7	Material Blanks	Material Blanks
C8	Spike Insignificant	Spike Insignificant
C9	No Flags; set to ND by method/cal. blank	No Flags; set to ND by method/cal. blank
D1	Lab Replicate RPD	Lab Replicate RPD
D2	MS RPD	MS RPD exceeded established criteria.
D4	No precision available	No precision available
D5	Field Duplicate RPD	Field Duplicate RPD
D6	LCS RPD	RPD of laboratory control sample exceeded criteria
D7	Field Dup not usable	Field Duplicate not usable
E	Exceeds Linear Calibration Range	Exceeds Linear Calibration Range
F	Hydrocarbon pattern does not match standard	Hydrocarbon pattern does not match standard
G	Initial Calibration RRF	Initial Calibration RRF
G1	Initial Calibration RSD	Initial Calibration RSD
G2	Initial Calibration Verification	Initial Calibration Verification percent recovery, percent difference, or percent drift
H1	Test Hold Time	Test Hold Time
H2	Prep Hold Time	Prep Hold Time
I	Internal standard	Internal standard
J	CRA/CRI Recovery	CRA/CRI Recovery

Code	Reason Code	Description
K	An analyte (non-common lab artifact) was detected	An analyte (non-common laboratory artifact) was detected in the sample at a concentration less than 5X the concentration detected in the associated method blank.
K1	Equipment Blank	Detected in the associated equipment rinsate blank.
K2	Field Blank	Detected in the associated field (i.e., ambient) blank.
K3	Trip Blank	Detected in the associated trip blank.
L	LCS Recovery	Percent recovery of laboratory control sample recovery was outside established limits
L1	Blank - Negative	A common laboratory artifact was detected in the sample at a concentration less than 10X the concentration detected in the associated method blank. (Negative)
M	MS Recovery	Matrix spike recovery was outside established criteria.
N	Blank - No Action	Blank - No Action
O	Interference check sample	Interference check sample
P	Sample preservation/collection requirement not met	Sample preservation/collection requirement not met.
P1	Confirmation Column/Detector RPD	Column or detector RPD
P2	Improper preparation/extraction	Improper preparation/extraction
Q1	Material Blank	Material Blank
S	Surrogate	Surrogate recovery out of criteria (upper or lower limit)
S1	Sample less than 50% solids	Sample less than 50% solids
T	Receipt Temperature	Receipt Temperature
T2	RSD of lab triplicate out	RSD of lab triplicate out
TI	Tentatively Identified Compound	Tentatively Identified Compound
TR	Trace Level Detect	Trace Level Detect
V	Sample Receipt Condition	Sample Receipt Condition
W	Column breakdown (pesticides)	Column breakdown (pesticides)
X	Raised reporting limit	Raised reporting limit
X1	Unresolved Isomers; no peak separation	Unresolved Isomers; no peak separation
X2	Qualified due to professional judgment, see data validation narrative.	Qualified due to professional judgment, see data validation narrative.
Y	Analyte not confirmed on second column	Analyte not confirmed on second column
Y1	False Positive	False Positive
Y2	Sum of species greater than total result	Sum of species greater than total result
Z	Data rejected due to radiological anomalies	Data rejected due to radiological anomalies
Z1	Data rejected, more valid data available	Data rejected, more valid data available

1.0 INTRODUCTION

This Data Validation Report (DVR) details the assessment and data validation performed on the groundwater sample analyses from SDG 235203. These samples were collected on March 28, 2012, as part of the Parcel B NAPL Petroleum Hydrocarbon Corrective Action in Hunters Point Shipyard, San Francisco, California. The samples were shipped to and analyzed by Curtis & Tompkins Laboratories, LLC (C&T) in Berkeley, California. The analyses performed included the following: BTEX/MTBE by U.S. EPA Method 8021B, Total Petroleum Hydrocarbons (TPH) – Purgeable (Gasoline: C_6-C_{12}) by U.S. EPA Method 8015B, TPH – Extractable (Diesel and Motor Oil: C_{12}-C_{24} and C_{24}-C_{36}) by U.S. EPA Method 8015B, and Polynuclear Aromatic Hydrocarbons by U.S. EPA Method 8270C-SIM.

Data validation of all sample results was performed by Tracy A. Young, Ann Lack, and Charlotte R. Symms of Veridian Environmental, Inc. (VEI). A review (Level III) of 100% of the data, which allows for complete independent data review without reconstruction of analytical data, was conducted. In addition, approximately 10% of the project data underwent a comprehensive or extensive review (Level IV) which allowed for the complete reconstruction of the chemical analyses. The comprehensive review included the recalculation of calibration curves and sample results. None of the samples from this SDG were selected for the comprehensive Level IV review. The data were validated in accordance with the analytical methods and the documents entitled *Field Sampling Plan and Quality Assurance Project Plan Petroleum Hydrocarbon Corrective Action, Parcel B, Hunters Point Shipyard, San Francisco, (*Innovative Technical Solutions, Inc., October 2010) and with guidance from *Department of Defense Quality Systems Manual for Environmental Laboratories* (DoD, 2009); *Data Quality Assessment: A Reviewer's Guide* (U.S. EPA QA/G-9R 2006); *Data Quality Assessment: Statistical Tools for Practitioners* (U.S. EPA QA-G-9S, 2006); and *U.S. EPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (U.S. EPA, 2008).

The data were examined to determine the usability of the analytical results and the compliance relative to requirements specified in the analytical methods and guidelines provided. Qualifier flags have been placed next to the results on the laboratory analytical result forms and entered into the client database so the data user can quickly assess the qualitative and/or quantitative reliability of any result. The data qualifications allow the data end-user to best understand the usability of the analytical results. It should be understood that data that have not been qualified in this report should be considered valid based on the quality control (QC) criteria that have been reviewed. This report was prepared to provide a critical review of the laboratory analyses and the reported analytical results. Quality assurance (QA) reviews of laboratory-generated data routinely identify various problems associated with analytical measurements, even from the most experienced and capable laboratories.

The findings of this QA review are presented in Section 2.0 of this report, a summary of completeness is presented in Section 3.0, and the references are provided in Section 4.0. The ADR and QRT Reports for the project samples in SDG 235203 are presented in Attachment A. Project Correspondence is presented as Attachment B.

Several data validation flags are utilized in the validation process. The definitions of these qualifier flags are as follows:

U The analyte was analyzed for, but was not detected at or above the reported sample quantitation limit.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

UJ The analyte was not detected at or above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R The sample result and/or analysis have been rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

All necessary flags have been incorporated into the data presented in this report (Attachment A). As per project-specific reporting requirements, all results reported at concentrations less than the sample-specific practical quantitation limits (adjusted for dilution factors, sample size, and percent solids) should be considered estimated (J).

2.0 FINDINGS

Data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, the validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance.

2.1 BTEX/MTBE AND TPH – GASOLINE DATA VALIDATION

The samples analyzed for BTEX/MTBE by U.S. EPA Method 8021B and for TPH - Purgeable (Gasoline Range – C_6-C_{12}) by U.S. EPA Method 8015B were evaluated for the following data requirements.

	Acceptable	**Acceptable With Discussion**	**Acceptable With Qualification**	**Not Acceptable**	**Not Applicable**
Sample Condition Upon Receipt	✓				
Analytical Holding Times	✓				
Blank Analyses			✓		
Initial Calibrations	✓				
Initial Calibration Verifications	✓				
Continuing Calibrations		✓			
Surrogate Spike Recoveries	✓				

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable	Not Applicable
LCS Analyses	✓				
MS/MSD Analyses		✓			
Confirmation Column Agreement			✓		
Verification of Sample Results					✓
Field Duplicate Results					✓
Verification of the Client EDD		✓			
Additional Findings		✓			

All sample results met data quality objectives with the exception of those discussed below.

Blank Analyses

The following analytes were reported at concentrations greater than or equal to the MDL in the blanks as summarized in the tables below.

Method Blank

Sample ID	Contaminant	Concentration	Associated Sample(s)
QC633719	Gasoline C_6-C_{12} Toluene	7.2 µg/L 0.090 µg/L	**TB-032812** **IR24MW07A-032812**

Trip Blank

Sample ID	Contaminant	Concentration	Associated Sample(s)
TB-032812	Gasoline C_6-C_{12} Toluene	7.8 µg/L 0.070 µg/L	**IR24MW07A-032812**

Due to the presence of gasoline C_6-C_{12} and toluene in the associated laboratory blank, the reported positive results for gasoline C_6-C_{12} and toluene in the following samples should be considered anomalous (U) and in accordance with the validation guidelines, the reported detection limits have been raised to the RL. The gasoline C_6-C_{12} and toluene contaminants in sample **TB-032812** are considered non-detect due to the concentration of gasoline C_6-C_{12} and toluene in the associated method blank. Therefore, no qualification is warranted based on the trip blank results for gasoline C_6-C_{12} and toluene. It should be noted that dilution factors and sample volumes were taken into consideration when evaluating blank contamination.

Sample(s) With Anomalous Results (U)	Analyte(s)
TB-032812 **IR24MW07A-032812**	Gasoline C_6-C_{12} Toluene

Continuing Calibrations

For all continuing calibrations, the percent differences for all target analytes were ≤ 15% on both the primary column and the confirmation column for all analytes except the analyte listed in the

following table. For all analytes except MTBE, Channel B was used as the primary column and Channel C was used at the confirmation column. For MTBE, Channel C was used as the primary column and Channel B was used as the confirmation column.

High percent differences were noted for MTBE in the following continuing calibrations for the confirmation column. Since all results were reported from the primary column, qualification of the data is not warranted on this basis.

Instrument ID, Channel Date (Time)	**Analyte(s)**	**Percent Difference**	**Associated Sample(s)**
GC19, Ch. B 03/29/2012 (09:00)	MTBE	19%	**TB-032812** **IR24MW07A-032812**
GC19, Ch. B 03/29/2012 (15:08)	MTBE	17%	**TB-032812** **IR24MW07A-032812**

Matrix Spike/Matrix Spike Duplicate Analyses

For the groundwater samples, the laboratory used project sample **IR24MW07A-032812** for the MS/MSD analysis for gasoline C_6-C_{12}. The percent recoveries and the Relative Percent Difference (RPD) were within the project criteria.

For the BTEX/MTBE analysis, an MS/MSD was not performed. Consequently, an assessment of matrix affects cannot be made.

Confirmation Column Agreement

All reported positive results were confirmed on a second column. High percent differences (> 40%) were observed between the results obtained from the two chromatographic columns used in the analysis of the sample listed below. The reported positive results for m,p-xylenes and xylenes (total) should be considered estimated (J).

Associated Qualified Sample(s)	**Analyte(s)**
IR24MW07A-032812	m,p-xylenes Xylenes (total)

Verification of the Client Electronic Data Deliverable

The database files provided in the laboratory's enhanced general format matched the data reported by the laboratory with the following exceptions. In the samples and method blank "Xylenes, total" were reported in the EDD, but the laboratory report additionally lists the analytes "m,p-xylenes" and "o-xylene." The associated LCS/LCSD does not report any of these analytes in the EDD. However, the hardcopy report lists "m,p-xylenes" and "o-xylene" for both the LCS and LCSD.

Additional Findings

For the sample listed below, the chromatographic pattern did not resemble the gasoline C_6-C_{12} standard so the result was flagged "Y" by the laboratory. Since this result was previously

qualified as anomalous (U) due to blank contamination, further qualification of the data is not warranted on this basis.

Sample(s)	Analyte(s)
IR24MW07A-032812	Gasoline C_6-C_{12}

Based on a review of the laboratory reporting limits (RL) for Method 8015B, the laboratory RL reported for gasoline is greater than the Sampling Analysis Plan (SAP) Project Quantitation Limit (PQL). The laboratory MDL for gasoline is less than the SAP-specified PQL and the laboratory reported results down to the MDL with appropriate "J" flags. Additional qualification of the data is not warranted on this basis.

Analyte	Laboratory MDL (µg/L)	Laboratory RL (µg/L)	SAP – PQL (µg/L)
Gasoline C_6-C_{12}	5.6	50	21

2.2 TPH– DIESEL/MOTOR OIL DATA VALIDATION

The sample analyzed by U.S. EPA Method 8015B for TPH - Extractable (Diesel and Motor Oil Range- Silica Gel Cleanup) was evaluated for the following data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable	Not Applicable
Sample Condition Upon Receipt	✓				
Analytical Holding Times	✓				
Blank Analyses	✓				
Initial Calibrations	✓				
Initial Calibration Verifications	✓				
Continuing Calibrations	✓				
Surrogate Spike Recoveries	✓				
LCS Analyses	✓				
MS/MSD Analyses					✓
Verification of Sample Results					✓
Field Duplicate Results					✓
Verification of the Client EDD	✓				
Additional Findings		✓			

All sample results met data quality objectives with the exception of those discussed below.

Matrix Spike/Matrix Spike Duplicate Analyses

An MS/MSD analysis was not performed due to insufficient sample volume. Consequently, an assessment of matrix affects cannot be made.

Additional Findings

Based on a review of the laboratory reporting limits (RLs) for Method 8015B, the laboratory RLs reported for diesel and motor oil are greater than the Sampling Analysis Plan (SAP) Project Quantitation Limits (PQL). The laboratory reported results down to the MDL with appropriate "J" flags. The MDL for motor oil is nearly two times greater than the SAP PQL (82 µg/L and 42 µg/L, respectively). Qualification of the data is not warranted on this basis.

Analyte	Laboratory MDL (µg/L)	Laboratory RL (µg/L)	SAP – PQL (µg/L)
Diesel C_{12}-C_{24}	8.9	50	21
Motor Oil C_{24}-C_{36}	82	300	42

2.3 POLYNUCLEAR AROMATIC HYDROCARBONS DATA VALIDATION

The sample analyzed for Polynuclear Aromatic Hydrocarbons (PAHs) by U.S. EPA Method 8270C-SIM was evaluated for the following data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable	Not Applicable
Sample Condition Upon Receipt	✓				
Analytical Holding Times	✓				
Blank Analyses	✓				
GC/MS Tuning and Mass Calibrations	✓				
Initial Calibrations	✓				
Initial Calibration Verifications	✓				
Continuing Calibrations	✓				
Surrogate Spike Recoveries	✓				
LCS Analyses	✓				
MS/MSD Analyses					✓
Internal Standards	✓				
Verification of Sample Results	✓				
Field Duplicate Results	✓				
Verification of the Client EDD	✓				
Additional Findings					✓

All sample results met data quality objectives with the exception of those discussed below.

Matrix Spike/Matrix Spike Duplicate Analyses

An MS/MSD analysis was not performed due to insufficient sample volume. Consequently, an assessment of matrix affects cannot be made.

2.4 PRECISION

Precision measures the reproducibility of data or measurements under specific conditions. Precision is a quantitative measure of the variability of a group of data compared to their average value. Measurement of precision is dependent upon sampling technique and analytical method. Precision was evaluated through laboratory QC samples such as MS/MSD samples and LCS/LCSD samples, as well as field duplicates for groundwater samples. Field duplicates were collected for this SDG. The evaluation of precision is summarized in the previous sections.

2.5 ACCURACY

Accuracy measures the bias in a measurement system that may result from sampling or analytical error. Laboratory accuracy was evaluated based on the evaluation of surrogate spikes, MS/MSD samples, and LCS/LCSD samples as required and summarized in the previous sections.

2.6 REPRESENTATIVENESS EVALUATION

Representativeness is a qualitative evaluation of whether the data represent actual environmental conditions. Representativeness was evaluated using holding time criteria, which reflect the length of time after sample collection that a sample or extract remains representative of environmental conditions. Depending on the analysis, either one or two holding times were evaluated. For those analyses that do not include a sample extraction, only one holding time was evaluated: the length of time between sample collection and analysis. For analyses that require sample extraction prior to analysis, two holding times were evaluated: the length of time from sampling until extraction and the length of time from extraction to analysis. Holding times were compared to standard method-specific holding times accepted by the U.S. EPA. All holding times that are within acceptance criteria are considered representative. Those holding times outside of U.S. EPA acceptance criteria are qualitatively evaluated to determine their effect on sample representativeness. Representativeness was also evaluated by analysis of laboratory method blanks, trip blanks, and equipment blanks that were used to identify sources of contamination not associated with environmental conditions. As summarized in the previous sections, the data appear to be representative of the environmental conditions on site.

2.7 USABILITY AND COMPARABILITY

Usability of data was evaluated by assuring that all the analytical requests were met, the samples were received in the proper condition, and all analyses were performed within the appropriate holding times. The comparability objective determines whether analytical conditions are sufficiently uniform for each analytical run such that all of the reported data from multiple runs are consistent. Comparability is promoted by using similar analytical protocols from one sampling event to the next. All data in SDG 235203 met project usability and comparability objectives with the exception of those noted in the previous sections of this report.

3.0 SUMMARY OF COMPLETENESS

This QA review has identified aspects of the analytical data that required qualification due to blank contamination and confirmation column agreement. None of the data were rejected. To confidently use any of the analytical data within this sample set, the data user should understand the qualifications and limitations of the results. SDG 235203 met the project completeness goal of 95%. The percent completeness is summarized in the following table.

Fraction	Number of Results	Number of Rejected Results	Percent Completeness
BTEX/MTBE Matrix: Water	14	0	100%
TPH – Gasoline Matrix: Water	2	0	100%
TPH – Diesel/Motor Oil Matrix: Water	2	0	100%
PAH Matrix: Water	18	0	100%
Overall	**36**	**0**	**100%**

4.0 REFERENCES

Data Quality Assessment: A Reviewer's Guide, U.S. Environmental Protection Agency, EPA QA/G-9R, February, 2006.

Data Quality Assessment: Statistical Tools for Practitioners, U.S. Environmental Protection Agency, EPA QA/G-9S, February, 2006.

Department of Defense Quality Systems Manual for Environmental Laboratories, Department of Defense, April 22, 2009.

Field Sampling Plan and Quality Assurance Project Plan Petroleum Hydrocarbon Corrective Action, Parcel B, Hunters Point Shipyard, San Francisco, Innovative Technical Solutions, Inc., October 2010.

SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods Third Edition, U.S. Environmental Protection Agency, Office of Solid Waste, December 1994.

Method 8015B:	Nonhalogenated Organics by Gas Chromatography
Method 8021A:	Aromatic and Halogenated Volatiles by Gas Chromatography using Photoionization and/or Electrolytic Conductivity Detectors
Method 8270C:	Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry

U.S. EPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, EPA 540-R-08-01, June 2008.

ATTACHMENT A

ADR AND QRT REPORTS

AUTOMATED DATA REVIEW SUMMARY for 235203

Facility: Hunters Point Shipyard
NAPL Winter 2012

Guidance Document: Hunter's Point

Contract Laboratory: Curtis & Tompkins, Berkeley, CA
Field Contractor: Innovative Technical Solutions, Inc., Walnut Creek, CA
Data Review Contractor: Veridian Environmental, Inc.

SDG: 235203, Certified - 4/26/2012 by ldeck
QC Level: S2BVEM
Project Manager: Charles Comstock

Data Reviewer: Tracy Young
Data Reviewer Title: Senior Chemist
Date of Review Report: 07-May-2012

Samples Included in SDG 235203

Analytical Method/ Leach Method	Normal Water Samples	Field QC Water Samples
BNASIM/NONE	1	0
M8015D/NONE	1	0
M8015V/NONE	1	1
SW8021B/NONE	1	1

AUTOMATED DATA REVIEW SUMMARY for 235203

This report assesses the analytical data quality associated with the analyses listed on the preceding cover page. This assessment has been made through a combination of automated data review (ADR) and supplemental manual review, the details of which are described below. The approach taken in the review of this data set is consistent with the requirements contained in the Hunter's Point to the extent possible. Where definitive guidance is not provided, data has been evaluated in a conservative manner using professional judgment. In cases where two qualifiers are listed as an action, such as 'J/UJ', the first qualifier applies to positive results, and the second to non-detect results.

Samples were collected by Innovative Technical Solutions, Inc., Walnut Creek, CA; analyses were performed by Curtis & Tompkins, Berkeley, CA and were reported under sample delivery group (SDG) 235203. Results have been evaluated electronically using electronic data deliverables (EDDs) provided by the laboratory. The laboratory data summary forms (hard copy) have been reviewed during this effort and compared to the automated review output. Findings based on the automated data submission and manual data verification processes are detailed in the ADR narrative.

The following quality control elements were supported by the electronic deliverable and were evaluated during this review effort:

Blank
Blank - Negative
LCS Recovery
MS Recovery
MS RPD
Prep Hold Time
Surrogate
Test Hold Time
Trip Blank

The following quality control elements were either not applicable to the deliverable, or were not supported by the electronic deliverable, and were therefore not included in the automated data review. Those elements required for the project were reviewed manually, as narrated in the Comment section below.

Ambient Blank
Calibration Blank
Calibration Blank - Negative
Continuing Calibration Verification
Equipment Blank
Field Blank
Field Duplicate RPD
Initial Calibration Verification
Lab Replicate RPD
Material Blank
Negative Blank

AUTOMATED DATA REVIEW SUMMARY for 235203

A minimum of ten percent of sample and QC results were manually evaluated for compliance with project specific requirements and consistency with hard copy results. The following summaries were generated during the evaluation of this data set and are included in this report as applicable.

Batch – The analytical batch report is reviewed for completeness and compliance with project specific requirements. Incomplete or non-compliant run sequences are identified and their impact on data quality are discussed in the narrative.

QC Outlier – Results exceeding the evaluation criteria are reviewed for compliance with project requirements and a minimum of ten percent of the non-compliant QC values reported electronically are verified for consistency with hard-copy values.

Qualified Results – Qualified results are evaluated for compliance with project requirements and ten percent of qualified results are verified for consistency with the QC Outliers.

Rejected Results – All rejected results are evaluated for compliance with project requirements. The reason for rejection of the data is verified against hard copy data.

Field Duplicates – Field duplicate comparison results are evaluated for compliance with project requirements and ten percent of values reported are verified for consistency with the hard-copy data.

Data Submission Warnings – Warnings encountered during the data submission process are evaluated and their affect on data quality is discussed in the narrative below.

Analytical deficiencies, project non-compliance issues and inconsistencies with hard copy results observed during ADR evaluation process and their impact on data quality are summarized in the narrative below.

A total of 7 results (21.88%) out of the 32 results (sample and field QC samples) reported are qualified based on review and 0 results (0.00%) have been rejected. The qualified results are detailed in the following tables and discussed in the narrative below, where appropriate.

Narrative Comments

Tracy Young

Released by Tracy Young, Senior Chemist

07-May-2012

Reason and Comment Code Definitions

Comments

Code	Definition
C1	
C2	
C2S	
C3	
C4	
C5	
C6	
C7	
C8	
C9	

Reasons

Code	Definition
A	Serial dilution
A1	Ambient Blank
B1	A common laboratory artifact was detected in the sample at a concentration less than 10X the concentration detected in the associated method blank.
B2	Calibration Blank
B3	Calibration Blank - Negative
B4	Negative Blank
B5	The analyte was found in an associated blank as well as in the sample.
C10	Continuing Calibration Verification RRF
C11	Continuing Calibration Verification percent recovery, percent difference, or percent drift
C12	Low Level Continuing Calibration Verification was outside control limits
D1	Lab Replicate RPD
D2	MS RPD exceeded established criteria.
D4	No precision available

Reason and Comment Code Definitions

Code	Definition
D5	Field Duplicate RPD
D6	RPD of laboratory control sample exceeded criteria
D7	Field Duplicate not usable
E	Exceeds LinearCalibration Range
F	Hydrocarbon pattern does not match standard
G	Initial Calibration RRF
G1	Initial Calibration RSD
G2	Initial Calibration Verification percent recovery, percent difference, or percent drift
G4	Ion abundance ratios are outside criteria - estimated maximum possible concentration (EMPC) reported
H1	Test Hold Time
H2	Prep Hold Time
I	Internal standard
J	CRA/CRI Recovery
K	An analyte (non-common laboratory artifact) was detected in the sample at a concentration less than 5X the concentration detected in the associated method blank.
K1	Detected in the associated equipment rinsate blank.
K2	Detected in the associated field (i.e., ambient) blank.
K3	Detected in the associated trip blank.
K4	Detected in the associated storage blank
K5	Detected in the associated source blank
L	Percent recovery of laboratory control sample recovery was outside established limits
L1	A common laboratory artifact was detected in the sample at a concentration less than 10X the concentration detected in the associated method blank. (Negative)
M	Matrix spike recovery was outside established criteria.
M1	Minimum matrix spike frequency was not attained
N	Blank - No Action
O	Interference check sample
P	Sample preservation/collection requirement not met.
P1	Column or detector RPD

Reason and Comment Code Definitions

P2	Improper preparation/extraction
Q1	Material Blank
S	Surrogate recovery out of criteria (upper or lower limit)
S1	Sample less than 50% solids
T	Receipt Temperature
T2	RSD of lab triplicate out
TI	Tentatively Identified Compound
TR	Trace Level Detect
V	Sample Receipt Condition
W	Column breakdown (pesticides)
X	Raised reporting limit
X1	Unresolved Isomers; no peak separation
X2	Qualified due to professional judgment, see data validation narrative.
Y	Analyte not confirmed on second column
Y1	False Positive
Y2	Sum of species greater than total result
Z	Data rejected due to radiological anomolies
Z1	Data rejected, more valid data available

Flag Code and Definitions

Flag	Definition
U	Undetected: The analyte was analyzed for, but not detected.
UJ	The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.
J	Estimated: The analyte was positively identified, the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
R	The data are rejected due to deficiencies in meeting QC criteria and may not be used for decision making.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".
NJ	The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated numerical value represents its approximate concentration.

AUTOMATED DATA REVIEW SUMMARY for 235203

Batch Report

Test Method: BNASIM; Leach Method: NONE

Analytical Batch	Prep Batch	Leach Batch	Location	Matrix	Field Sample ID	Lab Sample ID	Calibration Ref	Run#	Collection Date/Time	Extract Date/Time	Analysis Date/Time	Sample Type
184989	184989	NA	LABQC	WQ	LABQC	QC633464		1	27-Mar-2012 5:00 PM	27-Mar-2012 5:00 PM	28-Mar-2012 3:27 PM	LB
	184989	NA	LABQC	WQ	LABQC	QC633465		1	27-Mar-2012 5:00 PM	27-Mar-2012 5:00 PM	28-Mar-2012 3:59 PM	BS
	184989	NA	LABQC	WQ	LABQC	QC633466		1	27-Mar-2012 5:00 PM	27-Mar-2012 5:00 PM	28-Mar-2012 4:32 PM	BD
	184989	NA	IR24MW07A	WG	IR24MW07A-032812	235203-002		3	28-Mar-2012 10:05 AM	28-Mar-2012 4:50 PM	29-Mar-2012 2:30 PM	N

Test Method: M8015D; Leach Method: NONE

Analytical Batch	Prep Batch	Leach Batch	Location	Matrix	Field Sample ID	Lab Sample ID	Calibration Ref	Run#	Collection Date/Time	Extract Date/Time	Analysis Date/Time	Sample Type
185110	185110	NA	LABQC	WQ	LABQC	QC633923		1	01-Apr-2012 5:45 PM	01-Apr-2012 5:45 PM	02-Apr-2012 1:29 PM	LB
	185110	NA	LABQC	WQ	LABQC	QC633924		1	01-Apr-2012 5:45 PM	01-Apr-2012 5:45 PM	02-Apr-2012 1:56 PM	BS
	185110	NA	LABQC	WQ	LABQC	QC633925		1	01-Apr-2012 5:45 PM	01-Apr-2012 5:45 PM	02-Apr-2012 2:24 PM	BD
	185110	NA	IR24MW07A	WG	IR24MW07A-032812	235203-002		2	28-Mar-2012 10:05 AM	01-Apr-2012 5:45 PM	02-Apr-2012 6:37 PM	N

Test Method: M8015V; Leach Method: NONE

Analytical Batch	Prep Batch	Leach Batch	Location	Matrix	Field Sample ID	Lab Sample ID	Calibration Ref	Run#	Collection Date/Time	Extract Date/Time	Analysis Date/Time	Sample Type
185054	185054	NA	LABQC	WQ	LABQC	QC633718		1	29-Mar-2012 9:38 AM	29-Mar-2012 9:38 AM	29-Mar-2012 9:38 AM	BS
	185054	NA	LABQC	WQ	LABQC	QC633719		1	29-Mar-2012 11:33 AM	29-Mar-2012 11:33 AM	29-Mar-2012 11:33 AM	LB
	185054	NA	FIELDQC	WQ	TB-032812	235203-001		1	28-Mar-2012 7:00 AM	29-Mar-2012 12:37 PM	29-Mar-2012 12:37 PM	TB
	185054	NA	IR24MW07A	WG	IR24MW07A-032812	235203-002		1	28-Mar-2012 10:05 AM	29-Mar-2012 1:15 PM	29-Mar-2012 1:15 PM	N
	185054	NA	IR24MW07A	WG	IR24MW07A-032812	QC633720		1	28-Mar-2012 10:05 AM	29-Mar-2012 1:52 PM	29-Mar-2012 1:52 PM	MS
	185054	NA	IR24MW07A	WG	IR24MW07A-032812	QC633721		1	28-Mar-2012 10:05 AM	29-Mar-2012 2:30 PM	29-Mar-2012 2:30 PM	SD

AUTOMATED DATA REVIEW SUMMARY for 235203

Batch Report

Test Method: SW8021B; Leach Method: NONE

Analytical Batch	Prep Batch	Leach Batch	Location	Matrix	Field Sample ID	Lab Sample ID	Calibration Ref	Run#	Collection Date/Time	Extract Date/Time	Analysis Date/Time	Sample Type
185054	185054	NA	LABQC	WQ	LABQC	QC633716		1	29-Mar-2012 9:00 AM	29-Mar-2012 9:00 AM	29-Mar-2012 9:00 AM	BS
	185054	NA	LABQC	WQ	LABQC	QC633717		1	29-Mar-2012 10:16 AM	29-Mar-2012 10:16 AM	29-Mar-2012 10:16 AM	BD
	185054	NA	LABQC	WQ	LABQC	QC633719		1	29-Mar-2012 11:33 AM	29-Mar-2012 11:33 AM	29-Mar-2012 11:33 AM	LB
	185054	NA	FIELDQC	WQ	TB-032812	235203-001		1	28-Mar-2012 7:00 AM	29-Mar-2012 12:37 PM	29-Mar-2012 12:37 PM	TB
	185054	NA	IR24MW07A	WG	IR24MW07A-032812	235203-002		1	28-Mar-2012 10:05 AM	29-Mar-2012 1:15 PM	29-Mar-2012 1:15 PM	N

AUTOMATED DATA REVIEW SUMMARY for 235203

QC Outlier Report

Test/Prep	QC Element	Sample ID	Run# / Dil'n	Analyte	Result	Units	Qualifier	Warning Limits	Control Limits	Reason	Comment	Rule	Action Level
M8015V / SW5030B	Blank	QC633719 (LB)	1 / 1.00	PETROLEUM HYDROCARBONS C6-C12	7.2	UG/L	U/None	< 5.6	< 50	B1		1	7.20
M8015V / SW5030B	Trip Blank	TB-032812 (TB)	1 / 1.00	PETROLEUM HYDROCARBONS C6-C12	7.8	UG/L	U/None	< 5.6	< 50	K3		1	7.80
SW8021B / SW5030B	Blank	QC633719 (LB)	1 / 1.00	Toluene	0.090	UG/L	U/None	< 0.042	< 0.5	B1		1	0.0900
SW8021B / SW5030B	Trip Blank	TB-032812 (TB)	1 / 1.00	Toluene	0.070	UG/L	U/None	< 0.042	< 0.5	K3		1	0.0700

AUTOMATED DATA REVIEW SUMMARY for 235203

Qualified Results

Test Leach	Matrix	FieldSample ID	Type	Analyte	RL	Lab Result	Qualified Result	Units	Reason
BNASIM/NONE	WG	IR24MW07A-032812	N	Pyrene	0.10	0.060	0.060 J	UG/L	TR

Test Leach	Matrix	FieldSample ID	Type	Analyte	RL	Lab Result	Qualified Result	Units	Reason
M8015V/NONE	WG	IR24MW07A-032812	N	PETROLEUM HYDROCARBONS C6-C12	50.0	19.0	50.0 U	UG/L	K
M8015V/NONE	WQ	TB-032812	TB	PETROLEUM HYDROCARBONS C6-C12	50.0	7.8	50.0 U	UG/L	K

Test Leach	Matrix	FieldSample ID	Type	Analyte	RL	Lab Result	Qualified Result	Units	Reason
SW8021B/NONE	WG	IR24MW07A-032812	N	Toluene	0.50	0.054	0.50 U	UG/L	K
SW8021B/NONE	WG	IR24MW07A-032812	N	Xylenes, Total	0.50	0.068	0.068 J	UG/L	P1/TR
SW8021B/NONE	WQ	TB-032812	TB	Toluene	0.50	0.070	0.50 U	UG/L	K

AUTOMATED DATA REVIEW SUMMARY for 235203

Detected Results

Test Leach	Matrix	FieldSample ID	Type	Analyte	RL	Lab Result	Qualified Result	Units	Reason
BNASIM/NONE	WG	IR24MW07A-032812	N	Pyrene	0.10	0.060	0.060 J	UG/L	TR

Test Leach	Matrix	FieldSample ID	Type	Analyte	RL	Lab Result	Qualified Result	Units	Reason
M8015D/NONE	WG	IR24MW07A-032812	N	C12-C24 PETROLEUM HYDROCARBONS	50.0	600	600	UG/L	

Test Leach	Matrix	FieldSample ID	Type	Analyte	RL	Lab Result	Qualified Result	Units	Reason
SW8021B/NONE	WG	IR24MW07A-032812	N	Xylenes, Total	0.50	0.068	0.068 J	UG/L	P1/TR

AUTOMATED DATA REVIEW SUMMARY for 235203

Rejected Results

--No Records Found--

SDG 235203

Qualified Results Table

Lab Sample ID	Sample ID	Sample Collection Date	Type	Method	Parameter	Original Value	Qualifier	New Value	Bias	MDL	RL	Units	Reason
235203-002	IR24MW07A-032812	3/28/2012	WG-N	BNASIM	Pyrene	0.060	J	0.060 J		0.020	0.10	UG/L	TR
235203-002	IR24MW07A-032812	3/28/2012	WG-N	M8015V	PETROLEUM HYDROCARBONS C6-C12	19.0	U	ND U		5.6	50	UG/L	K
235203-001	TB-032812	3/28/2012	WQ-TB	M8015V	PETROLEUM HYDROCARBONS C6-C12	7.8	U	ND U		5.6	50	UG/L	K
235203-002	IR24MW07A-032812	3/28/2012	WG-N	SW8021B	Toluene	0.054	U	ND U		0.042	0.50	UG/L	K
235203-002	IR24MW07A-032812	3/28/2012	WG-N	SW8021B	Xylenes, Total	0.068	J	0.068 J		0.0	0.50	UG/L	P1/TR
235203-001	TB-032812	3/28/2012	WQ-TB	SW8021B	Toluene	0.070	U	ND U		0.042	0.50	UG/L	K

Matrix / Sample Type

Matrix	Matrix Description	Sample Code	Sample Code Description
WG	GROUND WATER	N	Normal Environmental Sample
WQ	WATER QUALITY CONTROL MATRIX	TB	Trip Blank

Data Qualifier Definitions

Flag	Description
U	Undetected: The analyte was analyzed for, but not detected.
UJ	The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.
J	Estimated: The analyte was positively identified, the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
R	The data are rejected due to deficiencies in meeting QC criteria and may not be used for decision making.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".
NJ	The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated numerical value represents its approximate concentration.

Reason and Comment Code Definitions

Code	Description
A	Serial dilution
A1	Ambient Blank
B1	A common laboratory artifact was detected in the sample at a concentration less than 10X the concentration detected in the associated method blank.

Qualified Results Table

Reason and Comment Code Definitions

Code	Description
B2	Calibration Blank
B3	Calibration Blank - Negative
B4	Negative Blank
B5	The analyte was found in an associated blank as well as in the sample.
C1	
C10	Continuing Calibration Verification RRF
C11	Continuing Calibration Verification percent recovery, percent difference, or percent drift
C12	Low Level Continuing Calibration Verification was outside control limits
C2	
C2S	
C3	
C4	
C5	
C6	
C7	
C8	
C9	
D1	Lab Replicate RPD
D2	MS RPD exceeded established criteria.
D4	No precision available
D5	Field Duplicate RPD
D6	RPD of laboratory control sample exceeded criteria
D7	Field Duplicate not usable
E	Exceeds LinearCalibration Range
F	Hydrocarbon pattern does not match standard
G	Initial Calibration RRF
G1	Initial Calibration RSD
G2	Initial Calibration Verification percent recovery, percent difference, or percent drift
G4	Ion abundance ratios are outside criteria - estimated maximum possible concentration (EMPC) reported
H1	Test Hold Time
H2	Prep Hold Time
I	Internal standard
J	CRA/CRI Recovery

Qualified Results Table

Reason and Comment Code Definitions

Code	Description
K	An analyte (non-common laboratory artifact) was detected in the sample at a concentration less than 5X the concentration detected in the associated method blank.
K1	Detected in the associated equipment rinsate blank.
K2	Detected in the associated field (i.e., ambient) blank.
K3	Detected in the associated trip blank.
K4	Detected in the associated storage blank
K5	Detected in the associated source blank
L	Percent recovery of laboratory control sample recovery was outside established limits
L1	A common laboratory artifact was detected in the sample at a concentration less than 10X the concentration detected in the associated method blank. (Negative)
M	Matrix spike recovery was outside established criteria.
M1	Minimum matrix spike frequency was not attained
N	Blank - No Action
O	Interference check sample
P	Sample preservation/collection requirement not met.
P1	Column or detector RPD
P2	Improper preparation/extraction
Q1	Material Blank
S	Surrogate recovery out of criteria (upper or lower limit)
S1	Sample less than 50% solids
T	Receipt Temperature
T2	RSD of lab triplicate out
TI	Tentatively Identified Compound
TR	Trace Level Detect
V	Sample Receipt Condition
W	Column breakdown (pesticides)
X	Raised reporting limit
X1	Unresolved Isomers; no peak separation
X2	Qualified due to professional judgment, see data validation narrative.
Y	Analyte not confirmed on second column
Y1	False Positive
Y2	Sum of species greater than total result
Z	Data rejected due to radiological anomolies
Z1	Data rejected, more valid data available

ATTACHMENT B

PROJECT CORRESPONDENCE

Tracy Young

From: Mike J. Dahlquist [mike.dahlquist@ctberk.com]
Sent: Monday, May 07, 2012 11:43 AM
To: tyoung@veridianenv.com
Subject: 07193.0002 - C&T Data (235203)
Attachments: 235203_level3_rev2.pdf

Hi Tracy,

Revised per Tracy's e-mail.

Please find attached the following file:
• PDF Level III Deliverable

You may also access this data at https://labline.ctberk.com/
Email was also sent to: rflynn@itsi.com

C&T sends its e-reports via the Internet as Portable Document Format (PDF) files. Reports in this format, when accompanied by a signed cover page, are considered official reports. **No hardcopy reports will be sent either by fax or U.S. Postal Service unless otherwise requested.** You may distribute your PDF files electronically or as printed hardcopies, as long as they are distributed in their entirety.

Tracy Young

From: Tracy Young [tyoung@veridianenv.com]
Sent: Monday, May 07, 2012 10:18 AM
To: 'Mike Dahlquist'
Cc: 'Rich Flynn'; 'Charlotte Symms'
Subject: RE: Hunters Point SDG 235203 - LCS/ LCSD xylene isomers request
Importance: High

Hi Mike,

Thank you for the revision. For sample IR24MW07A-032812, there are C-flags for m,p-xylenes and xylene (total) on the sample results page (page 8 of 71) but the corresponding page in the laboratory report lists toluene in sample TB-032812 and not the xylene isomers. It is page 31 of 71 in the report. The sample results page for TB-032812 do not have a C-Flag for this toluene (page 7 of 71). Please clarify which has the C-flag and revise as necessary.

Thanks,
Tracy

Tracy A. Young
Senior Chemist
Veridian Environmental, Inc.
1111 Kennedy Place - Suite 2
Davis, CA 95616
Voice: 530-758-1903
Fax: 530-758-5633
e-mail: tyoung@veridianenv.com

From: Mike Dahlquist [mailto:mike.dahlquist@ctberk.com]
Sent: Friday, May 04, 2012 4:56 PM
To: tyoung@veridianenv.com
Cc: 'Rich Flynn'; 'Charlotte Symms'
Subject: Re: Hunters Point SDG 235203 - LCS/ LCSD xylene isomers request

Tracy,
Sorry this took so long.
-Mike

On 4/30/2012 2:37 PM, Tracy Young wrote:
Hi Rich and Mike,
Upon review of the Hunters Point SDG 235203, the xylene isomers are not listed in the associated LCS/LCSD for Method 8021B on the hard copy or the portal. The LCS and LCSD are associated with batch #185054, analyzed on 03/29/2012.

Can you please reissue these pages for this report? We are aiming to finalize this report by Monday, May 7th, so we would greatly appreciate a quick turnaround for this request.

Thanks,
Tracy

Tracy A. Young
Senior Chemist
Veridian Environmental, Inc.
1111 Kennedy Place - Suite 2
Davis, CA 95616
Voice: 530-758-1903
Fax: 530-758-5633
e-mail: tyoung@veridianenv.com

Tracy Young

From: Mike Dahlquist [mike.dahlquist@ctberk.com]
Sent: Friday, May 04, 2012 4:56 PM
To: tyoung@veridianenv.com
Cc: 'Rich Flynn'; 'Charlotte Symms'
Subject: Re: Hunters Point SDG 235203 - LCS/ LCSD xylene isomers request
Attachments: 235203_level3_rev1.pdf

Tracy,
Sorry this took so long.
-Mike

On 4/30/2012 2:37 PM, Tracy Young wrote:

> Hi Rich and Mike,
> Upon review of the Hunters Point SDG 235203, the xylene isomers are not listed in the associated LCS/LCSD for Method 8021B on the hard copy or the portal. The LCS and LCSD are associated with batch #185054, analyzed on 03/29/2012.
>
> Can you please reissue these pages for this report? We are aiming to finalize this report by Monday, May 7th, so we would greatly appreciate a quick turnaround for this request.
>
> Thanks,
> Tracy
>
> Tracy A. Young
> Senior Chemist
> Veridian Environmental, Inc.
> 1111 Kennedy Place - Suite 2
> Davis, CA 95616
> Voice: 530-758-1903
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> e-mail: tyoung@veridianenv.com

Veridian
"Truth through Science"
Environmental, Inc

DATA VALIDATION REPORT

ITSI
HUNTERS POINT SHIPYARD, PARCEL B
SAN FRANCISCO, CALIFORNIA

Curtis & Tompkins Laboratories
SDG: **237507**

August 10, 2012

Prepared for:

INNOVATIVE TECHNICAL SOLUTIONS, INC
2730 Shadelands Drive, Suite 100
Walnut Creek, California 94598

Prepared by:

VERIDIAN ENVIRONMENTAL, INC.
1111 Kennedy Place
Suite 2
Davis, California 95616

DATA VALIDATION REPORT

ITSI
HUNTERS POINT SHIPYARD, PARCEL B
SAN FRANCISCO, CALIFORNIA

August 10, 2012

Name	Position	Signature/Date
Veridian Environmental, Inc.		
Prepared by:		
Tracy A. Young	**Senior Quality Assurance Chemist**	Tracy A. Young for 8-10-12
Ann Lack	**Senior Quality Assurance Chemist**	Ann Lack for 8/10/12
Reviewed and Approved by:		
Charlotte R. Symms	**President**	Charlotte R. Symms for 8/10/12

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ACRONYMS

Acronym	Definition
%D	Percent Difference
%REC	Percent Recovery
%RSD	Percent Relative Standard Deviation
%S	Percent Solids
ARRF	Average Relative Response Factor
BFB	Bromofluorobenzene
BNA	Base Neutral Acid
CA	Corrective Action
CARD	CLP Analytical Results Database
CCC	Calibration Check Analytes
CCB	Continuing Calibration Blank
CCV	Continuing Calibration Verification
CF	Calibration Factor
CLP	Contract Laboratory Program
COC	Chain-of-Custody
CRDL	Contract Required Detection Limit
CRQL	Contract Required Quantitation Limit
C&T	Curtis & Tompkins Laboratories, LLC
DO	Diluted Out
DOC	Date of Collection
DOD	Department of Defense
DQI	Data Quality Indicator
DQO	Data Quality Objective
DRO	Diesel Range Organics
DVR	Data Validation Report
EDD	Electronic Data Deliverable
FID	Flame Ionization Detector
GC	Gas Chromatography
GC/ECD	Gas Chromatography/Electron Capture Detector
GC/MS	Gas Chromatography/Mass Spectrometry
GPC	Gel Permeation Chromatography
HPS	Hunters Point Shipyard
ICAL	Initial Calibration
ICV	Initial Calibration Verification
IS	Internal Standard
ITSI	Innovative Technical Solutions, Inc.
GRO	Gas Range Organics
kg	Kilogram
LCS	Laboratory Control Sample

Acronym	Definition
LCSD	Laboratory Control Sample Duplicate
l	Liter
LL	Lower Limit
LLC	Limited Liability Company
MB	Method Blank
MDL	Method Detection Limit
ml	Milliliter
MO	Motor Oil
MRL	Method Reporting Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
MTBE	Methyl tert-butyl ether
µg	Microgram
NAPL	Non-Aqueous Phase Liquid
NAVFAC	Naval Facilities Engineering Command
ND	Non-detect or Not Detect
NEDD	Navy Electronic Data Deliverable
NFG	National Functional Guidelines
NIST	National Institute of Standards and Technology
NPS	Non Project Sample
NQW	No Qualification Warranted
NTC	Non Target Compound
OERR	Office of Emergency and Remedial Response
OSWER	Office of Solid Waste and Emergency Response
PAL	Project Action Limit
PAH	Polycyclic Aromatic Hydrocarbons
PID	Photoionization Detector
PQOs	Project Quality Objectives
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference
RRF	Relative Response Factor
RRT	Relative Retention Time
RSD	Relative Standard Deviation
RT	Retention Time
SDG	Sample Delivery Group
SOP	Standard Operating Procedure
SOW	Statement of Work

Acronym	Definition
SPCC	System Performance Check Analytes
SSV	Second Source Verification
SVOC	Semivolatile Organic Compound
Surr	Surrogate
TAL	Target Analyte List
TCL	Target Compound List
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
TSS	Total Suspended Solids
UL	Upper Limit
µg/L	Micrograms per liter
USACE	United States Army Corp of Engineers
U.S. EPA	United States Environmental Protection Agency
VEI	Veridian Environmental, Inc.
VOC	Volatile Organic Compound

DATA QUALIFIER REASON CODES

Code	Reason Code	Description
A	Serial dilution	Serial dilution
A1	Ambient Blank	Ambient Blank
B1	Blank	A common laboratory artifact was detected in the sample at a concentration less than 10X the concentration detected in the associated method blank.
B2	Calibration Blank	Calibration Blank
B3	Calibration Blank - Negative	Calibration Blank - Negative
B4	Negative Blank	Negative Blank
B5	The analyte was found in blank and sample	The analyte was found in an associated blank as well as in the sample.
C1	Diluted Out	Diluted Out
C10	Continuing Calibration Verification RRF	Continuing Calibration Verification RRF
C11	Continuing Calibration Verification	Continuing Calibration Verification percent recovery, percent difference, or percent drift
C2	Flag Parent Only	Flag Parent Only
C2S	Flag Parent (Soil); Batch (Water)	Flag Parent (Soil); Batch (Water)
C3	No Action	No Action
C4	No QC Outliers	No QC Outliers
C5	One or both values <5x RL	One or both values <5x RL
C6	Recalculated Value	Recalculated Value
C7	Material Blanks	Material Blanks
C8	Spike Insignificant	Spike Insignificant
C9	No Flags; set to ND by method/cal. blank	No Flags; set to ND by method/cal. blank
D1	Lab Replicate RPD	Lab Replicate RPD
D2	MS RPD	MS RPD exceeded established criteria.
D4	No precision available	No precision available
D5	Field Duplicate RPD	Field Duplicate RPD
D6	LCS RPD	RPD of laboratory control sample exceeded criteria
D7	Field Dup not usable	Field Duplicate not usable
E	Exceeds Linear Calibration Range	Exceeds Linear Calibration Range
F	Hydrocarbon pattern does not match standard	Hydrocarbon pattern does not match standard
G	Initial Calibration RRF	Initial Calibration RRF
G1	Initial Calibration RSD	Initial Calibration RSD
G2	Initial Calibration Verification	Initial Calibration Verification percent recovery, percent difference, or percent drift
H1	Test Hold Time	Test Hold Time
H2	Prep Hold Time	Prep Hold Time
I	Internal standard	Internal standard
J	CRA/CRI Recovery	CRA/CRI Recovery

Code	Reason Code	Description
K	An analyte (non-common lab artifact) was detected	An analyte (non-common laboratory artifact) was detected in the sample at a concentration less than 5X the concentration detected in the associated method blank.
K1	Equipment Blank	Detected in the associated equipment rinsate blank.
K2	Field Blank	Detected in the associated field (i.e., ambient) blank.
K3	Trip Blank	Detected in the associated trip blank.
L	LCS Recovery	Percent recovery of laboratory control sample recovery was outside established limits
L1	Blank - Negative	A common laboratory artifact was detected in the sample at a concentration less than 10X the concentration detected in the associated method blank. (Negative)
M	MS Recovery	Matrix spike recovery was outside established criteria.
N	Blank - No Action	Blank - No Action
O	Interference check sample	Interference check sample
P	Sample preservation/collection requirement not met	Sample preservation/collection requirement not met.
P1	Confirmation Column/Detector RPD	Column or detector RPD
P2	Improper preparation/extraction	Improper preparation/extraction
Q1	Material Blank	Material Blank
S	Surrogate	Surrogate recovery out of criteria (upper or lower limit)
S1	Sample less than 50% solids	Sample less than 50% solids
T	Receipt Temperature	Receipt Temperature
T2	RSD of lab triplicate out	RSD of lab triplicate out
TI	Tentatively Identified Compound	Tentatively Identified Compound
TR	Trace Level Detect	Trace Level Detect
V	Sample Receipt Condition	Sample Receipt Condition
W	Column breakdown (pesticides)	Column breakdown (pesticides)
X	Raised reporting limit	Raised reporting limit
X1	Unresolved Isomers; no peak separation	Unresolved Isomers; no peak separation
X2	Qualified due to professional judgment, see data validation narrative.	Qualified due to professional judgment, see data validation narrative.
Y	Analyte not confirmed on second column	Analyte not confirmed on second column
Y1	False Positive	False Positive
Y2	Sum of species greater than total result	Sum of species greater than total result
Z	Data rejected due to radiological anomalies	Data rejected due to radiological anomalies
Z1	Data rejected, more valid data available	Data rejected, more valid data available

1.0 INTRODUCTION

This Data Validation Report (DVR) details the assessment and data validation performed on the groundwater sample analyses from SDG 237507. These samples were collected on June 27, 2012, as part of the Parcel B NAPL Petroleum Hydrocarbon Corrective Action in Hunters Point Shipyard, San Francisco, California. The samples were delivered to and analyzed by Curtis & Tompkins Laboratories, LLC (C&T) in Berkeley, California. The analyses performed included the following: BTEX/MTBE by U.S. EPA Method 8021B, Total Petroleum Hydrocarbons (TPH) – Purgeable (Gasoline: C_6-C_{12}) by U.S. EPA Method 8015B, TPH – Extractable (Diesel and Motor Oil: C_{12}-C_{24} and C_{24}-C_{36}) by U.S. EPA Method 8015B, and Polynuclear Aromatic Hydrocarbons by U.S. EPA Method 8270C-SIM.

Data validation of all sample results was performed by Tracy A. Young, Ann Lack, and Charlotte R. Symms of Veridian Environmental, Inc. (VEI). A review (Level III) of 100% of the data, which allows for complete independent data review without reconstruction of analytical data, was conducted. In addition, approximately 10% of the project data underwent a comprehensive or extensive review (Level IV) which allowed for the complete reconstruction of the chemical analyses. The comprehensive review included the recalculation of calibration curves and sample results. None of the samples from this SDG were selected for the comprehensive Level IV review. The data were validated in accordance with the analytical methods and the documents entitled *Field Sampling Plan and Quality Assurance Project Plan Petroleum Hydrocarbon Corrective Action, Parcel B, Hunters Point Shipyard, San Francisco,* (Innovative Technical Solutions, Inc., October 2010) and with guidance from *Department of Defense Quality Systems Manual for Environmental Laboratories* (DoD, 2009); *Data Quality Assessment: A Reviewer's Guide* (U.S. EPA QA/G-9R 2006); *Data Quality Assessment: Statistical Tools for Practitioners* (U.S. EPA QA-G-9S, 2006); and *U.S. EPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (U.S. EPA, 2008).

The data were examined to determine the usability of the analytical results and the compliance relative to requirements specified in the analytical methods and guidelines provided. Qualifier flags have been placed next to the results on the laboratory analytical result forms and entered into the client database so the data user can quickly assess the qualitative and/or quantitative reliability of any result. The data qualifications allow the data end-user to best understand the usability of the analytical results. It should be understood that data that have not been qualified in this report should be considered valid based on the quality control (QC) criteria that have been reviewed. This report was prepared to provide a critical review of the laboratory analyses and the reported analytical results. Quality assurance (QA) reviews of laboratory-generated data routinely identify various problems associated with analytical measurements, even from the most experienced and capable laboratories.

The findings of this QA review are presented in Section 2.0 of this report, a summary of completeness is presented in Section 3.0, and the references are provided in Section 4.0. The ADR and QRT Reports for the project samples in SDG 237507 are presented in Attachment A. Project Correspondence is presented as Attachment B.

Several data validation flags are utilized in the validation process. The definitions of these qualifier flags are as follows:

- U — The analyte was analyzed for, but was not detected at or above the reported sample quantitation limit.
- J — The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- UJ — The analyte was not detected at or above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
- R — The sample result and/or analysis have been rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

All necessary flags have been incorporated into the data presented in this report (Attachment A). As per project-specific reporting requirements, all results reported at concentrations less than the sample-specific practical quantitation limits (adjusted for dilution factors, sample size, and percent solids) should be considered estimated (J).

2.0 FINDINGS

Data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, the validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance.

2.1 BTEX/MTBE AND TPH – GASOLINE DATA VALIDATION

The samples analyzed for BTEX/MTBE by U.S. EPA Method 8021B and for TPH - Purgeable (Gasoline Range – C_6-C_{12}) by U.S. EPA Method 8015B were evaluated for the following data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable	Not Applicable
Sample Condition Upon Receipt	✓				
Analytical Holding Times	✓				
Blank Analyses			✓		
Initial Calibrations	✓				
Initial Calibration Verifications	✓				
Continuing Calibrations		✓			
Surrogate Spike Recoveries	✓				

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable	Not Applicable
LCS Analyses	✓				
MS/MSD Analyses					✓
Confirmation Column Agreement	✓				
Verification of Sample Results					✓
Field Duplicate Results					✓
Verification of the Client EDD	✓				
Additional Findings		✓			

All sample results met data quality objectives with the exception of those discussed below.

Blank Analyses

The following analytes were reported at concentrations greater than or equal to the MDL in the blanks as summarized in the tables below.

Method Blank

Sample ID	Contaminant	Concentration	Associated Sample(s)
QC646576	Gasoline C_6-C_{12}	17 µg/L	**TB-062712** **IR24MW07A-062712**

Trip Blank

Sample ID	Contaminant	Concentration	Associated Sample(s)
TB-062712	Gasoline C_6-C_{12} m,p-Xylenes Xylene (total)	16 µg/L 0.30 µg/L 0.30 µg/L	**IR24MW07A-062712**

Due to the presence of gasoline C_6-C_{12} in the associated laboratory blank, the reported positive results for gasoline C_6-C_{12} in the following samples should be considered anomalous (U) and in accordance with the validation guidelines, the reported detection limits have been raised to the RL. The gasoline C_6-C_{12} contaminant in sample **TB-062712** is considered non-detect due to the concentration of gasoline C_6-C_{12} in the associated method blank. Therefore, no qualification is warranted based on the trip blank result for gasoline C_6-C_{12}. It should be noted that dilution factors and sample volumes were taken into consideration when evaluating blank contamination.

Sample(s) With Anomalous Results (U)	Analyte(s)
TB-062712 **IR24MW07A-062712**	Gasoline C_6-C_{12}

Continuing Calibrations

For all continuing calibrations, the percent differences for all target analytes were ≤ 15% on both the primary column and the confirmation column for all analytes except the surrogate listed in the following table. For all analytes except MTBE, Channel B was used as the primary column and Channel C was used at the confirmation column. For MTBE, Channel C was used as the primary column and Channel B was used as the confirmation column.

Low recoveries were noted for the surrogate listed in the following continuing calibration. Qualification is not warranted based on this surrogate.

Instrument ID, Channel Date (Time)	Analyte(s)	Percent Difference	Associated Sample(s)
GC19, Ch. B 07/05/2012 (10:36)	Bromofluorobenzene	-17%	**TB-062712 IR24MW07A-062712**
GC19, Ch. C 07/05/2012 (10:36)	Bromofluorobenzene	-19%	**TB-062712 IR24MW07A-062712**

Matrix Spike/Matrix Spike Duplicate Analyses

For the groundwater samples, a Matrix Spike/Matrix Spike Duplicate (MS/MSD) was performed on a sample from another SDG. Consequently, an assessment of matrix affects cannot be made.

For the BTEX/MTBE analysis, an MS/MSD was not performed. Consequently, an assessment of matrix affects cannot be made.

Additional Findings

The supporting documentation for the C-Flag and Lower Values Reported Summary pages were not provided in the original data package. On request by the data reviewer (see Attachment B), the laboratory provided the missing data.

Based on a review of the laboratory reporting limits (RL) for Method 8015B, the laboratory RL reported for gasoline is greater than the Sampling Analysis Plan (SAP) Project Quantitation Limit (PQL). The laboratory MDL for gasoline is less than the SAP-specified PQL and the laboratory reported results down to the MDL with appropriate "J" flags. Additional qualification of the data is not warranted on this basis.

Analyte	Laboratory MDL (µg/L)	Laboratory RL (µg/L)	SAP – PQL (µg/L)
Gasoline C_6-C_{12}	12	50	21

2.2 TPH– DIESEL/MOTOR OIL DATA VALIDATION

The sample analyzed by U.S. EPA Method 8015B for TPH - Extractable (Diesel and Motor Oil Range- Silica Gel Cleanup) was evaluated for the following data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable	Not Applicable
Sample Condition Upon Receipt	✓				
Analytical Holding Times	✓				
Blank Analyses	✓				
Initial Calibrations	✓				
Initial Calibration Verifications	✓				
Continuing Calibrations	✓				
Surrogate Spike Recoveries		✓			
LCS Analyses	✓				
MS/MSD Analyses					✓
Verification of Sample Results					✓
Field Duplicate Results					✓
Verification of the Client EDD	✓				
Additional Findings		✓			

All sample results met data quality objectives with the exception of those discussed below.

Surrogate Spike Recoveries

For the project analyses, the surrogate recoveries were within project criteria except as listed in the following table. A high percent recovery was noted in the following QC sample. Qualification of the data is not warranted in this QC sample.

Sample(s)	Surrogate	Percent Recovery
BLANK - QC646044	o-Terphenyl	137%

Matrix Spike/Matrix Spike Duplicate Analyses

An MS/MSD analysis was not performed due to insufficient sample volume. Consequently, an assessment of matrix affects cannot be made.

Additional Findings

Silica gel-cleanup was performed on sample **IR24MW07A-062712**.

Based on a review of the laboratory reporting limits (RLs) for Method 8015B, the laboratory RLs reported for diesel and motor oil are greater than the Sampling Analysis Plan (SAP) Project Quantitation Limits (PQL). The laboratory reported results down to the MDL with appropriate "J"

flags. The MDL for motor oil is nearly two times greater than the SAP PQL (82 µg/L and 42 µg/L, respectively). Qualification of the data is not warranted on this basis.

Analyte	Laboratory MDL (µg/L)	Laboratory RL (µg/L)	SAP – PQL (µg/L)
Diesel C_{12}-C_{24}	8.9	50	21
Motor Oil C_{24}-C_{36}	82	300	42

2.3 POLYNUCLEAR AROMATIC HYDROCARBONS DATA VALIDATION

The sample analyzed for Polynuclear Aromatic Hydrocarbons (PAHs) by U.S. EPA Method 8270C-SIM was evaluated for the following data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable	Not Applicable
Sample Condition Upon Receipt	✓				
Analytical Holding Times	✓				
Blank Analyses		✓			
GC/MS Tuning and Mass Calibrations	✓				
Initial Calibrations	✓				
Initial Calibration Verifications	✓				
Continuing Calibrations	✓				
Surrogate Spike Recoveries	✓				
LCS Analyses	✓				
MS/MSD Analyses					✓
Internal Standards	✓				
Verification of Sample Results	✓				
Field Duplicate Results	✓				
Verification of the Client EDD	✓				
Additional Findings					✓

All sample results met data quality objectives with the exception of those discussed below.

Blank Analyses

The following analyte was reported at a concentration greater than or equal to the MDL in the blank as summarized in the table below.

Method Blank

Sample ID	Contaminant	Concentration	Associated Sample(s)
QC646023	Naphthalene	0.03 µg/L	**IR24MW07A-062712**

Since the associated sample was non-detect for naphthalene, qualification of the data is not warranted on this basis.

Matrix Spike/Matrix Spike Duplicate Analyses

An MS/MSD analysis was not performed due to insufficient sample volume. Consequently, an assessment of matrix affects cannot be made.

2.4 PRECISION

Precision measures the reproducibility of data or measurements under specific conditions. Precision is a quantitative measure of the variability of a group of data compared to their average value. Measurement of precision is dependent upon sampling technique and analytical method. Precision was evaluated through laboratory QC samples such as MS/MSD samples and LCS/LCSD samples, as well as field duplicates for groundwater samples. Field duplicates were not collected for this SDG. The evaluation of precision is summarized in the previous sections.

2.5 ACCURACY

Accuracy measures the bias in a measurement system that may result from sampling or analytical error. Laboratory accuracy was evaluated based on the evaluation of surrogate spikes, MS/MSD samples, and LCS/LCSD samples as required and summarized in the previous sections.

2.6 REPRESENTATIVENESS EVALUATION

Representativeness is a qualitative evaluation of whether the data represent actual environmental conditions. Representativeness was evaluated using holding time criteria, which reflect the length of time after sample collection that a sample or extract remains representative of environmental conditions. Depending on the analysis, either one or two holding times were evaluated. For those analyses that do not include a sample extraction, only one holding time was evaluated: the length of time between sample collection and analysis. For analyses that require sample extraction prior to analysis, two holding times were evaluated: the length of time from sampling until extraction and the length of time from extraction to analysis. Holding times were compared to standard method-specific holding times accepted by the U.S. EPA. All holding times that are within acceptance criteria are considered representative. Those holding times outside of U.S. EPA acceptance criteria are qualitatively evaluated to determine their effect on sample representativeness. Representativeness was also evaluated by analysis of laboratory method blanks, trip blanks, and equipment blanks that were used to identify sources of contamination not associated with environmental conditions. As summarized in the previous sections, the data appear to be representative of the environmental conditions on site.

2.7 USABILITY AND COMPARABILITY

Usability of data was evaluated by assuring that all the analytical requests were met, the samples were received in the proper condition, and all analyses were performed within the appropriate holding times. The comparability objective determines whether analytical conditions are sufficiently uniform for each analytical run such that all of the reported data from multiple runs are consistent. Comparability is promoted by using similar analytical protocols from one sampling

event to the next. All data in SDG 237507 met project usability and comparability objectives with the exception of those noted in the previous sections of this report.

3.0 SUMMARY OF COMPLETENESS

This QA review has identified aspects of the analytical data that required qualification due to blank contamination. None of the data were rejected. To confidently use any of the analytical data within this sample set, the data user should understand the qualifications and limitations of the results. SDG 237507 met the project completeness goal of 95%. The percent completeness is summarized in the following table.

Fraction	Number of Results	Number of Rejected Results	Percent Completeness
BTEX/MTBE Matrix: Water	14	0	100%
TPH – Gasoline Matrix: Water	2	0	100%
TPH – Diesel/Motor Oil Matrix: Water	2	0	100%
PAH Matrix: Water	18	0	100%
Overall	**36**	**0**	**100%**

4.0 REFERENCES

Data Quality Assessment: A Reviewer's Guide, U.S. Environmental Protection Agency, EPA QA/G-9R, February, 2006.

Data Quality Assessment: Statistical Tools for Practitioners, U.S. Environmental Protection Agency, EPA QA/G-9S, February, 2006.

Department of Defense Quality Systems Manual for Environmental Laboratories, Department of Defense, April 22, 2009.

Field Sampling Plan and Quality Assurance Project Plan Petroleum Hydrocarbon Corrective Action, Parcel B, Hunters Point Shipyard, San Francisco, Innovative Technical Solutions, Inc., October 2010.

SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods Third Edition, U.S. Environmental Protection Agency, Office of Solid Waste, December 1994.

Method 8015B: Nonhalogenated Organics by Gas Chromatography
Method 8021A: Aromatic and Halogenated Volatiles by Gas Chromatography using Photoionization and/or Electrolytic Conductivity Detectors
Method 8270C: Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry

U.S. EPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, EPA 540-R-08-01, June 2008.

ATTACHMENT A

ADR AND QRT REPORTS

AUTOMATED DATA REVIEW SUMMARY for 237507

Facility:	Hunters Point Shipyard NAPL Summer 2012
Guidance Document:	Hunter's Point
Contract Laboratory:	Curtis & Tompkins, Berkeley, CA
Field Contractor:	Innovative Technical Solutions, Inc., Walnut Creek, CA
Data Review Contractor:	Veridian Environmental, Inc.
SDG:	237507, Certified - 7/23/2012 by ldeck
QC Level:	S2BVEM
Project Manager:	Charles Comstock
Data Reviewer:	Tracy Young
Data Reviewer Title:	Senior Chemist
Date of Review Report:	10-Aug-2012
Second Reviewer:	Ann Lack
Completion Date of Second Reviewer:	

Samples Included in SDG 237507

Analytical Method/ Leach Method	Normal Water Samples	Field QC Water Samples
BNASIM/NONE	1	0
M8015D/NONE	1	0
M8015V/NONE	1	1
SW8021B/NONE	1	1

AUTOMATED DATA REVIEW SUMMARY for 237507

This report assesses the analytical data quality associated with the analyses listed on the preceding cover page. This assessment has been made through a combination of automated data review (ADR) and supplemental manual review, the details of which are described below. The approach taken in the review of this data set is consistent with the requirements contained in the Hunter's Point to the extent possible. Where definitive guidance is not provided, data has been evaluated in a conservative manner using professional judgment. In cases where two qualifiers are listed as an action, such as 'J/UJ', the first qualifier applies to positive results, and the second to non-detect results.

Samples were collected by Innovative Technical Solutions, Inc., Walnut Creek, CA; analyses were performed by Curtis & Tompkins, Berkeley, CA and were reported under sample delivery group (SDG) 237507. Results have been evaluated electronically using electronic data deliverables (EDDs) provided by the laboratory. The laboratory data summary forms (hard copy) have been reviewed during this effort and compared to the automated review output. Findings based on the automated data submission and manual data verification processes are detailed in the ADR narrative.

The following quality control elements were supported by the electronic deliverable and were evaluated during this review effort:

Blank
Blank - Negative
LCS Recovery
Prep Hold Time
Surrogate
Test Hold Time
Trip Blank

The following quality control elements were either not applicable to the deliverable, or were not supported by the electronic deliverable, and were therefore not included in the automated data review. Those elements required for the project were reviewed manually, as narrated in the Comment section below.

Ambient Blank
Calibration Blank
Calibration Blank - Negative
Continuing Calibration Verification
Equipment Blank
Field Blank
Field Duplicate RPD
Initial Calibration Verification
Lab Replicate RPD
Material Blank
MS Recovery
MS RPD
Negative Blank

AUTOMATED DATA REVIEW SUMMARY for 237507

A representative sampling or ten percent of sample and QC results were manually evaluated for compliance with project specific requirements and consistency with hard copy results. The following summaries were generated during the evaluation of this data set and are included in this report as applicable.

Batch – The analytical batch report is reviewed for completeness and compliance with project specific requirements. Incomplete or non-compliant run sequences are identified and their impact on data quality are discussed in the narrative.

QC Outlier – Results exceeding the evaluation criteria are reviewed for compliance with project requirements and a minimum of ten percent of the non-compliant QC values reported electronically are verified for consistency with hard-copy values.

Qualified Results – Qualified results are evaluated for compliance with project requirements and ten percent of qualified results are verified for consistency with the QC Outliers.

Rejected Results – All rejected results are evaluated for compliance with project requirements. The reason for rejection of the data is verified against hard copy data.

Field Duplicates – Field duplicate comparison results are evaluated for compliance with project requirements and ten percent of values reported are verified for consistency with the hard-copy data.

Data Submission Warnings – Warnings encountered during the data submission process are evaluated and their affect on data quality is discussed in the narrative below.

Analytical deficiencies, project non-compliance issues and inconsistencies with hard copy results observed during ADR evaluation process and their impact on data quality are summarized in the narrative below.

A total of 2 results (5.56%) out of the 36 results (sample and field QC samples) reported are qualified based on review and 0 results (0.00%) have been rejected. Trace values are not counted as qualified results in the above count. The qualified results are detailed in the following tables and discussed in the narrative below, where appropriate.

Narrative Comments

The result of pyrene in sample IR24MW07A-062712 on portal changed to "TRACE" with a J-flag and TR reason code to match the hard copy of the laboratory report per the client's request.

Tracy Young

Released by Tracy Young, Senior Chemist

10-Aug-2012

AUTOMATED DATA REVIEW SUMMARY for 237507

Reason and Comment Code Definitions

Comments

Code	Definition
C1	
C2	
C2S	
C3	
C4	
C5	
C6	
C7	
C8	
C9	

Reasons

Code	Definition
A	Serial dilution
A1	Ambient Blank
B1	A common laboratory artifact was detected in the sample at a concentration less than 10X the concentration detected in the associated method blank.
B2	Calibration Blank
B3	Calibration Blank - Negative
B4	Negative Blank
B5	The analyte was found in an associated blank as well as in the sample.
C10	Continuing Calibration Verification RRF
C11	Continuing Calibration Verification percent recovery, percent difference, or percent drift
C12	Low Level Continuing Calibration Verification was outside control limits
D1	Lab Replicate RPD
D2	MS RPD exceeded established criteria.
D4	No precision available
D5	Field Duplicate RPD
D6	RPD of laboratory control sample exceeded criteria
D7	Field Duplicate not usable
E	Exceeds LinearCalibration Range
F	Hydrocarbon pattern does not match standard
G	Initial Calibration RRF
G1	Initial Calibration RSD

AUTOMATED DATA REVIEW SUMMARY for 237507

Reason and Comment Code Definitions

Code	Definition
G2	Initial Calibration Verification percent recovery, percent difference, or percent drift
G4	Ion abundance ratios are outside criteria - estimated maximum possible concentration (EMPC) reported
H1	Test Hold Time
H2	Prep Hold Time
I	Internal standard
J	CRA/CRI Recovery
K	An analyte (non-common laboratory artifact) was detected in the sample at a concentration less than 5X the concentration detected in the associated method blank.
K1	Detected in the associated equipment rinsate blank.
K2	Detected in the associated field (i.e., ambient) blank.
K3	Detected in the associated trip blank.
K4	Detected in the associated storage blank
K5	Detected in the associated source blank
L	Percent recovery of laboratory control sample recovery was outside established limits
L1	A common laboratory artifact was detected in the sample at a concentration less than 10X the concentration detected in the associated method blank. (Negative)
M	Matrix spike recovery was outside established criteria.
M1	Minimum matrix spike frequency was not attained
N	Blank - No Action
O	Interference check sample
P	Sample preservation/collection requirement not met.
P1	Column or detector RPD
P2	Improper preparation/extraction
Q1	Material Blank
S	Surrogate recovery out of criteria (upper or lower limit)
S1	Sample less than 50% solids
T	Receipt Temperature
T2	RSD of lab triplicate out
TI	Tentatively Identified Compound
TR	Trace Level Detect
V	Sample Receipt Condition
W	Column breakdown (pesticides)
X	Raised reporting limit
X1	Unresolved Isomers; no peak separation
X2	Qualified due to professional judgment, see data validation narrative.
Y	Analyte not confirmed on second column

AUTOMATED DATA REVIEW SUMMARY for 237507

Reason and Comment Code Definitions

Y1	False Positive
Y2	Sum of species greater than total result
Z	Data rejected due to radiological anomolies
Z1	Data rejected, more valid data available

Flag Code and Definitions

Flag	Definition
U	Undetected: The analyte was analyzed for, but not detected.
UJ	The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.
J	Estimated: The analyte was positively identified, the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
R	The data are rejected due to deficiencies in meeting QC criteria and may not be used for decision making.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".
NJ	The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated numerical value represents its approximate concentration.

AUTOMATED DATA REVIEW SUMMARY for 237507

Batch Report

Test Method: BNASIM; Leach Method: NONE

Analytical Batch	Prep Batch	Leach Batch	Location	Matrix	Field Sample ID	Lab Sample ID	Calibration Ref	Run#/ Dil'n	Collection Date/Time	Extract Date/Time	Analysis Date/Time	Sample Type
188059	188059	NA	IR24MW07A	WG	IR24MW07A-062712	237507-002			27-Jun-2012 12:25 PM	28-Jun-2012 2:10 PM	29-Jun-2012 4:38 PM	N
	188059	NA	LABQC	WQ	LABQC	QC646025			28-Jun-2012 2:10 PM	28-Jun-2012 2:10 PM	29-Jun-2012 2:50 PM	BD
	188059	NA	LABQC	WQ	LABQC	QC646024			28-Jun-2012 2:10 PM	28-Jun-2012 2:10 PM	29-Jun-2012 2:14 PM	BS
	188059	NA	LABQC	WQ	LABQC	QC646023			28-Jun-2012 2:10 PM	28-Jun-2012 2:10 PM	29-Jun-2012 1:05 PM	LB

Test Method: M8015D; Leach Method: NONE

Analytical Batch	Prep Batch	Leach Batch	Location	Matrix	Field Sample ID	Lab Sample ID	Calibration Ref	Run#/ Dil'n	Collection Date/Time	Extract Date/Time	Analysis Date/Time	Sample Type
188066	188066	NA	IR24MW07A	WG	IR24MW07A-062712	237507-002			27-Jun-2012 12:25 PM	28-Jun-2012 4:50 PM	30-Jun-2012 11:46 PM	N
	188066	NA	LABQC	WQ	LABQC	QC646046			28-Jun-2012 4:50 PM	28-Jun-2012 4:50 PM	03-Jul-2012 7:43 PM	BD
	188066	NA	LABQC	WQ	LABQC	QC646045			28-Jun-2012 4:50 PM	28-Jun-2012 4:50 PM	03-Jul-2012 7:15 PM	BS
	188066	NA	LABQC	WQ	LABQC	QC646044			28-Jun-2012 4:50 PM	28-Jun-2012 4:50 PM	30-Jun-2012 1:59 AM	LB

Test Method: M8015V; Leach Method: NONE

Analytical Batch	Prep Batch	Leach Batch	Location	Matrix	Field Sample ID	Lab Sample ID	Calibration Ref	Run#/ Dil'n	Collection Date/Time	Extract Date/Time	Analysis Date/Time	Sample Type
188192	188192	NA	FIELDQC	WQ	TB-062712	237507-001			27-Jun-2012 9:00 AM	04-Jul-2012 1:11 AM	04-Jul-2012 1:11 AM	TB
	188192	NA	IR24MW07A	WG	IR24MW07A-062712	237507-002			27-Jun-2012 12:25 PM	04-Jul-2012 1:48 AM	04-Jul-2012 1:48 AM	N
	188192	NA	LABQC	WQ	LABQC	QC646575			03-Jul-2012 11:56 PM	03-Jul-2012 11:56 PM	03-Jul-2012 11:56 PM	BS
	188192	NA	LABQC	WQ	LABQC	QC646576			04-Jul-2012 12:33 AM	04-Jul-2012 12:33 AM	04-Jul-2012 12:33 AM	LB
188229	188229	NA	LABQC	WQ	LABQC	QC646730			05-Jul-2012 12:09 PM	05-Jul-2012 12:09 PM	05-Jul-2012 12:09 PM	LB

AUTOMATED DATA REVIEW SUMMARY for 237507

Batch Report

Test Method: SW8021B; Leach Method: NONE

Analytical Batch	Prep Batch	Leach Batch	Location	Matrix	Field Sample ID	Lab Sample ID	Calibration Ref	Run#/ Dil'n	Collection Date/Time	Extract Date/Time	Analysis Date/Time	Sample Type
188192	188192	NA	FIELDQC	WQ	TB-062712	237507-001			27-Jun-2012 9:00 AM	04-Jul-2012 1:11 AM	04-Jul-2012 1:11 AM	TB
	188192	NA	IR24MW07A	WG	IR24MW07A-062712	237507-002			27-Jun-2012 12:25 PM	04-Jul-2012 1:48 AM	04-Jul-2012 1:48 AM	N
	188192	NA	LABQC	WQ	LABQC	QC646574			03-Jul-2012 11:18 PM	03-Jul-2012 11:18 PM	03-Jul-2012 11:18 PM	BD
	188192	NA	LABQC	WQ	LABQC	QC646573			03-Jul-2012 10:41 PM	03-Jul-2012 10:41 PM	03-Jul-2012 10:41 PM	BS
	188192	NA	LABQC	WQ	LABQC	QC646576			04-Jul-2012 12:33 AM	04-Jul-2012 12:33 AM	04-Jul-2012 12:33 AM	LB
188229	188229	NA	FIELDQC	WQ	TB-062712	237507-001			27-Jun-2012 9:00 AM	05-Jul-2012 2:32 PM	05-Jul-2012 2:32 PM	TB
	188229	NA	IR24MW07A	WG	IR24MW07A-062712	237507-002			27-Jun-2012 12:25 PM	05-Jul-2012 3:10 PM	05-Jul-2012 3:10 PM	N
	188229	NA	LABQC	WQ	LABQC	QC646728			05-Jul-2012 1:21 PM	05-Jul-2012 1:21 PM	05-Jul-2012 1:21 PM	BD
	188229	NA	LABQC	WQ	LABQC	QC646727			05-Jul-2012 10:36 AM	05-Jul-2012 10:36 AM	05-Jul-2012 10:36 AM	BS
	188229	NA	LABQC	WQ	LABQC	QC646730			05-Jul-2012 12:09 PM	05-Jul-2012 12:09 PM	05-Jul-2012 12:09 PM	LB

AUTOMATED DATA REVIEW SUMMARY for 237507

Field Batch Report

Test Method: M8015V		**Leach Method: NONE**						
EBLOT	**TBLOT**	**ABLOT**	**LOCID**	**Matrix**	**FLDSAMPID**	**LABSAMPID**	**LOGDATE**	**SACODE**
	27061201		FIELDQC	WQ	TB-062712	237507-001	6/27/2012 9:00:00 AM	TB
	27061201		IR24MW07A	WG	IR24MW07A-062712	237507-002	6/27/2012 12:25:00 PM	N
Test Method: SW8021B		**Leach Method: NONE**						
EBLOT	**TBLOT**	**ABLOT**	**LOCID**	**Matrix**	**FLDSAMPID**	**LABSAMPID**	**LOGDATE**	**SACODE**
	27061201		FIELDQC	WQ	TB-062712	237507-001	6/27/2012 9:00:00 AM	TB
	27061201		IR24MW07A	WG	IR24MW07A-062712	237507-002	6/27/2012 12:25:00 PM	N

AUTOMATED DATA REVIEW SUMMARY for 237507

QC Outlier Report

Test/Prep	QC Element	Sample ID/ Lab Sample ID	Run# / Dil'n	Analyte	Result (Units)	Qualifier	Warning Limits	Control Limits	Reason	Comment	Rule	Action Level
BNASIM / SW3520C	Blank	QC646023 (LB) / QC646023	1 / 1.00	Naphthalene	0.030 (UG/L)	U/None	< 0.02	< 0.1	B1		1	0.0300
M8015V / SW5030B	Blank	QC646576 (LB) / QC646576	1 / 1.00	Petroleum Hydrocarbons C6-C12	17.0 (UG/L)	U/None	< 12	< 50	B1		1	17.0
M8015V / SW5030B	Trip Blank	TB-062712 (TB) / 237507-001	1 / 1.00	Petroleum Hydrocarbons C6-C12	16.0 (UG/L)	U/None	< 12	< 50	K3		1	16.0
SW8021B / SW5030B	Trip Blank	TB-062712 (TB) / 237507-001	1 / 1.00	m,p-Xylene	0.30 (UG/L)	U/None	< 0.1	< 0.5	K3		1	0.300
SW8021B / SW5030B	Trip Blank	TB-062712 (TB) / 237507-001	1 / 1.00	Xylenes, Total	0.30 (UG/L)	U/None	< 0	< 0.5	K3		1	0.300

AUTOMATED DATA REVIEW SUMMARY for 237507

Qualified Results

Test Leach	Matrix	FieldSample ID	Type	Analyte	RL	Lab Result	Qualified Result	Units	Reason
BNASIM/NONE	WG	IR24MW07A-062712	N	Pyrene	0.090	0.090	0.090 J	UG/L	TR
Test Leach	**Matrix**	**FieldSample ID**	**Type**	**Analyte**	**RL**	**Lab Result**	**Qualified Result**	**Units**	**Reason**
M8015D/NONE	WG	IR24MW07A-062712	N	C24-C36 Petroleum Hydrocarbons	300	170	170 J	UG/L	TR
Test Leach	**Matrix**	**FieldSample ID**	**Type**	**Analyte**	**RL**	**Lab Result**	**Qualified Result**	**Units**	**Reason**
M8015V/NONE	WG	IR24MW07A-062712	N	Petroleum Hydrocarbons C6-C12	50.0	13.0	50.0 U	UG/L	K
M8015V/NONE	WQ	TB-062712	TB	Petroleum Hydrocarbons C6-C12	50.0	16.0	50.0 U	UG/L	K
Test Leach	**Matrix**	**FieldSample ID**	**Type**	**Analyte**	**RL**	**Lab Result**	**Qualified Result**	**Units**	**Reason**
SW8021B/NONE	WQ	TB-062712	TB	m,p-Xylene	0.50	0.30	0.30 J	UG/L	TR
SW8021B/NONE	WQ	TB-062712	TB	Xylenes, Total	0.50	0.30	0.30 J	UG/L	TR

AUTOMATED DATA REVIEW SUMMARY for 237507

Detected Results

Test Leach	Matrix	FieldSample ID	Type	Analyte	RL	Lab Result	Qualified Result	Units	Reason
BNASIM/NONE	WG	IR24MW07A-062712	N	Pyrene	0.090	0.090	0.090 J	UG/L	TR

Test Leach	Matrix	FieldSample ID	Type	Analyte	RL	Lab Result	Qualified Result	Units	Reason
M8015D/NONE	WG	IR24MW07A-062712	N	C12-C24 Petroleum Hydrocarbons	50.0	3200	3200	UG/L	
M8015D/NONE	WG	IR24MW07A-062712	N	C24-C36 Petroleum Hydrocarbons	300	170	170 J	UG/L	TR

Test Leach	Matrix	FieldSample ID	Type	Analyte	RL	Lab Result	Qualified Result	Units	Reason
SW8021B/NONE	WQ	TB-062712	TB	Xylenes, Total	0.50	0.30	0.30 J	UG/L	TR
SW8021B/NONE	WQ	TB-062712	TB	m,p-Xylene	0.50	0.30	0.30 J	UG/L	TR

AUTOMATED DATA REVIEW SUMMARY for 237507

Rejected Results

--No Records Found--

SDG 237507

Qualified Results Table

Lab Sample ID	Sample ID	Sample Collection Date	Type	Method	Parameter	Original Value	Qualifier	New Value	Bias	MDL	RL	Units	Reason
237507-002	IR24MW07A-062712	6/27/2012	WG-N	BNASIM	Pyrene	0.090	J	0.090 J		0.020	0.090	UG/L	TR
237507-002	IR24MW07A-062712	6/27/2012	WG-N	M8015D	C24-C36 Petroleum Hydrocarbons	170	J	170 J		63	300	UG/L	TR
237507-002	IR24MW07A-062712	6/27/2012	WG-N	M8015V	Petroleum Hydrocarbons C6-C12	13.0	U	ND U		12	50	UG/L	K
237507-001	TB-062712	6/27/2012	WQ-TB	M8015V	Petroleum Hydrocarbons C6-C12	16.0	U	ND U		12	50	UG/L	K
237507-001	TB-062712	6/27/2012	WQ-TB	SW8021B	m,p-Xylene	0.30	J	0.30 J		0.10	0.50	UG/L	TR
237507-001	TB-062712	6/27/2012	WQ-TB	SW8021B	Xylenes, Total	0.30	J	0.30 J		0.0	0.50	UG/L	TR

Matrix / Sample Type

Matrix	Matrix Description	Sample Code	Sample Code Description
WG	GROUND WATER	N	Normal Environmental Sample
WQ	WATER QUALITY CONTROL MATRIX	TB	Trip Blank

Data Qualifier Definitions

Flag	Description
U	Undetected: The analyte was analyzed for, but not detected.
UJ	The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.
J	Estimated: The analyte was positively identified, the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
R	The data are rejected due to deficiencies in meeting QC criteria and may not be used for decision making.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".
NJ	The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated numerical value represents its approximate concentration.

Reason and Comment Code Definitions

Code	Description
A	Serial dilution
A1	Ambient Blank
B1	A common laboratory artifact was detected in the sample at a concentration less than 10X the concentration detected in the associated method blank.

Qualified Results Table

Reason and Comment Code Definitions

Code	Description
B2	Calibration Blank
B3	Calibration Blank - Negative
B4	Negative Blank
B5	The analyte was found in an associated blank as well as in the sample.
C1	
C10	Continuing Calibration Verification RRF
C11	Continuing Calibration Verification percent recovery, percent difference, or percent drift
C12	Low Level Continuing Calibration Verification was outside control limits
C2	
C2S	
C3	
C4	
C5	
C6	
C7	
C8	
C9	
D1	Lab Replicate RPD
D2	MS RPD exceeded established criteria.
D4	No precision available
D5	Field Duplicate RPD
D6	RPD of laboratory control sample exceeded criteria
D7	Field Duplicate not usable
E	Exceeds LinearCalibration Range
F	Hydrocarbon pattern does not match standard
G	Initial Calibration RRF
G1	Initial Calibration RSD
G2	Initial Calibration Verification percent recovery, percent difference, or percent drift
G4	Ion abundance ratios are outside criteria - estimated maximum possible concentration (EMPC) reported
H1	Test Hold Time
H2	Prep Hold Time
I	Internal standard
J	CRA/CRI Recovery

Qualified Results Table

Reason and Comment Code Definitions

Code	Description
K	An analyte (non-common laboratory artifact) was detected in the sample at a concentration less than 5X the concentration detected in the associated method blank.
K1	Detected in the associated equipment rinsate blank.
K2	Detected in the associated field (i.e., ambient) blank.
K3	Detected in the associated trip blank.
K4	Detected in the associated storage blank
K5	Detected in the associated source blank
L	Percent recovery of laboratory control sample recovery was outside established limits
L1	A common laboratory artifact was detected in the sample at a concentration less than 10X the concentration detected in the associated method blank. (Negative)
M	Matrix spike recovery was outside established criteria.
M1	Minimum matrix spike frequency was not attained
N	Blank - No Action
O	Interference check sample
P	Sample preservation/collection requirement not met.
P1	Column or detector RPD
P2	Improper preparation/extraction
Q1	Material Blank
S	Surrogate recovery out of criteria (upper or lower limit)
S1	Sample less than 50% solids
T	Receipt Temperature
T2	RSD of lab triplicate out
TI	Tentatively Identified Compound
TR	Trace Level Detect
V	Sample Receipt Condition
W	Column breakdown (pesticides)
X	Raised reporting limit
X1	Unresolved Isomers; no peak separation
X2	Qualified due to professional judgment, see data validation narrative.
Y	Analyte not confirmed on second column
Y1	False Positive
Y2	Sum of species greater than total result
Z	Data rejected due to radiological anomolies
Z1	Data rejected, more valid data available

ATTACHMENT B

PROJECT CORRESPONDENCE

INBOX Compose Addresses Folders Optio

Current Folder: **INBOX**

Calendar

Message List Delete Forward Forward as Attachment Reply Reply All

Subject: Re: Hunters Point Parcel B - SDG 237507
From: "John Goyette" <goyette@ctberk.com>
Date: Thu, August 9, 2012 6:48 pm
To: tyoung@veridianenv.com
Cc: "Mike Dahlquist" <mike.dahlquist@ctberk.com> (more)
Priority: Normal
Options: View Full Header | View Printable Version | Download this as a file | View Message details | View as plain text

Hi Tracy.

Form X attached. Turns out our system doesn't auto-generate that form for BTEX by GC.

John Goyette

Senior Program Manager

(510) 204-2233

curtisandtompkins.com

On 8/9/2012 3:25 PM, Mike Dahlquist wrote:

> John will take care of this.
>
> On 8/9/2012 2:58 PM, tyoung@veridianenv.com wrote:
>
> > Hi Mike and Rich,
> >
> > I'm looking for the confirmation column agreement pages (CLP - Form X).
> > For examples, please look at SDG 235203, they are pages 32 and 33 of 73 in
> > that lab report.
> >
> > Thanks,
> > Tracy
>
> Tracy, the lab is not understanding what you are asking for. Could you

elaborate for us, please? thanks!

Richard Flynn | Program Chemist | ITSI Gilbane Company
2730 Shadelands Drive | Walnut Creek, California 94598
ph: 925.946.3103 | cell: 925.202.1973 |
www.itsigilbane.com<http://www.itsigilbane.com/>

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From: Tracy Young [/sqmail/src/compose.php?
send_to=tyoung@veridianenv.com]
Sent: Wednesday, August 08, 2012 3:48 PM
To: mike.dahlquist@ctberk.com; Rich Flynn
Cc: 'Charlotte Symms'
Subject: RE: Hunters Point Parcel B - SDG 237507

Hi Mike,

I wanted to check on the status of this request?

Thanks,
Tracy
Tracy A. Young
Senior Chemist
Veridian Environmental, Inc.
1111 Kennedy Place - Suite 2
Davis, CA 95616
Voice: 530-758-1903
Fax: 530-758-5633
e-mail: tyoung@veridianenv.com</sqmail/src/compose.php?
send_to=tyoung@veridianenv.com>

From: Tracy Young [/sqmail/src/compose.php?
send_to=tyoung@veridianenv.com]
Sent: Thursday, August 02, 2012 12:14 PM
To: 'mike.dahlquist@ctberk.com'; 'Rich Flynn'
Cc: 'Charlotte Symms'
Subject: Hunters Point Parcel B - SDG 237507

Hi Rich and Mike,

We have completed a cursory review of SDG 237507. Please provide the Lower Values Reporting Page and C-Flags Page associated with these samples for Method 8021B. These pages were not included in the original data package.

Kind Regards,
Tracy
Tracy A. Young
Senior Chemist
Veridian Environmental, Inc.
1111 Kennedy Place - Suite 2
Davis, CA 95616
Voice: 530-758-1903
Fax: 530-758-5633
e-mail: tyoung@veridianenv.com</sqmail/src/compose.php?
send_to=tyoung@veridianenv.com>

Attachments:

untitled-[1.1]	**3 k**	[text/plain]	Download | View
237507 supplemental.pdf	**7.1 k**	[application/pdf]	Download

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"Truth through Science"

Veridian Environmental, Inc

DATA VALIDATION REPORT

ITSI
HUNTERS POINT SHIPYARD, PARCEL B
SAN FRANCISCO, CALIFORNIA

Curtis & Tompkins Laboratories
SDG: **239885**

November 5, 2012

Prepared for:

INNOVATIVE TECHNICAL SOLUTIONS, INC
2730 Shadelands Drive, Suite 100
Walnut Creek, California 94598

Prepared by:

VERIDIAN ENVIRONMENTAL, INC.
1111 Kennedy Place
Suite 2
Davis, California 95616

DATA VALIDATION REPORT

ITSI
HUNTERS POINT SHIPYARD, PARCEL B
SAN FRANCISCO, CALIFORNIA

November 5, 2012

Name	Position	Signature/Date
Veridian Environmental, Inc.		
Prepared by:		
Tracy A. Young	**Senior Quality Assurance Chemist**	Tracy A. Young 11-05-2012
Ann Lack	**Senior Quality Assurance Chemist**	Ann Lack 11/5/12
Reviewed and Approved by:		
Charlotte R. Symms	**President**	Charlotte R. Symms 11-05-2012

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ATTACHMENTS

ATTACHMENT A ADR AND QRT REPORTS

ATTACHMENT B PROJECT CORRESPONDENCE

ACRONYMS

Acronym	Definition
%D	Percent Difference
%REC	Percent Recovery
%RSD	Percent Relative Standard Deviation
%S	Percent Solids
ARRF	Average Relative Response Factor
BFB	Bromofluorobenzene
BNA	Base Neutral Acid
CA	Corrective Action
CARD	CLP Analytical Results Database
CCC	Calibration Check Analytes
CCB	Continuing Calibration Blank
CCV	Continuing Calibration Verification
CF	Calibration Factor
CLP	Contract Laboratory Program
COC	Chain-of-Custody
CRDL	Contract Required Detection Limit
CRQL	Contract Required Quantitation Limit
C&T	Curtis & Tompkins Laboratories, LLC
DO	Diluted Out
DOC	Date of Collection
DOD	Department of Defense
DQI	Data Quality Indicator
DQO	Data Quality Objective
DRO	Diesel Range Organics
DVR	Data Validation Report
EDD	Electronic Data Deliverable
FID	Flame Ionization Detector
GC	Gas Chromatography
GC/ECD	Gas Chromatography/Electron Capture Detector
GC/MS	Gas Chromatography/Mass Spectrometry
GPC	Gel Permeation Chromatography
HPS	Hunters Point Shipyard
ICAL	Initial Calibration
ICV	Initial Calibration Verification
IS	Internal Standard
ITSI	Innovative Technical Solutions, Inc.
GRO	Gas Range Organics
kg	Kilogram
LCS	Laboratory Control Sample

Acronym	Definition
LCSD	Laboratory Control Sample Duplicate
l	Liter
LL	Lower Limit
LLC	Limited Liability Company
MB	Method Blank
MDL	Method Detection Limit
ml	Milliliter
MO	Motor Oil
MRL	Method Reporting Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
MTBE	Methyl tert-butyl ether
µg	Microgram
NAPL	Non-Aqueous Phase Liquid
NAVFAC	Naval Facilities Engineering Command
ND	Non-detect or Not Detect
NEDD	Navy Electronic Data Deliverable
NFG	National Functional Guidelines
NIST	National Institute of Standards and Technology
NPS	Non Project Sample
NQW	No Qualification Warranted
NTC	Non Target Compound
OERR	Office of Emergency and Remedial Response
OSWER	Office of Solid Waste and Emergency Response
PAL	Project Action Limit
PAH	Polycyclic Aromatic Hydrocarbons
PID	Photoionization Detector
PQOs	Project Quality Objectives
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference
RRF	Relative Response Factor
RRT	Relative Retention Time
RSD	Relative Standard Deviation
RT	Retention Time
SDG	Sample Delivery Group
SOP	Standard Operating Procedure
SOW	Statement of Work

Acronym	Definition
SPCC	System Performance Check Analytes
SSV	Second Source Verification
SVOC	Semivolatile Organic Compound
Surr	Surrogate
TAL	Target Analyte List
TCL	Target Compound List
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
TSS	Total Suspended Solids
UL	Upper Limit
µg/L	Micrograms per liter
USACE	United States Army Corp of Engineers
U.S. EPA	United States Environmental Protection Agency
VEI	Veridian Environmental, Inc.
VOC	Volatile Organic Compound

DATA QUALIFIER REASON CODES

Code	Reason Code	Description
A	Serial dilution	Serial dilution
A1	Ambient Blank	Ambient Blank
B1	Blank	A common laboratory artifact was detected in the sample at a concentration less than 10X the concentration detected in the associated method blank.
B2	Calibration Blank	Calibration Blank
B3	Calibration Blank - Negative	Calibration Blank - Negative
B4	Negative Blank	Negative Blank
B5	The analyte was found in blank and sample	The analyte was found in an associated blank as well as in the sample.
C1	Diluted Out	Diluted Out
C10	Continuing Calibration Verification RRF	Continuing Calibration Verification RRF
C11	Continuing Calibration Verification	Continuing Calibration Verification percent recovery, percent difference, or percent drift
C2	Flag Parent Only	Flag Parent Only
C2S	Flag Parent (Soil); Batch (Water)	Flag Parent (Soil); Batch (Water)
C3	No Action	No Action
C4	No QC Outliers	No QC Outliers
C5	One or both values <5x RL	One or both values <5x RL
C6	Recalculated Value	Recalculated Value
C7	Material Blanks	Material Blanks
C8	Spike Insignificant	Spike Insignificant
C9	No Flags; set to ND by method/cal. blank	No Flags; set to ND by method/cal. blank
D1	Lab Replicate RPD	Lab Replicate RPD
D2	MS RPD	MS RPD exceeded established criteria.
D4	No precision available	No precision available
D5	Field Duplicate RPD	Field Duplicate RPD
D6	LCS RPD	RPD of laboratory control sample exceeded criteria
D7	Field Dup not usable	Field Duplicate not usable
E	Exceeds Linear Calibration Range	Exceeds Linear Calibration Range
F	Hydrocarbon pattern does not match standard	Hydrocarbon pattern does not match standard
G	Initial Calibration RRF	Initial Calibration RRF
G1	Initial Calibration RSD	Initial Calibration RSD
G2	Initial Calibration Verification	Initial Calibration Verification percent recovery, percent difference, or percent drift
H1	Test Hold Time	Test Hold Time
H2	Prep Hold Time	Prep Hold Time
I	Internal standard	Internal standard
J	CRA/CRI Recovery	CRA/CRI Recovery

Code	Reason Code	Description
K	An analyte (non-common lab artifact) was detected	An analyte (non-common laboratory artifact) was detected in the sample at a concentration less than 5X the concentration detected in the associated method blank.
K1	Equipment Blank	Detected in the associated equipment rinsate blank.
K2	Field Blank	Detected in the associated field (i.e., ambient) blank.
K3	Trip Blank	Detected in the associated trip blank.
L	LCS Recovery	Percent recovery of laboratory control sample recovery was outside established limits
L1	Blank - Negative	A common laboratory artifact was detected in the sample at a concentration less than 10X the concentration detected in the associated method blank. (Negative)
M	MS Recovery	Matrix spike recovery was outside established criteria.
N	Blank - No Action	Blank - No Action
O	Interference check sample	Interference check sample
P	Sample preservation/collection requirement not met	Sample preservation/collection requirement not met.
P1	Confirmation Column/Detector RPD	Column or detector RPD
P2	Improper preparation/extraction	Improper preparation/extraction
Q1	Material Blank	Material Blank
S	Surrogate	Surrogate recovery out of criteria (upper or lower limit)
S1	Sample less than 50% solids	Sample less than 50% solids
T	Receipt Temperature	Receipt Temperature
T2	RSD of lab triplicate out	RSD of lab triplicate out
TI	Tentatively Identified Compound	Tentatively Identified Compound
TR	Trace Level Detect	Trace Level Detect
V	Sample Receipt Condition	Sample Receipt Condition
W	Column breakdown (pesticides)	Column breakdown (pesticides)
X	Raised reporting limit	Raised reporting limit
X1	Unresolved Isomers; no peak separation	Unresolved Isomers; no peak separation
X2	Qualified due to professional judgment, see data validation narrative.	Qualified due to professional judgment, see data validation narrative.
Y	Analyte not confirmed on second column	Analyte not confirmed on second column
Y1	False Positive	False Positive
Y2	Sum of species greater than total result	Sum of species greater than total result
Z	Data rejected due to radiological anomalies	Data rejected due to radiological anomalies
Z1	Data rejected, more valid data available	Data rejected, more valid data available

1.0 INTRODUCTION

This Data Validation Report (DVR) details the assessment and data validation performed on the groundwater sample analyses from SDG 239885. These samples were collected on September 25, 2012, as part of the Parcel B NAPL Petroleum Hydrocarbon Corrective Action in Hunters Point Shipyard, San Francisco, California. The samples were shipped to and analyzed by Curtis & Tompkins Laboratories, LLC (C&T) in Berkeley, California. The analyses performed included the following: BTEX/MTBE by U.S. EPA Method 8021B, Total Petroleum Hydrocarbons (TPH) – Purgeable (Gasoline: C_6-C_{12}) by U.S. EPA Method 8015B, TPH – Extractable (Diesel and Motor Oil: C_{12}-C_{24} and C_{24}-C_{36}) by U.S. EPA Method 8015B, and Polynuclear Aromatic Hydrocarbons by U.S. EPA Method 8270C-SIM.

Data validation of all sample results was performed by Tracy A. Young, Ann Lack, and Charlotte R. Symms of Veridian Environmental, Inc. (VEI). A review (Level III) of 100% of the data, which allows for complete independent data review without reconstruction of analytical data, was conducted. In addition, approximately 10% of the project data underwent a comprehensive or extensive review (Level IV) which allowed for the complete reconstruction of the chemical analyses. The comprehensive review included the recalculation of calibration curves and sample results. None of the samples from this SDG were selected for the comprehensive Level IV review. The data were validated in accordance with the analytical methods and the documents entitled *Field Sampling Plan and Quality Assurance Project Plan Petroleum Hydrocarbon Corrective Action, Parcel B, Hunters Point Shipyard, San Francisco,* (Innovative Technical Solutions, Inc., October 2010) and with guidance from *Department of Defense Quality Systems Manual for Environmental Laboratories* (DoD, 2009); *Data Quality Assessment: A Reviewer's Guide* (U.S. EPA QA/G-9R 2006); *Data Quality Assessment: Statistical Tools for Practitioners* (U.S. EPA QA-G-9S, 2006); and *U.S. EPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (U.S. EPA, 2008).

The data were examined to determine the usability of the analytical results and the compliance relative to requirements specified in the analytical methods and guidelines provided. Qualifier flags have been placed next to the results on the laboratory analytical result forms and entered into the client database so the data user can quickly assess the qualitative and/or quantitative reliability of any result. The data qualifications allow the data end-user to best understand the usability of the analytical results. It should be understood that data that have not been qualified in this report should be considered valid based on the quality control (QC) criteria that have been reviewed. This report was prepared to provide a critical review of the laboratory analyses and the reported analytical results. Quality assurance (QA) reviews of laboratory-generated data routinely identify various problems associated with analytical measurements, even from the most experienced and capable laboratories.

The findings of this QA review are presented in Section 2.0 of this report, a summary of completeness is presented in Section 3.0, and the references are provided in Section 4.0. The ADR and QRT Reports for the project samples in SDG 239885 are presented in Attachment A. Project Correspondence is presented as Attachment B.

Several data validation flags are utilized in the validation process. The definitions of these qualifier flags are as follows:

U The analyte was analyzed for, but was not detected at or above the reported sample quantitation limit.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

UJ The analyte was not detected at or above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R The sample result and/or analysis have been rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

All necessary flags have been incorporated into the data presented in this report (Attachment A). As per project-specific reporting requirements, all results reported at concentrations less than the sample-specific practical quantitation limits (adjusted for dilution factors, sample size, and percent solids) should be considered estimated (J).

2.0 FINDINGS

Data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, the validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance.

2.1 BTEX/MTBE AND TPH – GASOLINE DATA VALIDATION

The samples analyzed for BTEX/MTBE by U.S. EPA Method 8021B and for TPH - Purgeable (Gasoline Range – C_6-C_{12}) by U.S. EPA Method 8015B were evaluated for the following data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable	Not Applicable
Sample Condition Upon Receipt	✓				
Analytical Holding Times	✓				
Blank Analyses			✓		
Initial Calibrations		✓			
Initial Calibration Verifications	✓				
Continuing Calibrations			✓		
Surrogate Spike Recoveries	✓				

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable	Not Applicable
LCS Analyses	✓				
MS/MSD Analyses					✓
Confirmation Column Agreement		✓			
Verification of Sample Results					✓
Field Duplicate Results					✓
Verification of the Client EDD	✓				
Additional Findings		✓			

All sample results met data quality objectives with the exception of those discussed below.

Blank Analyses

The following analytes were reported at concentrations greater than or equal to the MDL in the blanks as summarized in the tables below.

Method Blank

Sample ID	Contaminant	Concentration	Associated Sample(s)
QC658573	Gasoline C_6-C_{12}	14 µg/L	**TB-092512** **IR24MW07A-092512**
QC658573	Toluene Ethylbenzene m,p-Xylenes Xylene (total)	0.14 µg/L 0.043 µg/L 0.23 µg/L 0.23 µg/L	**TB-092512**
QC659069	Toluene m,p-Xylenes Xylene (total)	0.054 µg/L 0.046 µg/L 0.046 µg/L	**IR24MW07A-092512**

Trip Blank

Sample ID	Contaminant	Concentration	Associated Sample(s)
TB-092512	Gasoline C_6-C_{12} Ethylbenzene	16 µg/L 0.18 µg/L	**IR24MW07A-092512**

Due to the presence of the following contaminants in the associated laboratory blank, the reported positive results in the following samples should be considered anomalous (U) and in accordance with the validation guidelines, the reported detection limits have been raised to the RL. The gasoline C_6-C_{12} and ethylbenzene contaminants in sample **TB-092512** are considered non-detect due to the concentration of gasoline C_6-C_{12} and ethylbenzene in the associated method blank. Therefore, no qualification is warranted based on the trip blank results for gasoline C_6-C_{12} and ethylbenzene. It should be noted that dilution factors and sample volumes were taken into consideration when evaluating blank contamination.

Sample(s) With Anomalous Results (U)	Analyte(s)
TB-092512	Gasoline C_6-C_{12}
IR24MW07A-092512	
TB-092512	Ethylbenzene

Initial Calibrations

For all initial calibrations, all target analytes displayed acceptable calibrations (%RSD ≤20% or r ≥0.995) on both the primary column (Channel C) and the confirmation column (Channel B) with the exception of the analytes listed in the following table.

A high %RSD was noted for MTBE as listed below. The outlier for MTBE was noted in the confirmation column. Since all results were reported from the primary column for MTBE, qualification of the data is not warranted on this basis.

Instrument ID, Channel Date (Time)	Analyte(s)	Percent RSD	Associated Sample(s)
GC19, Ch. B 09/19/2012 (02:59)	MTBE	22%	**TB-092512** **IR24MW07A-092512**

Continuing Calibrations

For all continuing calibrations, the percent differences for all target analytes were ≤ 15% on both the primary column and the confirmation column for all analytes except the analyte listed in the following table. For all analytes, Channel C was used as the primary column and Channel B was used at the confirmation column.

High recoveries were noted in the following continuing calibration on the primary column. The associated non-detect results are estimated (UJ) in accordance with the project criteria except for the surrogate, bromofluorobenzene. The result for total xylenes was also qualified as estimated (UJ) due to the outliers for both m,p-xylenes and o-xylene. Qualification of the data is not warranted for the surrogate.

Instrument ID, Channel Date (Time)	Analyte(s)	Percent Difference	Associated Qualified Sample(s)
GC19, Ch. C 09/28/2012 (00:37)	MTBE	16%	**TB-092512**
	Ethylbenzene	20%	
	m,p-Xylenes	19%	
	o-Xylene	20%	
	Bromofluorobenzene	18%	

Low recoveries were noted in the following continuing calibrations. Qualification of the data is not warranted for the surrogate, bromofluorobenzene.

Instrument ID, Channel Date (Time)	Analyte(s)	Percent Difference	Associated Qualified Sample(s)
GC19, Ch. C 10/02/2012 (00:28)	Bromofluorobenzene	-19%	**IR24MW07A-092512**
GC19, Ch. A 10/02/2012 (02:21)	Bromofluorobenzene	-19%	**IR24MW07A-092512**

High recoveries were noted in the following continuing calibrations for the confirmation column. Since all results were reported from the primary column, qualification of the data is not warranted on this basis.

Instrument ID, Channel Date (Time)	Analyte(s)	Percent Difference	Associated Sample(s)
GC19, Ch. B 09/27/2012 (17:06)	MTBE	49%	**TB-092512**
	Benzene	55%	
	Toluene	37%	
	Ethylbenzene	47%	
	m,p-Xylenes	44%	
	o-Xylene	43%	
	Bromofluorobenzene	42%	
GC19, Ch. B 09/28/2012 (00:37)	MTBE	52%	**TB-092512**
	Benzene	50%	
	Toluene	39%	
	Ethylbenzene	49%	
	m,p-Xylenes	46%	
	o-Xylene	50%	
	Bromofluorobenzene	63%	
GC19, Ch. B 10/01/2012 (12:39)	Benzene	16%	**IR24MW07A-092512**
	m,p-Xylenes	19%	
	o-Xylene	20%	

Matrix Spike/Matrix Spike Duplicate Analyses

A Matrix Spike/Matrix Spike Duplicate (MS/MSD) was performed on a non-project sample for the gasoline C_6-C_{12} analysis. Consequently, an assessment of matrix affects cannot be made.

For the BTEX/MTBE analysis, an MS/MSD was not performed for these samples. Consequently, an assessment of matrix affects cannot be made.

Confirmation Column Agreement

All reported positive results were confirmed on a second column. A high percent difference (> 40%) was observed between the results obtained from the two chromatographic columns used in the analysis of the sample listed below. This analyte in sample **IR24MW07A-092512** was previously qualified as anomalous (U) due to blank contamination; therefore further qualification of the data is not warranted on this basis.

Associated Qualified Sample(s)	Analyte(s)
IR24MW07A-092512	Ethylbenzene

Additional Findings

Based on a review of the laboratory reporting limits (RL) for Method 8015B, the laboratory RL reported for gasoline is greater than the Sampling Analysis Plan (SAP) Project Quantitation Limit (PQL). The laboratory MDL for gasoline is less than the SAP-specified PQL and the laboratory reported results down to the MDL with appropriate "J" flags. Additional qualification of the data is not warranted on this basis.

Analyte	Laboratory MDL (µg/L)	Laboratory RL (µg/L)	SAP – PQL (µg/L)
Gasoline C_6-C_{12}	5.6	50	21

2.2 TPH– DIESEL/MOTOR OIL DATA VALIDATION

The sample analyzed by U.S. EPA Method 8015B for TPH - Extractable (Diesel and Motor Oil Range- Silica Gel Cleanup) was evaluated for the following data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable	Not Applicable
Sample Condition Upon Receipt	✓				
Analytical Holding Times	✓				
Blank Analyses	✓				
Initial Calibrations	✓				
Initial Calibration Verifications	✓				
Continuing Calibrations	✓				
Surrogate Spike Recoveries	✓				
LCS Analyses	✓				
MS/MSD Analyses					✓
Verification of Sample Results					✓
Field Duplicate Results					✓
Verification of the Client EDD	✓				
Additional Findings		✓			

All sample results met data quality objectives with the exception of those discussed below.

Matrix Spike/Matrix Spike Duplicate Analyses

An MS/MSD analysis was not performed due to insufficient sample volume. Consequently, an assessment of matrix affects cannot be made.

Additional Findings

Based on a review of the laboratory reporting limits (RLs) for Method 8015B, the laboratory RLs reported for diesel and motor oil are greater than the Sampling Analysis Plan (SAP) Project Quantitation Limits (PQL). The laboratory reported results down to the MDL with appropriate "J" flags. The MDL for motor oil is nearly two times greater than the SAP PQL (81 µg/L and 42 µg/L, respectively). Qualification of the data is not warranted on this basis.

Analyte	Laboratory MDL (µg/L)	Laboratory RL (µg/L)	SAP – PQL (µg/L)
Diesel C_{12}-C_{24}	12	50	21
Motor Oil C_{24}-C_{36}	81	300	42

2.3 POLYNUCLEAR AROMATIC HYDROCARBONS DATA VALIDATION

The sample analyzed for Polynuclear Aromatic Hydrocarbons (PAHs) by U.S. EPA Method 8270C-SIM was evaluated for the following data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable	Not Applicable
Sample Condition Upon Receipt	✓				
Analytical Holding Times	✓				
Blank Analyses	✓				
GC/MS Tuning and Mass Calibrations	✓				
Initial Calibrations	✓				
Initial Calibration Verifications	✓				
Continuing Calibrations	✓				
Surrogate Spike Recoveries	✓				
LCS Analyses	✓				
MS/MSD Analyses					✓
Internal Standards	✓				
Verification of Sample Results					✓
Field Duplicate Results					✓
Verification of the Client EDD	✓				
Additional Findings					✓

All sample results met data quality objectives with the exception of those discussed below.

Matrix Spike/Matrix Spike Duplicate Analyses

An MS/MSD analysis was not performed due to insufficient sample volume. Consequently, an assessment of matrix affects cannot be made.

2.4 PRECISION

Precision measures the reproducibility of data or measurements under specific conditions. Precision is a quantitative measure of the variability of a group of data compared to their average value. Measurement of precision is dependent upon sampling technique and analytical method. Precision was evaluated through laboratory QC samples such as MS/MSD samples and LCS/LCSD samples. Field duplicates were not collected for this SDG. The evaluation of precision is summarized in the previous sections.

2.5 ACCURACY

Accuracy measures the bias in a measurement system that may result from sampling or analytical error. Laboratory accuracy was evaluated based on the evaluation of surrogate spikes, MS/MSD samples, and LCS/LCSD samples as required and summarized in the previous sections.

2.6 REPRESENTATIVENESS EVALUATION

Representativeness is a qualitative evaluation of whether the data represent actual environmental conditions. Representativeness was evaluated using holding time criteria, which reflect the length of time after sample collection that a sample or extract remains representative of environmental conditions. Depending on the analysis, either one or two holding times were evaluated. For those analyses that do not include a sample extraction, only one holding time was evaluated: the length of time between sample collection and analysis. For analyses that require sample extraction prior to analysis, two holding times were evaluated: the length of time from sampling until extraction and the length of time from extraction to analysis. Holding times were compared to standard method-specific holding times accepted by the U.S. EPA. All holding times that are within acceptance criteria are considered representative. Those holding times outside of U.S. EPA acceptance criteria are qualitatively evaluated to determine their effect on sample representativeness. Representativeness was also evaluated by analysis of laboratory method blanks, trip blanks, and/or equipment blanks that were used to identify sources of contamination not associated with environmental conditions. As summarized in the previous sections, the data appear to be representative of the environmental conditions on site.

2.7 USABILITY AND COMPARABILITY

Usability of data was evaluated by assuring that all the analytical requests were met, the samples were received in the proper condition, and all analyses were performed within the appropriate holding times. The comparability objective determines whether analytical conditions are sufficiently uniform for each analytical run such that all of the reported data from multiple runs are consistent. Comparability is promoted by using similar analytical protocols from one sampling event to the next. All data in SDG 239885 met project usability and comparability objectives with the exception of those noted in the previous sections of this report.

3.0 SUMMARY OF COMPLETENESS

This QA review has identified aspects of the analytical data that required qualification due to blank contamination and continuing calibration outliers. None of the data were rejected. To confidently use any of the analytical data within this sample set, the data user should understand the qualifications and limitations of the results. SDG 239885 met the project completeness goal of 95%. The percent completeness is summarized in the following table.

Fraction	Number of Results	Number of Rejected Results	Percent Completeness
BTEX/MTBE Matrix: Water	14	0	100%
TPH – Gasoline Matrix: Water	2	0	100%
TPH – Diesel/Motor Oil Matrix: Water	2	0	100%
PAH Matrix: Water	18	0	100%
Overall	**36**	**0**	**100%**

4.0 REFERENCES

Data Quality Assessment: A Reviewer's Guide, U.S. Environmental Protection Agency, EPA QA/G-9R, February 2006.

Data Quality Assessment: Statistical Tools for Practitioners, U.S. Environmental Protection Agency, EPA QA/G-9S, February 2006.

Department of Defense Quality Systems Manual for Environmental Laboratories, Department of Defense, April 22, 2009.

Field Sampling Plan and Quality Assurance Project Plan Petroleum Hydrocarbon Corrective Action, Parcel B, Hunters Point Shipyard, San Francisco, Innovative Technical Solutions, Inc., October 2010.

SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods Third Edition, U.S. Environmental Protection Agency, Office of Solid Waste, December 1994.

Method 8015B: Nonhalogenated Organics by Gas Chromatography
Method 8021A: Aromatic and Halogenated Volatiles by Gas Chromatography using Photoionization and/or Electrolytic Conductivity Detectors
Method 8270C: Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry

U.S. EPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, EPA 540-R-08-01, June 2008.

ATTACHMENT A

ADR AND QRT REPORTS

AUTOMATED DATA REVIEW SUMMARY for 239885

Facility: Hunters Point Shipyard
NAPL Summer 2012

Guidance Document: Hunter's Point

Contract Laboratory: Curtis & Tompkins, Berkeley, CA

Field Contractor: Innovative Technical Solutions, Inc., Walnut Creek, CA

Data Review Contractor:

SDG: 239885, Certified - 10/26/2012 by ldeck

QC Level:

Project Manager:

Data Reviewer:

Data Reviewer Title:

Date of Review Report: 31-Oct-2012

Second Reviewer:

Completion Date of Second Reviewer:

Samples Included in SDG 239885

Analytical Method/ Leach Method	Normal Water Samples	Field QC Water Samples
BNASIM/NONE	1	0
M8015D/NONE	1	0
M8015V/NONE	1	1
SW8021B/NONE	1	1

AUTOMATED DATA REVIEW SUMMARY for 239885

This report assesses the analytical data quality associated with the analyses listed on the preceding cover page. This assessment has been made through a combination of automated data review (ADR) and supplemental manual review, the details of which are described below. The approach taken in the review of this data set is consistent with the requirements contained in the Hunter's Point to the extent possible. Where definitive guidance is not provided, data has been evaluated in a conservative manner using professional judgment. In cases where two qualifiers are listed as an action, such as 'J/UJ', the first qualifier applies to positive results, and the second to non-detect results.

Samples were collected by Innovative Technical Solutions, Inc., Walnut Creek, CA; analyses were performed by Curtis & Tompkins, Berkeley, CA and were reported under sample delivery group (SDG) 239885. Results have been evaluated electronically using electronic data deliverables (EDDs) provided by the laboratory. The laboratory data summary forms (hard copy) have been reviewed during this effort and compared to the automated review output. Findings based on the automated data submission and manual data verification processes are detailed in the ADR narrative.

The following quality control elements were supported by the electronic deliverable and were evaluated during this review effort:

Blank
Blank - Negative
LCS Recovery
Prep Hold Time
Surrogate
Test Hold Time
Trip Blank

The following quality control elements were either not applicable to the deliverable, or were not supported by the electronic deliverable, and were therefore not included in the automated data review. Those elements required for the project were reviewed manually, as narrated in the Comment section below.

Ambient Blank
Calibration Blank
Calibration Blank - Negative
Continuing Calibration Verification
Equipment Blank
Field Blank
Field Duplicate RPD
Initial Calibration Verification
Lab Replicate RPD
Material Blank
MS Recovery
MS RPD
Negative Blank

AUTOMATED DATA REVIEW SUMMARY for 239885

A minimum of ten percent of sample and QC results were manually evaluated for compliance with project specific requirements and consistency with hard copy results. The following summaries were generated during the evaluation of this data set and are included in this report as applicable.

Batch – The analytical batch report is reviewed for completeness and compliance with project specific requirements. Incomplete or non-compliant run sequences are identified and their impact on data quality are discussed in the narrative.

QC Outlier – Results exceeding the evaluation criteria are reviewed for compliance with project requirements and a minimum of ten percent of the non-compliant QC values reported electronically are verified for consistency with hard-copy values.

Qualified Results – Qualified results are evaluated for compliance with project requirements and ten percent of qualified results are verified for consistency with the QC Outliers.

Rejected Results – All rejected results are evaluated for compliance with project requirements. The reason for rejection of the data is verified against hard copy data.

Field Duplicates – Field duplicate comparison results are evaluated for compliance with project requirements and ten percent of values reported are verified for consistency with the hard-copy data.

Data Submission Warnings – Warnings encountered during the data submission process are evaluated and their affect on data quality is discussed in the narrative below.

Analytical deficiencies, project non-compliance issues and inconsistencies with hard copy results observed during ADR evaluation process and their impact on data quality are summarized in the narrative below.

A total of 7 results (19.44%) out of the 36 results (sample and field QC samples) reported are qualified based on review and 0 results (0.00%) have been rejected. The qualified results are detailed in the following tables and discussed in the narrative below, where appropriate.

Narrative Comments

Tracy Young — 05-Nov-2012

Released by Tracy Young, Senior Chemist

Ann Lack — 11-05-2012

Reviewed by Ann Lack

Reason and Comment Code Definitions

Comments

Code	Definition
C1	
C2	
C2S	
C3	
C4	
C5	
C6	
C7	
C8	
C9	

Reasons

Code	Definition
A	Serial dilution
A1	Ambient Blank
B1	A common laboratory artifact was detected in the sample at a concentration less than 10X the concentration detected in the associated method blank.
B2	Calibration Blank
B3	Calibration Blank - Negative
B4	Negative Blank
B5	The analyte was found in an associated blank as well as in the sample.
C10	Continuing Calibration Verification RRF
C11	Continuing Calibration Verification percent recovery, percent difference, or percent drift
C12	Low Level Continuing Calibration Verification was outside control limits
D1	Lab Replicate RPD
D2	MS RPD exceeded established criteria.
D4	No precision available

Reason and Comment Code Definitions

Code	Definition
D5	Field Duplicate RPD
D6	RPD of laboratory control sample exceeded criteria
D7	Field Duplicate not usable
E	Exceeds LinearCalibration Range
F	Hydrocarbon pattern does not match standard
G	Initial Calibration RRF
G1	Initial Calibration RSD
G2	Initial Calibration Verification percent recovery, percent difference, or percent drift
G4	Ion abundance ratios are outside criteria - estimated maximum possible concentration (EMPC) reported
G5	Initial Calibration out for metals/inorganics
H1	Test Hold Time
H2	Prep Hold Time
I	Internal standard
J	CRA/CRI Recovery
K	An analyte (non-common laboratory artifact) was detected in the sample at a concentration less than 5X the concentration detected in the associated method blank.
K1	Detected in the associated equipment rinsate blank.
K2	Detected in the associated field (i.e., ambient) blank.
K3	Detected in the associated trip blank.
K4	Detected in the associated storage blank
K5	Detected in the associated source blank
L	Percent recovery of laboratory control sample recovery was outside established limits
L1	A common laboratory artifact was detected in the sample at a concentration less than 10X the concentration detected in the associated method blank. (Negative)
M	Matrix spike recovery was outside established criteria.
M1	Minimum matrix spike frequency was not attained
N	Blank - No Action
O	Interference check sample
P	Sample preservation/collection requirement not met.

Reason and Comment Code Definitions

P1	Column or detector RPD
P2	Improper preparation/extraction
Q1	Material Blank
S	Surrogate recovery out of criteria (upper or lower limit)
S1	Sample less than 50% solids
T	Receipt Temperature
T2	RSD of lab triplicate out
TI	Tentatively Identified Compound
TR	Trace Level Detect
V	Sample Receipt Condition
W	Column breakdown (pesticides)
X	Raised reporting limit
X1	Unresolved Isomers; no peak separation
X2	Qualified due to professional judgment, see data validation narrative.
Y	Analyte not confirmed on second column
Y1	False Positive
Y2	Sum of species greater than total result
Z	Data rejected due to radiological anomolies
Z1	Data rejected, more valid data available

Flag Code and Definitions

Flag	Definition
U	Undetected: The analyte was analyzed for, but not detected.
UJ	The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.
J	Estimated: The analyte was positively identified, the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
R	The data are rejected due to deficiencies in meeting QC criteria and may not be used for decision making.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".
NJ	The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated numerical value represents its approximate concentration.

AUTOMATED DATA REVIEW SUMMARY for 239885

Batch Report

Test Method: BNASIM; Leach Method: NONE

Analytical Batch	Prep Batch	Leach Batch	Location	Matrix	Field Sample ID	Lab Sample ID	Calibration Ref	Run#/ Dil'n	Collection Date/Time	Extract Date/Time	Analysis Date/Time	Sample Type
190913	190913	NA	IR24MW07A	WG	IR24MW07A-092512	239885-002		4/1	25-Sep-2012 10:15 AM	25-Sep-2012 5:30 PM	26-Sep-2012 8:02 PM	N
	190913	NA	LABQC	WQ	LABQC	QC657921		1/1	24-Sep-2012 7:30 PM	24-Sep-2012 7:30 PM	26-Sep-2012 1:01 PM	BD
	190913	NA	LABQC	WQ	LABQC	QC657920		1/1	24-Sep-2012 7:30 PM	24-Sep-2012 7:30 PM	26-Sep-2012 12:26 PM	BS
	190913	NA	LABQC	WQ	LABQC	QC657919		1/1	24-Sep-2012 7:30 PM	24-Sep-2012 7:30 PM	26-Sep-2012 11:49 AM	LB

Test Method: M8015D; Leach Method: NONE

Analytical Batch	Prep Batch	Leach Batch	Location	Matrix	Field Sample ID	Lab Sample ID	Calibration Ref	Run#/ Dil'n	Collection Date/Time	Extract Date/Time	Analysis Date/Time	Sample Type
190974	190974	NA	IR24MW07A	WG	IR24MW07A-092512	239885-002		3/1	25-Sep-2012 10:15 AM	25-Sep-2012 6:00 PM	26-Sep-2012 9:13 PM	N
	190974	NA	LABQC	WQ	LABQC	QC658162		1/1	25-Sep-2012 6:00 PM	25-Sep-2012 6:00 PM	26-Sep-2012 5:19 PM	BD
	190974	NA	LABQC	WQ	LABQC	QC658161		1/1	25-Sep-2012 6:00 PM	25-Sep-2012 6:00 PM	26-Sep-2012 4:51 PM	BS
	190974	NA	LABQC	WQ	LABQC	QC658160		1/1	25-Sep-2012 6:00 PM	25-Sep-2012 6:00 PM	26-Sep-2012 4:24 PM	LB

Test Method: M8015V; Leach Method: NONE

Analytical Batch	Prep Batch	Leach Batch	Location	Matrix	Field Sample ID	Lab Sample ID	Calibration Ref	Run#/ Dil'n	Collection Date/Time	Extract Date/Time	Analysis Date/Time	Sample Type
191067	191067	NA	FIELDQC	WQ	TB-092512	239885-001		1/1	25-Sep-2012 7:00 AM	27-Sep-2012 5:43 PM	27-Sep-2012 5:43 PM	TB
	191067	NA	IR24MW07A	WG	IR24MW07A-092512	239885-002		1/1	25-Sep-2012 10:15 AM	27-Sep-2012 6:21 PM	27-Sep-2012 6:21 PM	N
	191067	NA	LABQC	WQ	LABQC	QC658570		1/1	27-Sep-2012 1:05 PM	27-Sep-2012 1:05 PM	27-Sep-2012 1:05 PM	BS
	191067	NA	LABQC	WQ	LABQC	QC658573		1/1	27-Sep-2012 2:01 PM	27-Sep-2012 2:01 PM	27-Sep-2012 2:01 PM	LB
191188	191188	NA	LABQC	WQ	LABQC	QC659069		1/1	01-Oct-2012 5:20 PM	01-Oct-2012 5:20 PM	01-Oct-2012 5:20 PM	LB

AUTOMATED DATA REVIEW SUMMARY for 239885

Batch Report

Test Method: SW8021B; Leach Method: NONE

Analytical Batch	Prep Batch	Leach Batch	Location	Matrix	Field Sample ID	Lab Sample ID	Calibration Ref	Run#/ Dil'n	Collection Date/Time	Extract Date/Time	Analysis Date/Time	Sample Type
191067	191067	NA	FIELDQC	WQ	TB-092512	239885-001		1/1	25-Sep-2012 7:00 AM	27-Sep-2012 5:43 PM	27-Sep-2012 5:43 PM	TB
	191067	NA	LABQC	WQ	LABQC	QC658572		1/1	27-Sep-2012 10:09 AM	27-Sep-2012 10:09 AM	27-Sep-2012 10:09 AM	BD
	191067	NA	LABQC	WQ	LABQC	QC658571		1/1	27-Sep-2012 8:53 AM	27-Sep-2012 8:53 AM	27-Sep-2012 8:53 AM	BS
	191067	NA	LABQC	WQ	LABQC	QC658573		1/1	27-Sep-2012 2:01 PM	27-Sep-2012 2:01 PM	27-Sep-2012 2:01 PM	LB
191188	191188	NA	IR24MW07A	WG	IR24MW07A-092512	239885-002		2/1	25-Sep-2012 10:15 AM	01-Oct-2012 6:12 PM	01-Oct-2012 6:12 PM	N
	191188	NA	LABQC	WQ	LABQC	QC659067		1/1	01-Oct-2012 3:34 PM	01-Oct-2012 3:34 PM	01-Oct-2012 3:34 PM	BD
	191188	NA	LABQC	WQ	LABQC	QC659066		1/1	01-Oct-2012 2:56 PM	01-Oct-2012 2:56 PM	01-Oct-2012 2:56 PM	BS
	191188	NA	LABQC	WQ	LABQC	QC659069		1/1	01-Oct-2012 5:20 PM	01-Oct-2012 5:20 PM	01-Oct-2012 5:20 PM	LB

AUTOMATED DATA REVIEW SUMMARY for 239885

Field Batch Report

Test Method: M8015V		Leach Method: NONE						
EBLOT	**TBLOT**	**ABLOT**	**LOCID**	**Matrix**	**FLDSAMPID**	**LABSAMPID**	**LOGDATE**	**SACODE**
	25091201		FIELDQC	WQ	TB-092512	239885-001	9/25/2012 7:00:00 AM	TB
	25091201		IR24MW07A	WG	IR24MW07A-092512	239885-002	9/25/2012 10:15:00 AM	N

Test Method: SW8021B		Leach Method: NONE						
EBLOT	**TBLOT**	**ABLOT**	**LOCID**	**Matrix**	**FLDSAMPID**	**LABSAMPID**	**LOGDATE**	**SACODE**
	25091201		FIELDQC	WQ	TB-092512	239885-001	9/25/2012 7:00:00 AM	TB
	25091201		IR24MW07A	WG	IR24MW07A-092512	239885-002	9/25/2012 10:15:00 AM	N

QC Outlier Report

Test/Prep	QC Element	Sample ID	Run# / Dil'n	Analyte	Result	Units	Qualifier	Warning Limits	Control Limits	Reason	Comment	Rule	Action Level
M8015V / SW5030B	Blank	QC658573 (LB)	1 / 1.00	Petroleum Hydrocarbons C6-C12	14.0	UG/L	U/None	< 5.6	< 50	B1		1	14.0
M8015V / SW5030B	Trip Blank	TB-092512 (TB)	1 / 1.00	Petroleum Hydrocarbons C6-C12	16.0	UG/L	U/None	< 5.6	< 50	K3		1	16.0
SW8021B / SW5030B	Blank	QC658573 (LB)	1 / 1.00	Ethylbenzene	0.043	UG/L	U/None	< 0.042	< 0.5	B1		1	0.0430
SW8021B / SW5030B	Blank	QC658573 (LB)	1 / 1.00	m,p-Xylene	0.23	UG/L	U/None	< 0.045	< 0.5	B1		1	0.230
SW8021B / SW5030B	Blank	QC658573 (LB)	1 / 1.00	Toluene	0.14	UG/L	U/None	< 0.051	< 0.5	B1		1	0.140
SW8021B / SW5030B	Blank	QC658573 (LB)	1 / 1.00	Xylenes, Total	0.23	UG/L	U/None	< 0	< 0.5	B1		1	0.230
SW8021B / SW5030B	Blank	QC659069 (LB)	1 / 1.00	m,p-Xylene	0.046	UG/L	U/None	< 0.045	< 0.5	B1		1	0.0460
SW8021B / SW5030B	Blank	QC659069 (LB)	1 / 1.00	Toluene	0.054	UG/L	U/None	< 0.051	< 0.5	B1		1	0.0540
SW8021B / SW5030B	Blank	QC659069 (LB)	1 / 1.00	Xylenes, Total	0.046	UG/L	U/None	< 0	< 0.5	B1		1	0.0460
SW8021B / SW5030B	Trip Blank	TB-092512 (TB)	1 / 1.00	Ethylbenzene	0.18	UG/L	U/None	< 0.042	< 0.5	K3		1	0.180

AUTOMATED DATA REVIEW SUMMARY for 239885

Qualified Results

Test Leach	Matrix	FieldSample ID	Type	Analyte	RL	Lab Result	Qualified Result	Units	Reason
BNASIM/NONE	WG	IR24MW07A-092512	N	Benzo(b)fluoranthene	0.10	0.030	0.030 J	UG/L	TR
Test Leach	**Matrix**	**FieldSample ID**	**Type**	**Analyte**	**RL**	**Lab Result**	**Qualified Result**	**Units**	**Reason**
M8015V/NONE	WG	IR24MW07A-092512	N	Petroleum Hydrocarbons C6-C12	50.0	38.0	50.0 U	UG/L	B1/K3
M8015V/NONE	WQ	TB-092512	TB	Petroleum Hydrocarbons C6-C12	50.0	16.0	50.0 U	UG/L	B1
Test Leach	**Matrix**	**FieldSample ID**	**Type**	**Analyte**	**RL**	**Lab Result**	**Qualified Result**	**Units**	**Reason**
SW8021B/NONE	WQ	TB-092512	TB	Ethylbenzene	0.50	0.18	0.50 U	UG/L	B1

AUTOMATED DATA REVIEW SUMMARY for 239885

Detected Results

Test Leach	Matrix	FieldSample ID	Type	Analyte	RL	Lab Result	Qualified Result	Units	Reason
BNASIM/NONE	WG	IR24MW07A-092512	N	Benzo(b)fluoranthene	0.10	0.030	0.030 J	UG/L	TR
BNASIM/NONE	WG	IR24MW07A-092512	N	Pyrene	0.10	0.20	0.20	UG/L	

Test Leach	Matrix	FieldSample ID	Type	Analyte	RL	Lab Result	Qualified Result	Units	Reason
M8015D/NONE	WG	IR24MW07A-092512	N	C12-C24 Petroleum Hydrocarbons	50.0	1400	1400	UG/L	

AUTOMATED DATA REVIEW SUMMARY for 239885

Rejected Results

--No Records Found--

SDG 239885

Qualified Results Table

Lab Sample ID	Sample ID	Sample Collection Date	Type	Method	Parameter	Original Value	Qualifier	New Value	Bias	MDL	RL	Units	Reason
239885-002	IR24MW07A-092512	9/25/2012	WG-N	BNASIM	Benzo(b)fluoranthene	0.030	J	0.030 J		0.020	0.10	UG/L	TR
239885-002	IR24MW07A-092512	9/25/2012	WG-N	M8015V	Petroleum Hydrocarbons C6-C12	38.0	U	ND U		5.6	50	UG/L	K
239885-001	TB-092512	9/25/2012	WQ-TB	M8015V	Petroleum Hydrocarbons C6-C12	16.0	U	ND U		5.6	50	UG/L	K
239885-001	TB-092512	9/25/2012	WQ-TB	SW8021B	Ethylbenzene	0.18	UJ	ND UJ		0.042	0.50	UG/L	C11/K
239885-001	TB-092512	9/25/2012	WQ-TB	SW8021B	tert-Butyl Methyl Ether (MTBE)	ND	UJ	ND UJ		0.45	2.0	UG/L	C11
239885-001	TB-092512	9/25/2012	WQ-TB	SW8021B	Xylenes, Total	ND	UJ	ND UJ		0.0	0.50	UG/L	C11
239885-001	TB-092512	9/25/2012	WQ-TB	SW8021B	m,p-Xylene	ND	UJ	ND UJ		0.045	0.50	UG/L	C11
239885-001	TB-092512	9/25/2012	WQ-TB	SW8021B	o-Xylene	ND	UJ	ND UJ		0.047	0.50	UG/L	C11

Matrix / Sample Type

Matrix	Matrix Description	Sample Code	Sample Code Description
WG	GROUND WATER	N	Normal Environmental Sample
WQ	WATER QUALITY CONTROL MATRIX	TB	Trip Blank

Data Qualifier Definitions

Flag	Description
U	Undetected: The analyte was analyzed for, but not detected.
UJ	The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.
J	Estimated: The analyte was positively identified, the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
R	The data are rejected due to deficiencies in meeting QC criteria and may not be used for decision making.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".
NJ	The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated numerical value represents its approximate concentration.

Reason and Comment Code Definitions

Code	Description
A	Serial dilution

Qualified Results Table

Reason and Comment Code Definitions

Code	Description
A1	Ambient Blank
B1	A common laboratory artifact was detected in the sample at a concentration less than 10X the concentration detected in the associated method blank.
B2	Calibration Blank
B3	Calibration Blank - Negative
B4	Negative Blank
B5	The analyte was found in an associated blank as well as in the sample.
C1	
C10	Continuing Calibration Verification RRF
C11	Continuing Calibration Verification percent recovery, percent difference, or percent drift
C12	Low Level Continuing Calibration Verification was outside control limits
C2	
C2S	
C3	
C4	
C5	
C6	
C7	
C8	
C9	
D1	Lab Replicate RPD
D2	MS RPD exceeded established criteria.
D4	No precision available
D5	Field Duplicate RPD
D6	RPD of laboratory control sample exceeded criteria
D7	Field Duplicate not usable
E	Exceeds LinearCalibration Range
F	Hydrocarbon pattern does not match standard
G	Initial Calibration RRF
G1	Initial Calibration RSD
G2	Initial Calibration Verification percent recovery, percent difference, or percent drift
G4	Ion abundance ratios are outside criteria - estimated maximum possible concentration (EMPC) reported
G5	Initial Calibration out for metals/inorganics
H1	Test Hold Time

Qualified Results Table

Reason and Comment Code Definitions

Code	Description
H2	Prep Hold Time
I	Internal standard
J	CRA/CRI Recovery
K	An analyte (non-common laboratory artifact) was detected in the sample at a concentration less than 5X the concentration detected in the associated method blank.
K1	Detected in the associated equipment rinsate blank.
K2	Detected in the associated field (i.e., ambient) blank.
K3	Detected in the associated trip blank.
K4	Detected in the associated storage blank
K5	Detected in the associated source blank
L	Percent recovery of laboratory control sample recovery was outside established limits
L1	A common laboratory artifact was detected in the sample at a concentration less than 10X the concentration detected in the associated method blank. (Negative)
M	Matrix spike recovery was outside established criteria.
M1	Minimum matrix spike frequency was not attained
N	Blank - No Action
O	Interference check sample
P	Sample preservation/collection requirement not met.
P1	Column or detector RPD
P2	Improper preparation/extraction
Q1	Material Blank
S	Surrogate recovery out of criteria (upper or lower limit)
S1	Sample less than 50% solids
T	Receipt Temperature
T2	RSD of lab triplicate out
TI	Tentatively Identified Compound
TR	Trace Level Detect
V	Sample Receipt Condition
W	Column breakdown (pesticides)
X	Raised reporting limit
X1	Unresolved Isomers; no peak separation
X2	Qualified due to professional judgment, see data validation narrative.
Y	Analyte not confirmed on second column
Y1	False Positive
Y2	Sum of species greater than total result

Qualified Results Table

Reason and Comment Code Definitions

Code	Description
Z	Data rejected due to radiological anomolies
Z1	Data rejected, more valid data available

ATTACHMENT B

PROJECT CORRESPONDENCE

No Project Correspondence associated with this SDG

"Truth through Science"

Veridian Environmental, Inc

DATA VALIDATION REPORT

ITSI
HUNTERS POINT SHIPYARD, PARCEL B
SAN FRANCISCO, CALIFORNIA

Curtis & Tompkins Laboratories
SDG: **242032**

February 7, 2013

Prepared for:

INNOVATIVE TECHNICAL SOLUTIONS, INC
2730 Shadelands Drive, Suite 100
Walnut Creek, California 94598

Prepared by:

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1111 Kennedy Place
Suite 2
Davis, California 95616

DATA VALIDATION REPORT

ITSI
HUNTERS POINT SHIPYARD, PARCEL B
SAN FRANCISCO, CALIFORNIA

February 7, 2013

Name	Position	Signature/Date
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ACRONYMS

Acronym	Definition
%D	Percent Difference
%REC	Percent Recovery
%RSD	Percent Relative Standard Deviation
%S	Percent Solids
ARRF	Average Relative Response Factor
BFB	Bromofluorobenzene
BNA	Base Neutral Acid
CA	Corrective Action
CARD	CLP Analytical Results Database
CCC	Calibration Check Analytes
CCB	Continuing Calibration Blank
CCV	Continuing Calibration Verification
CF	Calibration Factor
CLP	Contract Laboratory Program
COC	Chain-of-Custody
CRDL	Contract Required Detection Limit
CRQL	Contract Required Quantitation Limit
C&T	Curtis & Tompkins Laboratories, LLC
DO	Diluted Out
DOC	Date of Collection
DOD	Department of Defense
DQI	Data Quality Indicator
DQO	Data Quality Objective
DRO	Diesel Range Organics
DVR	Data Validation Report
EDD	Electronic Data Deliverable
FID	Flame Ionization Detector
GC	Gas Chromatography
GC/ECD	Gas Chromatography/Electron Capture Detector
GC/MS	Gas Chromatography/Mass Spectrometry
GPC	Gel Permeation Chromatography
HPS	Hunters Point Shipyard
ICAL	Initial Calibration
ICV	Initial Calibration Verification
IS	Internal Standard
ITSI	Innovative Technical Solutions, Inc.
GRO	Gas Range Organics
kg	Kilogram
LCS	Laboratory Control Sample

Acronym	Definition
LCSD	Laboratory Control Sample Duplicate
l	Liter
LL	Lower Limit
LLC	Limited Liability Company
MB	Method Blank
MDL	Method Detection Limit
ml	Milliliter
MO	Motor Oil
MRL	Method Reporting Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
MTBE	Methyl tert-butyl ether
µg	Microgram
NAPL	Non-Aqueous Phase Liquid
NAVFAC	Naval Facilities Engineering Command
ND	Non-detect or Not Detect
NEDD	Navy Electronic Data Deliverable
NFG	National Functional Guidelines
NIST	National Institute of Standards and Technology
NPS	Non Project Sample
NQW	No Qualification Warranted
NTC	Non Target Compound
OERR	Office of Emergency and Remedial Response
OSWER	Office of Solid Waste and Emergency Response
PAL	Project Action Limit
PAH	Polycyclic Aromatic Hydrocarbons
PID	Photoionization Detector
PQOs	Project Quality Objectives
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference
RRF	Relative Response Factor
RRT	Relative Retention Time
RSD	Relative Standard Deviation
RT	Retention Time
SDG	Sample Delivery Group
SOP	Standard Operating Procedure
SOW	Statement of Work

Acronym	Definition
SPCC	System Performance Check Analytes
SSV	Second Source Verification
SVOC	Semivolatile Organic Compound
Surr	Surrogate
TAL	Target Analyte List
TCL	Target Compound List
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
TSS	Total Suspended Solids
UL	Upper Limit
µg/L	Micrograms per liter
USACE	United States Army Corp of Engineers
U.S. EPA	United States Environmental Protection Agency
VEI	Veridian Environmental, Inc.
VOC	Volatile Organic Compound

DATA QUALIFIER REASON CODES

Code	Reason Code	Description
A	Serial dilution	Serial dilution
A1	Ambient Blank	Ambient Blank
B1	Blank	A common laboratory artifact was detected in the sample at a concentration less than 10X the concentration detected in the associated method blank.
B2	Calibration Blank	Calibration Blank
B3	Calibration Blank - Negative	Calibration Blank - Negative
B4	Negative Blank	Negative Blank
B5	The analyte was found in blank and sample	The analyte was found in an associated blank as well as in the sample.
C1	Diluted Out	Diluted Out
C10	Continuing Calibration Verification RRF	Continuing Calibration Verification RRF
C11	Continuing Calibration Verification	Continuing Calibration Verification percent recovery, percent difference, or percent drift
C2	Flag Parent Only	Flag Parent Only
C2S	Flag Parent (Soil); Batch (Water)	Flag Parent (Soil); Batch (Water)
C3	No Action	No Action
C4	No QC Outliers	No QC Outliers
C5	One or both values <5x RL	One or both values <5x RL
C6	Recalculated Value	Recalculated Value
C7	Material Blanks	Material Blanks
C8	Spike Insignificant	Spike Insignificant
C9	No Flags; set to ND by method/cal. blank	No Flags; set to ND by method/cal. blank
D1	Lab Replicate RPD	Lab Replicate RPD
D2	MS RPD	MS RPD exceeded established criteria.
D4	No precision available	No precision available
D5	Field Duplicate RPD	Field Duplicate RPD
D6	LCS RPD	RPD of laboratory control sample exceeded criteria
D7	Field Dup not usable	Field Duplicate not usable
E	Exceeds Linear Calibration Range	Exceeds Linear Calibration Range
F	Hydrocarbon pattern does not match standard	Hydrocarbon pattern does not match standard
G	Initial Calibration RRF	Initial Calibration RRF
G1	Initial Calibration RSD	Initial Calibration RSD
G2	Initial Calibration Verification	Initial Calibration Verification percent recovery, percent difference, or percent drift
H1	Test Hold Time	Test Hold Time
H2	Prep Hold Time	Prep Hold Time
I	Internal standard	Internal standard
J	CRA/CRI Recovery	CRA/CRI Recovery

Code	Reason Code	Description
K	An analyte (non-common lab artifact) was detected	An analyte (non-common laboratory artifact) was detected in the sample at a concentration less than 5X the concentration detected in the associated method blank.
K1	Equipment Blank	Detected in the associated equipment rinsate blank.
K2	Field Blank	Detected in the associated field (i.e., ambient) blank.
K3	Trip Blank	Detected in the associated trip blank.
L	LCS Recovery	Percent recovery of laboratory control sample recovery was outside established limits
L1	Blank - Negative	A common laboratory artifact was detected in the sample at a concentration less than 10X the concentration detected in the associated method blank. (Negative)
M	MS Recovery	Matrix spike recovery was outside established criteria.
N	Blank - No Action	Blank - No Action
O	Interference check sample	Interference check sample
P	Sample preservation/collection requirement not met	Sample preservation/collection requirement not met.
P1	Confirmation Column/Detector RPD	Column or detector RPD
P2	Improper preparation/extraction	Improper preparation/extraction
Q1	Material Blank	Material Blank
S	Surrogate	Surrogate recovery out of criteria (upper or lower limit)
S1	Sample less than 50% solids	Sample less than 50% solids
T	Receipt Temperature	Receipt Temperature
T2	RSD of lab triplicate out	RSD of lab triplicate out
TI	Tentatively Identified Compound	Tentatively Identified Compound
TR	Trace Level Detect	Trace Level Detect
V	Sample Receipt Condition	Sample Receipt Condition
W	Column breakdown (pesticides)	Column breakdown (pesticides)
X	Raised reporting limit	Raised reporting limit
X1	Unresolved Isomers; no peak separation	Unresolved Isomers; no peak separation
X2	Qualified due to professional judgment, see data validation narrative.	Qualified due to professional judgment, see data validation narrative.
Y	Analyte not confirmed on second column	Analyte not confirmed on second column
Y1	False Positive	False Positive
Y2	Sum of species greater than total result	Sum of species greater than total result
Z	Data rejected due to radiological anomalies	Data rejected due to radiological anomalies
Z1	Data rejected, more valid data available	Data rejected, more valid data available

1.0 INTRODUCTION

This Data Validation Report (DVR) details the assessment and data validation performed on the groundwater sample analyses from SDG 242032. These samples were collected on December 17 and 18, 2012, as part of the Parcel B NAPL Petroleum Hydrocarbon Corrective Action in Hunters Point Shipyard, San Francisco, California. The samples were shipped to and analyzed by Curtis & Tompkins Laboratories, LLC (C&T) in Berkeley, California. The analyses performed included the following: BTEX/MTBE by U.S. EPA Method 8021B, Total Petroleum Hydrocarbons (TPH) – Purgeable (Gasoline: C_6-C_{12}) by U.S. EPA Method 8015B, TPH – Extractable (Diesel and Motor Oil: C_{12}-C_{24} and C_{24}-C_{36}) by U.S. EPA Method 8015B, and Polynuclear Aromatic Hydrocarbons by U.S. EPA Method 8270C-SIM.

Data validation of all sample results was performed by Tracy A. Young, Ann Lack, and Charlotte R. Symms of Veridian Environmental, Inc. (VEI). A review (Level III) of 100% of the data, which allows for complete independent data review without reconstruction of analytical data, was conducted. In addition, approximately 10% of the project data underwent a comprehensive or extensive review (Level IV) which allowed for the complete reconstruction of the chemical analyses. The comprehensive review included the recalculation of calibration curves and sample results. None of the samples from this SDG were selected for the comprehensive Level IV review. The data were validated in accordance with the analytical methods and the documents entitled *Field Sampling Plan and Quality Assurance Project Plan Petroleum Hydrocarbon Corrective Action, Parcel B, Hunters Point Shipyard, San Francisco, (*Innovative Technical Solutions, Inc., October 2010) and with guidance from *Department of Defense Quality Systems Manual for Environmental Laboratories* (DoD, 2009); *Data Quality Assessment: A Reviewer's Guide* (U.S. EPA QA/G-9R 2006); *Data Quality Assessment: Statistical Tools for Practitioners* (U.S. EPA QA-G-9S, 2006); and *U.S. EPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (U.S. EPA, 2008).

The data were examined to determine the usability of the analytical results and the compliance relative to requirements specified in the analytical methods and guidelines provided. Qualifier flags have been placed next to the results on the laboratory analytical result forms and entered into the client database so the data user can quickly assess the qualitative and/or quantitative reliability of any result. The data qualifications allow the data end-user to best understand the usability of the analytical results. It should be understood that data that have not been qualified in this report should be considered valid based on the quality control (QC) criteria that have been reviewed. This report was prepared to provide a critical review of the laboratory analyses and the reported analytical results. Quality assurance (QA) reviews of laboratory-generated data routinely identify various problems associated with analytical measurements, even from the most experienced and capable laboratories.

The findings of this QA review are presented in Section 2.0 of this report, a summary of completeness is presented in Section 3.0, and the references are provided in Section 4.0. The ADR, QRT, and Field Duplicate Reports for the project samples in SDG 242032 are presented in Attachment A. Project Correspondence is presented as Attachment B.

Several data validation flags are utilized in the validation process. The definitions of these qualifier flags are as follows:

U The analyte was analyzed for, but was not detected at or above the reported sample quantitation limit.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

UJ The analyte was not detected at or above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R The sample result and/or analysis have been rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

All necessary flags have been incorporated into the data presented in this report (Attachment A). As per project-specific reporting requirements, all results reported at concentrations less than the sample-specific practical quantitation limits (adjusted for dilution factors, sample size, and percent solids) should be considered estimated (J).

2.0 FINDINGS

Data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, the validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance.

2.1 BTEX/MTBE AND TPH – GASOLINE DATA VALIDATION

The samples analyzed for BTEX/MTBE by U.S. EPA Method 8021B and for TPH - Purgeable (Gasoline Range – C_6-C_{12}) by U.S. EPA Method 8015B were evaluated for the following data requirements.

	Acceptable	**Acceptable With Discussion**	**Acceptable With Qualification**	**Not Acceptable**	**Not Applicable**
Sample Condition Upon Receipt		✓			
Analytical Holding Times	✓				
Blank Analyses			✓		
Initial Calibrations	✓				
Initial Calibration Verifications	✓				
Continuing Calibrations	✓				
Surrogate Spike Recoveries	✓				

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable	Not Applicable
LCS Analyses	✓				
MS/MSD Analyses		✓			
Confirmation Column Agreement	✓				
Verification of Sample Results					✓
Field Duplicate Results		✓			
Verification of the Client EDD	✓				
Additional Findings		✓			

All sample results met data quality objectives with the exception of those discussed below.

Sample Condition Upon Receipt

The samples were received in good condition (intact, properly preserved, and at 4° ± 2°C) except for three coolers. As noted on the Cooler Receipt Checklist, the temperature of three of the five coolers were 1.2°C, 1.5°C, and 1.5°C upon receipt by C&T. Since the samples were not frozen, qualification of the data is not warranted.

Blank Analyses

The following analyte was reported at a concentration greater than or equal to the MDL in the blank as summarized in the table below.

Trip Blank

Sample ID	Contaminant	Concentration	Associated Sample(s)
TB-121712	MTBE	1.8 µg/L	**IR46MW58A-121712** **IR46MW56A-121712** **IR46MW57A-121812** **IR46MW59A-121812** **IR46MW60A-121812** **IR46MW46A-121812** **IR46MW47A-121812** **IR99MW47A-121812**

Due to the presence of the following contaminant in the associated trip blank, the reported positive results in the following samples should be considered anomalous (U) and in accordance with the validation guidelines, the RL was raised to the reported value. It should be noted that dilution factors and sample volumes were taken into consideration when evaluating blank contamination.

Sample(s) With Anomalous Results (U)	Analyte(s)
IR46MW56A-121712 **IR99MW47A-121812**	MTBE

Matrix Spike/Matrix Spike Duplicate Analyses

For Gasoline C_6-C_{12}, the laboratory used project sample **IR46MW46A-121812** for the Matrix Spike/Matrix Spike Duplicate (MS/MSD) analyses. All percent recoveries and Relative Percent Differences (%RPD) were within the project criteria.

For the BTEX/MTBE analysis, an MS/MSD was not performed for these samples. Consequently, an assessment of matrix affects cannot be made.

Field Duplicate Results

The following project samples were submitted as a field duplicate pair for these analyses.

SDG	Sample(s)	Field Duplicate(s)
242032	**IR46MW47A-121812**	**IR99MW47A-121812**

Acceptable precision was demonstrated by the results reported for the field duplicate pair since the positive result for MTBE in **IR99MW47A-121812** was previously qualified as anomalous.

Additional Findings

Based on a review of the laboratory reporting limits (RL) for Method 8015B, the laboratory RL reported for gasoline is greater than the Sampling Analysis Plan (SAP) Project Quantitation Limit (PQL). The SAP-specified PQL for gasoline is more than the two times the laboratory MDL and the laboratory reported results down to the MDL with appropriate "J" flags; therefore, qualification of the data is not warranted on this basis.

Analyte	Laboratory MDL (µg/L)	Laboratory RL (µg/L)	SAP – PQL (µg/L)
Gasoline C_6-C_{12}	10	50	21

2.2 TPH– DIESEL/MOTOR OIL DATA VALIDATION

The samples analyzed by U.S. EPA Method 8015B for TPH - Extractable (Diesel and Motor Oil Range- Silica Gel Cleanup) were evaluated for the following data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable	Not Applicable
Sample Condition Upon Receipt		✓			
Analytical Holding Times	✓				
Blank Analyses	✓				
Initial Calibrations	✓				
Initial Calibration Verifications	✓				
Continuing Calibrations	✓				
Surrogate Spike Recoveries	✓				

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable	Not Applicable
LCS Analyses	✓				
MS/MSD Analyses	✓				
Verification of Sample Results					✓
Field Duplicate Results	✓				
Verification of the Client EDD	✓				
Additional Findings		✓			

All sample results met data quality objectives with the exception of those discussed below.

Sample Condition Upon Receipt

The samples were received in good condition (intact, properly preserved, and at 4° ± 2°C) except for three coolers. As noted on the Cooler Receipt Checklist, the temperature of three of the five coolers were 1.2°C, 1.5°C, and 1.5°C upon receipt by C&T. Since the samples were not frozen, qualification of the data is not warranted.

Additional Findings

Based on a review of the laboratory reporting limits (RLs) for Method 8015B, the laboratory RLs reported for diesel and motor oil are greater than the Sampling Analysis Plan (SAP) Project Quantitation Limits (PQL). The laboratory reported results down to the MDL with appropriate "J" flags. The MDL for motor oil is two times greater than the SAP PQL (84 µg/L and 42 µg/L, respectively). Qualification of the data is not warranted on this basis.

Analyte	Laboratory MDL (µg/L)	Laboratory RL (µg/L)	SAP – PQL (µg/L)
Diesel C_{12}-C_{24}	16	50	21
Motor Oil C_{24}-C_{36}	84	300	42

2.3 POLYNUCLEAR AROMATIC HYDROCARBONS DATA VALIDATION

The samples analyzed for Polynuclear Aromatic Hydrocarbons (PAHs) by U.S. EPA Method 8270C-SIM were evaluated for the following data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable	Not Applicable
Sample Condition Upon Receipt		✓			
Analytical Holding Times	✓				
Blank Analyses	✓				
GC/MS Tuning and Mass Calibrations	✓				
Initial Calibrations	✓				

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable	Not Applicable
Initial Calibration Verifications	✓				
Continuing Calibrations			✓		
Surrogate Spike Recoveries		✓			
LCS Analyses		✓			
MS/MSD Analyses		✓			
Internal Standards	✓				
Verification of Sample Results					✓
Field Duplicate Results	✓				
Verification of the Client EDD	✓				
Additional Findings					✓

All sample results met data quality objectives with the exception of those discussed below.

Sample Condition Upon Receipt

The samples were received in good condition (intact, properly preserved, and at 4° ± 2°C) except for three coolers. As noted on the Cooler Receipt Checklist, the temperature of three of the five coolers were 1.2°C, 1.5°C, and 1.5°C upon receipt by C&T. Since the samples were not frozen, qualification of the data is not warranted.

Continuing Calibrations

For all continuing calibrations, all percent differences met project criteria (≤ 20%) except for the analytes listed in the following tables. High percent differences were noted in the following continuing calibration. The associated non-detect results are estimated (UJ) in accordance with the project criteria.

Instrument ID Date (Time)	Analyte(s)	Percent Difference	Associated Qualified Sample(s)
MSBNA02 12/26/2012(12:04)	Indeno(1,2,3-cd)pyrene	24%	**IR46MW46A-121812**
	Dibenz(a,h)anthracene	27%	

Surrogate Spike Recoveries

For all project analyses, the surrogate recoveries were within project criteria except for all three surrogates in sample **IR46MW60A-121812** as noted in the following table. Since all associated results are non-detect, qualification of the data is not warranted on this basis.

Sample(s)	Surrogate	Percent Recovery
IR46MW60A-121812	Nitrobenzene-d_5	132%
	2-Fluorobiphenyl	127%
	Terphenyl-d_{14}	148%

Laboratory Control Sample Analyses

For all LCS analyses, the recoveries for all target analytes met project criteria (40-115%) with the exception of the analytes in the following table. High percent recoveries were noted for these analytes. Since the analytes were not detected in the associated samples, qualification of the data is not warranted.

Instrument ID Date (Time)	Analyte(s)	Percent Recovery	Associated Sample(s)
QC670667 BS	Naphthalene	116%	**IR46MW58A-121712**
Batch # 193973	Phenanthrene	117%	**IR46MW56A-121712**
			IR46MW57A-121812
			IR46MW59A-121812
			IR46MW47A-121812
			IR99MW47A-121812
QC670668 BSD	Naphthalene	119%	**IR46MW58A-121712**
Batch # 193973	2-Methylnaphthalene	119%	**IR46MW56A-121712**
	Phenanthrene	123%	**IR46MW57A-121812**
			IR46MW59A-121812
			IR46MW47A-121812
			IR99MW47A-121812
QC671093 LCS	Naphthalene	121%	**IR46MW46A-121812**
Batch # 194084	2-Methylnaphthalene	119%	

Matrix Spike/Matrix Spike Duplicate Analyses

For this analysis, the laboratory used the project sample **IR46MW46A-121812** for the Matrix Spike/Matrix Spike Duplicate (MS/MSD) analyses. All percent recoveries and relative percent differences were within the project criteria (40-115% and %RPD < 20%) except for the analytes listed below. High percent recoveries were observed for the analytes in the associated MS/MSD analyses as listed below. Since the associated results were non-detect, qualification is not warranted on this basis.

Sample MS/MSD	Analyte(s)	Percent Recovery	Associated Sample(s)
IR46MW46A-121812 MSD	Naphthalene	118%	**IR46MW46A-121812**
	2-Methylnaphthalene	121%	
	Phenanthrene	118%	

2.4 PRECISION

Precision measures the reproducibility of data or measurements under specific conditions. Precision is a quantitative measure of the variability of a group of data compared to their average value. Measurement of precision is dependent upon sampling technique and analytical method. Precision was evaluated through laboratory QC samples such as MS/MSD samples and LCS/LCSD samples. Field duplicates were collected for this SDG. The evaluation of precision is summarized in the previous sections.

2.5 ACCURACY

Accuracy measures the bias in a measurement system that may result from sampling or analytical error. Laboratory accuracy was evaluated based on the evaluation of surrogate spikes, MS/MSD samples, and LCS/LCSD samples as required and summarized in the previous sections.

2.6 REPRESENTATIVENESS EVALUATION

Representativeness is a qualitative evaluation of whether the data represent actual environmental conditions. Representativeness was evaluated using holding time criteria, which reflect the length of time after sample collection that a sample or extract remains representative of environmental conditions. Depending on the analysis, either one or two holding times were evaluated. For those analyses that do not include a sample extraction, only one holding time was evaluated: the length of time between sample collection and analysis. For analyses that require sample extraction prior to analysis, two holding times were evaluated: the length of time from sampling until extraction and the length of time from extraction to analysis. Holding times were compared to standard method-specific holding times accepted by the U.S. EPA. All holding times that are within acceptance criteria are considered representative. Those holding times outside of U.S. EPA acceptance criteria are qualitatively evaluated to determine their effect on sample representativeness. Representativeness was also evaluated by analysis of laboratory method blanks, trip blanks, and/or equipment blanks that were used to identify sources of contamination not associated with environmental conditions. As summarized in the previous sections, the data appear to be representative of the environmental conditions on site.

2.7 USABILITY AND COMPARABILITY

Usability of data was evaluated by assuring that all the analytical requests were met, the samples were received in the proper condition, and all analyses were performed within the appropriate holding times. The comparability objective determines whether analytical conditions are sufficiently uniform for each analytical run such that all of the reported data from multiple runs are consistent. Comparability is promoted by using similar analytical protocols from one sampling event to the next. All data in SDG 242032 met project usability and comparability objectives with the exception of those noted in the previous sections of this report.

3.0 SUMMARY OF COMPLETENESS

This QA review has identified aspects of the analytical data that required qualification due to blank contamination and continuing calibration outliers. None of the data were rejected. To confidently use any of the analytical data within this sample set, the data user should understand the qualifications and limitations of the results. SDG 242032 met the project completeness goal of 95%. The percent completeness is summarized in the following table.

Fraction	Number of Results	Number of Rejected Results	Percent Completeness
BTEX/MTBE Matrix: Water	63	0	100%
TPH – Gasoline Matrix: Water	9	0	100%
TPH – Diesel/Motor Oil Matrix: Water	16	0	100%
PAH Matrix: Water	144	0	100%
Overall	**232**	**0**	**100%**

4.0 REFERENCES

Data Quality Assessment: A Reviewer's Guide, U.S. Environmental Protection Agency, EPA QA/G-9R, February 2006.

Data Quality Assessment: Statistical Tools for Practitioners, U.S. Environmental Protection Agency, EPA QA/G-9S, February 2006.

Department of Defense Quality Systems Manual for Environmental Laboratories, Department of Defense, April 22, 2009.

Field Sampling Plan and Quality Assurance Project Plan Petroleum Hydrocarbon Corrective Action, Parcel B, Hunters Point Shipyard, San Francisco, Innovative Technical Solutions, Inc., October 2010.

SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods Third Edition, U.S. Environmental Protection Agency, Office of Solid Waste, December 1994.

Method 8015B:	Nonhalogenated Organics by Gas Chromatography
Method 8021A:	Aromatic and Halogenated Volatiles by Gas Chromatography using Photoionization and/or Electrolytic Conductivity Detectors
Method 8270C:	Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry

U.S. EPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, EPA 540-R-08-01, June 2008.

ATTACHMENT A

ADR, QRT, AND FIELD DUPLICATE REPORTS

AUTOMATED DATA REVIEW SUMMARY for 242032

Facility: Hunters Point Shipyard
NAPL Fall 2012

Guidance Document: Hunter's Point QAPP

Contract Laboratory: Curtis & Tompkins, Berkeley, CA

Field Contractor: Innovative Technical Solutions, Inc., Walnut Creek, CA

Data Review Contractor: Veridian Environmental, Inc.

SDG: 242032, Certified - 1/18/2013 by ldeck

QC Level: S2BVEM

Project Manager: Charles Comstock

Data Reviewer: Tracy Young

Data Reviewer Title: Senior Chemist

Date of Review Report: February 06, 2013

Second Reviewer: Ann Lack

Completion Date of Second Reviewer:

Samples Included in SDG 242032

Analytical Method/ Leach Method	Normal Water Samples	Field QC Water Samples
BNASIM/NONE	7	1
M8015D/NONE	7	1
M8015V/NONE	7	2
SW8021B/NONE	7	2

AUTOMATED DATA REVIEW SUMMARY for 242032

This report assesses the analytical data quality associated with the analyses listed on the preceding cover page. This assessment has been made through a combination of automated data review (ADR) and supplemental manual review, the details of which are described below. The approach taken in the review of this data set is consistent with the requirements contained in the Hunter's Point QAPP to the extent possible. Where definitive guidance is not provided, data has been evaluated in a conservative manner using professional judgment. In cases where two qualifiers are listed as an action, such as 'J/UJ', the first qualifier applies to positive results, and the second to non-detect results.

Samples were collected by Innovative Technical Solutions, Inc., Walnut Creek, CA; analyses were performed by Curtis & Tompkins, Berkeley, CA and were reported under sample delivery group (SDG) 242032. Results have been evaluated electronically using electronic data deliverables (EDDs) provided by the laboratory. The laboratory data summary forms (hard copy) have been reviewed during this effort and compared to the automated review output. Findings based on the automated data submission and manual data verification processes are detailed in the ADR narrative.

The following quality control elements were supported by the electronic deliverable and were evaluated during this review effort:

- Blank
- Blank - Negative
- Field Duplicate RPD
- LCS Recovery
- MS Recovery
- MS RPD
- Prep Hold Time
- Surrogate
- Test Hold Time
- Trip Blank

The following quality control elements were either not applicable to the deliverable, or were not supported by the electronic deliverable, and were therefore not included in the automated data review. Those elements required for the project were reviewed manually, as narrated in the Comment section below.

- Ambient Blank
- Calibration Blank
- Calibration Blank - Negative
- Continuing Calibration Verification
- Equipment Blank
- Field Blank
- Initial Calibration Verification
- Lab Replicate RPD
- Material Blank
- Negative Blank

AUTOMATED DATA REVIEW SUMMARY for 242032

A minimum of ten percent of sample and QC results were manually evaluated for compliance with project specific requirements and consistency with hard copy results. The following summaries were generated during the evaluation of this data set and are included in this report as applicable.

Batch – The analytical batch report is reviewed for completeness and compliance with project specific requirements. Incomplete or non-compliant run sequences are identified and their impact on data quality are discussed in the narrative.

QC Outlier – Results exceeding the evaluation criteria are reviewed for compliance with project requirements and a minimum of ten percent of the non-compliant QC values reported electronically are verified for consistency with hard-copy values.

Qualified Results – Qualified results are evaluated for compliance with project requirements and ten percent of qualified results are verified for consistency with the QC Outliers.

Rejected Results – All rejected results are evaluated for compliance with project requirements. The reason for rejection of the data is verified against hard copy data.

Field Duplicates – Field duplicate comparison results are evaluated for compliance with project requirements and ten percent of values reported are verified for consistency with the hard-copy data.

Data Submission Warnings – Warnings encountered during the data submission process are evaluated and their affect on data quality is discussed in the narrative below.

Analytical deficiencies, project non-compliance issues and inconsistencies with hard copy results observed during ADR evaluation process and their impact on data quality are summarized in the narrative below.

A total of 4 results (1.72%) out of the 232 results (sample and field QC samples) reported are qualified based on review and 0 results (0.00%) have been rejected. The qualified results are detailed in the following tables and discussed in the narrative below, where appropriate.

Narrative Comments

Released by Tracy Young, Senior Chemist

06-Feb-2013

Reason and Comment Code Definitions

Comments

Code	Definition
C1	
C2	
C2S	
C3	
C4	
C5	
C6	
C7	
C8	
C9	

Reasons

Code	Definition
A	Serial dilution
A1	Ambient Blank
B1	A common laboratory artifact was detected in the sample at a concentration less than 10X the concentration detected in the associated method blank.
B2	Calibration Blank
B3	Calibration Blank - Negative
B4	Negative Blank
B5	The analyte was found in an associated blank as well as in the sample.
C10	Continuing Calibration Verification RRF
C11	Continuing Calibration Verification percent recovery, percent difference, or percent drift
C12	Low Level Continuing Calibration Verification was outside control limits
D1	Lab Replicate RPD
D2	MS RPD exceeded established criteria.
D4	No precision available

Reason and Comment Code Definitions

Code	Definition
D5	Field Duplicate RPD
D6	RPD of laboratory control sample exceeded criteria
D7	Field Duplicate not usable
E	Exceeds LinearCalibration Range
F	Hydrocarbon pattern does not match standard
G	Initial Calibration RRF
G1	Initial Calibration RSD
G2	Initial Calibration Verification percent recovery, percent difference, or percent drift
G4	Ion abundance ratios are outside criteria - estimated maximum possible concentration (EMPC) reported
G5	Initial Calibration out for metals/inorganics
H1	Test Hold Time
H2	Prep Hold Time
I	Internal standard
J	CRA/CRI Recovery
K	An analyte (non-common laboratory artifact) was detected in the sample at a concentration less than 5X the concentration detected in the associated method blank.
K1	Detected in the associated equipment rinsate blank.
K2	Detected in the associated field (i.e., ambient) blank.
K3	Detected in the associated trip blank.
K4	Detected in the associated storage blank
K5	Detected in the associated source blank
L	Percent recovery of laboratory control sample recovery was outside established limits
L1	A common laboratory artifact was detected in the sample at a concentration less than 10X the concentration detected in the associated method blank. (Negative)
M	Matrix spike recovery was outside established criteria.
M1	Minimum matrix spike frequency was not attained
N	Blank - No Action
O	Interference check sample
P	Sample preservation/collection requirement not met.

Reason and Comment Code Definitions

P1	Column or detector RPD
P2	Improper preparation/extraction
Q1	Material Blank
S	Surrogate recovery out of criteria (upper or lower limit)
S1	Sample less than 50% solids
T	Receipt Temperature
T2	RSD of lab triplicate out
TI	Tentatively Identified Compound
TR	Trace Level Detect
V	Sample Receipt Condition
W	Column breakdown (pesticides)
X	Raised reporting limit
X1	Unresolved Isomers; no peak separation
X2	Qualified due to professional judgment, see data validation narrative.
Y	Analyte not confirmed on second column
Y1	False Positive
Y2	Sum of species greater than total result
Z	Data rejected due to radiological anomolies
Z1	Data rejected, more valid data available

Flag Code and Definitions

Flag	Definition
U	Undetected: The analyte was analyzed for, but not detected.
UJ	The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.
J	Estimated: The analyte was positively identified, the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
R	The data are rejected due to deficiencies in meeting QC criteria and may not be used for decision making.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".
NJ	The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated numerical value represents its approximate concentration.

AUTOMATED DATA REVIEW SUMMARY for 242032

Batch Report

Test Method: BNASIM; Leach Method: NONE

Analytical Batch	Prep Batch	Leach Batch	Location	Matrix	Field Sample ID	Lab Sample ID	Calibration Ref	Run#/ Dil'n	Collection Date/Time	Extract Date/Time	Analysis Date/Time	Sample Type
193973	193973	NA	IR46MW47A	WG	IR46MW47A-121812	242032-008		3/1	18-Dec-2012 3:00 PM	19-Dec-2012 11:45 AM	20-Dec-2012 10:31 PM	N
	193973	NA	IR46MW47A	WG	IR99MW47A-121812	242032-009		3/1	18-Dec-2012 3:05 PM	19-Dec-2012 11:45 AM	20-Dec-2012 11:08 PM	FD
	193973	NA	IR46MW56A	WG	IR46MW56A-121712	242032-003		3/1	17-Dec-2012 3:30 PM	19-Dec-2012 11:45 AM	20-Dec-2012 8:39 PM	N
	193973	NA	IR46MW57A	WG	IR46MW57A-121812	242032-004		3/1	18-Dec-2012 8:45 AM	19-Dec-2012 11:45 AM	20-Dec-2012 9:15 PM	N
	193973	NA	IR46MW58A	WG	IR46MW58A-121712	242032-001		3/1	17-Dec-2012 2:00 PM	19-Dec-2012 11:45 AM	20-Dec-2012 8:03 PM	N
	193973	NA	IR46MW59A	WG	IR46MW59A-121812	242032-005		3/1	18-Dec-2012 9:45 AM	19-Dec-2012 11:45 AM	20-Dec-2012 9:53 PM	N
	193973	NA	LABQC	WQ	LABQC	QC670668		1/1	18-Dec-2012 12:00 PM	18-Dec-2012 12:00 PM	21-Dec-2012 11:08 AM	BD
	193973	NA	LABQC	WQ	LABQC	QC670667		1/1	18-Dec-2012 12:00 PM	18-Dec-2012 12:00 PM	21-Dec-2012 10:28 AM	BS
	193973	NA	LABQC	WQ	LABQC	QC670666		1/1	18-Dec-2012 12:00 PM	18-Dec-2012 12:00 PM	19-Dec-2012 3:40 PM	LB
194084	194084	NA	IR46MW46A	WG	IR46MW46A-121812	QC671094		1/1	18-Dec-2012 1:35 PM	21-Dec-2012 12:00 PM	26-Dec-2012 7:27 PM	MS
	194084	NA	IR46MW46A	WG	IR46MW46A-121812	242032-007		3/1	18-Dec-2012 1:35 PM	21-Dec-2012 12:00 PM	26-Dec-2012 2:07 PM	N
	194084	NA	IR46MW46A	WG	IR46MW46A-121812	QC671095		1/1	18-Dec-2012 1:35 PM	21-Dec-2012 12:00 PM	26-Dec-2012 8:07 PM	SD
	194084	NA	IR46MW60A	WG	IR46MW60A-121812	242032-006		3/1	18-Dec-2012 11:00 AM	21-Dec-2012 12:00 PM	26-Dec-2012 8:47 PM	N
	194084	NA	LABQC	WQ	LABQC	QC671093		1/1	21-Dec-2012 12:00 PM	21-Dec-2012 12:00 PM	26-Dec-2012 1:29 PM	BS
	194084	NA	LABQC	WQ	LABQC	QC671092		1/1	21-Dec-2012 12:00 PM	21-Dec-2012 12:00 PM	26-Dec-2012 12:51 PM	LB

AUTOMATED DATA REVIEW SUMMARY for 242032

Batch Report

Test Method: M8015D; Leach Method: NONE

Analytical Batch	Prep Batch	Leach Batch	Location	Matrix	Field Sample ID	Lab Sample ID	Calibration Ref	Run#/ Dil'n	Collection Date/Time	Extract Date/Time	Analysis Date/Time	Sample Type
194025	194025	NA	IR46MW46A	WG	IR46MW46A-121812	QC670868		1/1	18-Dec-2012 1:35 PM	19-Dec-2012 3:45 PM	20-Dec-2012 6:10 PM	MS
	194025	NA	IR46MW46A	WG	IR46MW46A-121812	242032-007		2/1	18-Dec-2012 1:35 PM	19-Dec-2012 3:45 PM	20-Dec-2012 5:42 PM	N
	194025	NA	IR46MW46A	WG	IR46MW46A-121812	QC670869		1/1	18-Dec-2012 1:35 PM	19-Dec-2012 3:45 PM	20-Dec-2012 6:38 PM	SD
	194025	NA	IR46MW47A	WG	IR46MW47A-121812	242032-008		2/1	18-Dec-2012 3:00 PM	19-Dec-2012 3:45 PM	20-Dec-2012 9:25 PM	N
	194025	NA	IR46MW47A	WG	IR99MW47A-121812	242032-009		2/1	18-Dec-2012 3:05 PM	19-Dec-2012 3:45 PM	20-Dec-2012 9:52 PM	FD
	194025	NA	IR46MW56A	WG	IR46MW56A-121712	242032-003		2/1	17-Dec-2012 3:30 PM	19-Dec-2012 3:45 PM	20-Dec-2012 7:34 PM	N
	194025	NA	IR46MW57A	WG	IR46MW57A-121812	242032-004		2/1	18-Dec-2012 8:45 AM	19-Dec-2012 3:45 PM	20-Dec-2012 8:02 PM	N
	194025	NA	IR46MW58A	WG	IR46MW58A-121712	242032-001		2/1	17-Dec-2012 2:00 PM	19-Dec-2012 3:45 PM	20-Dec-2012 7:06 PM	N
	194025	NA	IR46MW59A	WG	IR46MW59A-121812	242032-005		2/1	18-Dec-2012 9:45 AM	19-Dec-2012 3:45 PM	20-Dec-2012 8:29 PM	N
	194025	NA	IR46MW60A	WG	IR46MW60A-121812	242032-006		2/1	18-Dec-2012 11:00 AM	19-Dec-2012 3:45 PM	20-Dec-2012 8:57 PM	N
	194025	NA	LABQC	WQ	LABQC	QC670867		1/1	19-Dec-2012 3:45 PM	19-Dec-2012 3:45 PM	20-Dec-2012 5:15 PM	BS
	194025	NA	LABQC	WQ	LABQC	QC670866		1/1	19-Dec-2012 3:45 PM	19-Dec-2012 3:45 PM	20-Dec-2012 4:47 PM	LB

AUTOMATED DATA REVIEW SUMMARY for 242032

Batch Report

Test Method: M8015V; Leach Method: NONE

Analytical Batch	Prep Batch	Leach Batch	Location	Matrix	Field Sample ID	Lab Sample ID	Calibration Ref	Run#/ Dil'n	Collection Date/Time	Extract Date/Time	Analysis Date/Time	Sample Type
194030	194030	NA	FIELDQC	WQ	TB-121712	242032-002		1/1	17-Dec-2012 1:30 PM	19-Dec-2012 8:13 PM	19-Dec-2012 8:13 PM	TB
	194030	NA	IR46MW46A	WG	IR46MW46A-121812	QC670888		1/1	18-Dec-2012 1:35 PM	20-Dec-2012 5:10 AM	20-Dec-2012 5:10 AM	MS
	194030	NA	IR46MW46A	WG	IR46MW46A-121812	242032-007		1/1	18-Dec-2012 1:35 PM	19-Dec-2012 11:24 PM	19-Dec-2012 11:24 PM	N
	194030	NA	IR46MW46A	WG	IR46MW46A-121812	QC670889		1/1	18-Dec-2012 1:35 PM	20-Dec-2012 5:48 AM	20-Dec-2012 5:48 AM	SD
	194030	NA	IR46MW47A	WG	IR46MW47A-121812	242032-008		1/1	18-Dec-2012 3:00 PM	20-Dec-2012 12:03 AM	20-Dec-2012 12:03 AM	N
	194030	NA	IR46MW47A	WG	IR99MW47A-121812	242032-009		1/1	18-Dec-2012 3:05 PM	20-Dec-2012 12:41 AM	20-Dec-2012 12:41 AM	FD
	194030	NA	IR46MW56A	WG	IR46MW56A-121712	242032-003		1/1	17-Dec-2012 3:30 PM	19-Dec-2012 8:51 PM	19-Dec-2012 8:51 PM	N
	194030	NA	IR46MW57A	WG	IR46MW57A-121812	242032-004		1/1	18-Dec-2012 8:45 AM	19-Dec-2012 9:30 PM	19-Dec-2012 9:30 PM	N
	194030	NA	IR46MW58A	WG	IR46MW58A-121712	242032-001		1/1	17-Dec-2012 2:00 PM	19-Dec-2012 7:34 PM	19-Dec-2012 7:34 PM	N
	194030	NA	IR46MW59A	WG	IR46MW59A-121812	242032-005		1/1	18-Dec-2012 9:45 AM	19-Dec-2012 10:08 PM	19-Dec-2012 10:08 PM	N
	194030	NA	IR46MW60A	WG	IR46MW60A-121812	242032-006		1/1	18-Dec-2012 11:00 AM	19-Dec-2012 10:46 PM	19-Dec-2012 10:46 PM	N
	194030	NA	LABQC	WQ	LABQC	QC670886		1/1	19-Dec-2012 12:52 PM	19-Dec-2012 12:52 PM	19-Dec-2012 12:52 PM	BS
	194030	NA	LABQC	WQ	LABQC	QC670887		1/1	19-Dec-2012 3:17 PM	19-Dec-2012 3:17 PM	19-Dec-2012 3:17 PM	LB

AUTOMATED DATA REVIEW SUMMARY for 242032

Batch Report

Test Method: SW8021B; Leach Method: NONE

Analytical Batch	Prep Batch	Leach Batch	Location	Matrix	Field Sample ID	Lab Sample ID	Calibration Ref	Run#/ Dil'n	Collection Date/Time	Extract Date/Time	Analysis Date/Time	Sample Type
194030	194030	NA	FIELDQC	WQ	TB-121712	242032-002		1/1	17-Dec-2012 1:30 PM	19-Dec-2012 8:13 PM	19-Dec-2012 8:13 PM	TB
	194030	NA	IR46MW46A	WG	IR46MW46A-121812	242032-007		1/1	18-Dec-2012 1:35 PM	19-Dec-2012 11:24 PM	19-Dec-2012 11:24 PM	N
	194030	NA	IR46MW47A	WG	IR46MW47A-121812	242032-008		1/1	18-Dec-2012 3:00 PM	20-Dec-2012 12:03 AM	20-Dec-2012 12:03 AM	N
	194030	NA	IR46MW47A	WG	IR99MW47A-121812	242032-009		1/1	18-Dec-2012 3:05 PM	20-Dec-2012 12:41 AM	20-Dec-2012 12:41 AM	FD
	194030	NA	IR46MW56A	WG	IR46MW56A-121712	242032-003		1/1	17-Dec-2012 3:30 PM	19-Dec-2012 8:51 PM	19-Dec-2012 8:51 PM	N
	194030	NA	IR46MW57A	WG	IR46MW57A-121812	242032-004		1/1	18-Dec-2012 8:45 AM	19-Dec-2012 9:30 PM	19-Dec-2012 9:30 PM	N
	194030	NA	IR46MW58A	WG	IR46MW58A-121712	242032-001		1/1	17-Dec-2012 2:00 PM	19-Dec-2012 7:34 PM	19-Dec-2012 7:34 PM	N
	194030	NA	IR46MW59A	WG	IR46MW59A-121812	242032-005		1/1	18-Dec-2012 9:45 AM	19-Dec-2012 10:08 PM	19-Dec-2012 10:08 PM	N
	194030	NA	IR46MW60A	WG	IR46MW60A-121812	242032-006		1/1	18-Dec-2012 11:00 AM	19-Dec-2012 10:46 PM	19-Dec-2012 10:46 PM	N
	194030	NA	LABQC	WQ	LABQC	QC670885		1/1	19-Dec-2012 1:31 PM	19-Dec-2012 1:31 PM	19-Dec-2012 1:31 PM	BD
	194030	NA	LABQC	WQ	LABQC	QC670884		1/1	19-Dec-2012 12:13 PM	19-Dec-2012 12:13 PM	19-Dec-2012 12:13 PM	BS
	194030	NA	LABQC	WQ	LABQC	QC670887		1/1	19-Dec-2012 3:17 PM	19-Dec-2012 3:17 PM	19-Dec-2012 3:17 PM	LB

AUTOMATED DATA REVIEW SUMMARY for 242032

Field Batch Report

Test Method: M8015V		Leach Method: NONE						
EBLOT	**TBLOT**	**ABLOT**	**LOCID**	**Matrix**	**FLDSAMPID**	**LABSAMPID**	**LOGDATE**	**SACODE**
	17121201		FIELDQC	WQ	TB-121712	242032-002	12/17/2012 1:30:00 PM	TB
	17121201		IR46MW56A	WG	IR46MW56A-121712	242032-003	12/17/2012 3:30:00 PM	N
	17121201		IR46MW58A	WG	IR46MW58A-121712	242032-001	12/17/2012 2:00:00 PM	N

Test Method: SW8021B		Leach Method: NONE						
EBLOT	**TBLOT**	**ABLOT**	**LOCID**	**Matrix**	**FLDSAMPID**	**LABSAMPID**	**LOGDATE**	**SACODE**
	17121201		FIELDQC	WQ	TB-121712	242032-002	12/17/2012 1:30:00 PM	TB
	17121201		IR46MW56A	WG	IR46MW56A-121712	242032-003	12/17/2012 3:30:00 PM	N
	17121201		IR46MW58A	WG	IR46MW58A-121712	242032-001	12/17/2012 2:00:00 PM	N

QC Outlier Report

Test/Prep	QC Element	Sample ID	Run# / Dil'n	Analyte	Result	Units	Qualifier	Warning Limits	Control Limits	Reason	Comment	Rule	Action Level
BNASIM / SW3520C	LCS Recovery	QC670667 (BS)	1 / 1.00	Naphthalene	116	PERCENT	J/None	40 - 115	10 - 115	L			
BNASIM / SW3520C	LCS Recovery	QC670667 (BS)	1 / 1.00	Phenanthrene	117	PERCENT	J/None	40 - 115	10 - 115	L			
BNASIM / SW3520C	LCS Recovery	QC670668 (BD)	1 / 1.00	2-Methylnaphthalene	119	PERCENT	J/None	40 - 115	10 - 115	L			
BNASIM / SW3520C	LCS Recovery	QC670668 (BD)	1 / 1.00	Naphthalene	119	PERCENT	J/None	40 - 115	10 - 115	L			
BNASIM / SW3520C	LCS Recovery	QC670668 (BD)	1 / 1.00	Phenanthrene	123	PERCENT	J/None	40 - 115	10 - 115	L			
BNASIM / SW3520C	LCS Recovery	QC671093 (BS)	1 / 1.00	2-Methylnaphthalene	120	PERCENT	J/None	40 - 115	10 - 115	L			
BNASIM / SW3520C	LCS Recovery	QC671093 (BS)	1 / 1.00	Naphthalene	121	PERCENT	J/None	40 - 115	10 - 115	L			
BNASIM / SW3520C	MS Recovery	IR46MW46A-121812 (SD)	1 / 1.00	2-Methylnaphthalene	121	PERCENT	J/None	40 - 115	10 - 115	M			
BNASIM / SW3520C	MS Recovery	IR46MW46A-121812 (SD)	1 / 1.00	Fluoranthene	115	PERCENT	J/None	40 - 115	10 - 115	M			
BNASIM / SW3520C	MS Recovery	IR46MW46A-121812 (SD)	1 / 1.00	Naphthalene	118	PERCENT	J/None	40 - 115	10 - 115	M			
BNASIM / SW3520C	MS Recovery	IR46MW46A-121812 (SD)	1 / 1.00	Phenanthrene	118	PERCENT	J/None	40 - 115	10 - 115	M			
BNASIM / SW3520C	Surrogate	IR46MW46A-121812 (SD)	1 / 1.00	Terphenyl-d14	120	PERCENT	J/None	45 - 120	10 - 140	S			
BNASIM / SW3520C	Surrogate	IR46MW60A-121812 (N)	3 / 1.00	2-Fluorobiphenyl	127	PERCENT	J/None	45 - 120	10 - 140	S			
BNASIM / SW3520C	Surrogate	IR46MW60A-121812 (N)	3 / 1.00	Nitrobenzene-d5	132	PERCENT	J/None	45 - 120	10 - 140	S			
BNASIM / SW3520C	Surrogate	IR46MW60A-121812 (N)	3 / 1.00	Terphenyl-d14	148	PERCENT	J/None	45 - 120	10 - 140	S			
M8015D / SW3520C	Field Duplicate RPD	242032-009 (N)	2 / 1.00	C12-C24 Petroleum Hydrocarbons	200	RPD	None/None	< 30	< 60	D5		RPD	
SW8021B / SW5030B	Field Duplicate RPD	242032-009 (N)	1 / 1.00	tert-Butyl Methyl Ether (MTBE)	200	RPD	None/None	< 30	< 60	D5		RPD	
SW8021B / SW5030B	Trip Blank	TB-121712 (TB)	1 / 1.00	tert-Butyl Methyl Ether (MTBE)	1.8	UG/L	U/None	< 0.4	< 2	K3		1	1.80

Qualified Results

Test Leach	Matrix	FieldSample ID	Type	Analyte	RL	Lab Result	Qualified Result	Units	Reason
BNASIM/NONE	WG	IR46MW46A-121812	N	Dibenz(a,h)anthracene	0.10	0.10	0.10 UJ	UG/L	L
BNASIM/NONE	WG	IR46MW46A-121812	N	Indeno(1,2,3-c,d)pyrene	0.10	0.10	0.10 UJ	UG/L	L
BNASIM/NONE	WG	IR46MW56A-121712	N	Pyrene	0.090	0.060	0.060 J	UG/L	TR
Test Leach	**Matrix**	**FieldSample ID**	**Type**	**Analyte**	**RL**	**Lab Result**	**Qualified Result**	**Units**	**Reason**
M8015D/NONE	WG	IR46MW56A-121712	N	C12-C24 Petroleum Hydrocarbons	50.0	28.0	28.0 J	UG/L	TR
M8015D/NONE	WG	IR46MW58A-121712	N	C12-C24 Petroleum Hydrocarbons	50.0	23.0	23.0 J	UG/L	TR
M8015D/NONE	WG	IR46MW59A-121812	N	C12-C24 Petroleum Hydrocarbons	50.0	29.0	29.0 J	UG/L	TR
M8015D/NONE	WG	IR99MW47A-121812	FD	C12-C24 Petroleum Hydrocarbons	50.0	26.0	26.0 J	UG/L	TR
Test Leach	**Matrix**	**FieldSample ID**	**Type**	**Analyte**	**RL**	**Lab Result**	**Qualified Result**	**Units**	**Reason**
M8015V/NONE	WG	IR46MW58A-121712	N	Petroleum Hydrocarbons C6-C12	50.0	14.0	14.0 J	UG/L	TR
Test Leach	**Matrix**	**FieldSample ID**	**Type**	**Analyte**	**RL**	**Lab Result**	**Qualified Result**	**Units**	**Reason**
SW8021B/NONE	WG	IR46MW56A-121712	N	tert-Butyl Methyl Ether (MTBE)	2.2	2.2	2.2 U	UG/L	K3
SW8021B/NONE	WG	IR99MW47A-121812	FD	tert-Butyl Methyl Ether (MTBE)	3.5	3.5	3.5 U	UG/L	K3
SW8021B/NONE	WQ	TB-121712	TB	tert-Butyl Methyl Ether (MTBE)	2.0	1.8	1.8 J	UG/L	TR

AUTOMATED DATA REVIEW SUMMARY for 242032

Detected Results

Test Leach	Matrix	FieldSample ID	Type	Analyte	RL	Lab Result	Qualified Result	Units	Reason
BNASIM/NONE	WG	IR46MW56A-121712	N	Pyrene	0.090	0.060	0.060 J	UG/L	TR

Test Leach	Matrix	FieldSample ID	Type	Analyte	RL	Lab Result	Qualified Result	Units	Reason
M8015D/NONE	WG	IR46MW56A-121712	N	C12-C24 Petroleum Hydrocarbons	50.0	28.0	28.0 J	UG/L	TR
M8015D/NONE	WG	IR46MW58A-121712	N	C12-C24 Petroleum Hydrocarbons	50.0	23.0	23.0 J	UG/L	TR
M8015D/NONE	WG	IR46MW59A-121812	N	C12-C24 Petroleum Hydrocarbons	50.0	29.0	29.0 J	UG/L	TR
M8015D/NONE	WG	IR99MW47A-121812	FD	C12-C24 Petroleum Hydrocarbons	50.0	26.0	26.0 J	UG/L	TR

Test Leach	Matrix	FieldSample ID	Type	Analyte	RL	Lab Result	Qualified Result	Units	Reason
M8015V/NONE	WG	IR46MW58A-121712	N	Petroleum Hydrocarbons C6-C12	50.0	14.0	14.0 J	UG/L	TR

Test Leach	Matrix	FieldSample ID	Type	Analyte	RL	Lab Result	Qualified Result	Units	Reason
SW8021B/NONE	WQ	TB-121712	TB	tert-Butyl Methyl Ether (MTBE)	2.0	1.8	1.8 J	UG/L	TR

AUTOMATED DATA REVIEW SUMMARY for 242032

Rejected Results

--No Records Found--

ITSI Gilbane

SDG 242032

Qualified Results Table

Lab Sample ID	Sample ID	Sample Collection Date	Type	Method	Parameter	Original Value	Qualifier	New Value	Bias	MDL	RL	Units	Reason
242032-007	IR46MW46A-121812	12/18/2012	WG-N	BNASIM	Indeno(1,2,3-c,d)pyrene	ND	UJ	ND UJ		0.020	0.10	UG/L	L
242032-007	IR46MW46A-121812	12/18/2012	WG-N	BNASIM	Dibenz(a,h)anthracene	ND	UJ	ND UJ		0.020	0.10	UG/L	L
242032-003	IR46MW56A-121712	12/17/2012	WG-N	BNASIM	Pyrene	0.060	J	0.060 J		0.020	0.090	UG/L	TR
242032-003	IR46MW56A-121712	12/17/2012	WG-N	M8015D	C12-C24 Petroleum Hydrocarbons	28.0	J	28.0 J		16	50	UG/L	TR
242032-001	IR46MW58A-121712	12/17/2012	WG-N	M8015D	C12-C24 Petroleum Hydrocarbons	23.0	J	23.0 J		16	50	UG/L	TR
242032-005	IR46MW59A-121812	12/18/2012	WG-N	M8015D	C12-C24 Petroleum Hydrocarbons	29.0	J	29.0 J		16	50	UG/L	TR
242032-009	IR99MW47A-121812	12/18/2012	WG-FD	M8015D	C12-C24 Petroleum Hydrocarbons	26.0	J	26.0 J		16	50	UG/L	TR
242032-001	IR46MW58A-121712	12/17/2012	WG-N	M8015V	Petroleum Hydrocarbons C6-C12	14.0	J	14.0 J		10	50	UG/L	TR
242032-003	IR46MW56A-121712	12/17/2012	WG-N	SW8021B	tert-Butyl Methyl Ether (MTBE)	2.2	U	ND U		0.40	2.2	UG/L	K3
242032-009	IR99MW47A-121812	12/18/2012	WG-FD	SW8021B	tert-Butyl Methyl Ether (MTBE)	3.5	U	ND U		0.57	3.5	UG/L	K3
242032-002	TB-121712	12/17/2012	WQ-TB	SW8021B	tert-Butyl Methyl Ether (MTBE)	1.8	J	1.8 J		0.40	2.0	UG/L	TR

Matrix / Sample Type

Matrix	Matrix Description	Sample Code	Sample Code Description
WG	GROUND WATER	FD	Field Duplicate
WG	GROUND WATER	N	Normal Environmental Sample
WQ	WATER QUALITY CONTROL MATRIX	TB	Trip Blank

Data Qualifier Definitions

Flag	Description
U	Undetected: The analyte was analyzed for, but not detected.
UJ	The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.
J	Estimated: The analyte was positively identified, the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
R	The data are rejected due to deficiencies in meeting QC criteria and may not be used for decision making.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".
NJ	The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated numerical value represents its approximate concentration.

Qualified Results Table

Reason and Comment Code Definitions

Code	Description
A	Serial dilution
A1	Ambient Blank
B1	A common laboratory artifact was detected in the sample at a concentration less than 10X the concentration detected in the associated method blank.
B2	Calibration Blank
B3	Calibration Blank - Negative
B4	Negative Blank
B5	The analyte was found in an associated blank as well as in the sample.
C1	
C10	Continuing Calibration Verification RRF
C11	Continuing Calibration Verification percent recovery, percent difference, or percent drift
C12	Low Level Continuing Calibration Verification was outside control limits
C2	
C2S	
C3	
C4	
C5	
C6	
C7	
C8	
C9	
D1	Lab Replicate RPD
D2	MS RPD exceeded established criteria.
D4	No precision available
D5	Field Duplicate RPD
D6	RPD of laboratory control sample exceeded criteria
D7	Field Duplicate not usable
E	Exceeds LinearCalibration Range
F	Hydrocarbon pattern does not match standard
G	Initial Calibration RRF
G1	Initial Calibration RSD
G2	Initial Calibration Verification percent recovery, percent difference, or percent drift
G4	Ion abundance ratios are outside criteria - estimated maximum possible concentration (EMPC) reported

Qualified Results Table

Reason and Comment Code Definitions

Code	Description
G5	Initial Calibration out for metals/inorganics
H1	Test Hold Time
H2	Prep Hold Time
I	Internal standard
J	CRA/CRI Recovery
K	An analyte (non-common laboratory artifact) was detected in the sample at a concentration less than 5X the concentration detected in the associated method blank.
K1	Detected in the associated equipment rinsate blank.
K2	Detected in the associated field (i.e., ambient) blank.
K3	Detected in the associated trip blank.
K4	Detected in the associated storage blank
K5	Detected in the associated source blank
L	Percent recovery of laboratory control sample recovery was outside established limits
L1	A common laboratory artifact was detected in the sample at a concentration less than 10X the concentration detected in the associated method blank. (Negative)
M	Matrix spike recovery was outside established criteria.
M1	Minimum matrix spike frequency was not attained
N	Blank - No Action
O	Interference check sample
P	Sample preservation/collection requirement not met.
P1	Column or detector RPD
P2	Improper preparation/extraction
Q1	Material Blank
S	Surrogate recovery out of criteria (upper or lower limit)
S1	Sample less than 50% solids
T	Receipt Temperature
T2	RSD of lab triplicate out
TI	Tentatively Identified Compound
TR	Trace Level Detect
V	Sample Receipt Condition
W	Column breakdown (pesticides)
X	Raised reporting limit
X1	Unresolved Isomers; no peak separation
X2	Qualified due to professional judgment, see data validation narrative.
Y	Analyte not confirmed on second column

Qualified Results Table

Reason and Comment Code Definitions

Code	Description
Y1	False Positive
Y2	Sum of species greater than total result
Z	Data rejected due to radiological anomolies
Z1	Data rejected, more valid data available

Field Duplicate Report By SDG
HPS
Hunter's Point QAPP
Field Duplicates for SDG: 242032

Location	Analysis
IR46MW47A	BNASIM

Field ID - Primary/Field Dup	Lab ID - Primary/Field Dup	Analyte	Primary Result	FD Result	RL	RPD	RPD Check
IR46MW47A-121812 / IR99MW47A-121812	242032-008 / 242032-009	1-Methylnaphthalene	ND	ND	0.100	NA	Ok
IR46MW47A-121812 / IR99MW47A-121812	242032-008 / 242032-009	2-Methylnaphthalene	ND	ND	0.100	NA	Ok
IR46MW47A-121812 / IR99MW47A-121812	242032-008 / 242032-009	Acenaphthene	ND	ND	0.100	NA	Ok
IR46MW47A-121812 / IR99MW47A-121812	242032-008 / 242032-009	Acenaphthylene	ND	ND	0.100	NA	Ok
IR46MW47A-121812 / IR99MW47A-121812	242032-008 / 242032-009	Anthracene	ND	ND	0.100	NA	Ok
IR46MW47A-121812 / IR99MW47A-121812	242032-008 / 242032-009	Benzo(a)anthracene	ND	ND	0.100	NA	Ok
IR46MW47A-121812 / IR99MW47A-121812	242032-008 / 242032-009	Benzo(a)pyrene	ND	ND	0.100	NA	Ok
IR46MW47A-121812 / IR99MW47A-121812	242032-008 / 242032-009	Benzo(b)fluoranthene	ND	ND	0.100	NA	Ok
IR46MW47A-121812 / IR99MW47A-121812	242032-008 / 242032-009	Benzo(g,h,i)perylene	ND	ND	0.100	NA	Ok
IR46MW47A-121812 / IR99MW47A-121812	242032-008 / 242032-009	Benzo(k)fluoranthene	ND	ND	0.100	NA	Ok
IR46MW47A-121812 / IR99MW47A-121812	242032-008 / 242032-009	Chrysene	ND	ND	0.100	NA	Ok
IR46MW47A-121812 / IR99MW47A-121812	242032-008 / 242032-009	Dibenz(a,h)anthracene	ND	ND	0.100	NA	Ok
IR46MW47A-121812 / IR99MW47A-121812	242032-008 / 242032-009	Fluoranthene	ND	ND	0.100	NA	Ok
IR46MW47A-121812 / IR99MW47A-121812	242032-008 / 242032-009	Fluorene	ND	ND	0.100	NA	Ok
IR46MW47A-121812 / IR99MW47A-121812	242032-008 / 242032-009	Indeno(1,2,3-c,d)pyrene	ND	ND	0.100	NA	Ok
IR46MW47A-121812 / IR99MW47A-121812	242032-008 / 242032-009	Naphthalene	ND	ND	0.100	NA	Ok
IR46MW47A-121812 / IR99MW47A-121812	242032-008 / 242032-009	Phenanthrene	ND	ND	0.100	NA	Ok
IR46MW47A-121812 / IR99MW47A-121812	242032-008 / 242032-009	Pyrene	ND	ND	0.100	NA	Ok

Location	Analysis
IR46MW47A	M8015D

Field ID - Primary/Field Dup	Lab ID - Primary/Field Dup	Analyte	Primary Result	FD Result	RL	RPD	RPD Check
IR46MW47A-121812 / IR99MW47A-121812	242032-008 / 242032-009	C12-C24 Petroleum Hydrocarbons	ND	26.0	50.0		Ok

Field Duplicate Report By SDG
HPS
Hunter's Point QAPP
Field Duplicates for SDG: 242032

Location	Analysis
IR46MW47A	M8015D

Field ID - Primary/Field Dup	Lab ID - Primary/Field Dup	Analyte	Primary Result	FD Result	RL	RPD	RPD Check
IR46MW47A-121812 / IR99MW47A-121812	242032-008 / 242032-009	C24-C36 Petroleum Hydrocarbons	ND	ND	300	NA	Ok

Location	Analysis
IR46MW47A	M8015V

Field ID - Primary/Field Dup	Lab ID - Primary/Field Dup	Analyte	Primary Result	FD Result	RL	RPD	RPD Check
IR46MW47A-121812 / IR99MW47A-121812	242032-008 / 242032-009	Petroleum Hydrocarbons C6-C12	ND	ND	50.0	NA	Ok

Location	Analysis
IR46MW47A	SW8021B

Field ID - Primary/Field Dup	Lab ID - Primary/Field Dup	Analyte	Primary Result	FD Result	RL	RPD	RPD Check
IR46MW47A-121812 / IR99MW47A-121812	242032-008 / 242032-009	Benzene	ND	ND	0.500	NA	Ok
IR46MW47A-121812 / IR99MW47A-121812	242032-008 / 242032-009	Ethylbenzene	ND	ND	0.500	NA	Ok
IR46MW47A-121812 / IR99MW47A-121812	242032-008 / 242032-009	m,p-Xylene	ND	ND	0.500	NA	Ok
IR46MW47A-121812 / IR99MW47A-121812	242032-008 / 242032-009	o-Xylene	ND	ND	0.500	NA	Ok
IR46MW47A-121812 / IR99MW47A-121812	242032-008 / 242032-009	tert-Butyl Methyl Ether (MTBE)	ND	ND	2.00	NA	Ok
IR46MW47A-121812 / IR99MW47A-121812	242032-008 / 242032-009	Toluene	ND	ND	0.500	NA	Ok
IR46MW47A-121812 / IR99MW47A-121812	242032-008 / 242032-009	Xylenes, Total	ND	ND	0.500	NA	Ok

ATTACHMENT B

PROJECT CORRESPONDENCE

No Project Correspondence associated with this SDG

"Truth through Science"

Veridian Environmental, Inc

DATA VALIDATION REPORT

ITSI
HUNTERS POINT SHIPYARD, PARCEL B
SAN FRANCISCO, CALIFORNIA

Curtis & Tompkins Laboratories
SDG: **242064**

February 7, 2013

Prepared for:

INNOVATIVE TECHNICAL SOLUTIONS, INC
2730 Shadelands Drive, Suite 100
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Prepared by:

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DATA VALIDATION REPORT

ITSI
HUNTERS POINT SHIPYARD, PARCEL B
SAN FRANCISCO, CALIFORNIA

February 7, 2013

Name	Position	Signature/Date
Veridian Environmental, Inc.		
Prepared by:		
Tracy A. Young	**Senior Quality Assurance Chemist**	Tracy A. Young 2-7-2013
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Reviewed and Approved by:		
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ATTACHMENT B PROJECT CORRESPONDENCE

ACRONYMS

Acronym	Definition
%D	Percent Difference
%REC	Percent Recovery
%RSD	Percent Relative Standard Deviation
%S	Percent Solids
ARRF	Average Relative Response Factor
BFB	Bromofluorobenzene
BNA	Base Neutral Acid
CA	Corrective Action
CARD	CLP Analytical Results Database
CCC	Calibration Check Analytes
CCB	Continuing Calibration Blank
CCV	Continuing Calibration Verification
CF	Calibration Factor
CLP	Contract Laboratory Program
COC	Chain-of-Custody
CRDL	Contract Required Detection Limit
CRQL	Contract Required Quantitation Limit
C&T	Curtis & Tompkins Laboratories, LLC
DO	Diluted Out
DOC	Date of Collection
DOD	Department of Defense
DQI	Data Quality Indicator
DQO	Data Quality Objective
DRO	Diesel Range Organics
DVR	Data Validation Report
EDD	Electronic Data Deliverable
FID	Flame Ionization Detector
GC	Gas Chromatography
GC/ECD	Gas Chromatography/Electron Capture Detector
GC/MS	Gas Chromatography/Mass Spectrometry
GPC	Gel Permeation Chromatography
HPS	Hunters Point Shipyard
ICAL	Initial Calibration
ICV	Initial Calibration Verification
IS	Internal Standard
ITSI	Innovative Technical Solutions, Inc.
GRO	Gas Range Organics
kg	Kilogram
LCS	Laboratory Control Sample

Acronym	Definition
LCSD	Laboratory Control Sample Duplicate
l	Liter
LL	Lower Limit
LLC	Limited Liability Company
MB	Method Blank
MDL	Method Detection Limit
ml	Milliliter
MO	Motor Oil
MRL	Method Reporting Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
MTBE	Methyl tert-butyl ether
µg	Microgram
NAPL	Non-Aqueous Phase Liquid
NAVFAC	Naval Facilities Engineering Command
ND	Non-detect or Not Detect
NEDD	Navy Electronic Data Deliverable
NFG	National Functional Guidelines
NIST	National Institute of Standards and Technology
NPS	Non Project Sample
NQW	No Qualification Warranted
NTC	Non Target Compound
OERR	Office of Emergency and Remedial Response
OSWER	Office of Solid Waste and Emergency Response
PAL	Project Action Limit
PAH	Polycyclic Aromatic Hydrocarbons
PID	Photoionization Detector
PQOs	Project Quality Objectives
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference
RRF	Relative Response Factor
RRT	Relative Retention Time
RSD	Relative Standard Deviation
RT	Retention Time
SDG	Sample Delivery Group
SOP	Standard Operating Procedure
SOW	Statement of Work

Acronym	Definition
SPCC	System Performance Check Analytes
SSV	Second Source Verification
SVOC	Semivolatile Organic Compound
Surr	Surrogate
TAL	Target Analyte List
TCL	Target Compound List
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
TSS	Total Suspended Solids
UL	Upper Limit
µg/L	Micrograms per liter
USACE	United States Army Corp of Engineers
U.S. EPA	United States Environmental Protection Agency
VEI	Veridian Environmental, Inc.
VOC	Volatile Organic Compound

DATA QUALIFIER REASON CODES

Code	Reason Code	Description
A	Serial dilution	Serial dilution
A1	Ambient Blank	Ambient Blank
B1	Blank	A common laboratory artifact was detected in the sample at a concentration less than 10X the concentration detected in the associated method blank.
B2	Calibration Blank	Calibration Blank
B3	Calibration Blank - Negative	Calibration Blank - Negative
B4	Negative Blank	Negative Blank
B5	The analyte was found in blank and sample	The analyte was found in an associated blank as well as in the sample.
C1	Diluted Out	Diluted Out
C10	Continuing Calibration Verification RRF	Continuing Calibration Verification RRF
C11	Continuing Calibration Verification	Continuing Calibration Verification percent recovery, percent difference, or percent drift
C2	Flag Parent Only	Flag Parent Only
C2S	Flag Parent (Soil); Batch (Water)	Flag Parent (Soil); Batch (Water)
C3	No Action	No Action
C4	No QC Outliers	No QC Outliers
C5	One or both values <5x RL	One or both values <5x RL
C6	Recalculated Value	Recalculated Value
C7	Material Blanks	Material Blanks
C8	Spike Insignificant	Spike Insignificant
C9	No Flags; set to ND by method/cal. blank	No Flags; set to ND by method/cal. blank
D1	Lab Replicate RPD	Lab Replicate RPD
D2	MS RPD	MS RPD exceeded established criteria.
D4	No precision available	No precision available
D5	Field Duplicate RPD	Field Duplicate RPD
D6	LCS RPD	RPD of laboratory control sample exceeded criteria
D7	Field Dup not usable	Field Duplicate not usable
E	Exceeds Linear Calibration Range	Exceeds Linear Calibration Range
F	Hydrocarbon pattern does not match standard	Hydrocarbon pattern does not match standard
G	Initial Calibration RRF	Initial Calibration RRF
G1	Initial Calibration RSD	Initial Calibration RSD
G2	Initial Calibration Verification	Initial Calibration Verification percent recovery, percent difference, or percent drift
H1	Test Hold Time	Test Hold Time
H2	Prep Hold Time	Prep Hold Time
I	Internal standard	Internal standard
J	CRA/CRI Recovery	CRA/CRI Recovery

Code	Reason Code	Description
K	An analyte (non-common lab artifact) was detected	An analyte (non-common laboratory artifact) was detected in the sample at a concentration less than 5X the concentration detected in the associated method blank.
K1	Equipment Blank	Detected in the associated equipment rinsate blank.
K2	Field Blank	Detected in the associated field (i.e., ambient) blank.
K3	Trip Blank	Detected in the associated trip blank.
L	LCS Recovery	Percent recovery of laboratory control sample recovery was outside established limits
L1	Blank - Negative	A common laboratory artifact was detected in the sample at a concentration less than 10X the concentration detected in the associated method blank. (Negative)
M	MS Recovery	Matrix spike recovery was outside established criteria.
N	Blank - No Action	Blank - No Action
O	Interference check sample	Interference check sample
P	Sample preservation/collection requirement not met	Sample preservation/collection requirement not met.
P1	Confirmation Column/Detector RPD	Column or detector RPD
P2	Improper preparation/extraction	Improper preparation/extraction
Q1	Material Blank	Material Blank
S	Surrogate	Surrogate recovery out of criteria (upper or lower limit)
S1	Sample less than 50% solids	Sample less than 50% solids
T	Receipt Temperature	Receipt Temperature
T2	RSD of lab triplicate out	RSD of lab triplicate out
TI	Tentatively Identified Compound	Tentatively Identified Compound
TR	Trace Level Detect	Trace Level Detect
V	Sample Receipt Condition	Sample Receipt Condition
W	Column breakdown (pesticides)	Column breakdown (pesticides)
X	Raised reporting limit	Raised reporting limit
X1	Unresolved Isomers; no peak separation	Unresolved Isomers; no peak separation
X2	Qualified due to professional judgment, see data validation narrative.	Qualified due to professional judgment, see data validation narrative.
Y	Analyte not confirmed on second column	Analyte not confirmed on second column
Y1	False Positive	False Positive
Y2	Sum of species greater than total result	Sum of species greater than total result
Z	Data rejected due to radiological anomalies	Data rejected due to radiological anomalies
Z1	Data rejected, more valid data available	Data rejected, more valid data available

1.0 INTRODUCTION

This Data Validation Report (DVR) details the assessment and data validation performed on the groundwater sample analyses from SDG 242064. These samples were collected on December 18 and 19, 2012, as part of the Parcel B NAPL Petroleum Hydrocarbon Corrective Action in Hunters Point Shipyard, San Francisco, California. The samples were shipped to and analyzed by Curtis & Tompkins Laboratories, LLC (C&T) in Berkeley, California. The analyses performed included the following: BTEX/MTBE by U.S. EPA Method 8021B, Total Petroleum Hydrocarbons (TPH) – Purgeable (Gasoline: C_6-C_{12}) by U.S. EPA Method 8015B, TPH – Extractable (Diesel and Motor Oil: C_{12}-C_{24} and C_{24}-C_{36}) by U.S. EPA Method 8015B, and Polynuclear Aromatic Hydrocarbons by U.S. EPA Method 8270C-SIM.

Data validation of all sample results was performed by Tracy A. Young, Ann Lack, and Charlotte R. Symms of Veridian Environmental, Inc. (VEI). A review (Level III) of 100% of the data, which allows for complete independent data review without reconstruction of analytical data, was conducted. In addition, approximately 10% of the project data underwent a comprehensive or extensive review (Level IV) which allowed for the complete reconstruction of the chemical analyses. The comprehensive review included the recalculation of calibration curves and sample results. None of the samples from this SDG were selected for the comprehensive Level IV review. The data were validated in accordance with the analytical methods and the documents entitled *Field Sampling Plan and Quality Assurance Project Plan Petroleum Hydrocarbon Corrective Action, Parcel B, Hunters Point Shipyard, San Francisco, (*Innovative Technical Solutions, Inc., October 2010) and with guidance from *Department of Defense Quality Systems Manual for Environmental Laboratories* (DoD, 2009); *Data Quality Assessment: A Reviewer's Guide* (U.S. EPA QA/G-9R 2006); *Data Quality Assessment: Statistical Tools for Practitioners* (U.S. EPA QA-G-9S, 2006); and *U.S. EPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (U.S. EPA, 2008).

The data were examined to determine the usability of the analytical results and the compliance relative to requirements specified in the analytical methods and guidelines provided. Qualifier flags have been placed next to the results on the laboratory analytical result forms and entered into the client database so the data user can quickly assess the qualitative and/or quantitative reliability of any result. The data qualifications allow the data end-user to best understand the usability of the analytical results. It should be understood that data that have not been qualified in this report should be considered valid based on the quality control (QC) criteria that have been reviewed. This report was prepared to provide a critical review of the laboratory analyses and the reported analytical results. Quality assurance (QA) reviews of laboratory-generated data routinely identify various problems associated with analytical measurements, even from the most experienced and capable laboratories.

The findings of this QA review are presented in Section 2.0 of this report, a summary of completeness is presented in Section 3.0, and the references are provided in Section 4.0. The ADR, QRT, and Field Duplicate Reports for the project samples in SDG 242064 are presented in Attachment A. Project Correspondence is presented as Attachment B.

Several data validation flags are utilized in the validation process. The definitions of these qualifier flags are as follows:

U The analyte was analyzed for, but was not detected at or above the reported sample quantitation limit.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

UJ The analyte was not detected at or above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R The sample result and/or analysis have been rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

All necessary flags have been incorporated into the data presented in this report (Attachment A). As per project-specific reporting requirements, all results reported at concentrations less than the sample-specific practical quantitation limits (adjusted for dilution factors, sample size, and percent solids) should be considered estimated (J).

2.0 FINDINGS

Data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, the validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance.

2.1 BTEX/MTBE AND TPH – GASOLINE DATA VALIDATION

The samples analyzed for BTEX/MTBE by U.S. EPA Method 8021B and for TPH - Purgeable (Gasoline Range – C_6-C_{12}) by U.S. EPA Method 8015B were evaluated for the following data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable	Not Applicable
Sample Condition Upon Receipt		✓			
Analytical Holding Times	✓				
Blank Analyses			✓		
Initial Calibrations	✓				
Initial Calibration Verifications	✓				
Continuing Calibrations	✓				
Surrogate Spike Recoveries	✓				

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable	Not Applicable
LCS Analyses	✓				
MS/MSD Analyses					✓
Confirmation Column Agreement	✓				
Verification of Sample Results					✓
Field Duplicate Results			✓		
Verification of the Client EDD	✓				
Additional Findings	✓				

All sample results met data quality objectives with the exception of those discussed below.

Sample Condition Upon Receipt

The samples were received in good condition (intact and properly preserved and at 4° ± 2°C) except as noted on the Cooler Receipt Checklist. The temperature of one of the three coolers was 1.9°C upon receipt by C&T. Only two of the three cooler temperatures was recorded on the Cooler Receipt Checklist. Since the samples were not frozen, qualification of the data is not warranted.

Blank Analyses

The following analytes were reported at concentrations greater than or equal to the MDL in the blank as summarized in the table below.

Equipment Rinse Blank

Sample ID	Contaminant	Concentration	Associated Sample(s)
EB-121812	Gasoline C_6-C_{12}	13 µg/L	**IR46MW48A-121912**
	o-xylene	0.22 µg/L	**IR24MW07A-121912**
	Xylene (total)	0.22 µg/L	**IR24MW05A-121912**
			IR24MW28A-121912
			IR99MW28A-121912

Due to the presence of the following contaminant in the associated equipment rinse blank, the reported positive results in the following samples should be considered anomalous (U) and in accordance with the validation guidelines, the reported detection limits have been raised to the RL. It should be noted that dilution factors and sample volumes were taken into consideration when evaluating blank contamination.

Sample(s) With Anomalous Results (U)	Analyte(s)
IR24MW05A-121912	Gasoline C_6-C_{12}
IR24MW28A-121912	

Continuing Calibrations

For all continuing calibrations, the percent differences for all target analytes were ≤ 15% except the surrogate listed in the following table. A low recovery was noted for the surrogate. Qualification is not warranted based on this surrogate.

Instrument ID, Channel Date (Time)	Analyte(s)	Percent Difference	Associated Sample(s)
GC07, Ch. A 12/20/2012 (16:00)	Bromofluorobenzene (surrogate)	-18%	**EB-121812** **TB-121812** **IR24MW05A-121912** **IR99MW28A-121912**

Matrix Spike/Matrix Spike Duplicate Analyses

For Gasoline C_6-C_{12}, the laboratory used a sample from a different project for the Matrix Spike/Matrix Spike Duplicate (MS/MSD) analyses. Consequently, an assessment of matrix affects cannot be made.

For the BTEX/MTBE analysis, an MS/MSD was not performed for these samples. Consequently, an assessment of matrix affects cannot be made.

Field Duplicate Results

The following project samples were submitted as a field duplicate pair for these analyses.

SDG	Sample(s)	Field Duplicate(s)
242064	**IR24MW28A-121912**	**IR99MW28A-121912**

Acceptable precision was demonstrated by the results reported for the field duplicate pair except a large discrepancy was observed between the results for MTBE as listed below. Consequently, the reported results for these analytes should be considered estimated (UJ/J), however since the positive result was previously qualified as anomalous, further qualification is not warranted on this basis.

Analyte(s)	IR24MW28A-121912	IR99MW28A-121912
MTBE	2.1 µg/L	ND (0.57 µg/L)

Additional Findings

Based on a review of the laboratory reporting limits (RL) for Method 8015B, the laboratory RL reported for gasoline is greater than the Sampling Analysis Plan (SAP) Project Quantitation Limit (PQL). The SAP-specified PQL for gasoline is more than the two times the laboratory MDL and the laboratory reported results down to the MDL with appropriate "J" flags; therefore, qualification of the data is not warranted on this basis.

Analyte	Laboratory MDL (µg/L)	Laboratory RL (µg/L)	SAP – PQL (µg/L)
Gasoline C_6-C_{12}	10	50	21

2.2 TPH– DIESEL/MOTOR OIL DATA VALIDATION

The samples analyzed by U.S. EPA Method 8015B for TPH - Extractable (Diesel and Motor Oil Range- Silica Gel Cleanup) were evaluated for the following data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable	Not Applicable
Sample Condition Upon Receipt		✓			
Analytical Holding Times	✓				
Blank Analyses	✓				
Initial Calibrations	✓				
Initial Calibration Verifications	✓				
Continuing Calibrations	✓				
Surrogate Spike Recoveries	✓				
LCS Analyses	✓				
MS/MSD Analyses					✓
Verification of Sample Results					✓
Field Duplicate Results	✓				
Verification of the Client EDD	✓				
Additional Findings		✓			

All sample results met data quality objectives with the exception of those discussed below.

Sample Condition Upon Receipt

The samples were received in good condition (intact and properly preserved and at 4° ± 2°C) except as noted on the Cooler Receipt Checklist. The temperature of one of the three coolers was 1.9°C upon receipt by C&T. Only two of the three cooler temperatures was recorded on the Cooler Receipt Checklist. Since the samples were not frozen, qualification of the data is not warranted.

Matrix Spike/Matrix Spike Duplicate Analyses

For this analysis, the laboratory used a sample from a different project for the Matrix Spike/Matrix Spike Duplicate (MS/MSD) analyses. Consequently, an assessment of matrix affects cannot be made.

Field Duplicate Results

The following project samples were submitted as a field duplicate pair for this analysis. Acceptable precision was demonstrated by the results reported for the field duplicate pair.

SDG	Sample(s)	Field Duplicate(s)
242064	**IR24MW28A-121912**	**IR99MW28A-121912**

Additional Findings

Based on a review of the laboratory reporting limits (RLs) for Method 8015B, the laboratory RLs reported for diesel and motor oil are greater than the Sampling Analysis Plan (SAP) Project Quantitation Limits (PQL). The laboratory reported results down to the MDL with appropriate "J" flags. The MDL for motor oil is two times greater than the SAP PQL (84 µg/L and 42 µg/L, respectively). Qualification of the data is not warranted on this basis.

Analyte	Laboratory MDL (µg/L)	Laboratory RL (µg/L)	SAP – PQL (µg/L)
Diesel C_{12}-C_{24}	16	50	21
Motor Oil C_{24}-C_{36}	84	300	42

2.3 POLYNUCLEAR AROMATIC HYDROCARBONS DATA VALIDATION

The samples analyzed for Polynuclear Aromatic Hydrocarbons (PAHs) by U.S. EPA Method 8270C-SIM were evaluated for the following data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable	Not Applicable
Sample Condition Upon Receipt		✓			
Analytical Holding Times	✓				
Blank Analyses	✓				
GC/MS Tuning and Mass Calibrations	✓				
Initial Calibrations	✓				
Initial Calibration Verifications	✓				
Continuing Calibrations	✓				
Surrogate Spike Recoveries			✓		
LCS Analyses	✓				
MS/MSD Analyses					✓
Internal Standards	✓				
Verification of Sample Results					✓
Field Duplicate Results	✓				
Verification of the Client EDD	✓				
Additional Findings					✓

All sample results met data quality objectives with the exception of those discussed below.

Sample Condition Upon Receipt

The samples were received in good condition (intact and properly preserved and at 4° ± 2°C) except as noted on the Cooler Receipt Checklist. The temperature of one of the three coolers was 1.9°C upon receipt by C&T. Only two of the three cooler temperatures was recorded on the

Cooler Receipt Checklist. Since the samples were not frozen, qualification of the data is not warranted.

Surrogate Spike Recoveries

For all project analyses, the surrogate recoveries were within project criteria except as noted in the following table. All associated results are non-detect in the sample and qualified as estimated (UJ).

Sample(s)	Surrogate	Percent Recovery
IR24MW05A-121912	Terphenyl-d_{14}	39%

Matrix Spike/Matrix Spike Duplicate Analyses

For this analysis, the laboratory used a sample from a different project for the Matrix Spike/Matrix Spike Duplicate (MS/MSD) analyses. Consequently, an assessment of matrix affects cannot be made.

Field Duplicate Results

The following project samples were submitted as a field duplicate pair for this analysis. Acceptable precision was demonstrated by the results reported for the field duplicate pair.

SDG	Sample(s)	Field Duplicate(s)
242064	**IR24MW28A-121912**	**IR99MW28A-121912**

Acceptable precision was demonstrated (RPD <30%) by the results reported for the field duplicate pair submitted and analyzed for this method except as listed below. A large discrepancy was observed between the reported results for pyrene in the field duplicate pair listed below. Consequently, the reported positive results for pyrene should be considered estimated (J).

Analyte(s)	IR24MW28A-121912	IR99MW28A-121912
Pyrene	0.03	0.02

2.4 PRECISION

Precision measures the reproducibility of data or measurements under specific conditions. Precision is a quantitative measure of the variability of a group of data compared to their average value. Measurement of precision is dependent upon sampling technique and analytical method. Precision was evaluated through laboratory QC samples such as MS/MSD samples and LCS/LCSD samples. Field duplicates were collected for this SDG. The evaluation of precision is summarized in the previous sections.

2.5 ACCURACY

Accuracy measures the bias in a measurement system that may result from sampling or analytical error. Laboratory accuracy was evaluated based on the evaluation of surrogate spikes, MS/MSD samples, and LCS/LCSD samples as required and summarized in the previous sections.

2.6 REPRESENTATIVENESS EVALUATION

Representativeness is a qualitative evaluation of whether the data represent actual environmental conditions. Representativeness was evaluated using holding time criteria, which reflect the length of time after sample collection that a sample or extract remains representative of environmental conditions. Depending on the analysis, either one or two holding times were evaluated. For those analyses that do not include a sample extraction, only one holding time was evaluated: the length of time between sample collection and analysis. For analyses that require sample extraction prior to analysis, two holding times were evaluated: the length of time from sampling until extraction and the length of time from extraction to analysis. Holding times were compared to standard method-specific holding times accepted by the U.S. EPA. All holding times that are within acceptance criteria are considered representative. Those holding times outside of U.S. EPA acceptance criteria are qualitatively evaluated to determine their effect on sample representativeness. Representativeness was also evaluated by analysis of laboratory method blanks, trip blanks, and/or equipment blanks that were used to identify sources of contamination not associated with environmental conditions. As summarized in the previous sections, the data appear to be representative of the environmental conditions on site.

2.7 USABILITY AND COMPARABILITY

Usability of data was evaluated by assuring that all the analytical requests were met, the samples were received in the proper condition, and all analyses were performed within the appropriate holding times. The comparability objective determines whether analytical conditions are sufficiently uniform for each analytical run such that all of the reported data from multiple runs are consistent. Comparability is promoted by using similar analytical protocols from one sampling event to the next. All data in SDG 242064 met project usability and comparability objectives with the exception of those noted in the previous sections of this report.

3.0 SUMMARY OF COMPLETENESS

This QA review has identified aspects of the analytical data that required qualification due to blank contamination, poor surrogate recovery and field duplicate precision. None of the data were rejected. To confidently use any of the analytical data within this sample set, the data user should understand the qualifications and limitations of the results. SDG 242064 met the project completeness goal of 95%. The percent completeness is summarized in the following table.

Fraction	Number of Results	Number of Rejected Results	Percent Completeness
BTEX/MTBE Matrix: Water	49	0	100%
TPH – Gasoline Matrix: Water	7	0	100%
TPH – Diesel/Motor Oil Matrix: Water	12	0	100%
PAH Matrix: Water	108	0	100%
Overall	**176**	**0**	**100%**

4.0 REFERENCES

Data Quality Assessment: A Reviewer's Guide, U.S. Environmental Protection Agency, EPA QA/G-9R, February 2006.

Data Quality Assessment: Statistical Tools for Practitioners, U.S. Environmental Protection Agency, EPA QA/G-9S, February 2006.

Department of Defense Quality Systems Manual for Environmental Laboratories, Department of Defense, April 22, 2009.

Field Sampling Plan and Quality Assurance Project Plan Petroleum Hydrocarbon Corrective Action, Parcel B, Hunters Point Shipyard, San Francisco, Innovative Technical Solutions, Inc., October 2010.

SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods Third Edition, U.S. Environmental Protection Agency, Office of Solid Waste, December 1994.

Method 8015B: Nonhalogenated Organics by Gas Chromatography
Method 8021A: Aromatic and Halogenated Volatiles by Gas Chromatography using Photoionization and/or Electrolytic Conductivity Detectors
Method 8270C: Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry

U.S. EPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, EPA 540-R-08-01, June 2008.

ATTACHMENT A

ADR, QRT, AND FIELD DUPLICATE REPORTS

AUTOMATED DATA REVIEW SUMMARY for 242064

Facility: Hunters Point Shipyard
NAPL Fall 2012

Guidance Document: Hunter's Point QAPP

Contract Laboratory: Curtis & Tompkins, Berkeley, CA
Field Contractor: Innovative Technical Solutions, Inc., Walnut Creek, CA
Data Review Contractor: Veridian Environmental, Inc.

SDG: 242064, Certified - 1/18/2013 by ldeck
QC Level: S2BVEM
Project Manager: Charles Comstock

Data Reviewer: Tracy Young
Data Reviewer Title: Senior Chemist
Date of Review Report: February 08, 2013
Second Reviewer: Ann Lack
Completion Date of Second Reviewer:

Samples Included in SDG 242064

Analytical Method/ Leach Method	Normal Water Samples	Field QC Water Samples
BNASIM/NONE	4	2
M8015D/NONE	4	2
M8015V/NONE	4	3
SW8021B/NONE	4	3

AUTOMATED DATA REVIEW SUMMARY for 242064

This report assesses the analytical data quality associated with the analyses listed on the preceding cover page. This assessment has been made through a combination of automated data review (ADR) and supplemental manual review, the details of which are described below. The approach taken in the review of this data set is consistent with the requirements contained in the Hunter's Point QAPP to the extent possible. Where definitive guidance is not provided, data has been evaluated in a conservative manner using professional judgment. In cases where two qualifiers are listed as an action, such as 'J/UJ', the first qualifier applies to positive results, and the second to non-detect results.

Samples were collected by Innovative Technical Solutions, Inc., Walnut Creek, CA; analyses were performed by Curtis & Tompkins, Berkeley, CA and were reported under sample delivery group (SDG) 242064. Results have been evaluated electronically using electronic data deliverables (EDDs) provided by the laboratory. The laboratory data summary forms (hard copy) have been reviewed during this effort and compared to the automated review output. Findings based on the automated data submission and manual data verification processes are detailed in the ADR narrative.

The following quality control elements were supported by the electronic deliverable and were evaluated during this review effort:

- Blank
- Blank - Negative
- Equipment Blank
- Field Duplicate RPD
- LCS Recovery
- Prep Hold Time
- Surrogate
- Test Hold Time
- Trip Blank

The following quality control elements were either not applicable to the deliverable, or were not supported by the electronic deliverable, and were therefore not included in the automated data review. Those elements required for the project were reviewed manually, as narrated in the Comment section below.

- Ambient Blank
- Calibration Blank
- Calibration Blank - Negative
- Continuing Calibration Verification
- Field Blank
- Initial Calibration Verification
- Lab Replicate RPD
- Material Blank
- MS Recovery
- MS RPD
- Negative Blank

AUTOMATED DATA REVIEW SUMMARY for 242064

A minimum of ten percent of sample and QC results were manually evaluated for compliance with project specific requirements and consistency with hard copy results. The following summaries were generated during the evaluation of this data set and are included in this report as applicable.

Batch – The analytical batch report is reviewed for completeness and compliance with project specific requirements. Incomplete or non-compliant run sequences are identified and their impact on data quality are discussed in the narrative.

QC Outlier – Results exceeding the evaluation criteria are reviewed for compliance with project requirements and a minimum of ten percent of the non-compliant QC values reported electronically are verified for consistency with hard-copy values.

Qualified Results – Qualified results are evaluated for compliance with project requirements and ten percent of qualified results are verified for consistency with the QC Outliers.

Rejected Results – All rejected results are evaluated for compliance with project requirements. The reason for rejection of the data is verified against hard copy data.

Field Duplicates – Field duplicate comparison results are evaluated for compliance with project requirements and ten percent of values reported are verified for consistency with the hard-copy data.

Data Submission Warnings – Warnings encountered during the data submission process are evaluated and their affect on data quality is discussed in the narrative below.

Analytical deficiencies, project non-compliance issues and inconsistencies with hard copy results observed during ADR evaluation process and their impact on data quality are summarized in the narrative below.

A total of 24 results (13.64%) out of the 176 results (sample and field QC samples) reported are qualified based on review and 0 results (0.00%) have been rejected. The qualified results are detailed in the following tables and discussed in the narrative below, where appropriate.

Narrative Comments

The surrogate recovery for sample IR99MW28A-121912 in EPA Method 8015B. NQW is within criteria

Released by Tracy Young, Senior Chemist

08-Feb-2013

Reason and Comment Code Definitions

Comments

Code	Definition
C1	
C2	
C2S	
C3	
C4	
C5	
C6	
C7	
C8	
C9	

Reasons

Code	Definition
A	Serial dilution
A1	Ambient Blank
B1	A common laboratory artifact was detected in the sample at a concentration less than 10X the concentration detected in the associated method blank.
B2	Calibration Blank
B3	Calibration Blank - Negative
B4	Negative Blank
B5	The analyte was found in an associated blank as well as in the sample.
C10	Continuing Calibration Verification RRF
C11	Continuing Calibration Verification percent recovery, percent difference, or percent drift
C12	Low Level Continuing Calibration Verification was outside control limits
D1	Lab Replicate RPD
D2	MS RPD exceeded established criteria.
D4	No precision available

Reason and Comment Code Definitions

Code	Definition
D5	Field Duplicate RPD
D6	RPD of laboratory control sample exceeded criteria
D7	Field Duplicate not usable
E	Exceeds LinearCalibration Range
F	Hydrocarbon pattern does not match standard
G	Initial Calibration RRF
G1	Initial Calibration RSD
G2	Initial Calibration Verification percent recovery, percent difference, or percent drift
G4	Ion abundance ratios are outside criteria - estimated maximum possible concentration (EMPC) reported
G5	Initial Calibration out for metals/inorganics
H1	Test Hold Time
H2	Prep Hold Time
I	Internal standard
J	CRA/CRI Recovery
K	An analyte (non-common laboratory artifact) was detected in the sample at a concentration less than 5X the concentration detected in the associated method blank.
K1	Detected in the associated equipment rinsate blank.
K2	Detected in the associated field (i.e., ambient) blank.
K3	Detected in the associated trip blank.
K4	Detected in the associated storage blank
K5	Detected in the associated source blank
L	Percent recovery of laboratory control sample recovery was outside established limits
L1	A common laboratory artifact was detected in the sample at a concentration less than 10X the concentration detected in the associated method blank. (Negative)
M	Matrix spike recovery was outside established criteria.
M1	Minimum matrix spike frequency was not attained
N	Blank - No Action
O	Interference check sample
P	Sample preservation/collection requirement not met.

Reason and Comment Code Definitions

P1	Column or detector RPD
P2	Improper preparation/extraction
Q1	Material Blank
S	Surrogate recovery out of criteria (upper or lower limit)
S1	Sample less than 50% solids
T	Receipt Temperature
T2	RSD of lab triplicate out
TI	Tentatively Identified Compound
TR	Trace Level Detect
V	Sample Receipt Condition
W	Column breakdown (pesticides)
X	Raised reporting limit
X1	Unresolved Isomers; no peak separation
X2	Qualified due to professional judgment, see data validation narrative.
Y	Analyte not confirmed on second column
Y1	False Positive
Y2	Sum of species greater than total result
Z	Data rejected due to radiological anomolies
Z1	Data rejected, more valid data available

Flag Code and Definitions

Flag	Definition
U	Undetected: The analyte was analyzed for, but not detected.
UJ	The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.
J	Estimated: The analyte was positively identified, the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
R	The data are rejected due to deficiencies in meeting QC criteria and may not be used for decision making.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".
NJ	The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated numerical value represents its approximate concentration.

AUTOMATED DATA REVIEW SUMMARY for 242064

Batch Report

Test Method: BNASIM; Leach Method: NONE

Analytical Batch	Prep Batch	Leach Batch	Location	Matrix	Field Sample ID	Lab Sample ID	Calibration Ref	Run#/ Dil'n	Collection Date/Time	Extract Date/Time	Analysis Date/Time	Sample Type
194057	194057	NA	FIELDQC	WQ	EB-121812	242064-001		3/1	18-Dec-2012 4:25 PM	20-Dec-2012 3:45 PM	21-Dec-2012 5:25 PM	EB
	194057	NA	IR24MW05A	WG	IR24MW05A-121912	242064-005		3/1	19-Dec-2012 1:05 PM	20-Dec-2012 3:45 PM	21-Dec-2012 7:24 PM	N
	194057	NA	IR24MW07A	WG	IR24MW07A-121912	242064-004		3/1	19-Dec-2012 9:50 AM	20-Dec-2012 3:45 PM	21-Dec-2012 6:44 PM	N
	194057	NA	IR24MW28A	WG	IR24MW28A-121912	242064-006		3/1	19-Dec-2012 3:10 PM	20-Dec-2012 3:45 PM	21-Dec-2012 7:59 PM	N
	194057	NA	IR24MW28A	WG	IR99MW28A-121912	242064-007		3/1	19-Dec-2012 3:15 PM	20-Dec-2012 3:45 PM	21-Dec-2012 8:33 PM	FD
	194057	NA	IR46MW48A	WG	IR46MW48A-121912	242064-003		3/1	19-Dec-2012 8:30 AM	20-Dec-2012 3:45 PM	21-Dec-2012 6:05 PM	N
	194057	NA	LABQC	WQ	LABQC	QC670990		1/1	20-Dec-2012 3:45 PM	20-Dec-2012 3:45 PM	21-Dec-2012 5:17 PM	BS
	194057	NA	LABQC	WQ	LABQC	QC670989		1/1	20-Dec-2012 3:45 PM	20-Dec-2012 3:45 PM	21-Dec-2012 3:56 PM	LB

Test Method: M8015D; Leach Method: NONE

Analytical Batch	Prep Batch	Leach Batch	Location	Matrix	Field Sample ID	Lab Sample ID	Calibration Ref	Run#/ Dil'n	Collection Date/Time	Extract Date/Time	Analysis Date/Time	Sample Type
194050	194050	NA	FIELDQC	WQ	EB-121812	242064-001		2/1	18-Dec-2012 4:25 PM	20-Dec-2012 12:30 PM	21-Dec-2012 8:19 PM	EB
	194050	NA	IR24MW05A	WG	IR24MW05A-121912	242064-005		2/1	19-Dec-2012 1:05 PM	20-Dec-2012 12:30 PM	21-Dec-2012 9:42 PM	N
	194050	NA	IR24MW07A	WG	IR24MW07A-121912	242064-004		2/1	19-Dec-2012 9:50 AM	20-Dec-2012 12:30 PM	21-Dec-2012 9:14 PM	N
	194050	NA	IR24MW28A	WG	IR24MW28A-121912	242064-006		2/1	19-Dec-2012 3:10 PM	20-Dec-2012 12:30 PM	21-Dec-2012 10:09 PM	N
	194050	NA	IR24MW28A	WG	IR99MW28A-121912	242064-007		2/1	19-Dec-2012 3:15 PM	20-Dec-2012 12:30 PM	21-Dec-2012 10:37 PM	FD
	194050	NA	IR46MW48A	WG	IR46MW48A-121912	242064-003		2/1	19-Dec-2012 8:30 AM	20-Dec-2012 12:30 PM	21-Dec-2012 8:46 PM	N
	194050	NA	LABQC	WQ	LABQC	QC670958		1/1	20-Dec-2012 12:30 PM	20-Dec-2012 12:30 PM	21-Dec-2012 2:17 PM	BS
	194050	NA	LABQC	WQ	LABQC	QC670957		1/1	20-Dec-2012 12:30 PM	20-Dec-2012 12:30 PM	21-Dec-2012 1:49 PM	LB

AUTOMATED DATA REVIEW SUMMARY for 242064

Batch Report

Test Method: M8015V; Leach Method: NONE

Analytical Batch	Prep Batch	Leach Batch	Location	Matrix	Field Sample ID	Lab Sample ID	Calibration Ref	Run#/ Dil'n	Collection Date/Time	Extract Date/Time	Analysis Date/Time	Sample Type
194056	194056	NA	FIELDQC	WQ	EB-121812	242064-001		1/1	18-Dec-2012 4:25 PM	21-Dec-2012 6:08 AM	21-Dec-2012 6:08 AM	EB
	194056	NA	FIELDQC	WQ	TB-121812	242064-002		1/1	18-Dec-2012 4:15 PM	21-Dec-2012 6:46 AM	21-Dec-2012 6:46 AM	TB
	194056	NA	IR24MW05A	WG	IR24MW05A-121912	242064-005		1/1	19-Dec-2012 1:05 PM	21-Dec-2012 8:04 AM	21-Dec-2012 8:04 AM	N
	194056	NA	IR24MW07A	WG	IR24MW07A-121912	242064-004		1/1	19-Dec-2012 9:50 AM	20-Dec-2012 10:26 PM	20-Dec-2012 10:26 PM	N
	194056	NA	IR24MW28A	WG	IR24MW28A-121912	242064-006		1/1	19-Dec-2012 3:10 PM	21-Dec-2012 10:38 AM	21-Dec-2012 10:38 AM	N
	194056	NA	IR24MW28A	WG	IR99MW28A-121912	242064-007		1/1	19-Dec-2012 3:15 PM	21-Dec-2012 7:25 AM	21-Dec-2012 7:25 AM	FD
	194056	NA	IR46MW48A	WG	IR46MW48A-121912	242064-003		1/1	19-Dec-2012 8:30 AM	20-Dec-2012 9:47 PM	20-Dec-2012 9:47 PM	N
	194056	NA	LABQC	WQ	LABQC	QC670985		1/1	20-Dec-2012 11:49 AM	20-Dec-2012 11:49 AM	20-Dec-2012 11:49 AM	BS
	194056	NA	LABQC	WQ	LABQC	QC670986		1/1	20-Dec-2012 2:42 PM	20-Dec-2012 2:42 PM	20-Dec-2012 2:42 PM	LB

Test Method: SW8021B; Leach Method: NONE

Analytical Batch	Prep Batch	Leach Batch	Location	Matrix	Field Sample ID	Lab Sample ID	Calibration Ref	Run#/ Dil'n	Collection Date/Time	Extract Date/Time	Analysis Date/Time	Sample Type
194056	194056	NA	FIELDQC	WQ	EB-121812	242064-001		1/1	18-Dec-2012 4:25 PM	21-Dec-2012 6:08 AM	21-Dec-2012 6:08 AM	EB
	194056	NA	FIELDQC	WQ	TB-121812	242064-002		1/1	18-Dec-2012 4:15 PM	21-Dec-2012 6:46 AM	21-Dec-2012 6:46 AM	TB
	194056	NA	IR24MW05A	WG	IR24MW05A-121912	242064-005		1/1	19-Dec-2012 1:05 PM	21-Dec-2012 8:04 AM	21-Dec-2012 8:04 AM	N
	194056	NA	IR24MW07A	WG	IR24MW07A-121912	242064-004		1/1	19-Dec-2012 9:50 AM	20-Dec-2012 10:26 PM	20-Dec-2012 10:26 PM	N
	194056	NA	IR24MW28A	WG	IR24MW28A-121912	242064-006		1/1	19-Dec-2012 3:10 PM	21-Dec-2012 10:38 AM	21-Dec-2012 10:38 AM	N
	194056	NA	IR24MW28A	WG	IR99MW28A-121912	242064-007		1/1	19-Dec-2012 3:15 PM	21-Dec-2012 7:25 AM	21-Dec-2012 7:25 AM	FD
	194056	NA	IR46MW48A	WG	IR46MW48A-121912	242064-003		1/1	19-Dec-2012 8:30 AM	20-Dec-2012 9:47 PM	20-Dec-2012 9:47 PM	N
	194056	NA	LABQC	WQ	LABQC	QC670984		1/1	20-Dec-2012 1:56 PM	20-Dec-2012 1:56 PM	20-Dec-2012 1:56 PM	BD
	194056	NA	LABQC	WQ	LABQC	QC670983		1/1	20-Dec-2012 12:27 PM	20-Dec-2012 12:27 PM	20-Dec-2012 12:27 PM	BS
	194056	NA	LABQC	WQ	LABQC	QC670986		1/1	20-Dec-2012 2:42 PM	20-Dec-2012 2:42 PM	20-Dec-2012 2:42 PM	LB

Field Batch Report

Test Method: BNASIM		Leach Method: NONE						
EBLOT	**TBLOT**	**ABLOT**	**LOCID**	**Matrix**	**FLDSAMPID**	**LABSAMPID**	**LOGDATE**	**SACODE**
18121201			FIELDQC	WQ	EB-121812	242064-001	12/18/2012 4:25:00 PM	EB
Test Method: M8015D		**Leach Method: NONE**						
EBLOT	**TBLOT**	**ABLOT**	**LOCID**	**Matrix**	**FLDSAMPID**	**LABSAMPID**	**LOGDATE**	**SACODE**
18121201			FIELDQC	WQ	EB-121812	242064-001	12/18/2012 4:25:00 PM	EB
Test Method: M8015V		**Leach Method: NONE**						
EBLOT	**TBLOT**	**ABLOT**	**LOCID**	**Matrix**	**FLDSAMPID**	**LABSAMPID**	**LOGDATE**	**SACODE**
18121201			FIELDQC	WQ	EB-121812	242064-001	12/18/2012 4:25:00 PM	EB
Test Method: SW8021B		**Leach Method: NONE**						
EBLOT	**TBLOT**	**ABLOT**	**LOCID**	**Matrix**	**FLDSAMPID**	**LABSAMPID**	**LOGDATE**	**SACODE**
18121201			FIELDQC	WQ	EB-121812	242064-001	12/18/2012 4:25:00 PM	EB
Test Method: M8015V		**Leach Method: NONE**						
EBLOT	**TBLOT**	**ABLOT**	**LOCID**	**Matrix**	**FLDSAMPID**	**LABSAMPID**	**LOGDATE**	**SACODE**
	18121201		FIELDQC	WQ	TB-121812	242064-002	12/18/2012 4:15:00 PM	TB
Test Method: SW8021B		**Leach Method: NONE**						
EBLOT	**TBLOT**	**ABLOT**	**LOCID**	**Matrix**	**FLDSAMPID**	**LABSAMPID**	**LOGDATE**	**SACODE**
	18121201		FIELDQC	WQ	TB-121812	242064-002	12/18/2012 4:15:00 PM	TB

AUTOMATED DATA REVIEW SUMMARY for 242064

QC Outlier Report

Test/Prep	QC Element	Sample ID	Run# / Dil'n	Analyte	Result	Units	Qualifier	Warning Limits	Control Limits	Reason	Comment	Rule	Action Level
BNASIM / SW3520C	Field Duplicate RPD	242064-007 (N)	3 / 1.00	Pyrene	40.0	RPD	None/None	< 30	< 60	D5		RPD	
BNASIM / SW3520C	Surrogate	IR24MW05A-121912 (N)	3 / 1.00	Terphenyl-d14	39.1	PERCENT	J/UJ	45 - 120	10 - 140	S			
M8015D / SW3520C	Surrogate	IR99MW28A-121912 (FD)	2 / 1.00	o-Terphenyl	133	PERCENT	J/None	53 - 133	10 - 133	S			
M8015V / SW5030B	Equipment Blank	EB-121812 (EB)	1 / 1.00	Petroleum Hydrocarbons C6-C12	13.0	UG/L	U/None	< 10	< 50	K1		1	13.0
M8015V / SW5030B	Field Duplicate RPD	242064-007 (N)	1 / 1.00	Petroleum Hydrocarbons C6-C12	200	RPD	None/None	< 30	< 60	D5		RPD	
SW8021B / SW5030B	Equipment Blank	EB-121812 (EB)	1 / 1.00	o-Xylene	0.22	UG/L	U/None	< 0.14	< 0.5	K1		1	0.220
SW8021B / SW5030B	Equipment Blank	EB-121812 (EB)	1 / 1.00	Xylenes, Total	0.22	UG/L	U/None	< 0	< 0.5	K1		1	0.220
SW8021B / SW5030B	Field Duplicate RPD	242064-007 (N)	1 / 1.00	tert-Butyl Methyl Ether (MTBE)	200	RPD	None/None	< 30	< 60	D5		RPD	

Qualified Results

Test Leach	Matrix	FieldSample ID	Type	Analyte	RL	Lab Result	Qualified Result	Units	Reason
BNASIM/NONE	WG	IR24MW05A-121912	N	1-Methylnaphthalene	0.10	0.10	0.10 UJ	UG/L	S
BNASIM/NONE	WG	IR24MW05A-121912	N	2-Methylnaphthalene	0.10	0.10	0.10 UJ	UG/L	S
BNASIM/NONE	WG	IR24MW05A-121912	N	Acenaphthene	0.10	0.10	0.10 UJ	UG/L	S
BNASIM/NONE	WG	IR24MW05A-121912	N	Acenaphthylene	0.10	0.10	0.10 UJ	UG/L	S
BNASIM/NONE	WG	IR24MW05A-121912	N	Anthracene	0.10	0.10	0.10 UJ	UG/L	S
BNASIM/NONE	WG	IR24MW05A-121912	N	Benzo(a)anthracene	0.10	0.10	0.10 UJ	UG/L	S
BNASIM/NONE	WG	IR24MW05A-121912	N	Benzo(a)pyrene	0.10	0.10	0.10 UJ	UG/L	S
BNASIM/NONE	WG	IR24MW05A-121912	N	Benzo(b)fluoranthene	0.10	0.10	0.10 UJ	UG/L	S
BNASIM/NONE	WG	IR24MW05A-121912	N	Benzo(g,h,i)perylene	0.10	0.10	0.10 UJ	UG/L	S
BNASIM/NONE	WG	IR24MW05A-121912	N	Benzo(k)fluoranthene	0.10	0.10	0.10 UJ	UG/L	S
BNASIM/NONE	WG	IR24MW05A-121912	N	Chrysene	0.10	0.10	0.10 UJ	UG/L	S
BNASIM/NONE	WG	IR24MW05A-121912	N	Dibenz(a,h)anthracene	0.10	0.10	0.10 UJ	UG/L	S
BNASIM/NONE	WG	IR24MW05A-121912	N	Fluoranthene	0.10	0.10	0.10 UJ	UG/L	S
BNASIM/NONE	WG	IR24MW05A-121912	N	Fluorene	0.10	0.10	0.10 UJ	UG/L	S
BNASIM/NONE	WG	IR24MW05A-121912	N	Indeno(1,2,3-c,d)pyrene	0.10	0.10	0.10 UJ	UG/L	S
BNASIM/NONE	WG	IR24MW05A-121912	N	Naphthalene	0.10	0.10	0.10 UJ	UG/L	S
BNASIM/NONE	WG	IR24MW05A-121912	N	Phenanthrene	0.10	0.10	0.10 UJ	UG/L	S
BNASIM/NONE	WG	IR24MW05A-121912	N	Pyrene	0.10	0.10	0.10 UJ	UG/L	S
BNASIM/NONE	WG	IR24MW07A-121912	N	Pyrene	0.10	0.050	0.050 J	UG/L	TR
BNASIM/NONE	WG	IR24MW28A-121912	N	Fluoranthene	0.10	0.020	0.020 J	UG/L	TR
BNASIM/NONE	WG	IR24MW28A-121912	N	Pyrene	0.10	0.030	0.030 J	UG/L	D5/TR
BNASIM/NONE	WG	IR99MW28A-121912	FD	Fluoranthene	0.10	0.020	0.020 J	UG/L	TR
BNASIM/NONE	WG	IR99MW28A-121912	FD	Pyrene	0.10	0.020	0.020 J	UG/L	D5/TR
Test Leach	**Matrix**	**FieldSample ID**	**Type**	**Analyte**	**RL**	**Lab Result**	**Qualified Result**	**Units**	**Reason**
M8015D/NONE	WG	IR24MW05A-121912	N	C12-C24 Petroleum Hydrocarbons	50.0	35.0	35.0 J	UG/L	TR
M8015D/NONE	WG	IR24MW28A-121912	N	C12-C24 Petroleum Hydrocarbons	50.0	32.0	32.0 J	UG/L	TR
M8015D/NONE	WG	IR99MW28A-121912	FD	C12-C24 Petroleum Hydrocarbons	50.0	40.0	40.0 J	UG/L	TR

AUTOMATED DATA REVIEW SUMMARY for 242064

Qualified Results

Test Leach	Matrix	FieldSample ID	Type	Analyte	RL	Lab Result	Qualified Result	Units	Reason
M8015V/NONE	WQ	EB-121812	EB	Petroleum Hydrocarbons C6-C12	50.0	13.0	13.0 J	UG/L	TR
M8015V/NONE	WG	IR24MW05A-121912	N	Petroleum Hydrocarbons C6-C12	50.0	11.0	50.0 U	UG/L	K1
M8015V/NONE	WG	IR24MW28A-121912	N	Petroleum Hydrocarbons C6-C12	50.0	11.0	50.0 U	UG/L	K1

Test Leach	Matrix	FieldSample ID	Type	Analyte	RL	Lab Result	Qualified Result	Units	Reason
SW8021B/NONE	WQ	EB-121812	EB	o-Xylene	0.50	0.22	0.22 J	UG/L	TR
SW8021B/NONE	WQ	EB-121812	EB	Xylenes, Total	0.50	0.22	0.22 J	UG/L	TR
SW8021B/NONE	WG	IR24MW28A-121912	N	tert-Butyl Methyl Ether (MTBE)	2.0	2.1	2.1 J	UG/L	D5
SW8021B/NONE	WG	IR99MW28A-121912	FD	tert-Butyl Methyl Ether (MTBE)	2.0	2.0	2.0 UJ	UG/L	D5

Detected Results

Test Leach	Matrix	FieldSample ID	Type	Analyte	RL	Lab Result	Qualified Result	Units	Reason
BNASIM/NONE	WG	IR24MW07A-121912	N	Pyrene	0.10	0.050	0.050 J	UG/L	TR
BNASIM/NONE	WG	IR24MW28A-121912	N	Fluoranthene	0.10	0.020	0.020 J	UG/L	TR
BNASIM/NONE	WG	IR24MW28A-121912	N	Pyrene	0.10	0.030	0.030 J	UG/L	D5/TR
BNASIM/NONE	WG	IR99MW28A-121912	FD	Fluoranthene	0.10	0.020	0.020 J	UG/L	TR
BNASIM/NONE	WG	IR99MW28A-121912	FD	Pyrene	0.10	0.020	0.020 J	UG/L	D5/TR

Test Leach	Matrix	FieldSample ID	Type	Analyte	RL	Lab Result	Qualified Result	Units	Reason
M8015D/NONE	WG	IR24MW05A-121912	N	C12-C24 Petroleum Hydrocarbons	50.0	35.0	35.0 J	UG/L	TR
M8015D/NONE	WG	IR24MW07A-121912	N	C12-C24 Petroleum Hydrocarbons	50.0	530	530	UG/L	
M8015D/NONE	WG	IR24MW28A-121912	N	C12-C24 Petroleum Hydrocarbons	50.0	32.0	32.0 J	UG/L	TR
M8015D/NONE	WG	IR99MW28A-121912	FD	C12-C24 Petroleum Hydrocarbons	50.0	40.0	40.0 J	UG/L	TR

Test Leach	Matrix	FieldSample ID	Type	Analyte	RL	Lab Result	Qualified Result	Units	Reason
M8015V/NONE	WQ	EB-121812	EB	Petroleum Hydrocarbons C6-C12	50.0	13.0	13.0 J	UG/L	TR

Test Leach	Matrix	FieldSample ID	Type	Analyte	RL	Lab Result	Qualified Result	Units	Reason
SW8021B/NONE	WQ	EB-121812	EB	Xylenes, Total	0.50	0.22	0.22 J	UG/L	TR
SW8021B/NONE	WQ	EB-121812	EB	o-Xylene	0.50	0.22	0.22 J	UG/L	TR
SW8021B/NONE	WG	IR24MW28A-121912	N	tert-Butyl Methyl Ether (MTBE)	2.0	2.1	2.1 J	UG/L	D5

AUTOMATED DATA REVIEW SUMMARY for 242064

Rejected Results

--No Records Found--

SDG 242064

Qualified Results Table

Lab Sample ID	Sample ID	Sample Collection Date	Type	Method	Parameter	Original Value	Qualifier	New Value	Bias	MDL	RL	Units	Reason
242064-005	IR24MW05A-121912	12/19/2012	WG-N	BNASIM	Benzo(b)fluoranthene	ND	UJ	ND UJ		0.020	0.10	UG/L	S
242064-005	IR24MW05A-121912	12/19/2012	WG-N	BNASIM	Benzo(k)fluoranthene	ND	UJ	ND UJ		0.020	0.10	UG/L	S
242064-005	IR24MW05A-121912	12/19/2012	WG-N	BNASIM	Benzo(a)pyrene	ND	UJ	ND UJ		0.020	0.10	UG/L	S
242064-005	IR24MW05A-121912	12/19/2012	WG-N	BNASIM	Dibenz(a,h)anthracene	ND	UJ	ND UJ		0.020	0.10	UG/L	S
242064-005	IR24MW05A-121912	12/19/2012	WG-N	BNASIM	Benzo(g,h,i)perylene	ND	UJ	ND UJ		0.020	0.10	UG/L	S
242064-005	IR24MW05A-121912	12/19/2012	WG-N	BNASIM	Chrysene	ND	UJ	ND UJ		0.030	0.10	UG/L	S
242064-005	IR24MW05A-121912	12/19/2012	WG-N	BNASIM	Indeno(1,2,3-c,d)pyrene	ND	UJ	ND UJ		0.020	0.10	UG/L	S
242064-005	IR24MW05A-121912	12/19/2012	WG-N	BNASIM	Fluorene	ND	UJ	ND UJ		0.020	0.10	UG/L	S
242064-005	IR24MW05A-121912	12/19/2012	WG-N	BNASIM	Phenanthrene	ND	UJ	ND UJ		0.020	0.10	UG/L	S
242064-005	IR24MW05A-121912	12/19/2012	WG-N	BNASIM	Anthracene	ND	UJ	ND UJ		0.030	0.10	UG/L	S
242064-005	IR24MW05A-121912	12/19/2012	WG-N	BNASIM	Fluoranthene	ND	UJ	ND UJ		0.020	0.10	UG/L	S
242064-005	IR24MW05A-121912	12/19/2012	WG-N	BNASIM	Pyrene	ND	UJ	ND UJ		0.020	0.10	UG/L	S
242064-005	IR24MW05A-121912	12/19/2012	WG-N	BNASIM	Benzo(a)anthracene	ND	UJ	ND UJ		0.020	0.10	UG/L	S
242064-005	IR24MW05A-121912	12/19/2012	WG-N	BNASIM	2-Methylnaphthalene	ND	UJ	ND UJ		0.030	0.10	UG/L	S
242064-005	IR24MW05A-121912	12/19/2012	WG-N	BNASIM	Acenaphthylene	ND	UJ	ND UJ		0.020	0.10	UG/L	S
242064-005	IR24MW05A-121912	12/19/2012	WG-N	BNASIM	Acenaphthene	ND	UJ	ND UJ		0.020	0.10	UG/L	S
242064-005	IR24MW05A-121912	12/19/2012	WG-N	BNASIM	Naphthalene	ND	UJ	ND UJ		0.020	0.10	UG/L	S
242064-005	IR24MW05A-121912	12/19/2012	WG-N	BNASIM	1-Methylnaphthalene	ND	UJ	ND UJ		0.020	0.10	UG/L	S
242064-004	IR24MW07A-121912	12/19/2012	WG-N	BNASIM	Pyrene	0.050	J	0.050 J		0.020	0.10	UG/L	TR
242064-006	IR24MW28A-121912	12/19/2012	WG-N	BNASIM	Fluoranthene	0.020	J	0.020 J		0.020	0.10	UG/L	TR
242064-006	IR24MW28A-121912	12/19/2012	WG-N	BNASIM	Pyrene	0.030	J	0.030 J		0.020	0.10	UG/L	D5/TR
242064-007	IR99MW28A-121912	12/19/2012	WG-FD	BNASIM	Fluoranthene	0.020	J	0.020 J		0.020	0.10	UG/L	TR
242064-007	IR99MW28A-121912	12/19/2012	WG-FD	BNASIM	Pyrene	0.020	J	0.020 J		0.020	0.10	UG/L	D5/TR
242064-005	IR24MW05A-121912	12/19/2012	WG-N	M8015D	C12-C24 Petroleum Hydrocarbons	35.0	J	35.0 J		16	50	UG/L	TR
242064-006	IR24MW28A-121912	12/19/2012	WG-N	M8015D	C12-C24 Petroleum Hydrocarbons	32.0	J	32.0 J		16	50	UG/L	TR
242064-007	IR99MW28A-121912	12/19/2012	WG-FD	M8015D	C12-C24 Petroleum Hydrocarbons	40.0	J	40.0 J		16	50	UG/L	TR
242064-001	EB-121812	12/18/2012	WQ-EB	M8015V	Petroleum Hydrocarbons C6-C12	13.0	J	13.0 J		10	50	UG/L	TR

Qualified Results Table

Lab Sample ID	Sample ID	Sample Collection Date	Type	Method	Parameter	Original Value	Qualifier	New Value	Bias	MDL	RL	Units	Reason
242064-005	IR24MW05A-121912	12/19/2012	WG-N	M8015V	Petroleum Hydrocarbons C6-C12	11.0	U	ND U		10	50	UG/L	K1
242064-006	IR24MW28A-121912	12/19/2012	WG-N	M8015V	Petroleum Hydrocarbons C6-C12	11.0	U	ND U		10	50	UG/L	K1
242064-001	EB-121812	12/18/2012	WQ-EB	SW8021B	o-Xylene	0.22	J	0.22 J		0.14	0.50	UG/L	TR
242064-001	EB-121812	12/18/2012	WQ-EB	SW8021B	Xylenes, Total	0.22	J	0.22 J		0.0	0.50	UG/L	TR
242064-006	IR24MW28A-121912	12/19/2012	WG-N	SW8021B	tert-Butyl Methyl Ether (MTBE)	2.1	J	2.1 J		0.40	2.0	UG/L	D5
242064-007	IR99MW28A-121912	12/19/2012	WG-FD	SW8021B	tert-Butyl Methyl Ether (MTBE)	ND	UJ	ND UJ		0.57	2.0	UG/L	D5

Matrix / Sample Type

Matrix	Matrix Description	Sample Code	Sample Code Description
WG	GROUND WATER	FD	Field Duplicate
WG	GROUND WATER	N	Normal Environmental Sample
WQ	WATER QUALITY CONTROL MATRIX	EB	Equipment Blank

Data Qualifier Definitions

Flag	Description
U	Undetected: The analyte was analyzed for, but not detected.
UJ	The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.
J	Estimated: The analyte was positively identified, the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
R	The data are rejected due to deficiencies in meeting QC criteria and may not be used for decision making.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".
NJ	The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated numerical value represents its approximate concentration.

Reason and Comment Code Definitions

Code	Description
A	Serial dilution
A1	Ambient Blank

Qualified Results Table

Reason and Comment Code Definitions

Code	Description
B1	A common laboratory artifact was detected in the sample at a concentration less than 10X the concentration detected in the associated method blank.
B2	Calibration Blank
B3	Calibration Blank - Negative
B4	Negative Blank
B5	The analyte was found in an associated blank as well as in the sample.
C1	
C10	Continuing Calibration Verification RRF
C11	Continuing Calibration Verification percent recovery, percent difference, or percent drift
C12	Low Level Continuing Calibration Verification was outside control limits
C2	
C2S	
C3	
C4	
C5	
C6	
C7	
C8	
C9	
D1	Lab Replicate RPD
D2	MS RPD exceeded established criteria.
D4	No precision available
D5	Field Duplicate RPD
D6	RPD of laboratory control sample exceeded criteria
D7	Field Duplicate not usable
E	Exceeds LinearCalibration Range
F	Hydrocarbon pattern does not match standard
G	Initial Calibration RRF
G1	Initial Calibration RSD
G2	Initial Calibration Verification percent recovery, percent difference, or percent drift
G4	Ion abundance ratios are outside criteria - estimated maximum possible concentration (EMPC) reported
G5	Initial Calibration out for metals/inorganics
H1	Test Hold Time
H2	Prep Hold Time

Qualified Results Table

Reason and Comment Code Definitions

Code	Description
I	Internal standard
J	CRA/CRI Recovery
K	An analyte (non-common laboratory artifact) was detected in the sample at a concentration less than 5X the concentration detected in the associated method blank.
K1	Detected in the associated equipment rinsate blank.
K2	Detected in the associated field (i.e., ambient) blank.
K3	Detected in the associated trip blank.
K4	Detected in the associated storage blank
K5	Detected in the associated source blank
L	Percent recovery of laboratory control sample recovery was outside established limits
L1	A common laboratory artifact was detected in the sample at a concentration less than 10X the concentration detected in the associated method blank. (Negative)
M	Matrix spike recovery was outside established criteria.
M1	Minimum matrix spike frequency was not attained
N	Blank - No Action
O	Interference check sample
P	Sample preservation/collection requirement not met.
P1	Column or detector RPD
P2	Improper preparation/extraction
Q1	Material Blank
S	Surrogate recovery out of criteria (upper or lower limit)
S1	Sample less than 50% solids
T	Receipt Temperature
T2	RSD of lab triplicate out
TI	Tentatively Identified Compound
TR	Trace Level Detect
V	Sample Receipt Condition
W	Column breakdown (pesticides)
X	Raised reporting limit
X1	Unresolved Isomers; no peak separation
X2	Qualified due to professional judgment, see data validation narrative.
Y	Analyte not confirmed on second column
Y1	False Positive
Y2	Sum of species greater than total result
Z	Data rejected due to radiological anomolies

Qualified Results Table

Reason and Comment Code Definitions

Code	Description
Z1	Data rejected, more valid data available

Field Duplicate Report By SDG
HPS
Hunter's Point QAPP
Field Duplicates for SDG: 242064

Location	Analysis
IR24MW28A	BNASIM

Field ID - Primary/Field Dup	Lab ID - Primary/Field Dup	Analyte	Primary Result	FD Result	RL	RPD	RPD Check
IR24MW28A-121912 / IR99MW28A-121912	242064-006 / 242064-007	1-Methylnaphthalene	ND	ND	0.100	NA	Ok
IR24MW28A-121912 / IR99MW28A-121912	242064-006 / 242064-007	2-Methylnaphthalene	ND	ND	0.100	NA	Ok
IR24MW28A-121912 / IR99MW28A-121912	242064-006 / 242064-007	Acenaphthene	ND	ND	0.100	NA	Ok
IR24MW28A-121912 / IR99MW28A-121912	242064-006 / 242064-007	Acenaphthylene	ND	ND	0.100	NA	Ok
IR24MW28A-121912 / IR99MW28A-121912	242064-006 / 242064-007	Anthracene	ND	ND	0.100	NA	Ok
IR24MW28A-121912 / IR99MW28A-121912	242064-006 / 242064-007	Benzo(a)anthracene	ND	ND	0.100	NA	Ok
IR24MW28A-121912 / IR99MW28A-121912	242064-006 / 242064-007	Benzo(a)pyrene	ND	ND	0.100	NA	Ok
IR24MW28A-121912 / IR99MW28A-121912	242064-006 / 242064-007	Benzo(b)fluoranthene	ND	ND	0.100	NA	Ok
IR24MW28A-121912 / IR99MW28A-121912	242064-006 / 242064-007	Benzo(g,h,i)perylene	ND	ND	0.100	NA	Ok
IR24MW28A-121912 / IR99MW28A-121912	242064-006 / 242064-007	Benzo(k)fluoranthene	ND	ND	0.100	NA	Ok
IR24MW28A-121912 / IR99MW28A-121912	242064-006 / 242064-007	Chrysene	ND	ND	0.100	NA	Ok
IR24MW28A-121912 / IR99MW28A-121912	242064-006 / 242064-007	Dibenz(a,h)anthracene	ND	ND	0.100	NA	Ok
IR24MW28A-121912 / IR99MW28A-121912	242064-006 / 242064-007	Fluoranthene	0.0200	0.0200	0.100	0.00	Ok
IR24MW28A-121912 / IR99MW28A-121912	242064-006 / 242064-007	Fluorene	ND	ND	0.100	NA	Ok
IR24MW28A-121912 / IR99MW28A-121912	242064-006 / 242064-007	Indeno(1,2,3-c,d)pyrene	ND	ND	0.100	NA	Ok
IR24MW28A-121912 / IR99MW28A-121912	242064-006 / 242064-007	Naphthalene	ND	ND	0.100	NA	Ok
IR24MW28A-121912 / IR99MW28A-121912	242064-006 / 242064-007	Phenanthrene	ND	ND	0.100	NA	Ok
IR24MW28A-121912 / IR99MW28A-121912	242064-006 / 242064-007	Pyrene	0.0300	0.0200	0.100	40.0	Out

Location	Analysis
IR24MW28A	M8015D

Field ID - Primary/Field Dup	Lab ID - Primary/Field Dup	Analyte	Primary Result	FD Result	RL	RPD	RPD Check
IR24MW28A-121912 / IR99MW28A-121912	242064-006 / 242064-007	C12-C24 Petroleum Hydrocarbons	32.0	40.0	50.0	22.2	Ok

Field Duplicate Report By SDG
HPS
Hunter's Point QAPP
Field Duplicates for SDG: 242064

Location	Analysis
IR24MW28A	M8015D

Field ID - Primary/Field Dup	Lab ID - Primary/Field Dup	Analyte	Primary Result	FD Result	RL	RPD	RPD Check
IR24MW28A-121912 / IR99MW28A-121912	242064-006 / 242064-007	C24-C36 Petroleum Hydrocarbons	ND	ND	300	NA	Ok

Location	Analysis
IR24MW28A	M8015V

Field ID - Primary/Field Dup	Lab ID - Primary/Field Dup	Analyte	Primary Result	FD Result	RL	RPD	RPD Check
IR24MW28A-121912 / IR99MW28A-121912	242064-006 / 242064-007	Petroleum Hydrocarbons C6-C12	ND	ND	50.0	NA	Ok

Location	Analysis
IR24MW28A	SW8021B

Field ID - Primary/Field Dup	Lab ID - Primary/Field Dup	Analyte	Primary Result	FD Result	RL	RPD	RPD Check
IR24MW28A-121912 / IR99MW28A-121912	242064-006 / 242064-007	Benzene	ND	ND	0.500	NA	Ok
IR24MW28A-121912 / IR99MW28A-121912	242064-006 / 242064-007	Ethylbenzene	ND	ND	0.500	NA	Ok
IR24MW28A-121912 / IR99MW28A-121912	242064-006 / 242064-007	m,p-Xylene	ND	ND	0.500	NA	Ok
IR24MW28A-121912 / IR99MW28A-121912	242064-006 / 242064-007	o-Xylene	ND	ND	0.500	NA	Ok
IR24MW28A-121912 / IR99MW28A-121912	242064-006 / 242064-007	tert-Butyl Methyl Ether (MTBE)	2.10	ND	2.00		Ok
IR24MW28A-121912 / IR99MW28A-121912	242064-006 / 242064-007	Toluene	ND	ND	0.500	NA	Ok
IR24MW28A-121912 / IR99MW28A-121912	242064-006 / 242064-007	Xylenes, Total	ND	ND	0.500	NA	Ok

ATTACHMENT B

PROJECT CORRESPONDENCE

No Project Correspondence associated with this SDG