

APPENDIX J

SHORELINE GROUNDWATER

ATTENUATION MODELING REPORT

SHORELINE GROUNDWATER MODELING ASSESSMENT

Georgia-Pacific West Site

Prepared for: Port of Bellingham

Project No. 070188-001 • May 30, 2012 Final



e a r t h + w a t e r



SHORELINE GROUNDWATER MODELING ASSESSMENT

Georgia-Pacific West Site

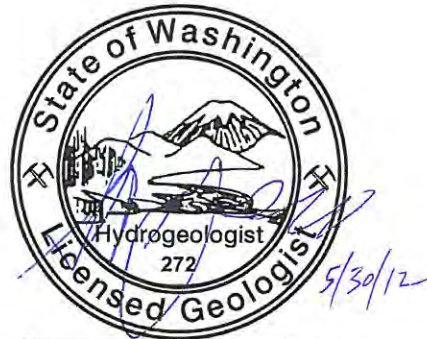
Prepared for: Port of Bellingham

Project No. 070188-001 • May 30, 2012 Final

Aspect Consulting, LLC

A handwritten signature in black ink, appearing to read "Joe Morrice".

Joe Morrice, LHG
Associate Hydrogeologist
jmorrice@aspectconsulting.com



Steve J. Germiot

Steve Germiot, LHG, CGWP
Senior Associate Hydrogeologist
sgermiot@aspectconsulting.com

V:\070188 Port Bellingham\Deliverables\GW to Sediment Modeling Report\Shoreline GW Attenuation Modeling Report - Final.docx



Contents

Introduction	1
Scope and Purpose	1
Report Organization	2
Hydrogeologic Conditions	2
Model Construction and Calibration Methods	4
Numerical Model Codes	5
Caustic Plume Subarea Transect Model Code	5
Law-1 Area Transect Model Code	6
Model Grid and Boundary Conditions	6
Caustic Plume Transect.....	7
Law-1 Transect.....	7
Hydraulic Property Zones	9
Model Calibration.....	9
Methods 9	
Calibration Results for Caustic Plume Transect	10
Calibration Results for Law-1 Transect	12
Attenuation Factors	13
Modeled Attenuation Factors.....	13
Comparison to Empirical Data	14
References	15
Limitations	16

List of Tables

1	Initial Model Parameters
2	Model Calibration Results
3	Calibrated Model Parameters
4	Transport Model Results
5	Law-1 Area AFs Derived from Empirical Shoreline Groundwater Quality Data

List of Figures

1	Port of Bellingham and Adjacent Properties
2	Groundwater Model Transect Location Map

ASPECT CONSULTING

- 3 Fill Unit Groundwater Elevation Contour Map (March 2010)
- 4 Model Construction (Caustic Plume Transect)
- 5 Model Construction (Law-1 Transect – Current Sediment Cap)
- 6 Model Construction (Law-1 Transect – Future Sediment Cap)
- 7 Schematic of Model Construction for Whatcom Waterway and intertidal Zone (Law-1 Transect)
- 8 Head Calibration at CP-MWB3 (Caustic Plume Transect)
- 9 Head Calibration at CP-MWB1 (Caustic Plume Transect)
- 10 Mean Head Calibration (Caustic Plume Transect)
- 11 Head Range Calibration (Caustic Plume Transect)
- 12 Modeled Hydraulic Head Contours (Caustic Plume Transect)
- 13 Modeled Percent Marine Water Contours (Caustic Plume Transect)
- 14 Head Calibration at Law-1 (Law-1 Transect)
- 15 Head Calibration at CP-MW03 (Law-1 Transect)
- 16 Head Calibration at CP-MW04 (Law-1 Transect)
- 17 Head Calibration at CP-MW05 (Law-1 Transect)
- 18 Mean Head Calibration (Law-1 Transect)
- 19 Head Range Calibration (Law-1 Transect)
- 20 Modeled Hydraulic Head Contours (Law-1 Transect – Current Sediment Cap)
- 21 Modeled Percent Marine Water Contours (Law-1 Transect)
- 22 Modeled C/C_0 Contours (Caustic Plume Transect)
- 23 Modeled C/C_0 Contours (Law-1 Transect – Current Sediment Cap)
- 24 Modeled C/C_0 Contours (Law-1 Transect – Future Sediment Cap)
- 25 Modeled Attenuation Factor Contours (Caustic Plume Transect)
- 26 Modeled Attenuation Factor Contours (Law-1 Transect – Current Sediment Cap)
- 27 Modeled Attenuation Factor Contours (Law-1 Transect – Future Sediment Cap)

Introduction

This report presents a modeling evaluation of contaminant attenuation along groundwater flow paths in the Fill Unit between a nearshore monitoring well and the sediment bioactive zone at the Port of Bellingham (Port) Georgia-Pacific West Site (Site), located in Bellingham, Washington (Figure 1). The modeling approach is consistent with the memorandum entitled “Modeling Approach to Assess Groundwater Screening Levels Protective of Sediment and Surface Water” (Aspect and Anchor QEA, 2011), which was reviewed and approved by Washington State Department of Ecology (Ecology).

As presented in the modeling approach memorandum and described in detail below, the modeling addresses only groundwater transport of upland contaminants to the sediment bioactive zone. It does not address transport of contaminants caused by flow of groundwater up through contaminated sediment; this mechanism is being addressed in remedial design for the Whatcom Waterway cleanup action.

Scope and Purpose

Numerical modeling of groundwater flow and solute transport was performed to quantify the effect of physical mixing on contaminant concentrations in Fill Unit (upland) groundwater approaching the Whatcom Waterway. Mixing of surface water and groundwater within the nearshore groundwater system can be a significant component of natural attenuation of contaminants in groundwater prior to discharge to marine sediment and water. Because Site groundwater is not a practicable source of potable water (Aspect, 2009), discharge to the marine environment is groundwater’s highest beneficial use. Therefore, groundwater screening levels are based on protection of marine water and sediment in the adjacent Whatcom Waterway/Bellingham Bay, and the conditional point of compliance is porewater quality in the bioactive zone (upper 12 centimeters) of sediments. For this evaluation, attenuation of upland groundwater contaminants was modeled between specified upland points and the conditional point of compliance.

Modeling was performed along two 2-dimensional cross sectional transects positioned along groundwater flow paths, at the locations shown on Figure 2. The first transect (Caustic Plume transect) is located in the Caustic Plume subarea of the Site, an area with high pH and elevated dissolved mercury concentrations in groundwater. The second transect (Law-1 transect), located within portions of the Caustic Plume and Confined Nearshore Fill subareas, runs through a former wastewater settling basin that was subsequently filled. Monitoring well Law-1, located north¹ of the former basin and next to the shoreline on this transect, has shown elevated dissolved mercury concentrations. As alluded to in Aspect and Anchor QEA (2011), modeling was not performed for the Acid Plant Area since its nearshore groundwater concentrations are below the most

¹ Consistent with previous Site reports, this report contains directional references relative to “Mill north” as established by GP, with the “Mill north” axis approximately 45 degrees west of true north (see direction arrows on Figure 1). In the “Mill north” reference, the Whatcom Waterway is oriented east-west on the north side of the Site.

stringent screening levels based on protection of marine water and sediment, as described in the RI.

The degree of attenuation presented in this report is expressed as an attenuation factor (AF), defined as the ratio of contaminant concentration in groundwater at a monitoring well (or other upland location) to the predicted concentration at the point of discharge to the sediment bioactive zone. The AFs will be used to establish numerical groundwater screening levels at upland locations that are protective of both sediment quality and water quality in the sediment bioactive zone. That step will be conducted as part of the RI/FS. Specifically, the groundwater screening level applied at a shoreline monitoring well will be the porewater concentration in assumed equilibrium with a sediment concentration equal to the sediment quality standard (SQS) multiplied by the model-predicted attenuation factor (Aspect Consulting and Anchor QEA, 2011).

The AFs account only for physical attenuation of contaminants through mixing with surface water within the groundwater system. This physical mixing is independent of any chemical-specific properties; as such the AFs are applicable to all Site contaminants. Additional attenuation processes, such as biodegradation of organic constituents or irreversible precipitation of metals, would result in additional attenuation beyond the AFs, resulting in the application of a conservative AF.

Report Organization

The remainder of this report presents:

- A brief overview of hydrogeologic conditions at the Site relevant to model development;
- Model development and calibration; and
- Development of AFs.

Hydrogeologic Conditions

The Site is located adjacent to surface waters of Whatcom Waterway and Bellingham Bay. Detailed Site geology and hydrogeology are described in the Draft Remedial Investigation Report (RI Report; Aspect Consulting and Anchor QEA, 2010). A brief overview of relevant hydrogeologic conditions is provided below.

The three hydrogeologic units of primary interest at the Site include, from surface down, a Fill Unit consisting of several different types of upland and dredge fill materials, a low-permeability Tidal Flat Aquitard, and a Lower Sand Unit. Beneath the Lower Sand is a fourth unit - an older, low-permeability Glaciomarine Drift unit comprised of stiff silt/clay with occasional sand and gravel lenses.

The Fill Unit contains a shallow unconfined aquifer which is hydraulically separated from the Lower Sand aquifer by the intervening Tidal Flat Aquitard, where present. Water table elevation contours and interpreted groundwater flow directions in the Fill Unit are shown on Figure 3. Groundwater in the Fill Unit discharges to the Whatcom

Waterway or Bellingham Bay. Fill Unit groundwater flow within the Confined Nearshore Fill/Chemfix Area is also influenced by a low-permeability berm constructed along the shoreline to contain the dredge-fill material placed south of it. As part of an Interim Action for the Whatcom Waterway, the intertidal zone north of the berm was capped with a high-permeability sand and gravel mix in 2001. Additional capping of the area is planned as part of Whatcom Waterway cleanup activities. The high permeability sand and gravel cap materials have only minor influence on groundwater flow within and south of the berm; however, as a result of adding the additional cap thickness, a longer groundwater flowpath will be created, which can increase attenuation of contaminant concentrations at the conditional point of compliance.

The Tidal Flat Aquitard underlying the Fill Unit across much of the Site is comprised of stratified, low permeability silt and silty sand, which impedes vertical movement of groundwater between the overlying Fill Unit and the underlying Lower Sand Unit. The Tidal Flat Aquitard is absent in the northeastern portion of the Site, but is continuous in the two areas where groundwater models were constructed for this assessment. Based on water level data collected in Fall 2009 and Spring 2010, groundwater levels are typically 1 to 6 feet higher in the Fill Unit than in the Lower Sand Unit, confirming the effectiveness of the Aquitard as a hydraulic barrier between the upper and lower aquifer units.

The Lower Sand Unit consists of marine sands and is laterally continuous across the Site. The Lower Sand Unit is a confined aquifer and is in direct contact with surface water of Bellingham Bay or the Whatcom Waterway where the Tidal Flat Aquitard pinches out or has been removed by historical dredging activities.

Changes in tidal stage produce changes in groundwater elevations within the Fill Unit and Lower Sand, which are observed in certain wells at the Site. Observed tidal influence in the Fill Unit is limited to nearshore wells, with tide-induced variability in groundwater elevations on the order of 1 foot within about 100 feet of the shoreline, and diminishing to negligible further inland. The low permeability berm in the Confined Nearshore Fill/Chemfix Area significantly mutes tidal response behind the berm, with only minor response observed in well Law-1 despite being located less than 50 feet from the shoreline.

Tidal influence is more prominent in the Lower Sand Unit than in the Fill Unit, with larger tide-induced groundwater level fluctuations extending further inland. The Lower Sand Unit's greater tidal response (tidal efficiency) is primarily due to its being a confined aquifer, while the Fill Unit is unconfined. The tide-induced groundwater level response in the unconfined Fill Unit is the result of water moving in and out of the aquifer at the shoreline as tides rise and fall. Conversely, groundwater level response in a confined aquifer such as the Lower Sand Unit is due largely to propagation of pressure changes (tides) occurring at the interface of the Lower Sand Unit and the Waterway/Log Pond or bay, more so than actual movement of water in and out of the aquifer (e.g., Ferris, 1951; Serfes, 1991).

Model Construction and Calibration Methods

Cross sectional models were developed along two transects – termed the Caustic Plume transect and the Law-1 transect (Figure 2). The transect locations were selected to coincide with the expected shortest groundwater flow paths from contaminant source areas to marine surface water. The Caustic Plume transect is aligned approximately parallel with the local groundwater flow direction, along the inferred predominant groundwater contaminant transport pathway extending from upgradient (southeast) of the center of the caustic plume through wells CP-MWB1 and CP-MWB3 to Bellingham Bay. The groundwater flow direction along this pathway was determined based on groundwater level contours (Figure 3) and is supported by pH and mercury concentration distributions in the Fill Unit groundwater.

The Law-1 transect is aligned north-south through the former wastewater settling basin and the shoreline berm and parallel to the local groundwater flow direction through the berm to the Whatcom Waterway. This transect includes well Law-1, a nearshore monitoring well containing detectable concentrations of dissolved mercury. Although groundwater mounding observed in the area of the former settling basin south of well Law-1 likely results in eastward and westward components of groundwater flow that do not parallel the transect, the orientation of this transect was selected to represent the shortest groundwater flow path from the settling basin, through the berm and well Law-1.

The models constructed along the Law-1 and Caustic Plume transects simulate 2-dimensional groundwater flow and solute transport, assuming uniform hydraulic properties in each unit represented in the model sections. The models simulate transient groundwater flow induced by tidal fluctuations in Whatcom Waterway and Bellingham Bay. Solute transport was simulated with groundwater advection and dispersion, but assuming no chemical reactions (e.g., sorption, degradation). The models are suitable for simulating diffuse groundwater flow and transport and associated physical attenuation, but do not account for significant preferential flow pathways, such as former utility lines. Site investigations have not identified any preferential pathways that would affect flow at these transects; should such pathways be identified at other areas of the Site, model results would need to be revisited to determine if they are applicable to those locations.

A single model was constructed for the Caustic Plume transect (model grid illustrated on Figure 4). As compared to the Law-1 transect discussed below, the geometry of this model was relatively simple, with no significant changes to current conditions anticipated. The Caustic Plume transect consists of three layers representing the upland Fill Unit, Tidal Flat Aquitard, and Lower Sand Unit. Two Fill Unit monitoring wells (CP-MWB3 and CP-MWB1) with continuous water level monitoring data from May 11 to May 14, 2010 (tidal study from the RI Report) are located along this transect and provide calibration points for the flow model.

Two models were constructed for the Law-1 transect, representing current conditions and expected future conditions. The offshore area at the Law-1 transect (Log Pond) was capped with clean sand and gravel to isolate mercury-impacted sediments as a Whatcom Waterway interim action completed in 2001. A thicker sediment cap in the Log Pond offshore from Law-1 is planned as part of the Whatcom Waterway final cleanup action;

the capping is expected to be complete by 2013. The first model for this transect, reflecting current conditions (model grid on Figure 5), was used to calibrate the groundwater flow and transport parameters and assess AFs for current conditions. The second model, reflecting additional capping, was used to predict AFs for long-term future conditions (model grid on Figure 6). The transects for the current- and future-case models are the same: located along an upland groundwater flow path, through the berm, and to the Log Pond. Two Fill Unit monitoring wells (Law-1 and CP-MW03) and two Lower Sand Unit monitoring wells (CP-MW04 and CP-MW05), from which continuous tidal water level monitoring data are available from October 19 to October 22, 2009 (Aspect and Anchor QEA, 2010), are located along the transect.

Numerical Model Codes

Groundwater flow and solute transport was simulated using versions of the finite differences codes MODFLOW (McDonald and Harbaugh 1988) and MT3DMS (Zheng and Wang, 1999), both of which are considered industry standards for groundwater flow and transport modeling. MODFLOW allows for multiple types of boundary conditions and heterogeneous aquifer hydraulic properties that are incorporated into a groundwater flow model by the use of different packages or modules. In MODFLOW, the aquifer area to be modeled is discretized vertically into a series of layers, and horizontally discretized into a series of rows and columns. Within a layer, the resulting three-dimensional rectangular blocks are termed cells. Within each cell, aquifer properties such as hydraulic conductivity and storativity are assigned a constant value. Heterogeneity can be simulated by varying aquifer properties between cells both horizontally and vertically; and groups of cells representing similar aquifer material can be grouped into “zones” of like parameters to represent Site hydrogeologic units.

MT3DMS is a solute mass transport code capable of simulating three-dimensional advection, dispersion, and chemical reactions in groundwater flow, and is designed to be used in conjunction with any block-centered finite-difference modeling code, including MODFLOW. Features such as dispersion and chemical reactions can be turned on or off as the situation requires. Values for the parameters defining the dispersion and, if used, reaction terms in the model can be assigned to different model regions, allowing simulation of heterogeneous physical and chemical conditions.

The models developed along each transect used different USGS-modified versions of these codes best suited to the particular conditions of each model transect, as discussed below.

Caustic Plume Subarea Transect Model Code

The Caustic Plume model was developed using the USGS code SEAWAT 2000 (Langevin et al., 2003) which simulates the variable density flow and solute transport associated with the mixing of saltwater and fresh water. SEAWAT 2000 is a USGS code that couples a version of MODFLOW2000, which has been modified to take into account variable density, with solute transport simulated with MT3DMS. Density is determined from solute concentration (salinity) calculated by the transport model.

Law-1 Area Transect Model Code

Because of the relatively extensive intertidal zone included in the Law-1 transect (extensive low-slope sediment cap), the model code selected for this model needed to account for cyclical drying and rewetting of model cells. The SEAWAT-2000 code is unstable in this situation, and was deemed unsuitable for developing the Law-1 models. Instead, the MODFLOW-2005 code with the Upstream Weighting Package (UPW) utilizing the Newton Solver (NWT) was used. This version of MODFLOW is better able to account for drying and rewetting of model cells in the intertidal zone, while providing a stable solution. A drawback of this code is that it does not explicitly account for variable density flow due to salinity differences. The effect of variable density was accounted for by using equivalent freshwater head boundary conditions along the Whatcom Waterway boundary. This approach is described in more detail in the following section.

Model Grid and Boundary Conditions

Model grids and hydraulic property zones for the Caustic Plume transect model and the current- and future-condition Law-1 transect models are shown on Figures 4, 5, and 6. Each model was discretized and assigned hydraulic property zones based on the hydrogeologic characterization presented in the draft RI (Aspect and Anchor QEA, 2010). The Log Pond cap thickness and extent in the future-condition Law-1 transect model was developed based on remedial design information from Anchor QEA.

The upgradient hydraulic boundary conditions in each model were established using constant, specified heads in the Fill Unit and the Lower Sand Unit while the shoreline boundary condition was established as a transient, specified head representing changes in tidal stage. The hydraulic head specified in the tidal boundary condition was based on a 6-minute interval, continuous tide measurements for Cherry Point reported by the National Oceanic and Atmospheric Association (NOAA, 2011). Tide data were selected to coincide with 3-day periods of continuous groundwater level monitoring from Site wells collected during the RI field program (Aspect Consulting and Anchor QEA, 2010). Tidal groundwater level monitoring data were available for select wells along the Law-1 transect for the period October 19 to 22, 2009, and for wells along the Caustic Plume transect for the period May 11 to May 14, 2010. The tidal range (higher-high to lower-low tide) at Cherry Point for these measurement periods were 10.7 feet and 8.3 feet, respectively. Over the course of a full year, the average range at that station is about 9.0 feet. Therefore, the modeled tide ranges are 119 percent and 92 percent of average.

The transient flow and transport models were run by repeating the three days of tide data for each transect multiple times until only minimal changes in modeled water levels and solute concentrations occurred between each successive three-day period. The purpose of this was to minimize the effect of initial groundwater head and solute concentration conditions applied to the models. Time was discretized into stress periods. For each stress period, the head applied at the tidal boundary condition was assigned based on the tide stage. The stress period length was 6 minutes for the Caustic Plume transect calibration and predictive model runs, or the finest scale at which tide data were available. Based on the lack of significant tidal response at well Law-1, a longer stress period length of 24 minutes was used for this transect's calibration and predictive model runs. Total model

times for the calibration and predictive flow model runs were about 37 days at the Caustic Plume transect and about 133 days at the Law-1 transect.

Since flow is assumed to be predominantly horizontal at depth, the bottom of the model is simulated as a no-flow boundary. Another no-flow boundary truncates horizontal flow in the Lower Sand offshore from the Site. For the Law-1 transect this boundary was located at the approximate location of a groundwater divide assumed to be at the deepest part of Whatcom Waterway. For the Caustic Plume transect, this boundary was located far enough offshore so as to not affect model results.

Initial estimates of the upgradient boundary conditions were based on water level contours and head measurement from monitoring wells reported in the draft RI.

The above general approach was implemented in each of the models. Specific details of grid geometry and boundary conditions unique to each transect are described in the following two sections.

Caustic Plume Transect

The grid for the Caustic Plume transect model is shown on Figure 4. It is made up of three layers. The Fill Unit extends 1,400 feet from the upgradient boundary to the Bellingham Bay boundary, and the Lower Sand extends another 400 feet offshore. The horizontal grid spacing is 10 feet and refines at the shoreline to better simulate transport in the sediment bioactive zone (point of compliance for groundwater discharge to the marine environment).

The tidal boundary condition was selected from predicted tidal stage for the period May 11 to May 14, 2010, coinciding with the period of continuous water level data recorded in wells located along the transect (CP-MWB3 and CP-MWB1). The tidal range (higher-high to lower-low tide) for this measurement period was 8.3 feet, 92 percent of annual average tidal range. Using a lower than average tidal range will produce a smaller than average AF, resulting in a conservative prediction of AF. Recharge from precipitation was not simulated because this transect is overlain by pavement, and there is no evidence of significant local groundwater recharge (i.e., mounding) in the contoured water level data from this area (Figure 3). Flow within the Fill Unit is primarily horizontal (one-dimensional) and two targets (CP-MWB3 and CP-MWB1) between the two boundary conditions provide a reasonable resolution for calibration.

The Caustic Plume transect model simulates variable density flow with SEAWAT, which calculates head as an equivalent freshwater head, dependent on percent concentration of marine water. A specified salinity concentration was added at the boundary conditions representing Bellingham Bay water [marine water salinity of 25 parts per thousand (ppt); Ecology, 1994] and the upgradient boundary (0 percent marine water).

Law-1 Transect

Flow paths along the Law-1 transect are more complex than at the Caustic Plume. Groundwater flows horizontally from the Fill Unit through the shoreline berm (end of the Fill Unit) and then through the Log Pond sediment cap, where groundwater is distributed across a broader intertidal zone before discharging, primarily vertically, to Whatcom Waterway (Log Pond). The more complex flow paths required a more detailed grid geometry (Figures 5 and 6). The grid is divided into seven zones representing the various

geologic units and sediment caps. The Fill Unit and berm extend about 650 feet from the upgradient boundary condition to the capped intertidal zone. The current and future intertidal cap extends an additional 400 feet and the Lower Sand extends an additional 500 feet from the upland edge of the berm to the middle of the Whatcom Waterway (boundary condition at groundwater divide).

The sediment cap was modeled by a thin layer at the surface representing the sediment bioactive zone, overlying two thicker layers representing the remainder of the cap thickness. Due to numerical model convergence problems², the proposed future cap required a thicker top layer than the current cap model in order for the model to converge. Model convergence problems for the future-cap model were overcome by using a model layer as thick as 5 feet adjacent to shoreline, only a fraction of which is saturated at high tide and thinning seaward. As a result, simulated concentrations in the future-condition sediment cap are averaged over a thicker portion of the cap. Because contaminant attenuation increases closer to the mudline, the model-predicted concentrations in the upper layer of the future-condition cap are conservative (i.e., the model overestimates concentrations within the sediment bioactive zone and underestimates the AF).

The tidal boundary condition was selected from predicted tidal stage for the period October 19 to October 22, 2009, coinciding with continuous water level data recorded in wells located along this transect (Fill Unit wells Law-1, CP-MW02, CP-MW03, and Lower Sand wells CP-MW04 and CP-MW05). The tidal range (higher-high to lower-low tide) for this measurement period was 10.7 feet, which is 119 percent of the 9.0-foot average range. Because SEAWAT-2000 could not be applied at this transect, heads specified in the Whatcom Waterway boundary condition were approximated as equivalent freshwater heads. Equivalent freshwater heads are calculated from the density of marine water and height of the water column above the center of the boundary condition cell. A salinity concentration of 25 ppt was used in the equivalent freshwater head computation.

The bottom of the model cells representing the Waterway in the intertidal zone are above the low tide elevation and go dry during each tide cycle, which creates a boundary condition that is difficult to model with MODFLOW. To address the repeated wetting and drying, the Waterway in the intertidal zone was modeled using active model cells rather than directly applied boundary conditions, shown schematically on Figure 7. The active model cells representing the Waterway in the intertidal zone were simulated as a 0.5-foot thick layer directly overlying the intertidal sediments. These cells were assigned a very high hydraulic conductivity and were connected to an applied tidal boundary condition with a cell bottom elevation below the lowest low tide, such that the applied boundary cell would never go dry. Using this approach, the model cells act as an active boundary condition, drying out when the tide falls below the cell bottom elevation and rewetting with a head equal to the specified head of the waterway boundary condition as the tide rises back above the bottom of each cell.

Recharge was applied to the top layer of the model over a portion of this transect (former wastewater settling basin) that is unpaved. Evidence of the effect of recharge on

² The laterally extensive intertidal zone resulted in a large number of model cells along the top of the future sediment cap wetting and drying twice daily with the tide changes.

groundwater flow in this area is seen in groundwater mounding near wells Law-5 and CP-MW03 (Figure 3) that was observed in late summer (September 2009) and spring (March 2010) water level measurements. It was necessary to include recharge in the model to simulate the mound. Recharge was initially estimated as 10 percent of the 37 inches of average annual precipitation, but was also a calibration parameter in the model, as described below. The final recharge rate after model calibration was about 35 percent of annual precipitation, or about 13 inches per year.

For the transport model calibration runs, a specified concentration was added at the boundary conditions representing Whatcom Waterway water (100 percent marine water) and the upgradient boundary (0 percent marine water).

Hydraulic Property Zones

The groundwater flow model requires definition of several hydraulic parameters for each material property zone: hydraulic conductivity (K), specific storage (S_s), and specific yield (S_y). The material property zones representing the Fill Unit, Tidal Flat Aquitard, and Lower Sand Unit in each model transect are depicted on Figures 4 through 6. The Law-1 transect includes two additional zones: the lower conductivity berm at the shoreline, and the current and future Log Pond sediment caps.

The transport models require definition of additional parameters. Values for dispersivity (α) and effective porosity (n_e) are applied uniformly throughout each model. The effect of chemical diffusion is negligible compared to dispersion, and diffusion was not explicitly simulated in the model. Conservative (nonreactive) transport was simulated so parameters describing chemical reactions were not required.

Initial estimates of horizontal hydraulic conductivity for the Fill Unit and Lower Sand Units were based on Site-specific slug test data presented in the draft RI Report. Initial estimates of other parameters were based on values commonly reported in the literature. Certain parameter values were then adjusted in model calibration, as described below. The initial estimates are presented in Table 1. Horizontal K values of other units were based on typical values reported in Freeze and Cherry (1979). Vertical K was first assumed to be 10 percent of horizontal K. Literature values were used as initial estimates of α (Zheng and Bennett, 2002), n_e , and storage parameters (Freeze and Cherry, 1979).

Model Calibration

The groundwater flow models were calibrated using an iterative process in which initial estimates for aquifer parameters and the upgradient constant-head boundary cells were adjusted within a reasonable range of uncertainty to produce simulated groundwater elevations that best matched the measured Site data.

Methods

The models were calibrated in two steps. First the groundwater flow component of the models were calibrated to water level data from Site monitoring wells, then the transport component of the models were calibrated to estimated salinity in Site monitoring wells.

Parameters adjusted in the groundwater flow calibration were K, the ratio between horizontal and vertical K (anisotropy), storage parameters (S_s and S_y), recharge (in the

case of the Law-1 transect), and the upgradient constant head boundary elevation. Water levels simulated by the model were compared to water levels measured in Site wells during the tidal monitoring studies.

Once the flow models were reasonably calibrated to water levels, the transport models were calibrated to salinity. The transport models were run until modeled salinity concentrations over successive tide cycles approached steady state conditions. Total model run times before steady state conditions were reached were on the order of 7 years at the Caustic Plume transect and 20 years at the Law-1 transect. Dispersivity was adjusted until the steady state percent concentrations of marine water predicted by the models matched those estimated in Site wells along each transect.

For the Caustic Plume area, there are high concentrations of chloride and dissolved solids resulting from historical releases of sodium chloride brine, therefore, groundwater specific conductance and chloride concentrations were not suitable for estimating percent seawater in Site monitoring wells. Instead, percent marine water concentration at each well was estimated based on measured bromide concentration at the well, a marine water bromide concentration for Bellingham Bay of 45 milligrams per liter (mg/L)³, a concentration of 0 mg/L in ambient groundwater, and assuming simple mixing. Estimated percent marine water concentrations along the Caustic Plume transect were 11 percent at nearshore well CP-MW3B and 0 percent at well CP-MWB1 located roughly 400 feet inland. Estimated percent marine water concentrations along the Law-1 transect were 5 percent at Law-1, and 0 percent at inland Fill Unit well CP-MW03 and Lower Sand wells CP-MW04 and CP-MW05 (CP-MW04 is on both transects; Figures 4 and 5).

Calibration Results for Caustic Plume Transect

Figures 8 and 9 show the transient water level calibration for wells CP-MWB3 and CP-MWB1, respectively. Plots comparing mean head observed at the wells to mean head calculated by the model are presented in Figure 10 and the observed and calculated tidal range (higher-high minus lower-low) for the targets are plotted in Figure 11. Figure 12 shows in cross section modeled water elevations along this transect at high and low tides. Figure 13 shows modeled contours of percent marine water in cross section. Table 2 summarizes the water level and salinity calibration results, and Table 3 summarizes the final calibrated input parameters.

The calibration at CP-MWB3 on the Caustic Plume transect reasonably matches the average water level and the magnitude of tidal variability at this well (Figure 8 and Table 2); however, the timing of the modeled high and low heads show a lag relative to the measured heads. Efforts to improve the calibration by increasing the horizontal K or decreasing S_y reduced the lag between modeled and measured water level changes, but produced much poorer calibration to the average water level and magnitude of the variability, with low modeled average water levels and high modeled variability. The reason for the lag in the model is uncertain, but may be associated with vertical or horizontal heterogeneity in the Fill Unit that is not accounted for in the model. Lacking

³ Bromide concentration for Bellingham Bay was estimated based on typical bromide concentration of 65 mg/L in pure seawater with salinity of 35 parts per thousand (ppt) and the lower salinity in freshwater-diluted Bellingham Bay water of about 25 ppt (Hem, 1985 and Ecology, 1994).

direct evidence to support incorporating additional heterogeneity, the results of modeling presented in Table 2 and Figure 8 are considered the best achievable calibration.

Water levels were not measured in lower sand monitoring wells during the May 2010 tidal study, and calibration to tidal response in the lower sand at the Caustic plum transect was not possible. Instead, because the lower sand is assumed to be homogeneous, the hydraulic parameters for the lower sand derived from the Law-1 transect calibration (discussed below) were applied to the lower sand in the caustic plume transect. Water level data in CP-MW04 collected as part of the October 2009 data were also used to guide selection of the upgradient boundary condition in the lower sand. Since the attenuation being simulated at the Caustic Plume transect is the result of mixing within the Fill Unit aquifer, predicted attenuation factors are not affected by flow in the Lower Sand.

The modeled water level at CP-MWB1 is about 0.4 feet lower than the measured water level (Figure 9 and Table 2). This well is located in an area with a steeper hydraulic gradient than the rest of the Fill Unit along this transect (Figure 3), which may reflect heterogeneity in the Fill Unit. Attempts to improve the calibration at CP-MWB1, such as increasing the upgradient boundary condition water level elevation or reducing the hydraulic conductivity of the Fill Unit, resulted in a poorer calibration at well CP-MWB3 and were not considered to improve the overall model calibration. Model calibration would be improved by assigning a zone with lower hydraulic conductivity extending from near CP-MWB1 to the east end of the model. This modification was not performed, but would reduce the modeled groundwater flow rate in the Fill Unit, in turn increasing the modeled AF relative to the model calibration presented in Table 2 and Figures 8 and 9. Based on these observations, the calibration without an additional lower hydraulic conductivity zone will result in conservative estimates of AFs and this calibration was retained for the predictive model runs.

The calibration to salinity at this transect is reasonable (Table 2), matching the salinity at well CP-MWB3. This calibration was achieved using a longitudinal dispersivity of 13 feet. The average groundwater travel time from well CP-MWB3 to the point of discharge at the shoreline can be estimated from the transient transport model as the time required for the modeled concentration at the shoreline to equal half the eventual maximum concentration at the shoreline. Without sorption and retardation the average transport time over the 85 foot distance between CP-MWB3 and the shoreline was 100 days, giving an average groundwater advective velocity of 0.9 feet per day (ft/day).

By comparing the modeled high-tide and low-tide groundwater elevation contours on Figure 12, it is apparent that the inland extent of tide-induced groundwater changes in the Fill Unit is limited to distances about 150 to 200 feet from the shoreline. Most of the tidal variability is limited to upland areas within 50 feet of the shoreline, consistent with the measured tidal study data. The confined Lower Sand has a much lower storage coefficient, and, as expected, tidal variability extends further inland.

Final calibrated input parameters (Table 3) were only slightly changed from the initial estimates. Horizontal K in the Fill Unit was increased from 2.6 to 6 ft/day, well within the range of estimated K for this unit based on slug test results (Aspect, 2010). The calibrated S_y for the unconfined Fill Unit was reduced to 0.01, a reasonable value given

that the nearshore aquifer material likely does not fully drain between successive high and low tides. The upgradient boundary conditions were slightly modified to improve the calibration to mean water levels.

Calibration Results for Law-1 Transect

Figures 14 through 17 show the transient water level calibration for wells Law-1, CP-MW03, CP-MW04, and CP-MW05, respectively. Plots comparing mean head observed at the wells to mean head calculated by the model are presented in Figure 18 and observed and calculated tidal range for the wells are plotted in Figure 19. Figure 20 shows in cross section modeled water levels along this transect for current capped conditions at high and low tides. Figure 21 shows modeled contours of percent marine water in cross section. Table 2 summarizes the water level and salinity calibration results, and Table 3 summarizes the final calibrated input parameters.

The water level calibration to Fill Unit wells Law-1 and CP-MW03 (Figures 14 and 15 and Table 2) reasonably matches the average water levels, with Law-1 modeled at 0.1 feet greater than observed and CP-MW03 essentially equal to the observed. The modeled variability at Law-1 was slightly less than observed, but is considered a reasonable match.

The water level calibration to Lower Sand Unit wells CP-MW04 and CP-MW05 is presented on Figures 16 and 17 and Table 2. The modeled mean water level at CP-MW05 was about 0.3 feet lower than observed and the mean water level at CP-MW04 was about 0.1 feet higher than observed. The magnitude of the tidal variability was about 0.35 feet higher than observed at CP-MW05 and about 0.1 feet lower than observed at CP-MW04. Modeled heads also lag in time behind measured heads at both wells. Attempts to improve calibration to mean water levels and/or the magnitude of the variability resulted in greater lag, while attempts to reduce the lag resulted in poorer calibration to the average and range in water levels. Some of the difficulty in calibrating to these wells is that the Law-1 transect may not be parallel to groundwater flow in the Lower Sand Unit.

Figure 20 shows in cross section modeled water levels along this transect for current capped conditions at high and low tides. Because of the presence of the low-permeability berm at the shoreline and the relatively extensive intertidal sediment cap, the tidal variability does not extend inland past the berm, which is consistent with the measured tidal study data. In the confined Lower Sand Unit, tidal variability extends inland past well CP-MW04. Overall, the current calibration is acceptable for evaluating attenuation of contaminants in the Fill Unit, Berm, and cap between Law-1 and the waterway.

The calibration to salinity at this transect is reasonable (Table 2), matching the salinity at well Law-1. This calibration was achieved using a longitudinal dispersivity of 6.25 feet. The average groundwater travel time from well Law-1 to the point of discharge at the shoreline was 420 days, based on the time required for the modeled concentration at the shoreline to equal half the eventual maximum concentration at the shoreline (measured at the high tide line). Over this approximately 20 foot distance this equates to an average advective velocity of less than 0.05 ft/day.

Attenuation Factors

Attenuation that occurs between a shoreline monitoring well (e.g., Law-1 or CP-MWB3) or other upland location and the point-of-exposure at the sediment bioactive zone is expressed as an AF. The AF is calculated as C_0/C , where C is the concentration at the point-of-exposure and C_0 is the concentration measured at the shoreline monitoring well. For a given concentration at a shoreline monitoring well, the expected concentration at the point-of-exposure assuming only physical attenuation can be calculated as C_0/AF . Conversely, for a given concentration at the point-of-exposure protective of surface water and sediment quality, the concentration at an upland monitoring well that would attenuate to that concentration can be calculated as $C_0 = C \times AF$.

The calibrated groundwater flow and transport models were used to predict attenuation of contaminants in groundwater due to tide-induced physical mixing prior to reaching the sediment bioactive zone. For the Law-1 transect, attenuation was estimated for the current condition and a future sediment cap condition expected to exist by 2013; for the Caustic Plume transect the attenuation was estimated for current conditions only since sediment capping is not planned during the Whatcom Waterway remediation. Modeled attenuation factors were then compared to attenuation factors calculated for the Law-1 area based on mercury concentrations in shoreline well Law-1 and offshore sediment porewater sample locations. The following g presents the modeled AFs, followed by comparison to the empirically derived AFs.

Modeled Attenuation Factors

To determine the AF, additional transport model runs were completed in which a constant concentration of 1 was applied at the location of shoreline monitoring wells Law-1 (Law-1 transect) or CP-MWB3 (Caustic Plume transect), while cells representing surface water were specified to have a constant concentration of 0. The model then predicts C/C_0 for each model cell, which can be inverted to arrive at the AF between Law-1 or CP-MWB3 and any downgradient cell.

The Caustic Plume transect model was run as the current condition only, since sediment capping is not planned in this area as part of the Whatcom Waterway cleanup action. Two versions of the Law-1 transect model were run. The first version, reflecting current conditions, was the calibrated model discussed above. The second version, reflecting the future capped condition, includes an additional 4 to 5 feet of intertidal cap thickness based on the current remedial design (Figure 6). The three models were run until modeled concentrations approached steady state conditions.

Figure 25 shows AFs calculated from modeled C/C_0 at the Caustic Plume transect between well CP-MWB3 and Bellingham Bay. Figures 26 and 27 show AFs calculated from modeled C/C_0 at the Law-1 transect for current and future capped conditions, respectively.

Table 4 presents maximum predicted concentrations (as percent of concentration at the shoreline monitoring well) and associated AFs in the sediment bioactive zone for several locations along the Law-1 transect and where the Fill Unit groundwater discharges to surface water at the Caustic Plume transect.

At the Caustic Plume transect, the maximum concentration in the sediment bioactive zone was less than 1 percent of the concentration at shoreline well CP-MW3B. The resulting AF is 180.

Modeled point-of-exposure concentrations and AFs at several locations were determined for the current and future conditions at the Law-1 transect. For both current and future cases, predicted groundwater concentrations are highest at the high tide line where most of the Fill Unit groundwater discharges. The location of the high tide line differs between the current and future capped cases, with the high tide line located at the berm edge for current conditions, and about 60 feet north of the berm under the expected future condition where placement of additional cap will raise the elevation of the intertidal area. Predicted concentrations rapidly decrease further offshore, as groundwater flows through the sediment cap.

For the current cap condition, the maximum concentration in the sediment bioactive zone (at high tide line) is less than 2 percent of the concentration at well Law-1, producing an AF of 76. Moving further offshore within the sediment cap, AFs increase markedly to values exceeding 2,000 (Table 4).

For the future capped condition, the maximum concentration is less 0.2 percent of the concentration at well Law-1, producing an AF of about 630. Calculated AFs for offshore locations range from about 1,400 to tens of thousands (Table 4).

Comparison to Empirical Data

As a check on the modeling results, shoreline well and offshore sediment porewater dissolved mercury data were used to estimate AFs in the Law-1 area under current conditions. Table 5 presents dissolved mercury concentration data from two nearshore monitoring wells (Law-1 and L1-MW01) and four porewater samples collected from the intertidal zone downgradient of the Law-1 area. Dividing the average dissolved mercury concentration at the nearshore wells by the dissolved mercury concentrations in the sediment porewater samples produces empirically-derived AFs ranging from 54 to 290, showing reasonable agreement with the lowest modeled AF for the Law-1 transect (76).

The measured attenuation factors are likely conservative, due to porewater sample collection depths and the presence of mercury-impacted sediment in the porewater sampling depth interval. Specifically:

- The measured AFs (54 to 290) are based on porewater concentrations measured at up to 4.5 feet below mudline, whereas the modeling represents the uppermost 0.4 foot of sediment below mudline. As a result, the wellpoint measurements do not reflect the full groundwater flow path and attenuation that would occur before discharge to the sediment bioactive zone.
- The measured concentrations in the intertidal wellpoints L1-WP1, L1-WP2, and L1-WP3 likely include some dissolved mercury attributable to contaminated sediment that the wellpoints overlie or are screened into. The contaminated sediment source is not accounted for in the shoreline groundwater modeling, which only considers transport of contamination from the upland. If the sediment source was absent, there would be lower concentrations measured in the

wellpoints, and thus greater measured attenuation. Dissolved-phase contamination generated from existing contaminated sediment will be addressed during design of sediment capping as part of the Whatcom Waterway remedial design.

Due to inherent uncertainty in modeling of AFs we propose, for the purposes of the feasibility study, to adjust the model-derived attenuation factors based on the empirically measured AFs. The lowest empirical AF at the Law-1 transect of 54 is about 0.7 times the lowest AF from the model for this transect. Applying this safety factor to the minimum modeled AFs for the current and future conditions at the Law-1 transect (76 and 630) and the current conditions at the Caustic Plume transect (180) results in adjusted AFs of about 50 and 220 for current and future conditions at Law-1, and about 130 for current conditions at the Caustic Plume transect.

The AFs, with appropriate safety factor adjustments, will be incorporated into the RI/FS documents by establishing groundwater screening levels applied at shoreline monitoring wells. As new porewater and groundwater data become available the empirically-derived AFs and suitable safety factors may be revised during the Feasibility Study and/or remedial design phases, subject to Ecology concurrence.

References

- Aspect, 2009, RI/FS Work Plan, Georgia-Pacific West Site, Bellingham, Washington, September 10, 2009, Final.
- Aspect and Anchor QEA, 2010, Remedial Investigation, Georgia-Pacific West Site, Bellingham, Washington, September 29, 2010, Draft.
- Aspect and Anchor QEA, 2011, Modeling Approach to Assess Groundwater Screening Levels Protective of Sediment and Surface Water, Georgia-Pacific West Site, Bellingham, Washington, March 31, 2011.
- Aspect, 2011, Interim Action Pre-Design Investigation Report, Georgia-Pacific West Site, Bellingham, Washington, April 28, 2011.
- Ecology, 1994, Marine Water Column Ambient monitoring Program: Wateryear 1993 Data Report. Publication No. 94-210.
- Ferris, J. G., 1951, Cyclic Fluctuations of Water Level as a Basis for Determining Aquifer Transmissibility, Association Internationale d'Hydrologie Scientifique, Publication No. 33, pp 148-155.
- Freeze, R.A., and Cherry J.A., 1979, Groundwater, Prentice-Hall, Inc., Englewood Cliffs, New Jersey.
- Hem, J.D., 1985, Study and interpretation of the Chemical Characteristics of Natural Water, USGS, 1985.
- Langevin, C. D., W. B. Shoemaker, and W. Guo, 2003, MODFLOW-2000, the U.S. Geological Survey Modular Ground-Water Model-Documentation of the

- SEAWAT-2000 Version with the Variable-Density Flow Process (VDF) and the Integrated MT3DMS Transport Process (IMT), USGS Open-File Report 03-426.
- MacDonald, M. G. and Harbaugh, A. W., 1988, MODFLOW, A Modular Three Dimensional Finite-Difference Groundwater Flow Model: U.S. Geological Survey Techniques of Water-Resource Investigation, Book 6, Chapter A1, 586p.
- National Oceanic and Atmospheric Administration (NOAA), 2011, Tide Prediction: Cherry Point.
- Niswonger, R. G., and S. Panday, 2011, MODFLOW-NWT, A Newton formulation for MODFLOW-2005, U.S. Geological Survey Techniques and Methods 6-A37, 44p.
- Serfes, M.E., 1991, Determining the Mean Hydraulic Gradient of Ground Water Affected by Tidal Fluctuations, Ground Water, v. 29, No. 4, July-August 1991.
- Zheng, C. and Bennet, G. D., 2002, Applied Contaminant Transport Modeling, Second Edition, John Wiley and Sons, Inc., New York.
- Zheng, C. and Wang, P., 1999, MT3DMS, A Modular Three-Dimensional Multi-species Transport Model for Simulation of Advection, Dispersion, and Chemical Reactions of Contaminants in Groundwater Systems: Documentation and User's Guide, U.S. Army Corps of Engineers, U.S. Army Engineer Research and Development Center, Vicksburg, Mississippi, SERDP-99-1.

Limitations

Work for this project was performed and this report prepared in accordance with generally accepted professional practices for the nature and conditions of work completed in the same or similar localities, at the time the work was performed. It is intended for the exclusive use of Port of Bellingham for specific application to the referenced property. This report does not represent a legal opinion. No other warranty, expressed or implied, is made.

Table 1 - Initial Model Parameters

070188, GP West Site - Shoreline Groundwater Modeling
Bellingham, WA

Hydrogeologic zone	Caustic Plume Transect					Law-1 Transect					
	Kx in ft/day	Kz in ft/day	Sy or (Ss) ¹	Upgradient BC Elev. in feet	Dispersivity in ft. (Longitudinal)	Kx in ft/day	Kz in ft/day	Sy or (Ss) ¹	Recharge in ft./day	Upgradient BC Elev. in feet	Dispersivity in ft. (Longitudinal)
Fill Unit-Sand	2.6	0.26	0.2	12	5	6	0.6	0.01	0.001	11	13
Tidal Flat Aquitard	0.01	0.001	(1E-5)	--	5	0.06	0.006	(1E-5)	--	--	13
Fill Unit-Berm	--	--	--	--	--	2	2	0.01/(1E-5)	--	--	13
Lower Sand Unit	20	2	(1E-5)	7	5	9	0.9	(1E-5)	--	6.5	13
Current Sediment Cap	--	--	--	--	--	100	10	0.01/(1E-5)	--	--	13
Proposed Sediment Cap	--	--	--	--	--	100	10	0.01/(1E-5)	--	--	13

Notes

Effective porosity is assumed to be 0.2 (unitless)

Kx - Horizontal hydraulic conductivity

Kz - Vertical hydraulic conductivity

Sy - Specific yield (applied to partially saturated model cells, unitless)

Ss - Specific storage (applied to fully saturated model cells, 1/ft.)

BC - Boundary Condition

¹ Specific storage is applied to units that are confined or fully saturated/submerged, specific yield is applied to unconfined units

Table 2 - Model Calibration Results

070188, GP West Site - Shoreline Groundwater Modeling
Bellingham, WA

Well ID	Mean Hydraulic Head in Feet ¹			Range of Hydraulic Head in Feet ¹			Mean Seawater Concentration ²			
	Modeled	Observed ¹	Residual	Modeled	Observed ¹	Residual	Modeled	Observed ³	Residual	
Caustic Plume	CP-MWB3	6.28	6.16	-0.11	1.10	1.14	0.04	11%	11%	<1%
	CP-MWB1	8.04	8.44	0.40	0.0007	**	**	<1%	1%	<1%
Law-1 Profile	Law-1	8.58	8.47	-0.11	0.25	0.33	0.08	5%	5%	<1%
	CP-MW03	12.77	12.80	0.03	0.01	**	**	<1%	2%	1%
	CP-MW04	6.81	6.69	-0.12	0.68	0.80	0.12	<1%	N/A	--
	CP-MW05	6.25	6.54	0.29	2.24	1.89	-0.35	<1%	N/A	--

Notes

¹ Observed Mean and Range of Hydraulic Head taken from tidal monitoring studies from 5/11/2010 to 5/14/2010 (Caustic Plume) and 10/19/2009 to 10/22/2009 (Law-1 Profile) (Aspect, 2010).

² Values are presented as percent seawater

³ Observed Seawater Concentration estimated from measured bromide concentrations using a bromide mixing model and assuming a bromide concentration of 45 mg/L for Seawater in Whatcom Waterway.

N/A - Bromide data not available

** Water levels in wells CP-MWB1 and CP-MW03 varied over the respective tidal studies by about 0.2 feet; however the variability was due to noise or a gradual drift in the data and does not appear to be related to tidal effects.

Table 3 - Calibrated Model Parameters

070188, GP West Site - Shoreline Groundwater Modeling
Bellingham, WA

Hydrogeologic zone	Caustic Plume Transect					Law-1 Transect					
	Kx in ft/day	Kz in ft/day	Sy or (Ss) ¹	Upgradient BC Elev. in feet	Dispersivity in ft. (Longitudinal)	Kx in ft/day	Kz in ft/day	Sy or (Ss) ¹	Recharge in ft./day	Upgradient BC Elev. in feet	Dispersivity in ft. (Longitudinal)
Fill Unit-Sand	6	0.6	0.01	11	13	0.3	0.03	0.01	0.003	12.5	6.25
Tidal Flat Aquitard	0.01	0.001	(1E-5)	--	13	0.01	0.001	(1E-4)	--	--	6.25
Fill Unit-Berm	--	--	--	--	--	0.05	0.01	0.005/3.75E-5	--	--	6.25
Lower Sand Unit	20	2	(1E-4)	8	13	20	2	(1E-4)	--	7.5	6.25
Current Sediment Cap	--	--	--	--	--	100	10	0.01/(1E-4)	--	--	6.25
Proposed Sediment Cap	--	--	--	--	--	100	10	0.01/(1E-4)	--	--	6.25

Notes

Effective porosity is assumed to be 0.2 (unitless)

Kx - Horizontal hydraulic conductivity

Kz - Vertical hydraulic conductivity

Sy - Specific yield (applied to partially saturated model cells, unitless)

Ss - Specific storage (applied to fully saturated model cells, 1/ft.)

BC - Boundary Condition

¹ Specific storage is applied to units that are confined or fully saturated/submerged, specific yield is applied to unconfined units

Table 4 - Transport Model Results

070188, GP West Site - Shoreline Groundwater Modeling
Bellingham, WA

Location	Caustic Plume Transect	
	Max. Conc. ¹	Attenuation Factor ²
MLLW Line	0.57%	1.8E+02

Distance Off Shore from Top of Berm in feet	Law-1 with Current Sediment Cap		Law-1 with Future Sediment Cap	
	Max. Conc. ¹	Attenuation Factor ²	Max. Conc. ¹	Attenuation Factor ²
5 ^a	1.3%	7.6E+01	-- ^c	-- ^c
35	0.026%	3.9E+03	-- ^c	-- ^c
64 ^b	0.011%	8.8E+03	0.16%	6.3E+02
94	0.0016%	6.4E+04	0.073%	1.4E+03
127	0.0018%	5.5E+04	0.028%	3.5E+03
166	0.051%	2.0E+03	0.014%	7.2E+03
216	0.011%	9.4E+03	0.010%	9.9E+03
275	0.00088%	1.1E+05	0.00070%	1.4E+05

Notes

¹ Concentrations are presented as percent of concentration measured at Law-1 (Law-1 transect) and CP-MWB3 (Caustic Plume Transect).

² Attenuation factors are calculated as 1/(Max. concentration in bioactive zone (%)) (refer to text).

^a Location coincides with high tide under current conditions

^b Location coincides with high tide under future conditions

^c Location is above high tide line after future capping

Table 5 - Law-1 Area AFs Derived from Empirical Shoreline Groundwater Quality Data

070188, GP West Site - Shoreline Groundwater Modeling
 Bellingham, WA

Location	Avg Dissolved Hg Concentration (ug/L)	Group Avg Dissolved Hg Concentration (ug/L)	Empirical Hg Concentration Attenuation (upland to intertidal)
Upland Monitoring Wells (RI Data)			
Law-1	18.0	12.7	
L1-MW01	7.5		
Intertidal Wellpoints			
<i>Wellpoints Screened 1.5 - 4.5 feet below Mudline (RI Data)</i>			
L1-WP1	0.51	0.24	54
L1-WP2	0.15		
L1-WP3	0.05		
<i>Wellpoint Screened 0.7 - 1.6 feet below Mudline (Log Pond Interim Action Monitoring Data, 2001-2005)</i>			
WP-1	0.044	0.044	290



Whatcom Waterway

STATE-OWNED LAND
MANAGED BY DNR

Chlor-Alkali Area

PORT OF BELLINGHAM

Pulp Mill

Tissue Mill

Inner Harbor Line

PORT

BNSF

PUGET SOUND ENERGY

BNSF

W CHESTNUT ST

CORNWALL AVE

CITY

COUNTY

BNSF

CITY

PORT

PORT

BNSF

CITY

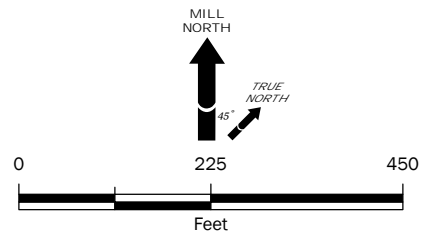
BNSF

PORT

PORT

Property Boundaries from ALTA Survey
(David Evans and Assoc., 2004) and
City of Bellingham GIS Tax Parcel Database

Inner Harbor Line



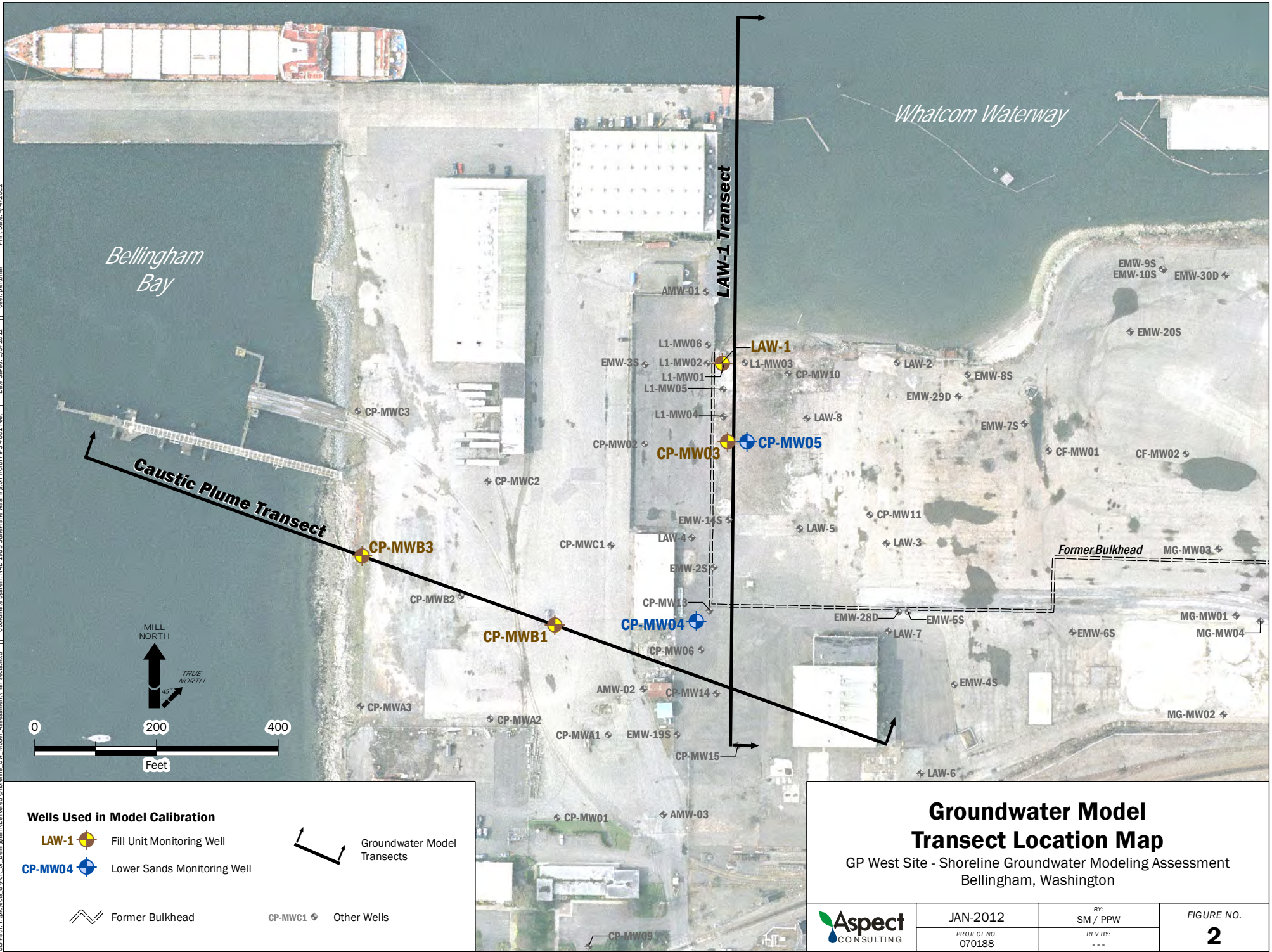
Port of Bellingham and Adjacent Properties

GP West Site - Shoreline Groundwater Modeling Assessment
Bellingham, Washington

	NOV-2011	BY: PPW	FIGURE NO. 1
	PROJECT NO. 070188	REV BY: ---	

GIS Path: I:\projects_8\Port of Bellingham\Deliverables\Shoreline_GW_Model_Assessment\SiteBoundary_and_AdjacentProperties.mxd | Coordinate System: NAD 1983 StatePlane Washington North Fps 4691 Feet | Date Saved: 11/14/2011 | User: scott | Print Date: 4/14/2012

GIS Path: T:\projects_8\Port_of_Bellingham\Delivered\Shoreline_GW_Model_Assessment\Transects.mxd | Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet | Date: Sheet: 1/2/2012 | User: pwhitman | Print Date: 4/4/2012



Wells Used in Model Calibration

- LAW-1** (Yellow circle with crosshair) Fill Unit Monitoring Well
- CP-MW04** (Blue circle with crosshair) Lower Sands Monitoring Well

Groundwater Model Transects

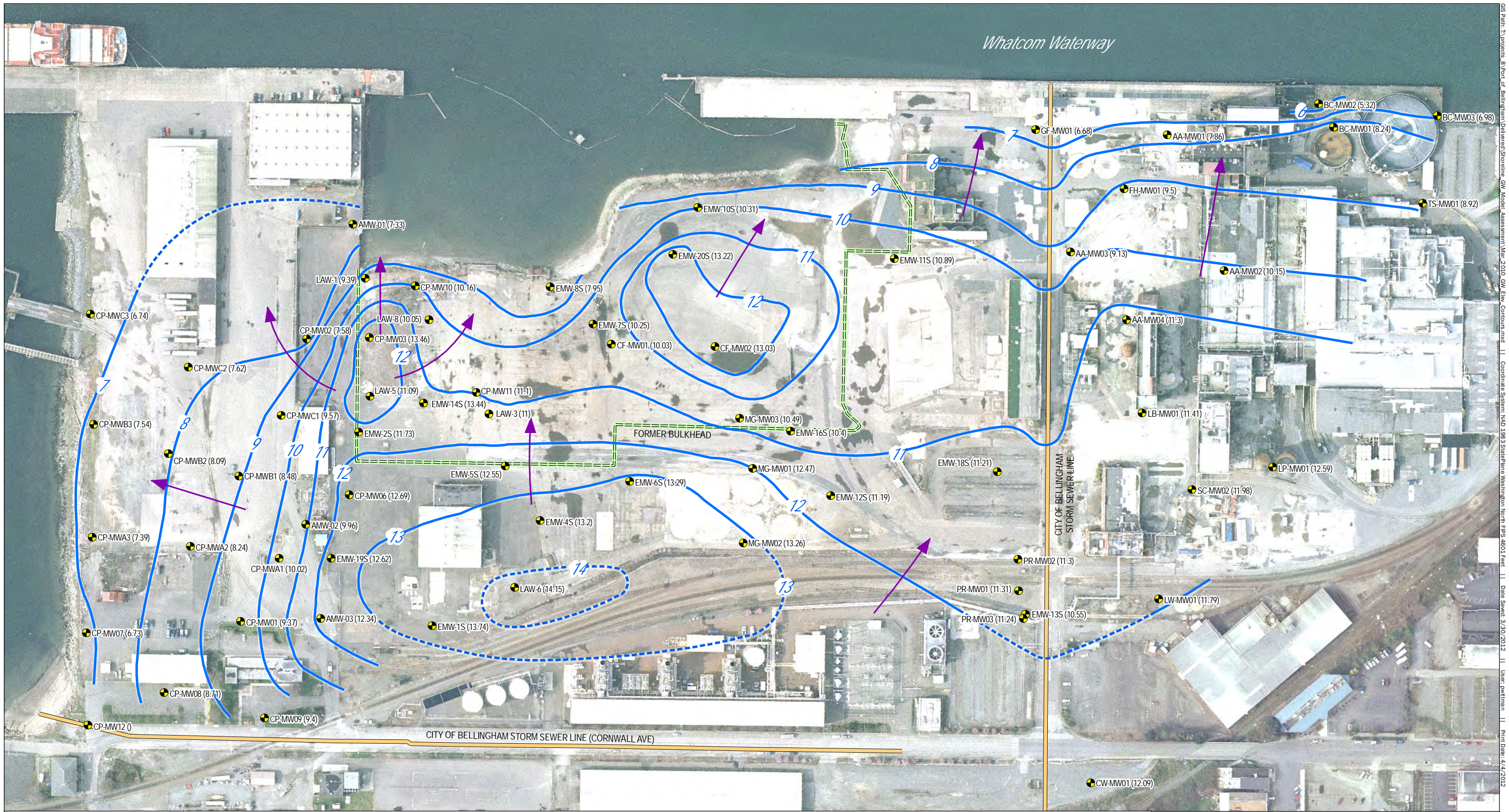
- CP-MWC1** (Grey circle with crosshair) Other Wells

Former Bulkhead (Dashed line symbol)

Groundwater Model Transect Location Map

GP West Site - Shoreline Groundwater Modeling Assessment
Bellingham, Washington

	JAN-2012	BY: SM / PPW	FIGURE NO. 2
	PROJECT NO. 070188	REV BY: ---	



Whatcom Waterway

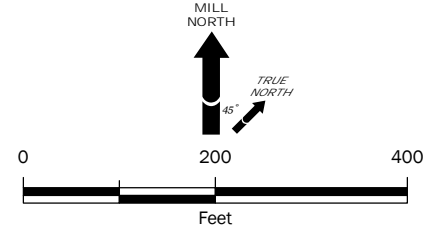
GIS Path: T:\Projects_8\Port of Bellingham\Deliverables\Shoreline_GW_Model_Assessment\Map_2010_GW_Elev_Contours.mxd | Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet | Date Saved: 3/30/2012 | User: jpkorman | Print Date: 4/4/2012

Well ID → AMW-01(6.1) ● Wells
 ("NM" = not measured)
 Spot groundwater elevation measured on 3/30/10†

* = Anomalous value not used in contouring
 †NOTE: Vertical datum for groundwater elevations is MLLW

● Fill Unit Groundwater Elevation Contours (One-Foot Intervals)†
 → Generalized Groundwater Flow Direction

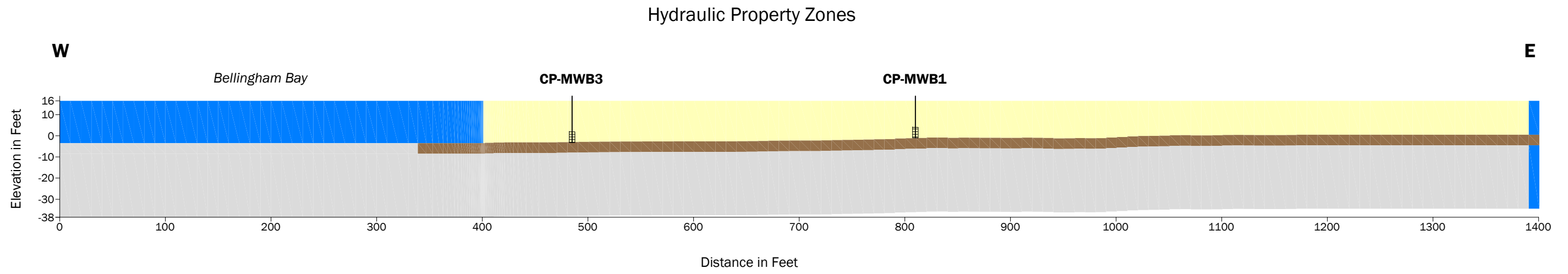
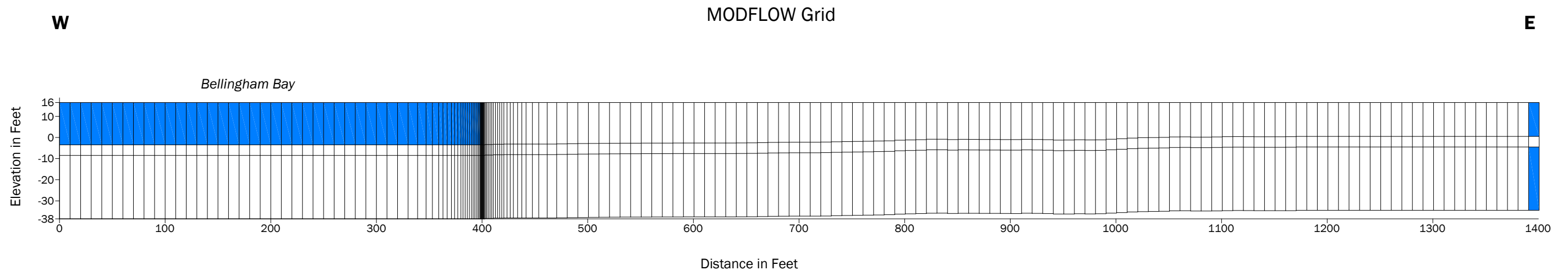
— City of Bellingham Storm Sewer
 - - - Former Bulkhead



Fill Unit Groundwater Elevation Contour Map (March 2010)

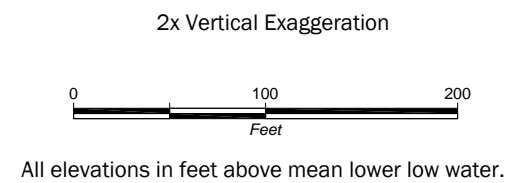
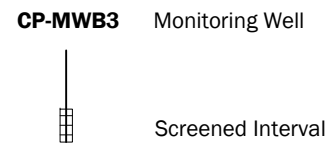
GP West Site - Shoreline Groundwater Modeling Assessment
 Bellingham, Washington

Aspect CONSULTING	MAR-2012	BY: PPW	FIGURE NO. 3
	PROJECT NO. 070188	REV BY: SCC	



LEGEND

- Fill Unit-Sand
- Lower Sand Unit
- Tidal Flat Aquitard Unit
- Specified Head/Concentration Boundary Condition



**Model Construction
(Caustic Plume Transect)**

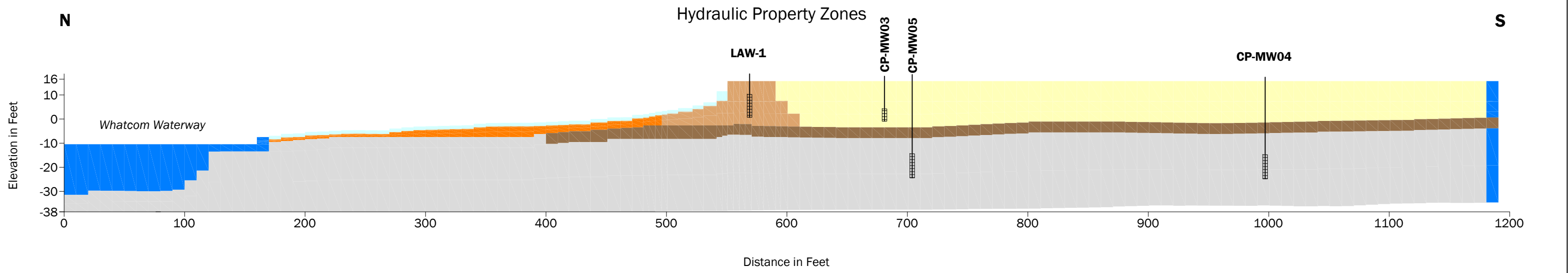
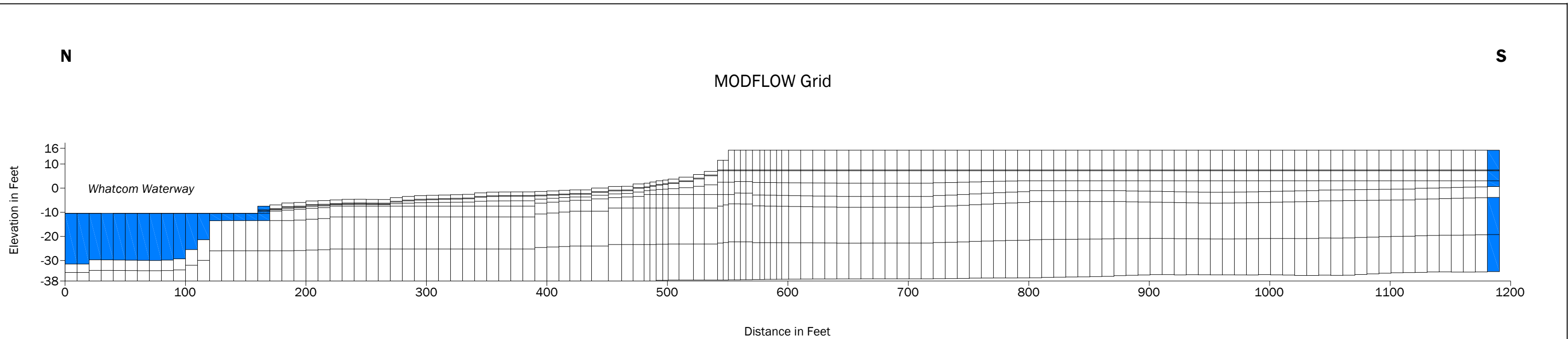
GP West Site - Shoreline Groundwater Modeling Assessment
Bellingham, Washington



APR-2012
PROJECT NO.
070188

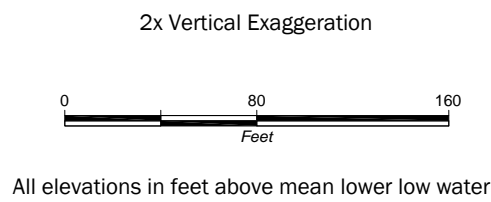
BY:
SM/SCC
REV BY:
-

FIGURE NO.
4



LEGEND

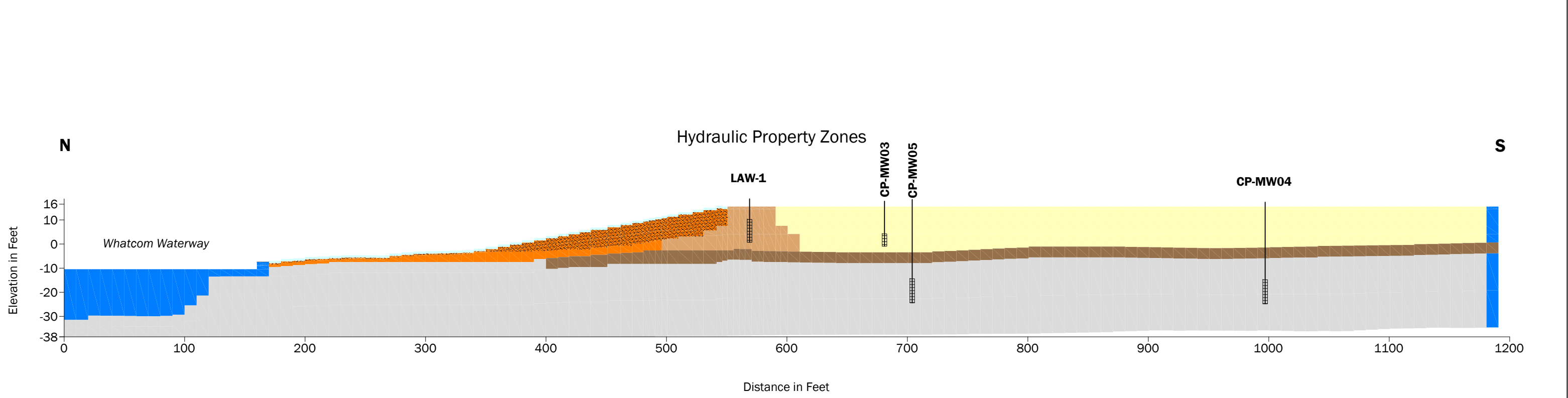
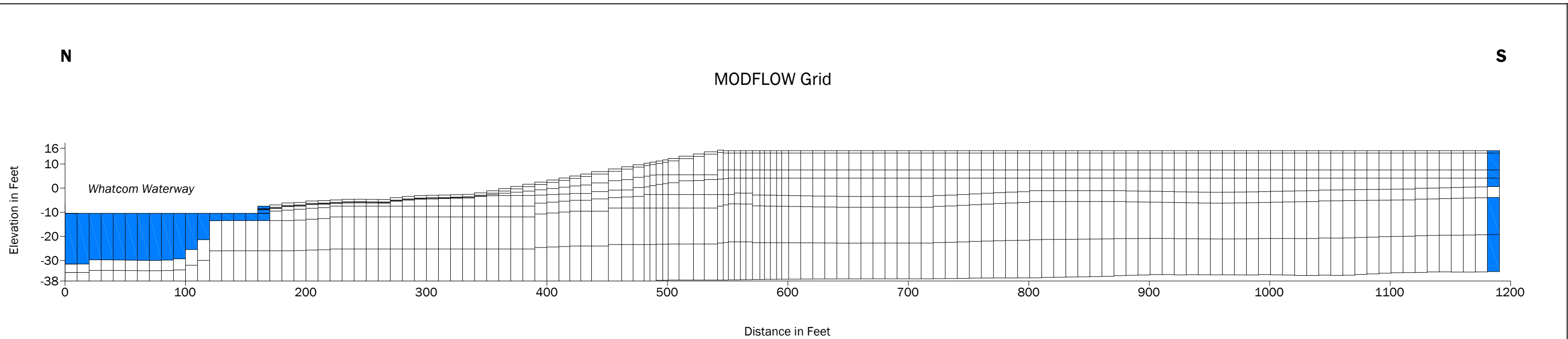
- Whatcom Waterway
- Fill Unit-Berm
- Fill Unit-Sand
- Tidal Flat Aquitard Unit
- Lower Sand Unit
- Current Sediment Cap
- Specified Head/Concentration Boundary Condition
- LAW-1** Monitoring Well
- Screened Interval



Model Construction
(Law-1 Transect-Current Sediment Cap)

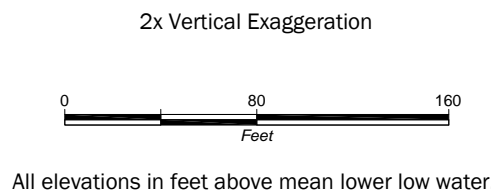
GP West Site - Shoreline Groundwater Modeling Assessment
Bellingham, Washington

	APR-2012	BY: SM/SCC	FIGURE NO. 5
	PROJECT NO. 070188	REV BY: -	



LEGEND

- Whatcom Waterway
 - Lower Sand Unit
 - Fill Unit-Berm
 - Current Sediment Cap
 - Fill Unit-Sand
 - Proposed Sediment Cap
 - Tidal Flat Aquitard Unit
 - Specified Head/Concentration Boundary Condition
- LAW-1** Monitoring Well
- Screened Interval

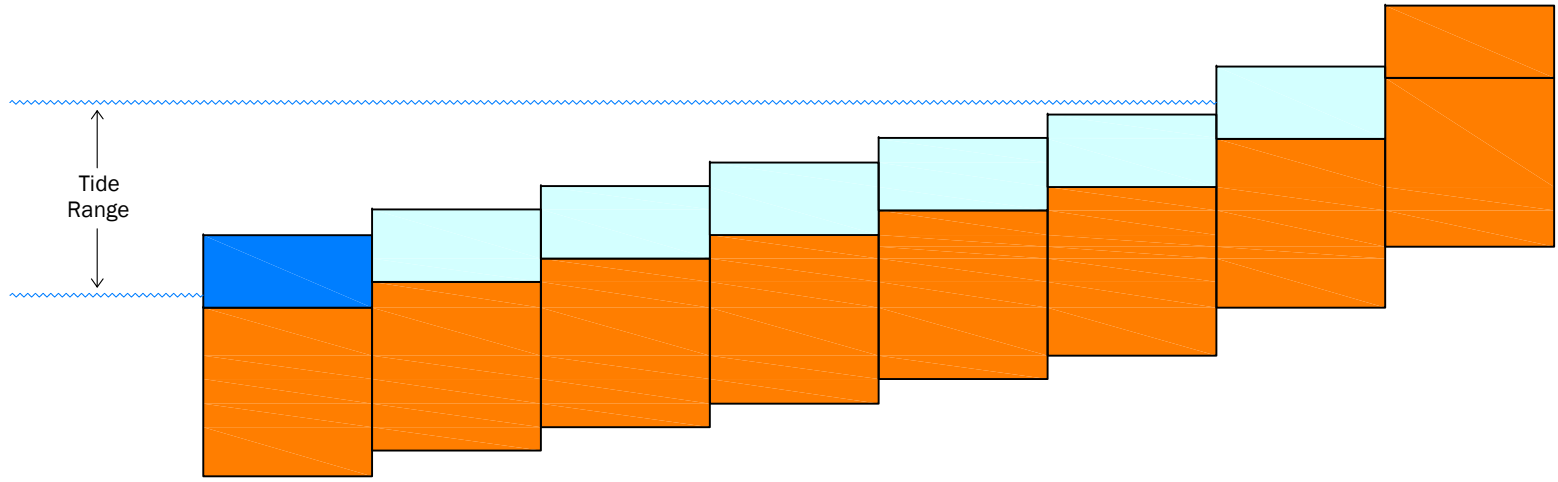


Model Construction
(Law-1 Transect-Future Sediment Cap)

GP West Site - Shoreline Groundwater Modeling Assessment
Bellingham, Washington

	APR-2012	BY: SM/SCC	FIGURE NO. 6
	PROJECT NO. 070188	REV BY: -	

CAD Path: Q:\Port of Bellingham\070188 Former GP Mill Property\2012-04 Modeling\Figures\070188-03 Model Construction Schematic.dwg Letter Landscape | Date Saved: Apr 09 2012 2:22pm | User: scudl




Not to Scale

LEGEND

- Sediment Cap
- Whatcom Waterway Specified Head Boundary Condition
- Whatcom Waterway Intertidal Zone

**Schematic of Model Construction for
 Whatcom Waterway and Intertidal Zone
 (Law-1 Transect)**

GP West Site - Shoreline Groundwater Modeling Assessment
 Bellingham, Washington

	APR-2012	BY: SM/SCC	FIGURE NO. 7
	<small>PROJECT NO.</small> 070188	<small>REV BY:</small> SCC	

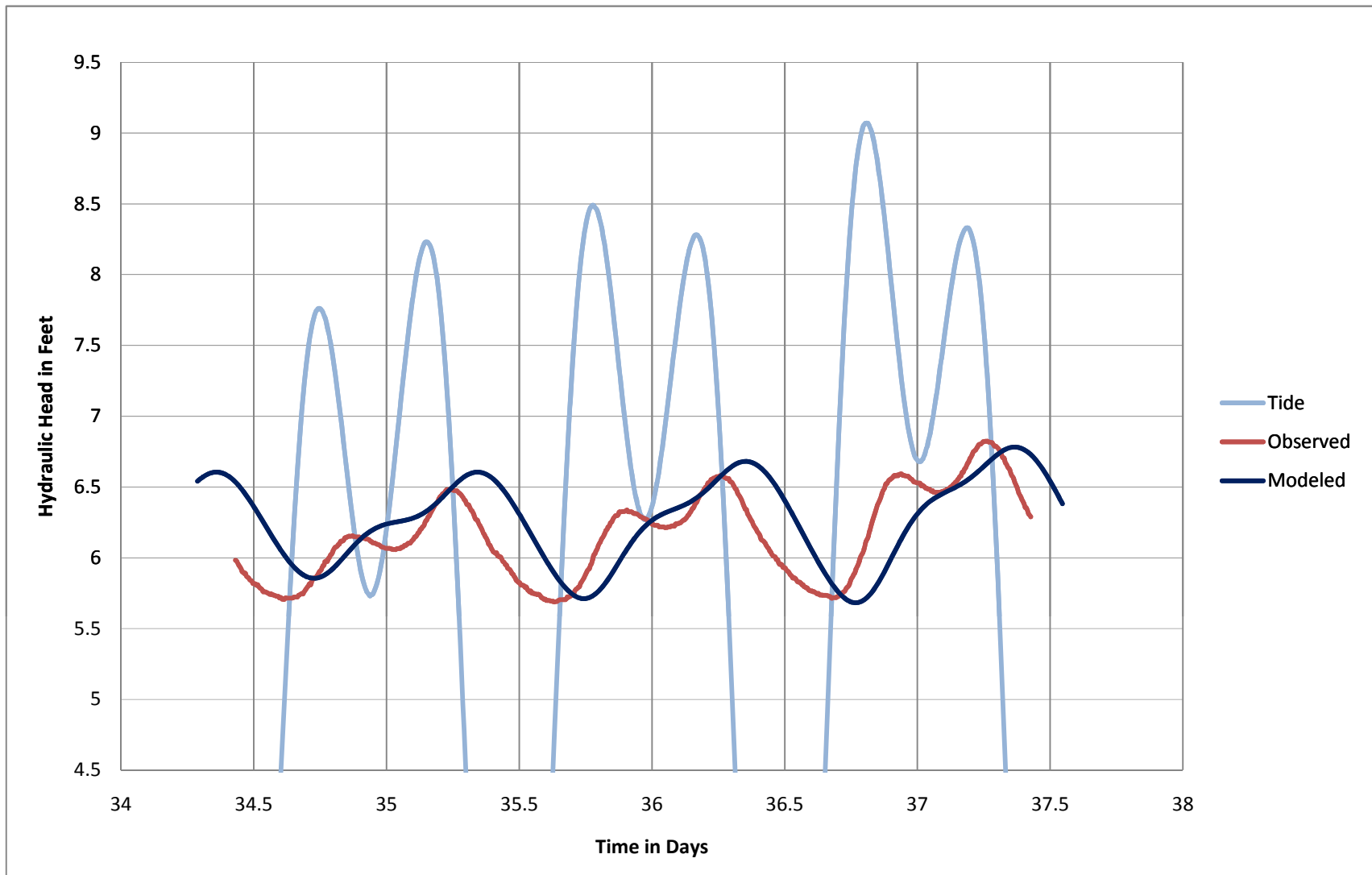


Figure 8
Head Calibration at CP-MWB3
(Caustic Plume Transect)
 GP West Site - Shoreline Groundwater Modeling
 Bellingham, Washington

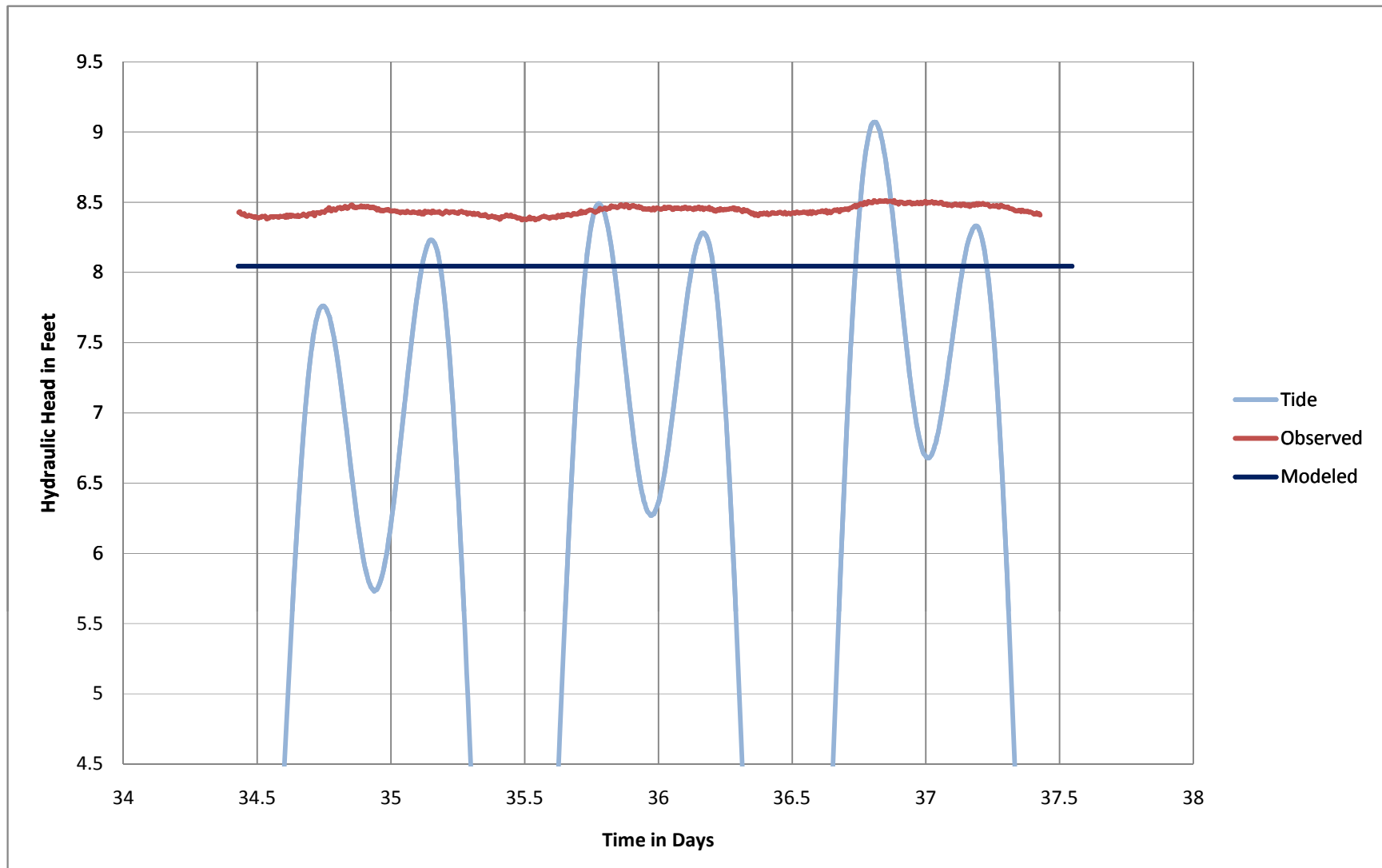


Figure 9
Head Calibration at CP-MWB1
(Caustic Plume Transect)
 GP West Site - Shoreline Groundwater Modeling
 Bellingham, Washington

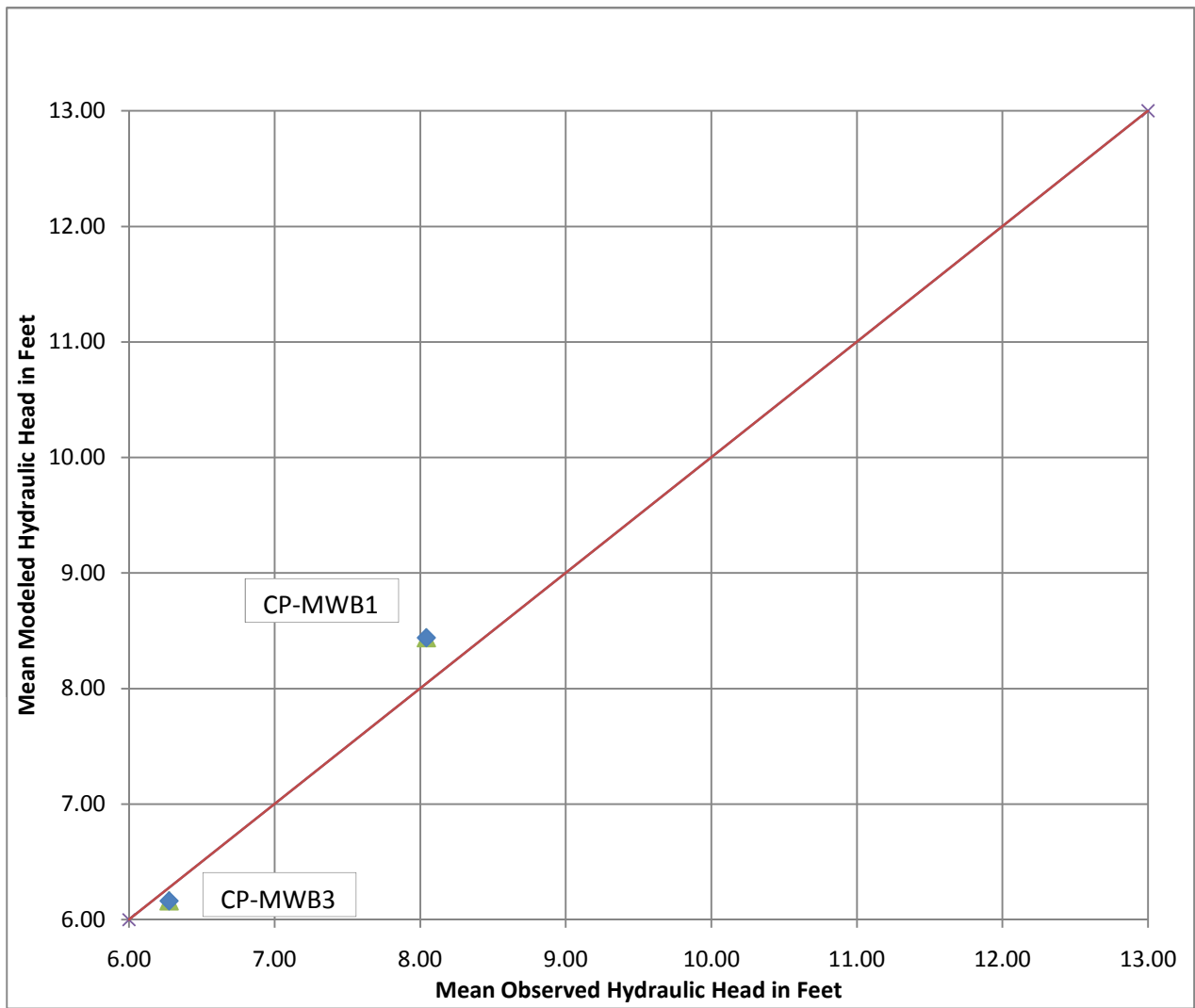


Figure 10
Mean Head Calibration
(Caustic Plume Transect)
 GP West Site - Shoreline Groundwater Modeling
 Bellingham, Washington

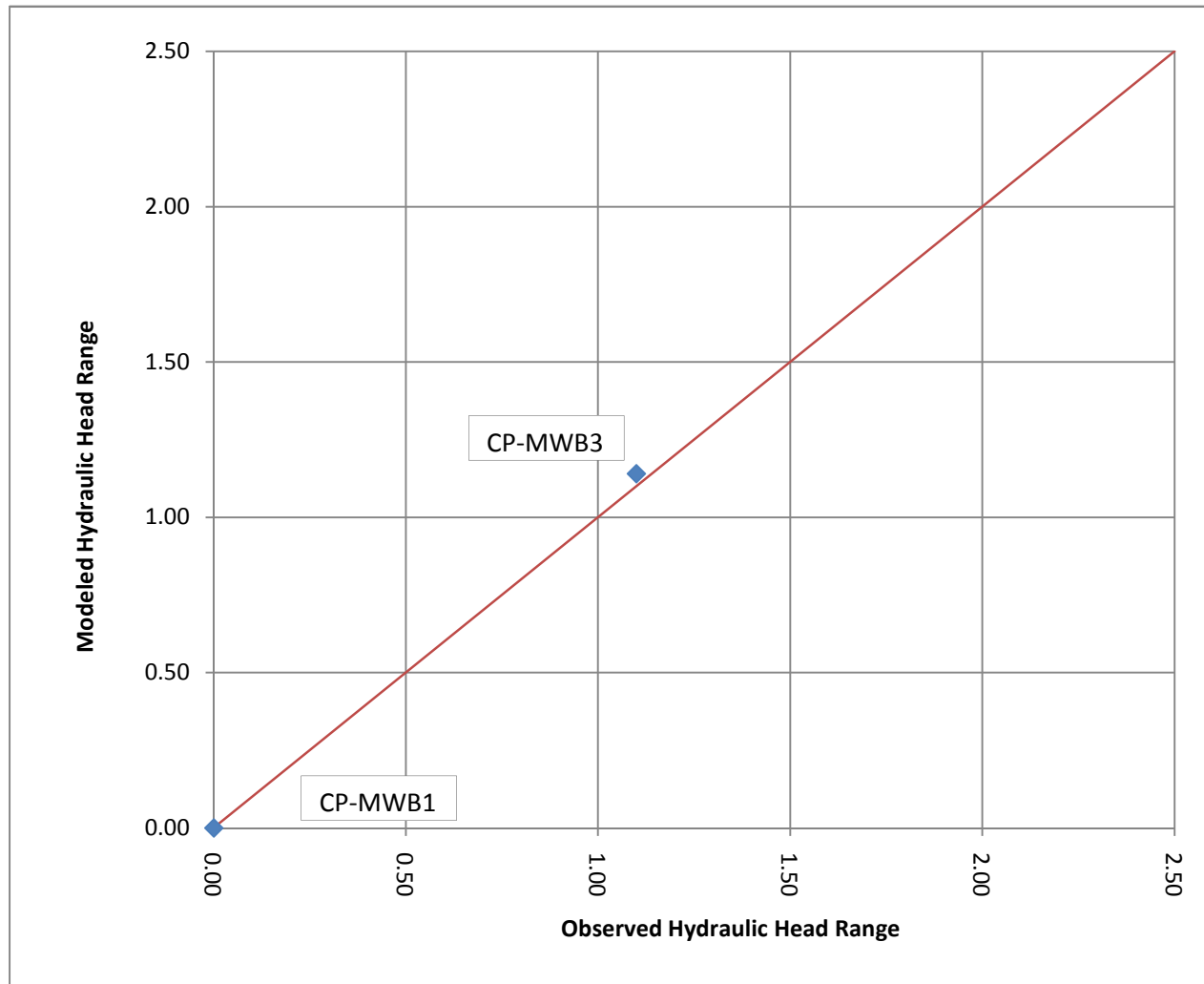
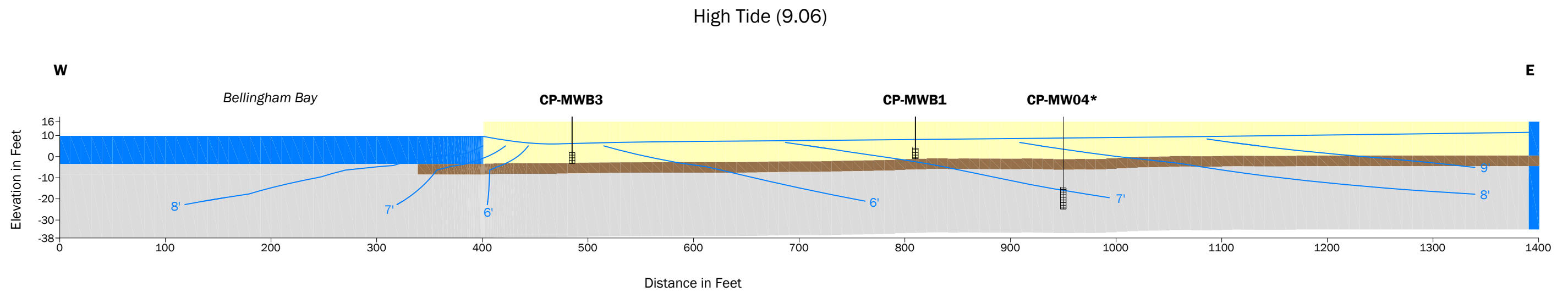
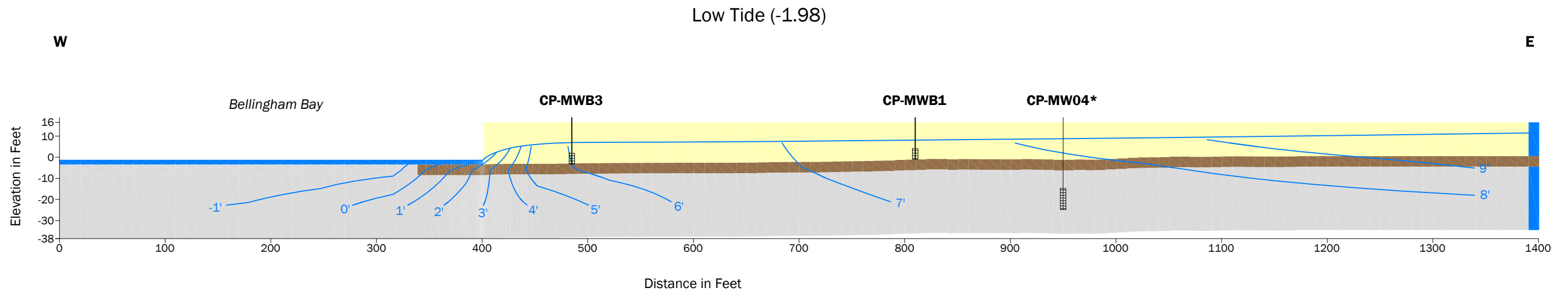


Figure 11
Head Range Calibration
(Caustic Plume Transect)
 GP West Site - Shoreline Groundwater Modeling
 Bellingham, Washington

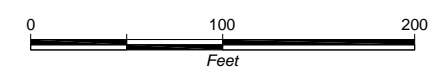


LEGEND

- Fill Unit-Sand
- Lower Sand Unit
- Tidal Flat Aquitard Unit
- Specified Head/Concentration Boundary Condition
- CP-MWB3 Monitoring Well
- Screened Interval

* Water level data at CP-MW04 do not coincide with data collected at MP-MWB3 and CP-MWB1 and was not used as a calibration target.

2x Vertical Exaggeration

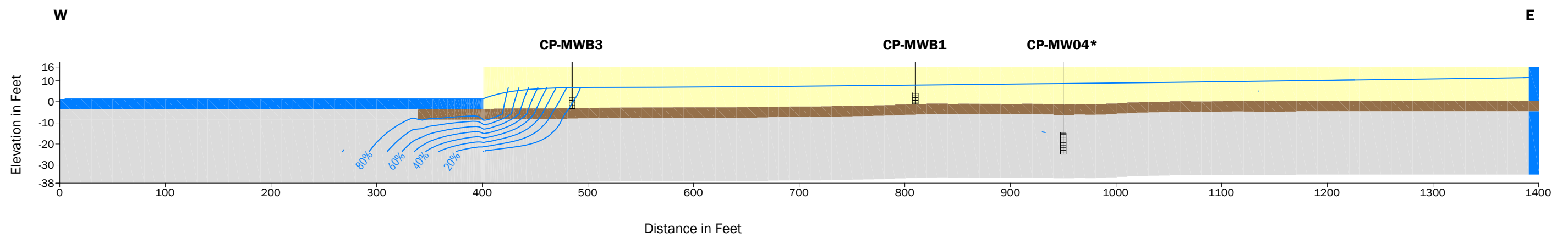


All elevations in feet above mean lower low water.

**Modeled Hydraulic Head Contours
(Caustic Plume Transect)**

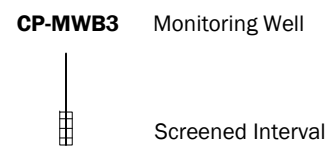
GP West Site - Shoreline Groundwater Modeling Assessment
Bellingham, Washington

	APR-2012	BY: SM/SCC	FIGURE NO. 12
	PROJECT NO. 070188	REV BY: SCC	

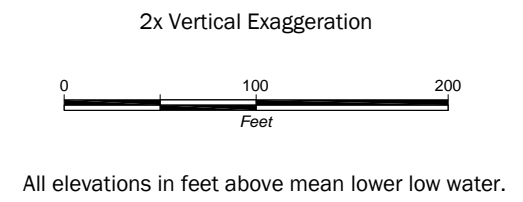


LEGEND

- Fill Unit-Sand
- Lower Sand Unit
- Tidal Flat Aquitard Unit
- Specified Head/Concentration Boundary Condition



* Water level data at CP-MW04 do not coincide with data collected at MP-MWB3 and CP-MWB1 and was not used as a calibration target.



**Modeled Percent Marine Water Contours
(Caustic Plume Transect)**

GP West Site - Shoreline Groundwater Modeling Assessment
Bellingham, Washington

	APR-2012	BY: SM/SCC	FIGURE NO. 13
	PROJECT NO. 070188	REV BY: SCC	

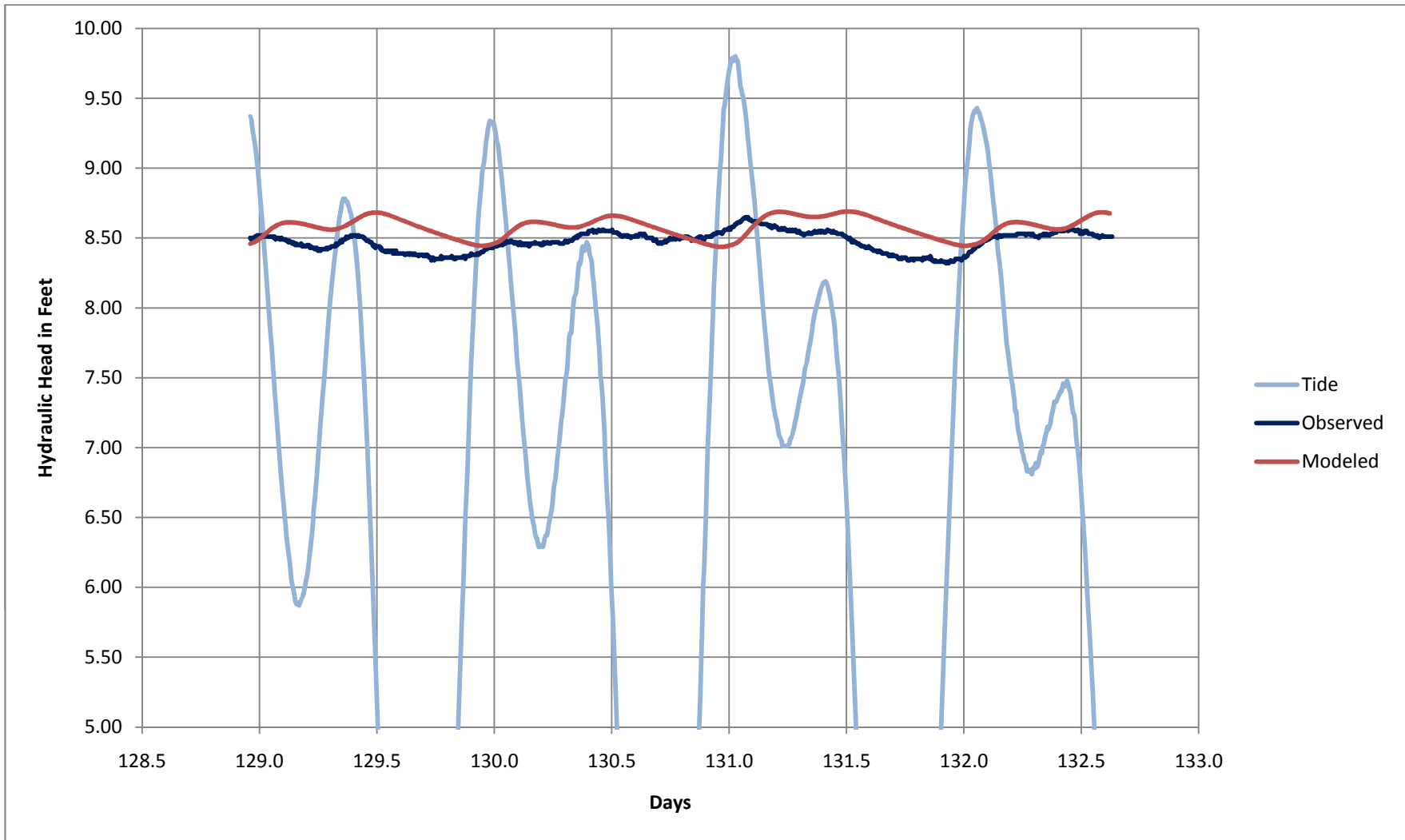


Figure 14
Head Calibration at Law-1
(Law-1 Transect)

GP West Site - Shoreline Groundwater Modeling
 Bellingham, Washington

Aspect Consulting

4/16/2012

S:\Port of Bellingham\GP West 070188\Deliverables\Gw to Sediment modeling report\Fig. 8-11_14-19 CalCurves.xlsx

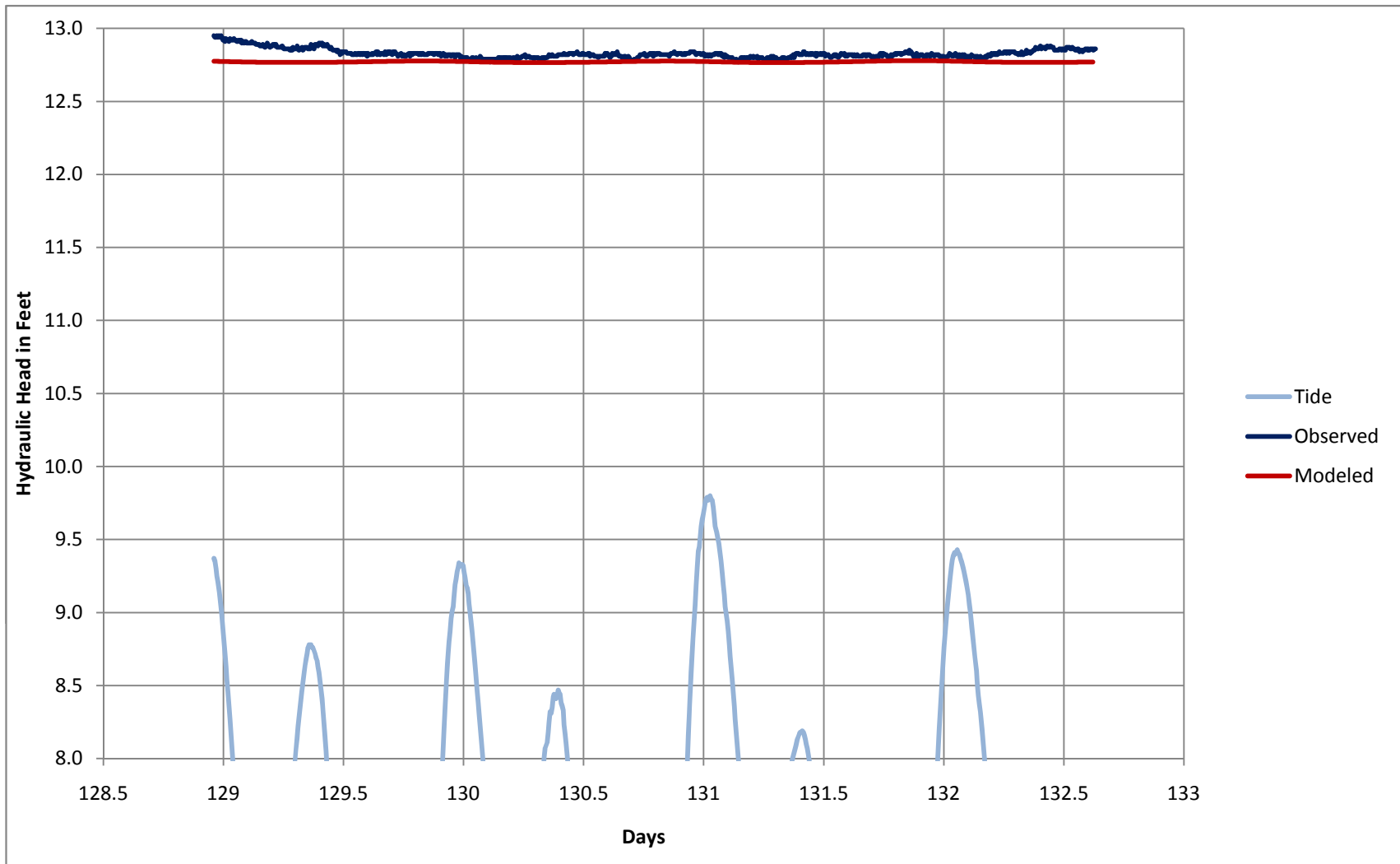


Figure 15
Head Calibration at CP-MW03
(Law-1 Transect)

GP West Site - Shoreline Groundwater Modeling
 Bellingham, Washington

Aspect Consulting

4/16/2012

S:\Port of Bellingham\GP West 070188\Deliverables\Gw to Sediment modeling report\Fig. 8-11_14-19 CalCurves.xlsx

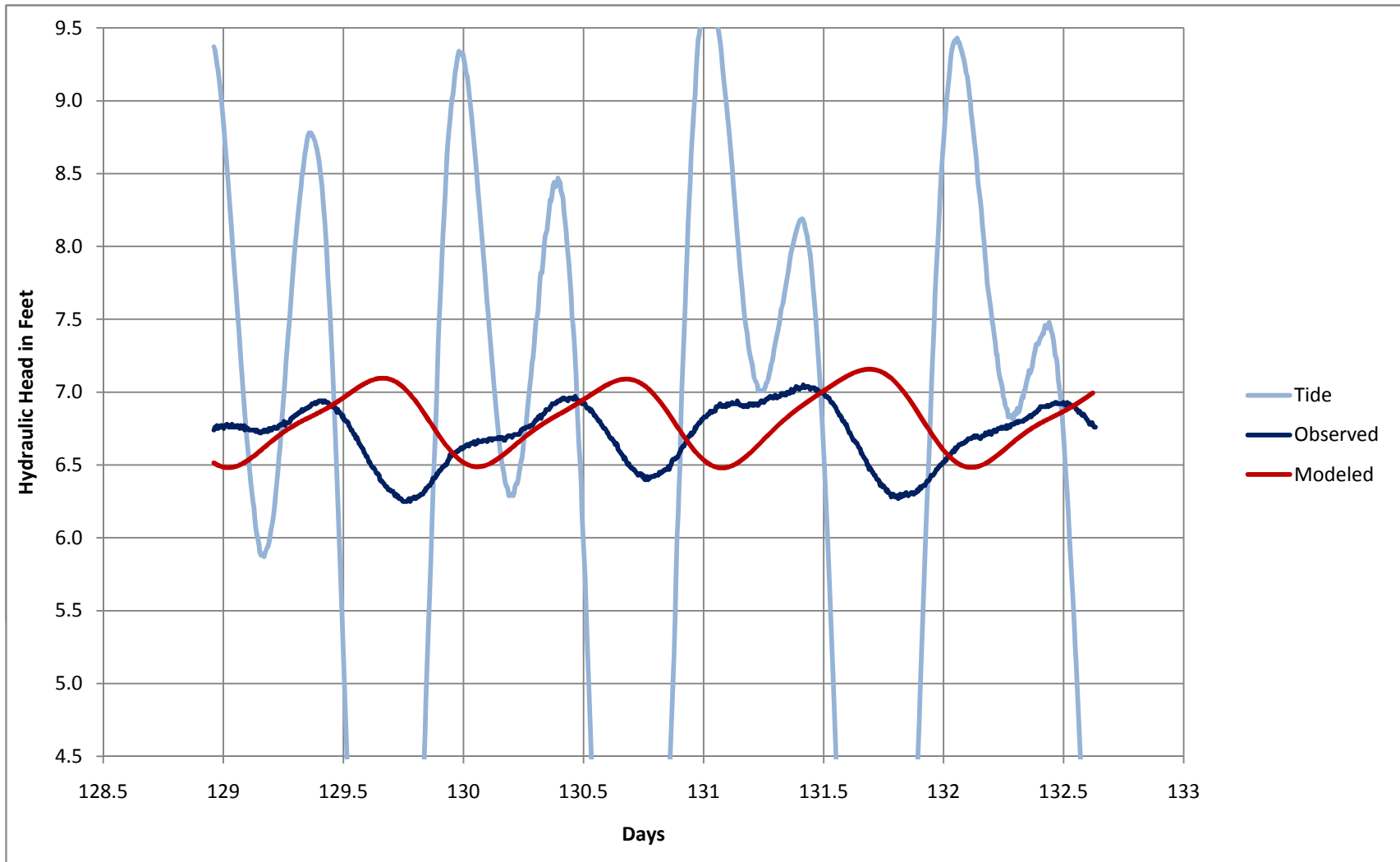


Figure 16
Head Calibration at CP-MW04
(Law-1 Transect)

GP West Site - Shoreline Groundwater Modeling
 Bellingham, Washington

Aspect Consulting

4/16/2012

S:\Port of Bellingham\GP West 070188\Deliverables\Gw to Sediment modeling report\Fig. 8-11_14-19 CalCurves.xlsx

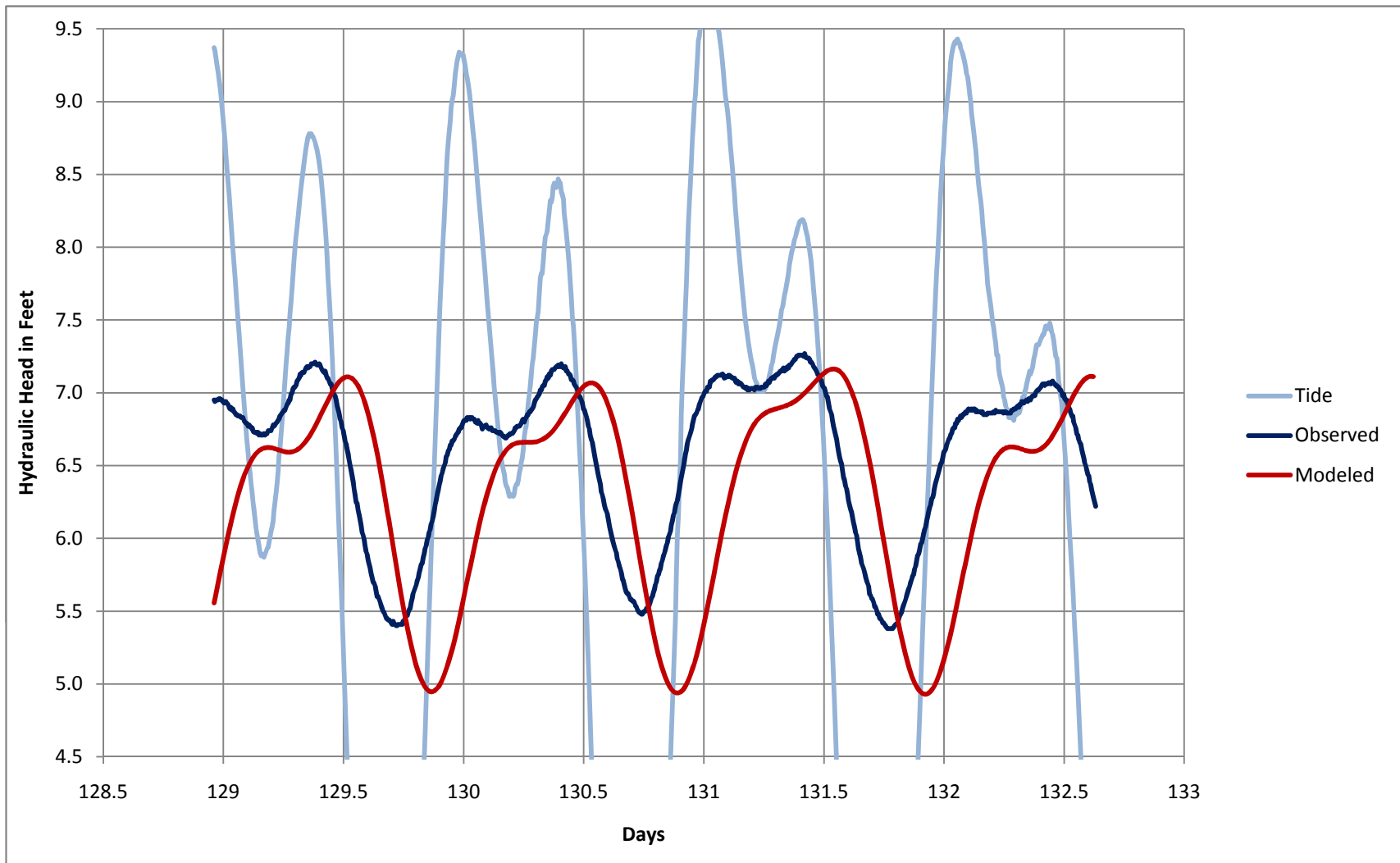


Figure 17
Head Calibration at CP-MW05
(Law-1 Transect)

GP West Site - Shoreline Groundwater Modeling
 Bellingham, Washington

Aspect Consulting

4/16/2012

S:\Port of Bellingham\GP West 070188\Deliverables\Gw to Sediment modeling report\Fig. 8-11_14-19 CalCurves.xlsx

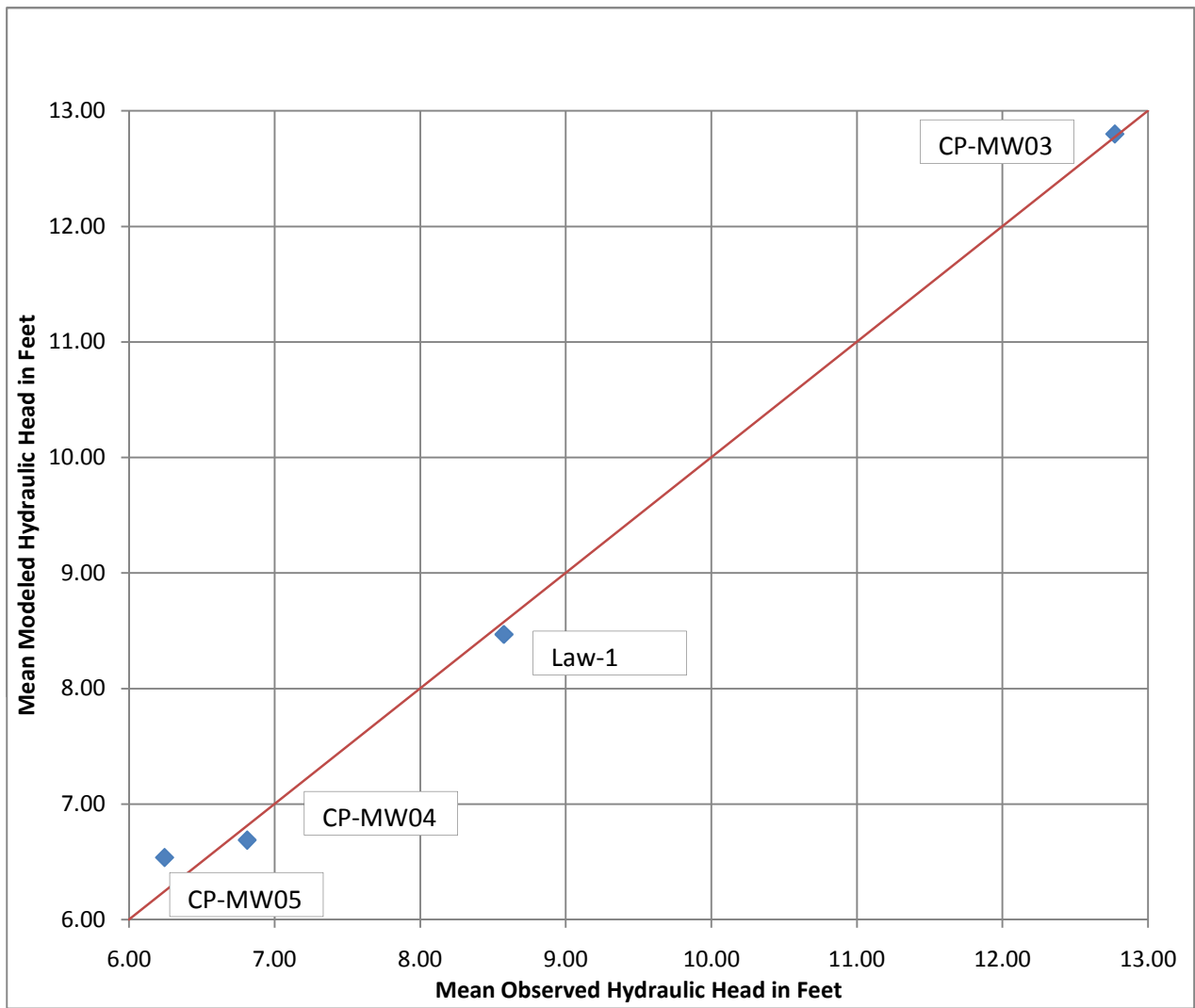


Figure 18
Mean Head Calibration
(Law-1 Transect)

GP West Site - Shoreline Groundwater Modeling
 Bellingham, Washington

Aspect Consulting

4/16/2012

S:\Port of Bellingham\GP West 070188\Deliverables\Gw to Sediment modeling report\Fig. 8-11_14-19 CalCurves.xlsx

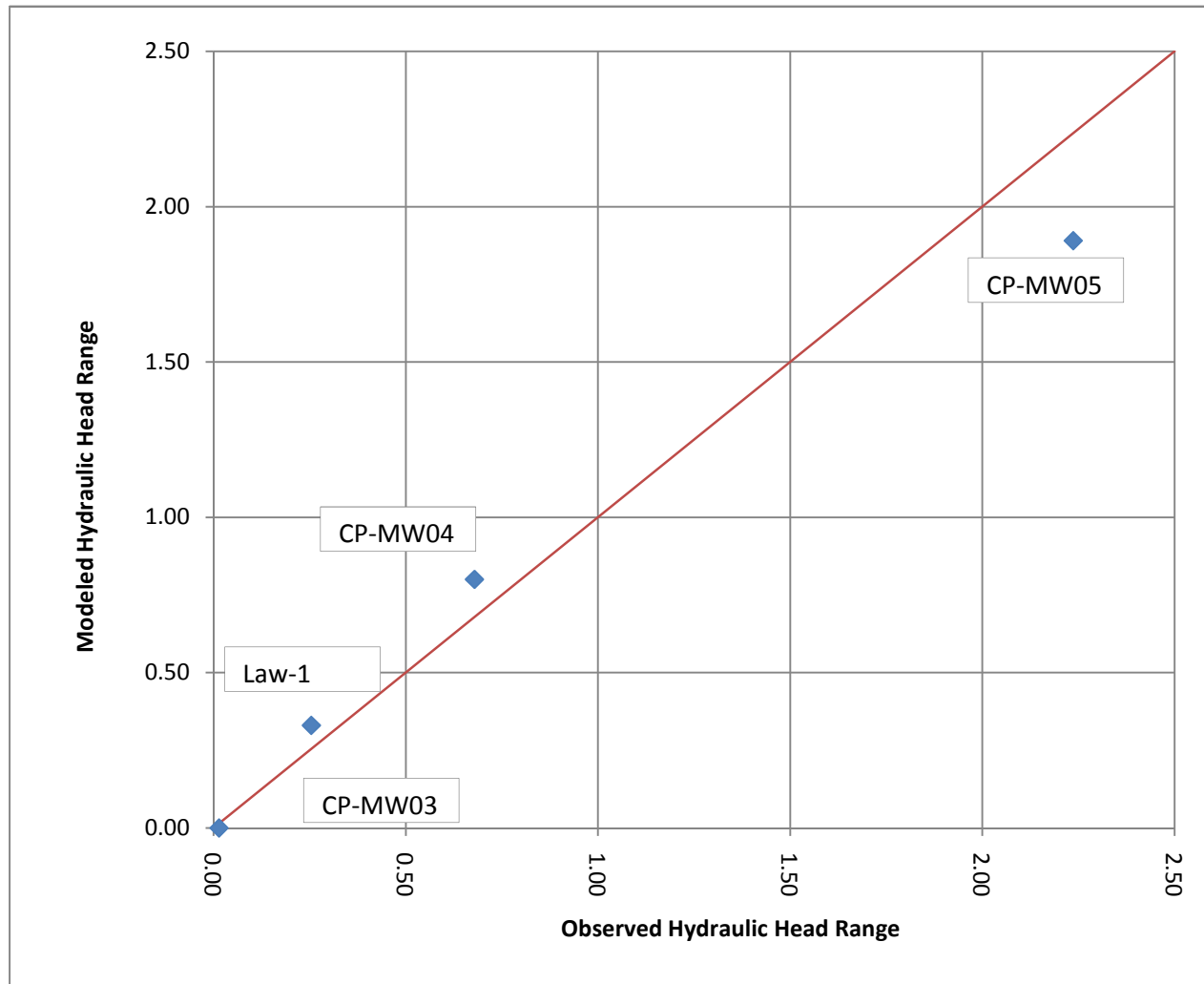
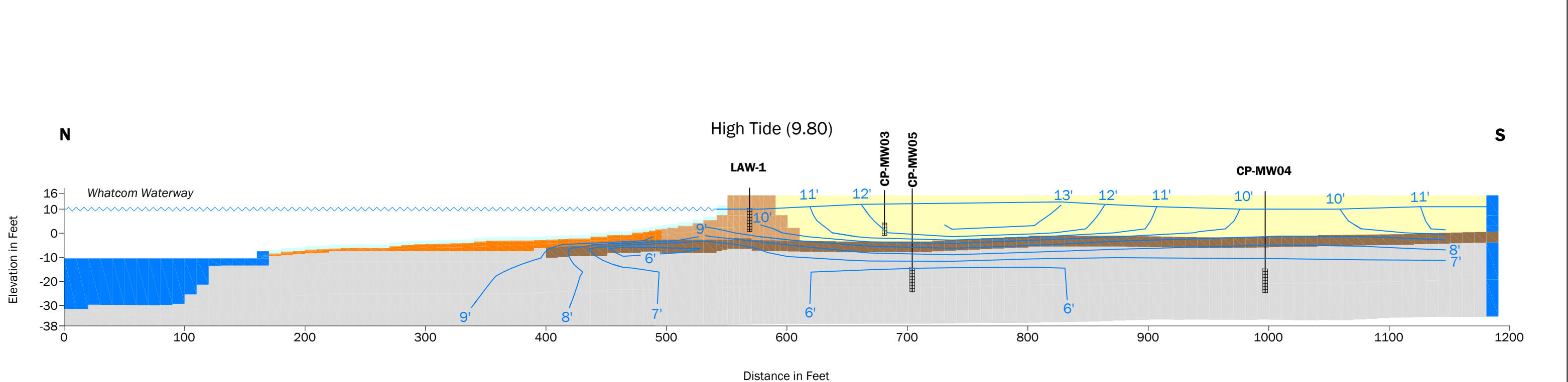
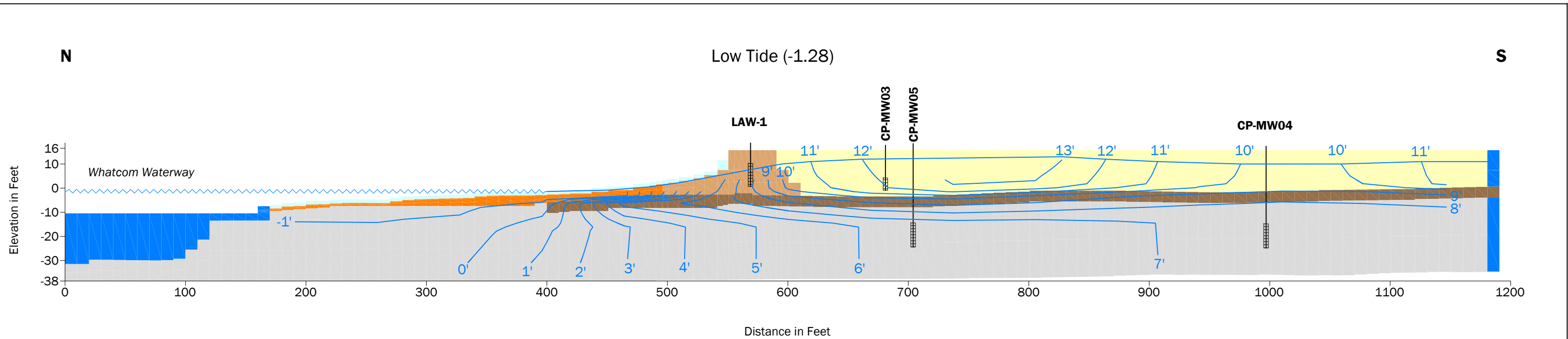


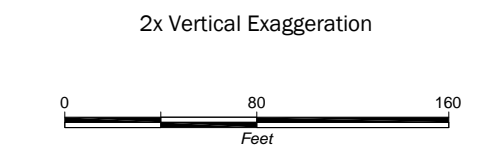
Figure 19
Head Range Calibration
(Law-1 Transect)

GP West Site - Shoreline Groundwater Modeling
 Bellingham, Washington



LEGEND

- Whatcom Waterway
- Fill Unit-Berm
- Fill Unit-Sand
- Tidal Flat Aquitard Unit
- Lower Sand Unit
- Current Sediment Cap
- Specified Head/Concentration Boundary Condition
- LAW-1** Monitoring Well
- Screened Interval



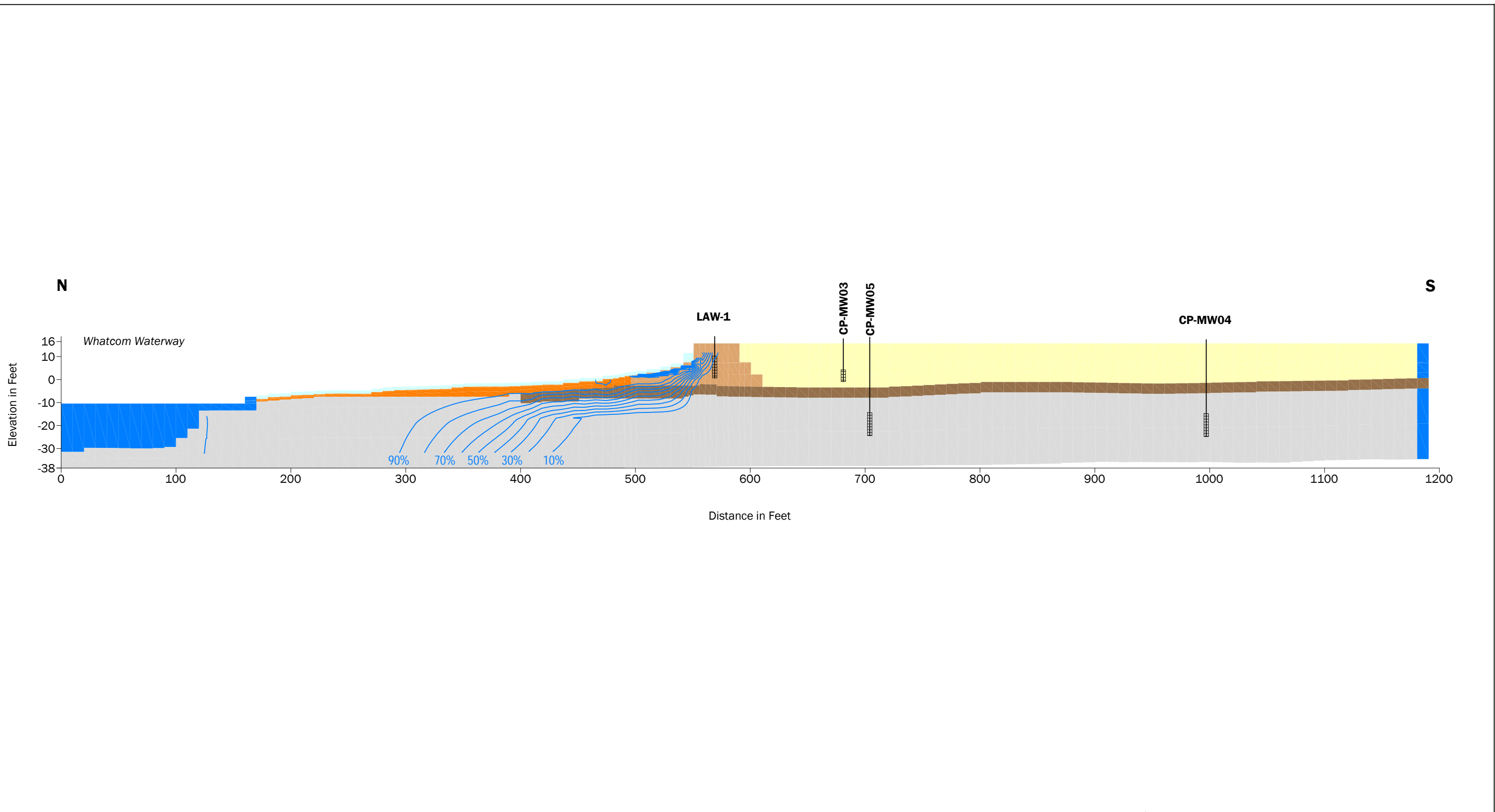
All elevations in feet above mean lower low water.

**Modeled Hydraulic Head Contours
(Law-1 Transect-Current Sediment Cap)**

GP West Site - Shoreline Groundwater Modeling Assessment
Bellingham, Washington

	APR-2012	BY: SM/SCC	FIGURE NO. 20
	PROJECT NO. 070188	REV BY: SCC	

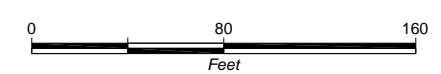
CAD Path: Q:\Port of Bellingham\070188 Former GP Mill Property\2012-04 Modeling\Figures\070188-20dwg\1x17 Landscape | Coordinate System: NAD 1983 State Plane Washington North FIPS 4601 Feet | Date Saved: Apr 09, 2012 2:25pm | User: scudd



LEGEND

- Whatcom Waterway
- Fill Unit-Berm
- Fill Unit-Sand
- Tidal Flat Aquitard Unit
- Lower Sand Unit
- Current Sediment Cap
- Specified Head/Concentration Boundary Condition
- LAW-1** Monitoring Well
- Screened Interval

2x Vertical Exaggeration



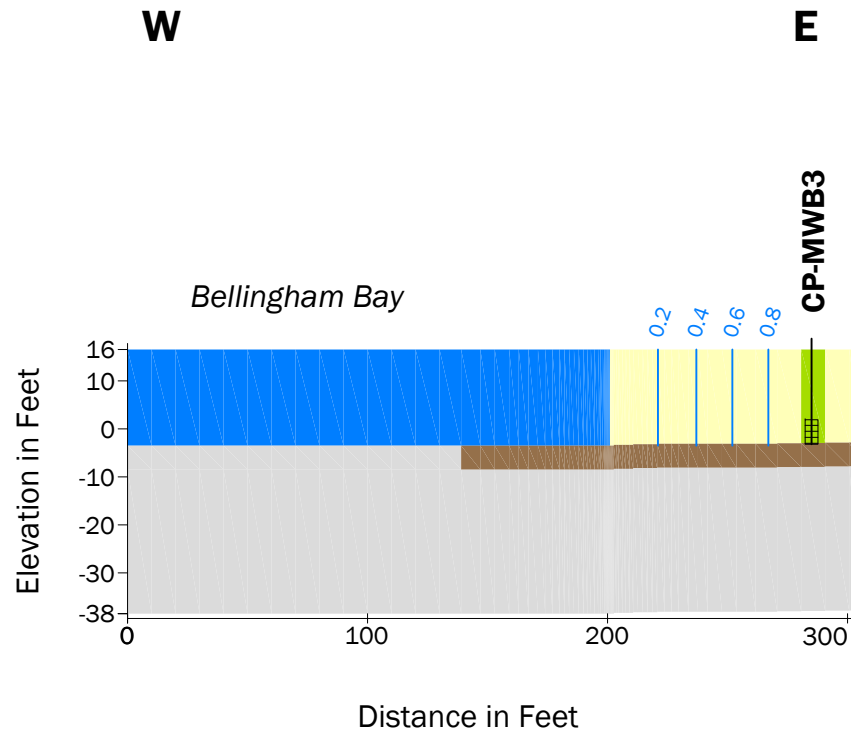
All elevations in feet above mean lower low water.

**Modeled Percent Marine Water Contours
(Law-1 Transect-Current Sediment Cap)**

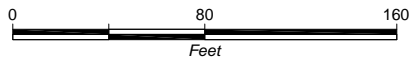
GP West Site - Shoreline Groundwater Modeling Assessment
Bellingham, Washington

	APR-2012	BY: SM/SCC	FIGURE NO. 21
	PROJECT NO. 070188	REV BY: SCC	

CAD Path: Q:\Port of Bellingham\070188 Former GP Mill Property\2012\04 Modeling Figures\070188-1.dwg User: Landscape | Date Saved: Apr 09 2012 2:06pm | User: scud



2x Vertical Exaggeration



All elevations in feet above mean lower low water.

LEGEND

- Fill Unit-Sand
- Tidal Flat Aquitard Unit
- Lower Sand Unit
- Specified Head/Concentration Boundary Condition
- Specified Concentration Boundary Condition
- CP-MWB3** Monitoring Well
- Screened Interval

**Modeled Contours of C/C₀
(Caustic Plume Transect)**

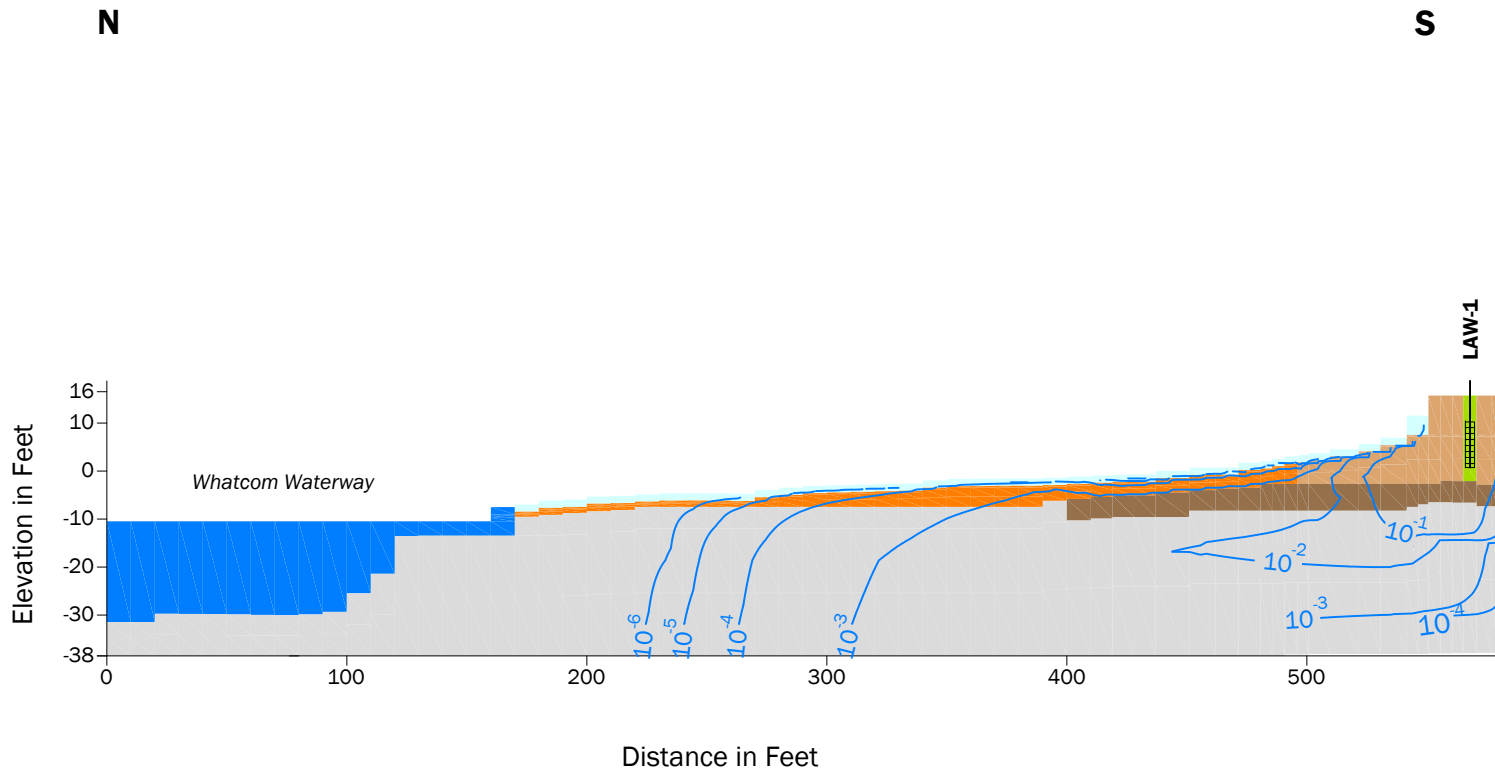
GP West Site - Shoreline Groundwater Modeling Assessment
Bellingham, Washington



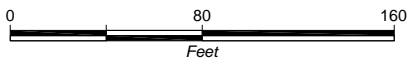
APR-2012
PROJECT NO.
070188

BY:
SM/SCC
REV BY:
SCC

FIGURE NO.
22



2x Vertical Exaggeration



All elevations in feet above mean lower low water.

LEGEND

- | | | |
|--------------------------|---|-----------------------|
| Whatcom Waterway | Current Sediment Cap | LAW-1 Monitoring Well |
| Fill Unit-Berm | Proposed Sediment Cap | Screened Interval |
| Fill Unit-Sand | Specified Head/Concentration Boundary Condition | |
| Tidal Flat Aquitard Unit | Specified Concentration Boundary Condition | |
| Lower Sand Unit | | |

**Modeled Contours of C/C₀
(Law-1 Transect-Current Sediment Cap)**

GP West Site - Shoreline Groundwater Modeling Assessment
Bellingham, Washington



APR-2012

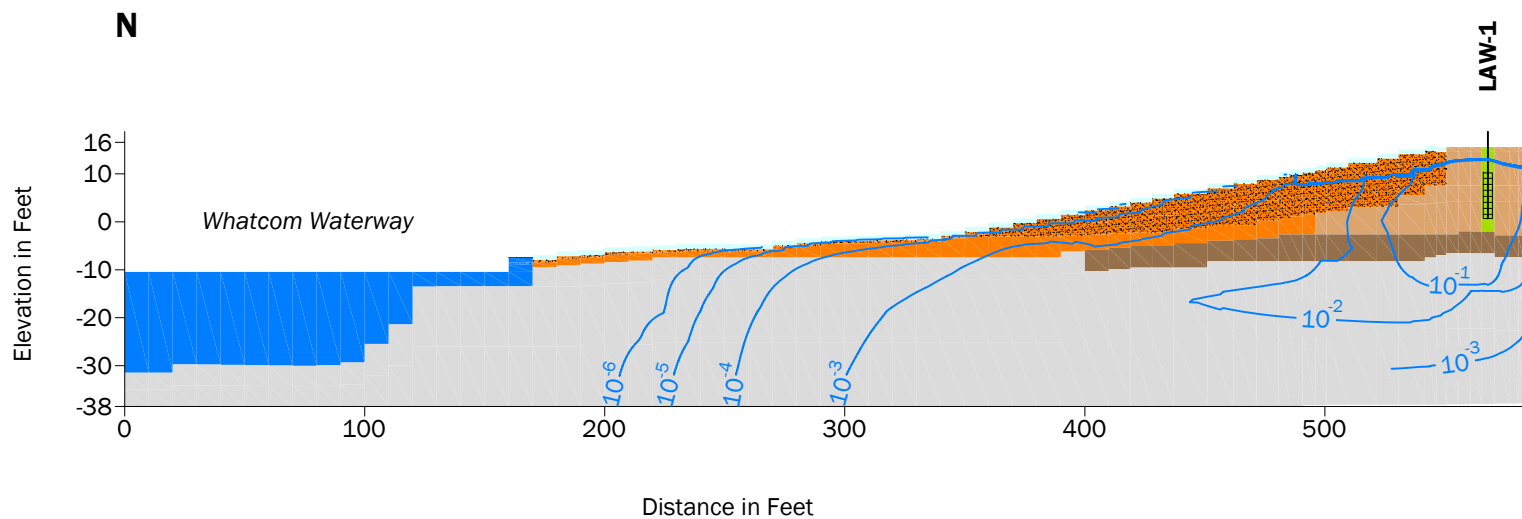
PROJECT NO.
070188

BY:
SM/SCC

REV BY:
SCC

FIGURE NO.

23



2x Vertical Exaggeration



All elevations in feet above mean lower low water.

LEGEND

- Whatcom Waterway
- Current Sediment Cap
- Proposed Sediment Cap
- Fill Unit-Sand
- Tidal Flat Aquitard Unit
- Specified Head/Concentration Boundary Condition
- Lower Sand Unit
- Specified Concentration Boundary Condition
- LAW-1 Monitoring Well
- Screened Interval

**Modeled Contours of C/C₀
(Law-1 Transect-Future Sediment Cap)**

GP West Site - Shoreline Groundwater Modeling Assessment
Bellingham, Washington

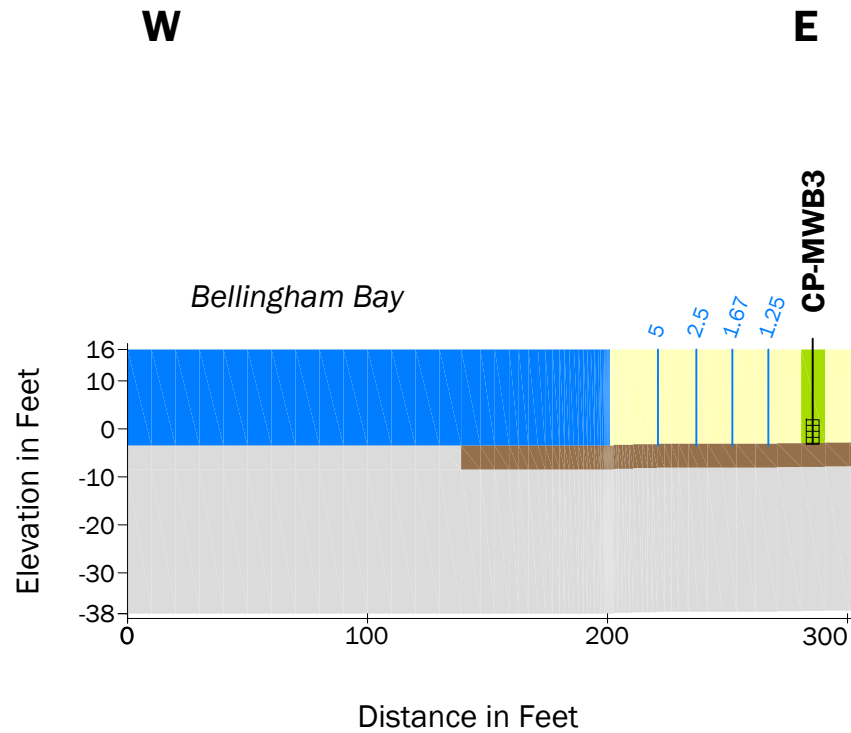


APR-2012
PROJECT NO.
070188

BY:
SM/SCC
REV BY:
SCC

FIGURE NO.
24

CAD Path: Q:\Port of Bellingham\070188 Former GP Mill Property\2012\04 Modeling Figures\070188-15.dwg User: Landscape | Date Saved: Apr 09 2012 2:11pm | User: scudl



2x Vertical Exaggeration



All elevations in feet above mean lower low water.

LEGEND

- Fill Unit-Sand
- Tidal Flat Aquitard Unit
- Lower Sand Unit
- Specified Head/Concentration Boundary Condition
- Specified Concentration Boundary Condition
- CP-MWB3** Monitoring Well
- Screened Interval

**Modeled Attenuation Factor Contours
(Caustic Plume Transect)**

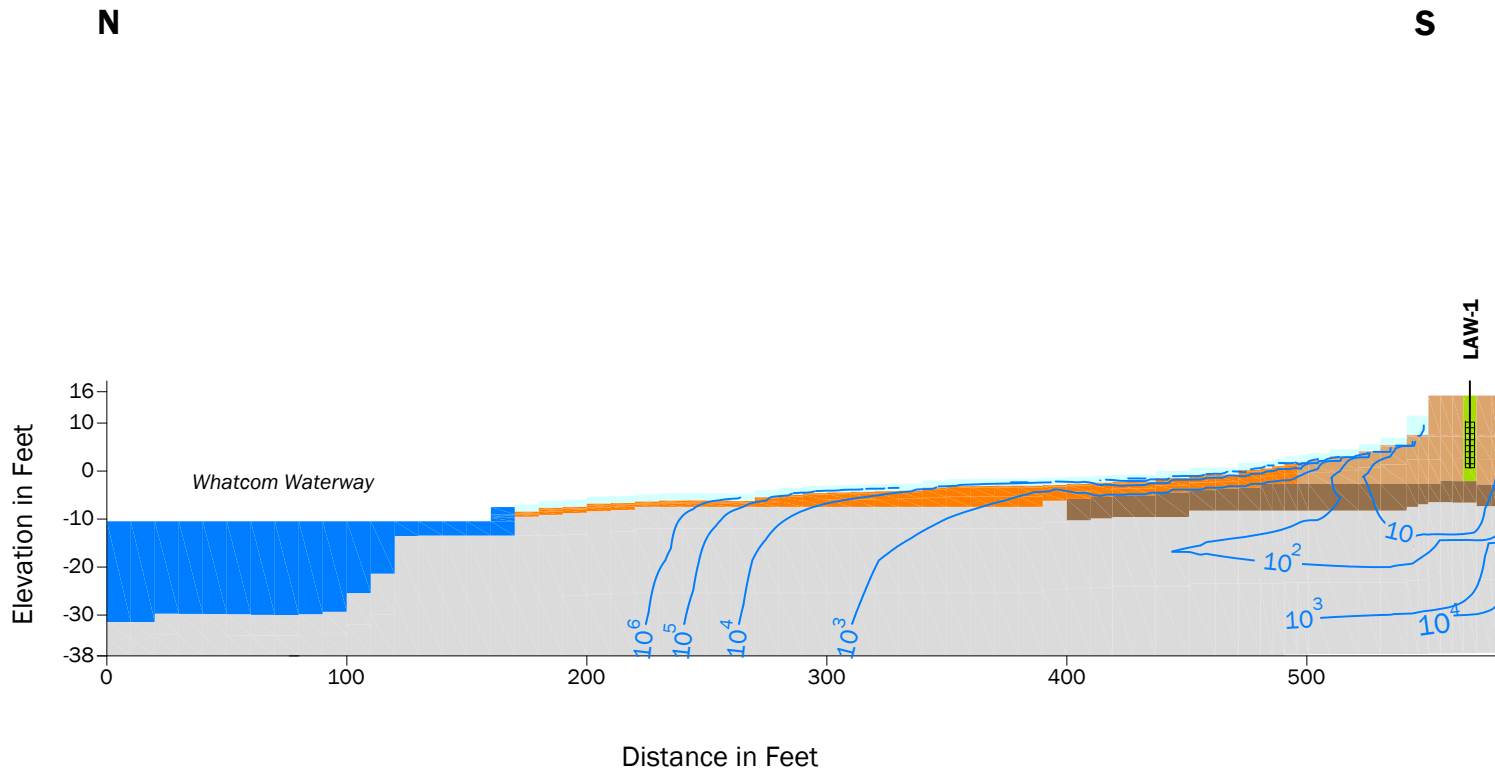
GP West Site - Shoreline Groundwater Modeling Assessment
Bellingham, Washington



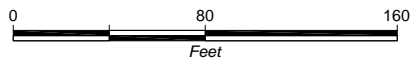
APR-2012
PROJECT NO.
070188

BY:
SM/SCC
REV BY:
SCC

FIGURE NO.
25












2x Vertical Exaggeration



All elevations in feet above mean lower low water.

LEGEND

- | | | | | | |
|---|--------------------------|---|---|--|-----------------|
|  | Whatcom Waterway |  | Current Sediment Cap |  | Monitoring Well |
|  | Fill Unit-Berm |  | Specified Head/Concentration Boundary Condition | | |
|  | Fill Unit-Sand |  | Specified Concentration Boundary Condition | | |
|  | Tidal Flat Aquitard Unit | | | | |
|  | Lower Sand Unit | | | | |

**Modeled Attenuation Factor Contours
(Law-1 Transect-Current Sediment Cap)**

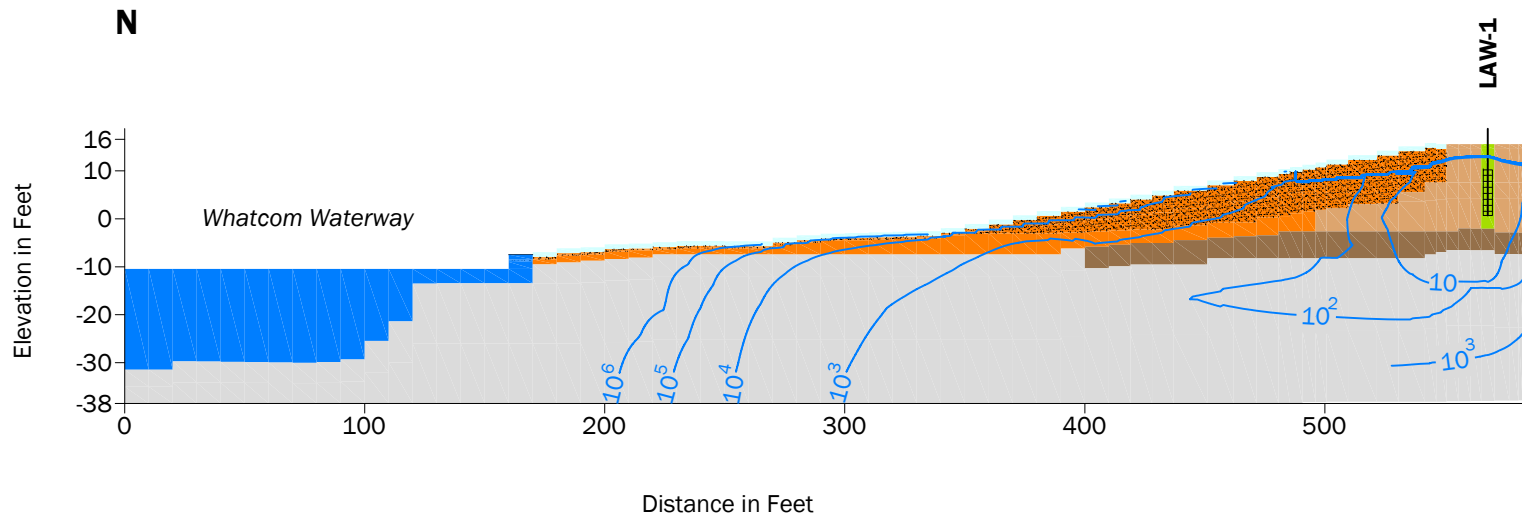
GP West Site - Shoreline Groundwater Modeling Assessment
Bellingham, Washington



APR-2012
PROJECT NO.
070188

BY:
SM/SCC
REV BY:
-

FIGURE NO.
26



2x Vertical Exaggeration



All elevations in feet above mean lower low water.

LEGEND

- Whatcom Waterway
 - Current Sediment Cap
 - Fill Unit-Berm
 - Proposed Sediment Cap
 - Fill Unit-Sand
 - Specified Head/Concentration Boundary Condition
 - Tidal Flat Aquitard Unit
 - Specified Concentration Boundary Condition
 - Lower Sand Unit
- LAW-1** Monitoring Well

Screened Interval

**Modeled Attenuation Factor Contours
(Law-1 Transect-Future Sediment Cap)**

GP West Site - Shoreline Groundwater Modeling Assessment
Bellingham, Washington

	APR-2012	BY: SM/SCC	FIGURE NO. 27
	PROJECT NO. 070188	REV BY: -	

APPENDIX K

PROPOSED BEST MANAGEMENT PRACTICES

PROPOSED BEST MANAGEMENT PRACTICES

The following best management practices (BMPs) will be employed during implementation of the Whatcom Waterway Cleanup in Phase 1 site areas. These BMPs incorporate substantive requirements and permit conditions identified by the Washington Department of Fish and Wildlife (WDFW) in its letter dated December 17, 2012 (WDFW 2012), the City of Bellingham (City) in its letter dated February 12, 2013 (City of Bellingham 2013), the National Marine Fisheries Service (NMFS) Endangered Species Act (ESA) concurrence letter for the project dated May 24, 2013 (NMFS 2013), the U.S. Fish and Wildlife Service ESA concurrence letter for the project dated June 26, 2013 (USFWS 2013), and the Nationwide Permit 38, Cleanup of Hazardous and Toxic Waste, issued by the U.S. Army Corps of Engineers (USACE) dated January 15, 2015 (USACE 2015).

The following BMPs will be adhered to during cleanup activities:

Notifications

- The WDFW Area Habitat Biologist, the USACE regulatory lead, the Washington State Department of Ecology (Ecology) regulatory lead, and the City regulatory lead for the project shall be notified of the project start date.
- Notice will be provided to the USACE Bellingham Harbor Operations Manager 10 days prior to commencing work within the federally authorized channel.
- If at any time, as a result of project activities, fish are observed in distress, a fish kill occurs, or water quality problems develop (including equipment leaks or spills), the Washington Military Department's Emergency Management Division shall be immediately contacted at 1-800-258-5990.

In-water Work Timing

- In-water work will be performed consistent with the joint regulatory agency-approved fish protection work windows for the Project as determined during the permitting approvals for the Project. The agreed to in-water work windows are as follows:

-
- A. Work below the ordinary high water and mean higher high water lines shall not occur from **March 15** through **July 15** of any year for the protection of migrating juvenile salmonids.
 - B. Work below the ordinary high water and mean higher high water lines shall only occur in the dry from **July 16** through **July 31** of any year for the protection of migrating juvenile salmonids.
 - C. Work below the ordinary high water and mean higher high water lines is allowed in the dry and in-water from **August 1** through **March 14** of any year.
- Additionally, the following in-water work window restrictions also apply to the project:
 - A. No impact pile driving or proofing shall occur from February 16 through March 14.
 - B. Only clean cap, residual management cover, and armor material shall be placed from February 16 through March 14.
 - C. No dredging of contaminated sediments shall occur from February 16 through March 14.

Water Quality

- Turbidity and other water quality parameters will be monitored to ensure construction activities are in compliance with Washington State Surface Water Quality Standards (173-201A WAC) and in accordance with the Water Quality Monitoring Plan (Anchor QEA 2015b).
- Appropriate BMPs will be employed to minimize sediment loss and turbidity generation during dredging. BMPs may include, but are not limited to, the following:
 - Eliminating multiple bites while the bucket is on the seafloor
 - No stockpiling of dredged material below the ordinary high water line and mean higher high water line
 - No seafloor leveling
- Depending on the results of the water quality monitoring program, enhanced BMPs may also be implemented to further control turbidity. Enhanced BMPs may include, but are not limited to, the following:

-
- Slowing the velocity (i.e., increasing the cycle time) of the ascending loaded clamshell bucket through the water column
 - Pausing the dredge bucket near the bottom while descending and near the water line while ascending
 - Placing filter material over the barge scuppers to clear return water
 - Using surface or near-surface silt curtains during dredging operations
 - Each pass of the clamshell dredge bucket shall be complete
- Barges will be managed such that the dredged sediment load does not exceed the capacity of the barge. The load will be placed in the barge to maintain an even keel and avoid listing.
 - All barges handling dredged materials within the site shall have hay bales and/or filter fabric placed over the barge scuppers to help filter suspended sediment from the barge effluent.
 - Barges leaving the Whatcom Waterway site will be sealed such that no discharge of water or suspended sediment occurs in the receiving waters.
 - No petroleum products or other deleterious materials shall enter surface waters.
 - Project activities shall not degrade water quality to the detriment of fish life.
 - Water quality monitoring provisions in the Compliance Monitoring and Contingency Response Plan (Anchor QEA 2015a) and the Water Quality Monitoring Plan (Anchor QEA 2015b) will be implemented for the Project.

Spill Prevention

- Dredge vessel personnel will be trained in hazardous material handling and spill response and will be equipped with appropriate response tools, including absorbent oil booms. If a spill occurs, spill cleanup and containment efforts will begin immediately and will take precedence over normal work.
- The U.S. Coast Guard's Bellingham office will be notified immediately if a spill occurs.
- The dredging contractor will inspect fuel hoses, oil or fuel transfer valves, and fittings on a regular basis for drips or leaks in order to prevent spills into the surface water.
- The contractor shall be responsible for the preparation of a Spill, Prevention, Control, and Countermeasure (SPCC) Plan to be used for the duration of the Project. The

SPCC Plan shall be submitted to the Project Engineer prior to the commencement of any construction activities. A copy of the SPCC Plan, and any updates, will be maintained at the work site by the contractor and will include the following:

- The SPCC Plan shall identify construction planning elements and recognize potential spill sources at the work site. The SPCC Plan shall outline responsive actions in the event of a spill or release and shall describe notification and reporting procedures. The SPCC Plan shall outline contractor management elements such as personnel responsibilities, Project site security, site inspections, and training.
- The SPCC Plan will outline what measures shall be taken by the contractor to prevent the release or spread of hazardous materials, either found on site and encountered during construction but not identified in contract documents, or any hazardous materials that the contractor stores, uses, or generates on the construction site during construction activities. These items include, but are not limited to, gasoline, oils, and chemicals. Hazardous materials are defined in Revised Code of Washington (RCW) 70.105.010 under “hazardous substance.”
- The contractor shall maintain at the job site the applicable equipment and material designated in the SPCC Plan.

Pile Removal and Disposal

The following pile removal BMPs adapted from U.S. Environmental Protection Agency guidance (USEPA 2007) and Washington Department of Natural Resources (WDNR) (WDNR 2007) will also be employed for pile removal:

- The removal of the creosote-treated piles shall be consistent with conditions issued as part of the Derelict Creosote Pile Removal Project Hydraulic Project Approval (HPA), issued to the WDNR Northwest Region (Control Number 106389 – 3, Issued August 8, 2007).
- The contractor will initially vibrate piles to break the friction bond between piles and soil.
- To help minimize turbidity, the contractor will engage the vibrator to the minimum extent required to initiate vertical pile movement, and will disengage the vibrator once pile have been mobilized and are moving upward.

-
- The piles will be removed in a single, slow, and continuous motion to the extent possible.
 - Upon removal from the substrate, piles will be moved expeditiously from the water to a barge and then offloaded for disposal or recycling if possible.
 - Piles shall be removed slowly and in a direction that is an extension of the longitudinal centerline of each pile to minimize the disturbance of the bed and the suspension of contaminated sediments into the water column.
 - Extracted piles shall be placed immediately in a containment basin constructed on the barge or adjacent upland to capture and contain the extracted piles, adhering sediments, and water.
 - The extracted piles shall not be shaken, hosed off, left hanging to drip, or made subject to any other action intended to clean or remove adhering material from the pile.
 - Holes in the bed resulting from the extraction of the piles shall be covered with clean cap materials consistent with the Project design.
 - Every attempt will be made to completely remove the piling in its entirety; however pile cutoff will be an acceptable alternative where vibratory extraction or pulling is not feasible as described below. In addition, if a pile is broken or breaks during vibratory extraction, the contractor will employ the following methods:
 - A chain will be used if practicable to attempt to entirely remove the broken pile.
 - If the entire pile cannot be removed, the pile will be cut at the mudline.
 - Pile cutoff will be an acceptable alternative in areas (e.g., Chevron Dock) where removal of the existing piles may result in adverse impact to slope stability.
 - If a pile cannot be removed or breaks off at or near the existing substrate, then the pile shall be cut off using a pneumatic underwater or a clamshell bucket as close to the bed as possible without disturbing the bed and a maximum of 12 inches above the bed. Areas where piles are cut off will be capped with Ecology-approved materials to contain the remaining contamination associated with the piles.
 - Cut-off pile stubs shall be captured whenever feasible, removed, and deposited in the containment basin constructed on the barge or adjacent upland.
 - Sawdust from cutting pile stubs shall be captured whenever feasible, removed, and deposited in the containment basin constructed on the barge or adjacent upland.

-
- A floating surface boom shall be installed around the pile extraction site to capture floating pile debris. Floating pile debris shall be removed and deposited in a containment basin constructed on the barge or adjacent upland.
 - The floating surface boom shall be equipped with absorbent pads to contain any oil sheens. The absorbent pads shall be removed and deposited in the containment basin constructed on the barge or adjacent upland.
 - A containment basin shall be constructed on the barge deck or adjacent upland to receive the piles, pile stubs, water, sawdust, and any sediment.
 - The containment basin shall be constructed of durable plastic sheeting with sidewalls supported by hay bales or support structure.
 - To the extent possible, pile extraction shall be conducted during periods when the water currents are low.
 - The piles, pile stubs, sawdust, and absorbent pads from the floating surface boom shall be removed and disposed of in accordance with applicable federal and state regulations.
 - The water captured in the containment basin shall be removed and disposed of in accordance with applicable federal and state regulations.
 - The containment basin shall be removed and disposed of in accordance with applicable federal and state regulations.
 - Extracted piles within the containment basin or disposal container shall be cut to size as required by container and disposal contractors. All sawdust and cuttings shall be contained within the containment basin or disposal container.
 - The cut-up piles, sediments, sawdust, water, absorbent pads from the floating surface boom, and plastic from the containment basin shall be packed into a disposal container and transported to an approved upland disposal site.

The use of a boom and the other measures listed above to contain and properly dispose of debris shall also be employed during removal of creosote-treated wooden bulkhead or dock structures. Specific removal methods for these structures will be appropriate to the structure and location (e.g., a backhoe or clamshell may be used rather than a vibratory hammer or chain to remove sections of treated wood from a dock or bulkhead).

Dredging and Cap Placement

- Mechanical dredging equipment shall be used for the dredging treatments.
- Slope dredging will be initiated at the top of the slope and then proceed in the down-slope direction.
- For placement of capping materials and residual cover layers, the following measures will be observed:
 - The placement of material will generally occur starting at lower elevations and working to higher elevations.
 - Set volume, tonnage, lead line measurements, and bathymetry information or similar will be used to confirm adequate coverage during and following material placement.
 - Imported materials will be pre-approved by Ecology and consist of clean, granular material free of roots, organic material, contaminants, and all other deleterious material.

Eelgrass

- The existing eelgrass habitat in the Log Pond area and the Berth 1 area that are susceptible to disturbance by the proposed cleanup treatments shall be buoy marked prior to initiating the cleanup activities in these areas.
- Impacts to the existing eelgrass habitat in the Log Pond area and the Berth 1 area shall be held to the absolute minimum necessary to successfully implement the proposed cleanup treatments.

Stormwater

- A Construction Stormwater General Permit will be obtained for Project construction activities located within the Central Waterfront and GP West upland areas.
- A Stormwater Pollution Prevention Plan will be developed and implemented for the project.

Upland Storage, Stockpiles, and Material Disposal

- The upland staging facilities installed for management of sediment materials dredged from the Whatcom Waterway Phase 1 Areas are intended only for temporary use during the Project. After the Project is completed, these temporary facilities shall be completely removed unless otherwise approved by Ecology and WDFW.
- Contaminated sediments dredged from the Whatcom Waterway Phase 1 Areas shall be disposed of at an Ecology-approved upland disposal site.

Barge Operations

- Construction barges shall be restricted to tide elevations adequate to prevent grounding of the barge.
- Barge anchors shall not be placed in contaminated sediments unless specified by Ecology.
- Whenever feasible, the barge location shall be fixed through the use of methods that do not disturb contaminated sediments (e.g., mooring dolphins, docks, piers, upland structures, and anchoring in non-contaminated areas). Where these methods are not feasible, spuds may be used. The use of walking spuds shall not be permitted.
- Live boating shall be held to an absolute minimum.
- Motorized vessel operation shall be restricted to tidal elevations adequate to prevent prop scour disturbance to the contaminated sediments.
- Minimal propulsion power shall be used when maneuvering barges or other vessels to prevent prop scour disturbance to the contaminated sediments.

Shoreline Modifications

- Excavators operated from the shoreline and used to modify the shoreline shall only be operated from above ordinary high water (OHW).
- Shoreline excavation shall be conducted in the dry to the extent possible.
- Each pass of the excavator bucket shall be complete.
- Under no circumstances shall excavated materials be stockpiled below the OHW line.
- Track excavators used for shoreline excavations shall be routinely inspected and repaired as necessary to prevent the introduction of hydraulic fluid and petroleum products into waters of the state.

-
- A floating surface boom shall be installed around the timber bulkhead sections and piers where creosote-treated timbers shall be removed or cut off to capture floating debris. Floating debris shall be removed and deposited at an appropriate upland site.
 - The floating surface boom shall be equipped with absorbent pads to contain any oil sheens. The absorbent pads shall be removed and disposed of at an appropriate upland site.
 - Manmade shoreline debris shall be appropriately recycled for reuse or shall be disposed of at appropriate upland sites.

Replacement Infrastructure

- Sound attenuation methods are required for the driving or proofing of steel piles with an impact hammer below the OHW line. For impact driving of steel piles that exceed the following criteria, a bubble curtain or other WDFW-approved sound attenuation device shall be used. The specific criteria include sound pressure levels of the following:
 - Greater than or equal to 206 dB (one microPascal squared per second) peak
 - Greater than or equal to 187 dB (one microPascal squared per second) accumulated sound exposure level (SEL) for fish greater than or equal to 2 grams
 - Greater than or equal to 183 dB (one microPascal squared per second) SEL for fish less than 2 grams
- A bubble curtain shall be installed and properly functioning around the pile during all impact driving operations. The bubble curtain shall distribute air bubbles around 100 percent of the perimeter of the piles over the full length of the pile in the water column.
- The bubble curtain will be designed according to the Whatcom Waterway Cleanup in Phase I Site Areas Unconfined Bubble Curtain Specification.
- New steel piling, dolphins, and fender piles shall be coated with a rubbing surface, rubbing strip, or rubber energy absorption fenders.

Steel Sheetpile Bulkheads

- The new steel sheetpile bulkheads shall be constructed in the dry to the extent practicable.
- The new steel sheetpile bulkheads will be installed to the extent possible with a vibratory hammer. If an impact hammer is required to drive or proof the new steel sheetpile bulkheads, then a bubble curtain shall be installed and properly functioning around the sheetpile bulkheads.
- Wet concrete used to construct a concrete cap on top of the steel sheetpile bulkheads shall be prevented from entering waters of the state. Forms shall be constructed to prevent leaching of wet concrete. Impervious materials shall be placed over any exposed concrete not lined with the forms that will come in contact with state waters. Forms and impervious materials shall remain in place until the concrete is cured.
- The contractor will be required to collect and manage soil cuttings generated during drilled tie-back anchor installation such that no cuttings are allowed to discharge to the Whatcom Waterway during drilling operations.

Mooring Floats

- Under no circumstances shall the total overwater footprint of the existing ramp and floats be expanded as a result of moving and reconfiguring the structures.
- The floatation for the floats shall be fully enclosed and contained to prevent the breakup or loss of the floatation material into the water. If the floatation for the existing floats does not fully meet this standard, then the floats shall be updated or replaced.
- All treated wood, piles, and lumber to be used for the relocation of the existing ramp and float shall meet or exceed the standards established in “Best Management Practices For the Use of Treated Wood in Aquatic and Other Sensitive Environments” developed by the Western Wood Preservers Institute (<http://www.wwpinstitute.org/>), revised November 2011, and any current amendments.
- All lumber treated with ammoniacal copper zinc arsenate (ACZA) preservative shall be sufficiently cured to minimize leaching into the water or bed.
- Under no circumstances shall creosote-treated piles or lumber be used to replace, modify, or reconfigure the existing ramp and mooring floats.

Maple Street Barge Ramp

- The existing Maple Street Barge Ramp and foundation elements not reused as part of the replacement structure shall be recycled or disposed of appropriately at an upland location.
- To the extent practicable, the removal of the existing barge ramp and the construction of a new barge ramp shall be conducted in the dry.

Cultural and Historic Resources

- If any previously unknown historic, cultural, or archeological remains and artifacts are discovered during construction, the Port will immediately notify the District Engineer of what was found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The USACE District Engineer will initiate the federal, tribal, and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.
- Work will immediately stop and notification will be provided to the USACE District Engineer within 24 hours if, during the course of conducting authorized work, human burials, cultural resources, or historic properties, as identified by the National Historic Preservation Act, are discovered.

REFERENCES

- Anchor QEA (Anchor QEA, LLC), 2015a. Compliance Monitoring and Contingency Response Plan. Appendix G, Final Engineering Design Report, Whatcom Waterway Cleanup in Phase 1 Site Areas. Prepared for Port of Bellingham. February 2015.
- Anchor QEA, 2015b. Water Quality Monitoring Plan. Appendix L, Final Engineering Design Report, Whatcom Waterway Cleanup in Phase 1 Site Areas. Prepared for Port of Bellingham. February 2015.
- City of Bellingham, 2013. Letter Regarding Whatcom Waterway Clean Up – Phase 1 Substantive Compliance. Submitted by Steven Sundin of the City of Bellingham Planning and Community Development Department to John Hergesheimer, P.E. of the Port of Bellingham. February 12, 2013.
- NMFS (National Marine Fisheries Service), 2013. NMFS Endangered Species Act concurrence letter for the Whatcom Waterway Clean Up in Phase 1 Areas Project. Submitted by William W. Stelle of NMFS to Michelle Walker of the USACE. May 24, 2013.
- USACE (U.S. Army Corps of Engineers), 2015. Nationwide Permit 38 letter authorization for the Whatcom Waterway Clean Up in Phase 1 Areas Project. Submitted by Randel Perry of the USACE to John Hergesheimer of the Port of Bellingham. January 15, 2015.
- USEPA (U.S. Environmental Protection Agency), 2007. Best Management Practices for Pile Removal & Disposal (White Paper). March 2007.
- USFWS (U.S. Fish and Wildlife Service), 2013. USFWS Endangered Species Act concurrence letter for the Whatcom Waterway Clean Up in Phase 1 Areas Project. Submitted by Ken S. Berg of the USFWS to Michelle Walker of the USACE. June 26, 2013.
- WDFW (Washington Department of Fish and Wildlife), 2012. Letter Regarding Model Toxic Control Act Substantive Comments – Whatcom Waterway Phase 1 Areas – Whatcom Waterway, Tributary to Bellingham Bay, WRIA 01.9000. Submitted by Brian Williams of WDFW to John Hergesheimer, P.E. of the Port of Bellingham. December 17, 2012.
- WDNR (Washington Department of Natural Resources), 2007. Puget Sound Initiative— Derelict Creosote Piling Removal Best Management Practices For Pile Removal & Disposal. Washington Department of Natural Resources. Control Number 106389 – 3, Issued August 2007.

APPENDIX L
WATER QUALITY MONITORING PLAN

TABLE OF CONTENTS

1	WATER QUALITY MONITORING PLAN	1
2	WATER QUALITY CRITERIA	2
2.1	Conventional Criteria	2
2.2	Chemical Criteria	2
3	MONITORING LOCATIONS AND DEPTHS	4
3.1	Early Warning Station	4
3.2	Acute and Chronic Compliance Stations	4
3.3	Background Stations.....	5
3.4	Conventional Monitoring Depths	5
3.5	Chemical Monitoring Locations and Depths.....	5
4	MONITORING METHODS AND EQUIPMENT	7
4.1	Conventional Monitoring Methods	7
4.2	Chemical Sampling and Analytical Methods.....	7
5	MONITORING FREQUENCY AND SCHEDULE	8
6	CONTINGENCY MEASURES AND RESPONSE ACTIONS	9
6.1	Stop Work Criteria.....	9
6.2	Contingency Measures.....	9
6.3	Water Quality Exceedance at Early Warning Station	10
6.4	Water Quality Exceedance at Compliance Station	11
7	QUALITY CONTROL	14
8	REFERENCES	15

List of Tables

Table L-1 Analytical Methods and Detection Limits..... 7

List of Figures

Figure L-1 Proposed Water Quality Monitoring Locations

List of Attachments

Attachment 1 Evaluation of Water Quality Impacts During Dredging

LIST OF ACRONYMS AND ABBREVIATIONS

µg/L	microgram per liter
BMP	best management practice
Dioxin	2,3,7,8-tetrachlorodibenzodioxin
DO	dissolved oxygen
DRET	dredging elutriate test
Ecology	Washington State Department of Ecology
EPA	U.S. Environmental Protection Agency
mg/L	milligram per liter
ng/L	nanogram per liter
NTU	nephelometric turbidity unit
Port	Port of Bellingham
QC	quality control
TSS	total suspended solids
USACE	U.S. Army Corps of Engineers
WAC	Washington Administrative Code

1 WATER QUALITY MONITORING PLAN

This Water Quality Monitoring Plan was developed on behalf of the Port of Bellingham (Port) for use during implementation of the Whatcom Waterway Cleanup in Phase 1 Site Areas (Project). The water quality monitoring will be used during in-water work to assess the contractor's adherence to permit conditions and federal, state, and local regulations pertaining to water quality. The contractor is responsible for providing quality control of its work to meet applicable and relevant water quality criteria. This water quality monitoring program is intended to provide quality assurance that the contractor's operations are in compliance with water quality criteria.

As described in Attachment 1, controlling turbidity and suspended sediments associated with remedial dredging provides control of water quality effects associated with toxic chemicals in the dredged sediment (potentially including mercury, 2,3,7,8-tetrachlorodibenzodioxin [Dioxin], and other metals and organic compounds). The monitoring program has been informed by site-specific dredging elutriate tests (DRETs) conducted as part of the pre-remedial design investigations (Anchor QEA 2010). The DRETs included evaluation of total and dissolved concentrations of chemicals resulting from suspension of Whatcom Waterway sediments in water collected from the Site. These data indicate that no exceedances of acute water quality criteria are expected within the project area, neither at the 150-foot compliance boundary nor at the point of dredging. Similarly, no exceedances of chronic water quality criteria are expected at the 300-foot compliance boundary provided that acceptable turbidity levels are maintained within the construction zone.

This plan describes both conventional and chemical monitoring to be used to verify compliance with applicable water quality criteria. Contingency measures to be implemented based on the monitoring findings are also described.

2 WATER QUALITY CRITERIA

The waters of Bellingham Bay are designated as excellent quality marine waters by the State of Washington (Washington Administrative Code [WAC] 173-201A). Applicable criteria exist for both conventional and chemical parameters as described in Sections 2.1 and 2.2.

2.1 Conventional Criteria

Turbidity and dissolved oxygen (DO) will be monitored as the primary indicators of water quality. For marine waterbodies classified as excellent, turbidity shall not exceed 5 nephelometric turbidity units (NTU) over background turbidity when the background turbidity is 50 NTU or less, or there shall not be more than a 10% increase in turbidity when the background turbidity is more than 50 NTU. The lowest 1-day minimum for DO in marine waterbodies designated as excellent is 6.0 milligrams per liter (mg/L) [WAC 173-201A-200(1)(d) and (e)].

2.2 Chemical Criteria

Acute and chronic water quality standards established under the Washington State Surface Water Quality Standards [WAC 173-201A-240(3)] are listed in Attachment 1 along with the findings of the reasonable potential analysis. That analysis compared the findings of the DRET evaluation to the water quality criteria to evaluate potential dredging-related chemical concentrations that may occur during Project construction. During Project construction, the acute criteria are to be met at the 150-foot compliance boundary as measured using an exposure period of 1 hour. Chronic criteria are to be met at the 300-foot compliance boundary as measured using an exposure period of 4 days.

Based on the results of DRETs and the reasonable potential analysis presented in Attachment 1, mercury and Dioxin are the chemicals of interest for construction monitoring. For mercury, the acute criterion (1.8 micrograms per liter [$\mu\text{g/L}$] dissolved basis) and chronic criterion (0.025 $\mu\text{g/L}$ total basis) are derived from the Washington State Surface Water Quality Standards [WAC 173-201A-240(3)]. For Dioxin, acute and chronic water quality criteria are not available in the State standards. Therefore, the U.S. Environmental Protection Agency (EPA 1993) was consulted for aquatic life toxicity data for Dioxin. Typically, EPA acute water quality criteria are derived based on LC-50 values obtained from short-term exposure tests. However, EPA-published studies with

LC-50 values are not available for Dioxin for appropriate aquatic species and life stages. A conservative (i.e., more stringent) acute value for Dioxin (0.0001 µg/L) was estimated using the geometric mean of three no-effects concentrations in 96-hour toxicity tests performed with juvenile coho salmon and rainbow trout. A chronic value for Dioxin (0.00001 µg/L) was estimated using an acute-chronic ratio of 10 (i.e., an order of magnitude lower concentration). Both the acute and chronic values are based on total Dioxin concentrations rather than dissolved Dioxin concentrations.

3 MONITORING LOCATIONS AND DEPTHS

Water quality monitoring will be performed at points located at specific distances from the respective construction activities, measured using radii of 100 feet (Early Warning Station), 150 feet (Acute Compliance Stations) and 300 feet (Chronic Compliance Stations). Monitoring will also be performed at a reference location located at least 500 feet from the respective construction activities.

Typical water quality monitoring locations are shown in Figure L-1. The actual positions of early warning, compliance, and background stations will be adjusted in the field using the best professional judgment of the monitoring crew. These adjustments will be based on the location of active in-water work, the tidal cycle, and observations of the current. The actual positions will be recorded in the field documentation.

3.1 Early Warning Station

Turbidity and DO measurements at the 100-foot distance serve as an interim indicator of water quality closer to the construction activity but do not trigger any required contingency response action by the contractor. Elevated measurements at the 100-foot distance (Early Warning Station EW-1) might indicate the potential for subsequent exceedance at the compliance boundary and will serve as an early warning to allow modification of the construction operation to potentially avoid water quality exceedances at the compliance boundary.

3.2 Acute and Chronic Compliance Stations

Compliance monitoring will include evaluation of acute water quality criteria at the Acute Compliance Station (AS-1) located 150 feet from the construction activity (see Figure L-1). Chronic water quality monitoring criteria are applicable to the 300-foot Chronic Compliance Station (CS-1).

A confirmed water quality exceedance at either the acute or chronic compliance boundaries will require contingency response action from the contractor to bring its operations back into compliance with water quality criteria. A description of the contingency measures that will be implemented if exceedances are confirmed is provided in Section 6.

3.3 Background Stations

One or more representative Background Stations (BG-1 and, if applicable, BG-2) will be sampled during each monitoring event. Background monitoring stations will be located a minimum of 500 feet from active in-water work in an area unaffected by the active work. The Background Stations may be positioned toward the inner or outer part of the waterway depending on tidal flows (i.e., flood versus ebb tides; Figure L-1).

3.4 Conventional Monitoring Depths

At each station monitored for turbidity and DO, turbidity and DO measurements will be made at three depths in the water column:

- Surface (1 meter below the surface)
- Middle (mid-point of the water column)
- Bottom (1 meter above the mudline)

Water depth will be determined using either a lead line or fathometer at the monitoring location, which will be recorded onto the field data log sheet. DO results in the construction area will be compared directly to the water quality standard. The range of turbidity measurements in the construction area will be compared to the range of turbidity measurements at the background station to determine if the turbidity at the construction site exceeds the background range by more than 5 NTU (if less than 50 NTU background) or more than 10% (if greater than 50 NTU background).

3.5 Chemical Monitoring Locations and Depths

Exceedances of the turbidity criterion at the 150-foot compliance boundary will trigger turbidity monitoring at the 300-foot Chronic Compliance Station and may trigger the need for chemical monitoring. The triggers for chemical monitoring are detailed in Section 6.

3.5.1 Acute Compliance Station

When triggered as described in Section 6 by a confirmed exceedance of turbidity criteria, acute water quality sampling will include collection of water column samples for mercury, Dioxin, and total suspended solids (TSS) at the Acute Compliance Station (AS-1) and the

Background Station(s). At each station, discrete water samples will be collected at surface, middle, and bottom depths, and the three depths will be composited into a single sample for laboratory analysis, composed of equal aliquots from each depth. This results in one composited laboratory analysis for each station during each monitoring event triggered as described in Section 6.4.

3.5.2 Chronic Compliance Station

If turbidity exceedances are confirmed at the Acute Compliance Station, this will trigger turbidity monitoring at the Chronic Compliance Station. If turbidity exceedances are confirmed and persist for at least 4 hours at the Chronic Compliance Station, water quality sampling will also be triggered at the Chronic Compliance Station for potential analysis and comparison to the 4-day chronic water quality criteria as described in Section 6. Chronic sampling includes collection of water column samples for mercury, Dioxin, and TSS at the Chronic Compliance Station (CS-1) and at the Background Stations (BG-1 and BG-2; Figure L-1). As with acute sampling, discrete water samples would be collected at surface, middle, and bottom depths, and the three depths will be composited into a single sample for laboratory analysis, composed of equal aliquots from each depth. In addition, the water samples at the chronic compliance boundary will be composited over time to provide a representative 4-day average concentration for comparison to chronic water quality criteria.

4 MONITORING METHODS AND EQUIPMENT

4.1 Conventional Monitoring Methods

In situ turbidity and DO will be measured with a Hydrolab water quality meter (or equivalent) or turbidometer and DO meter. Continuous in situ profiling tools are preferred to retrieving water samples and measuring parameters on deck. Turbidity and DO data for each monitoring event and respective location will be recorded on a field data sheet, as well as weather and tidal observations.

4.2 Chemical Sampling and Analytical Methods

Water samples for chemical analysis will be collected using a Niskin bottle, van Dorn sampler, or equivalent depth-discrete sampling device. Samples from each water depth (surface, middle, and bottom) will be submitted for compositing at the analytical laboratory. One depth-composited sample from each station will then be analyzed for TSS, mercury, and Dioxin. Table L-1 provides the analytical methods and target detection limits.

Table L-1
Analytical Methods and Detection Limits

Chemical Parameter	Analytical Method	Target Detection Limit
Total Suspended Solids	SM 2540D	1.0 mg/L
Mercury	EPA 7470A	0.02 µg/L
Dioxin	EPA 1613B	0.005 ng/L

Notes:

µg/L = microgram per liter
mg/L = milligram per liter
ng/L = nanogram per liter

5 MONITORING FREQUENCY AND SCHEDULE

The frequency and schedule of the turbidity and DO monitoring during the in-water work is divided into two levels of intensity, as described below:

- *Intensive* – Collection of turbidity and DO measurements every 4 hours during in-water work
- *Routine* – Collection of turbidity and DO measurements twice a day, one time per week

During dredging activities, monitoring will be conducted on an intensive schedule for the first 4 days of in-water work. If no exceedances at the Acute Compliance Station (AS-1) occur during the intensive monitoring, monitoring will be reduced to a routine schedule, unless otherwise directed by the Washington State Department of Ecology (Ecology). In addition, visual inspections will be performed hourly during the course of dredging activities. The occurrence of turbidity or DO exceedances, significant visual turbidity plumes, or a significant change in construction equipment or operations (e.g., dredging, capping, structure removal) will trigger a transition back to intensive monitoring to confirm that no water quality impacts are occurring.

During in-water structure removal activities, monitoring will be conducted on an intensive schedule for 2 days. If no exceedances occur during intensive monitoring, monitoring will be reduced to a routine schedule for the remaining days, unless otherwise directed by Ecology.

During capping and residual management placement, monitoring will be conducted on an intensive schedule for 2 days. If no exceedances occur during intensive monitoring, monitoring will be reduced to a routine schedule for the remaining days, unless otherwise directed by Ecology.

Chemical monitoring will be triggered during dredging based on the findings of turbidity testing. Chemical monitoring may be triggered during either the intensive or routine monitoring periods as described in Section 6.4.

6 CONTINGENCY MEASURES AND RESPONSE ACTIONS

6.1 Stop Work Criteria

The following conditions require a stop work response:

- Evidence of a significant oil sheen
- Evidence of distressed or dying fish
- Confirmed exceedance of water quality criteria at the 150-foot (acute water quality criteria) or 300-foot (chronic water quality criteria) compliance boundary and decision by Ecology to stop work following consultation between the Port and Ecology

If distressed or dying fish are observed, the monitoring crew will report immediately to Ecology's Northwest Regional 24-hour Spill Response Office at (425) 649-7000.

6.2 Contingency Measures

If a turbidity elevation above the water quality standard is confirmed at the early warning boundary or if an exceedance of a water quality standard is confirmed at the compliance boundary, contingency measures will be taken to mitigate the exceedance. For the proposed dredging and related in-water construction work, these measures are largely focused on reducing sediment resuspension and turbidity in the water column.

Possible contingency measures include but are not limited to:

- Operational best management practices (BMPs):
 - Slowing the speed of the dredge bucket through the water column
 - Avoiding overfilling of the bucket
 - Allowing water to drain from the bucket at the surface
 - Not overfilling the dredge scow
 - Avoiding critical tidal or current conditions
- Structural BMPs:
 - Modification of equipment to better control sediment resuspension
 - Installation of a sediment barrier such as a silt curtain

6.3 Water Quality Exceedance at Early Warning Station

If water quality standards for turbidity or DO are exceeded at the 100-foot early warning station, the following sequence of responses will be initiated:

1. If an initial exceedance is measured at the 100-foot boundary, the water quality monitoring crew will wait 10 minutes and retake measurements at the station. The water quality monitoring crew will visually assess the station vicinity for potential outside influences, including malfunctioning dredging or capping equipment, non-dredging- or capping-related activities, and/or storm drain discharges.
 - a. If water quality passes the turbidity or DO criteria during the retake measurement, and the exceedance is not confirmed, the water quality monitoring crew will resume the normally scheduled monitoring program.
 - b. If the turbidity or DO criteria exceedance is confirmed (two exceedances in 10 minutes), the contractor will be notified and the contractor will be requested to consider modifying its work activity using BMPs. The contractor will assess the current work methodology to determine if adjustments can be made to correct the problem. Potential contractor BMPs are listed in Section 6.2.
2. The water quality monitoring crew will wait at least 30 minutes to 1 hour after contractor BMPs are implemented, and retake measurements at the 100-foot and 150-foot stations.
 - a. If no exceedances are confirmed at the 100-foot station after resampling, the monitoring crew will continue sampling at normal 4-hour increments.
 - b. If water quality exceedances continue, the contractor will be notified that exceedances at the early warning station are still being observed and that additional enhancements to BMPs are warranted. The monitoring crew will continue monitoring the early warning and compliance stations on 1-hour intervals until either the water quality impact dissipates at the early warning boundary, or the impact expands to the compliance boundary. In the latter case, the contingency response procedures described in Section 6.2 will be followed.

6.4 Water Quality Exceedance at Compliance Station

If water quality standards (turbidity or DO; see Section 1.1) are exceeded at the 150-foot compliance station, the following sequence of responses will be initiated.

1. If an initial exceedance is measured at the 150-foot boundary, the water quality monitoring crew will wait 10 minutes and retake measurements at the station. The water quality monitoring crew will visually assess the station vicinity for potential outside influences, including malfunctioning dredging or capping equipment, non-dredging or capping related activities, and/or storm drain discharges.
 - a. If water quality passes the turbidity or DO criteria during the retake measurement, and the exceedance is not confirmed, the water quality monitoring crew will resume the normally scheduled monitoring program.
 - b. If the turbidity or DO criteria exceedance is confirmed (two exceedances in 10 minutes), the Port will be alerted and will notify Ecology. Sampling for turbidity and DO will then be initiated at the Chronic Compliance Station. The contractor will also be informed and will be required to implement BMPs to bring its operations back into compliance with water quality criteria.
2. In the event of a confirmed water quality exceedance for turbidity or DO at the 150-foot Acute Compliance Station, the contractor shall take appropriate corrective action (beyond those taken to modify the work activity for 100-foot exceedances) as necessary in order to meet turbidity and DO standards and will submit its contingency response action(s) to the Port within 1 hour. The contractor will be required to implement its contingency measures within 1 hour of notification of a confirmed exceedance. The Port will communicate the contractor's contingency response plan to Ecology.
3. Following a confirmed turbidity or DO exceedance, the water quality monitoring crew will wait 30 minutes to 1 hour after the contractor has implemented its contingency measures, in order to allow time for the contingency measures to take effect, and then retake water quality measurements at the 150-foot and 300-foot compliance stations.

- a. If no exceedances are confirmed at the 150-foot compliance stations 30 minutes to 1 hour after contingency measures have been implemented, the exceedance will have been controlled. However, the intensive monitoring schedule will be reset and the water quality monitoring crew will continue monitoring at 4-hour intervals.
- b. If follow-up measurements show that water quality criteria continue to be exceeded at the 150-foot compliance boundary even after initial contingency measures have been implemented, the following additional response actions will be triggered for the water quality monitoring and sampling crews:
 - i. Monitoring of turbidity and DO at the 150-foot and 300-foot compliance stations will continue on a 1-hour schedule until the exceedance is resolved or work is stopped. For turbidity exceedances during dredging, water column samples will be collected once per day during dredging from the 150-foot Acute Compliance Station (AS-1) and at the Background Stations (BG-1 and BG-2) and will be submitted for laboratory compositing and analysis for mercury, Dioxin, and TSS.
 - ii. For sustained (i.e., more than 4 hours) turbidity exceedances documented at the 300-foot Chronic Compliance Station, water column samples will be collected from the 300-foot Chronic Compliance Station (CS-1) and at the Background Stations (BG-1 and BG-2) every 24 hours during the period of turbidity exceedance. These samples will be archived for possible future analysis and comparison to chronic water quality criteria.
 - iii. If the turbidity exceedance at the 300-foot boundary persists for more than 24 hours during dredging, 4-day composite water samples will be submitted for chemical analysis from stations CS-1, BG-1, and BG-2). At each station, the sample aliquots will be composited in the laboratory to provide a representative 4-day average concentration with which to evaluate compliance with chronic mercury and Dioxin criteria.
 - iv. Mercury and Dioxin monitoring data will be reviewed upon receipt from the analytical laboratory. These data will be used to confirm that

control of turbidity at the Acute Monitoring Station (AS-1) results in compliance with water quality criteria for these compounds as indicated by the DRET data and the reasonable potential analysis (see Attachment 1).

In the event that the contractor's contingency response actions do not achieve compliance with the water quality criteria, the Port shall do the following:

- Immediately take action to curtail the activity causing the turbidity or decrease in DO.
- Report the exceedance to Ecology's Toxic Cleanup Program Site Manager, Lucy McInerney, by phone at (425) 649-7272 or email at lpeb461@ecy.wa.gov.
- Determine, in consultation with Ecology, whether a temporary stoppage of work may be necessary while the problem is being resolved.
- Meet with the contractor and Ecology to discuss the water quality monitoring observations, discuss contingency response actions taken by the contractor, and identify additional contingency response actions that the contractor could implement to comply with the water quality criteria. Ecology could also determine that it is appropriate to adjust the dimensions of the compliance boundary for this cleanup action.

7 QUALITY CONTROL

The quality control (QC) objective for this water quality monitoring effort is to verify that the data collected are of known and acceptable quality so that the goals of the water quality program can be achieved. Appropriate field QC procedures will be followed. These procedures include performing routine field instrument calibration and following standard instrument operation procedures.

Standard laboratory QC procedures will be followed for any required laboratory analyses. Laboratory duplicate samples, matrix spike/matrix spike duplicate samples, laboratory reference analyses, and other QC requirements appropriate to the methods listed in Section 4 will be performed to assess the accuracy and precision of the analytical measurements.

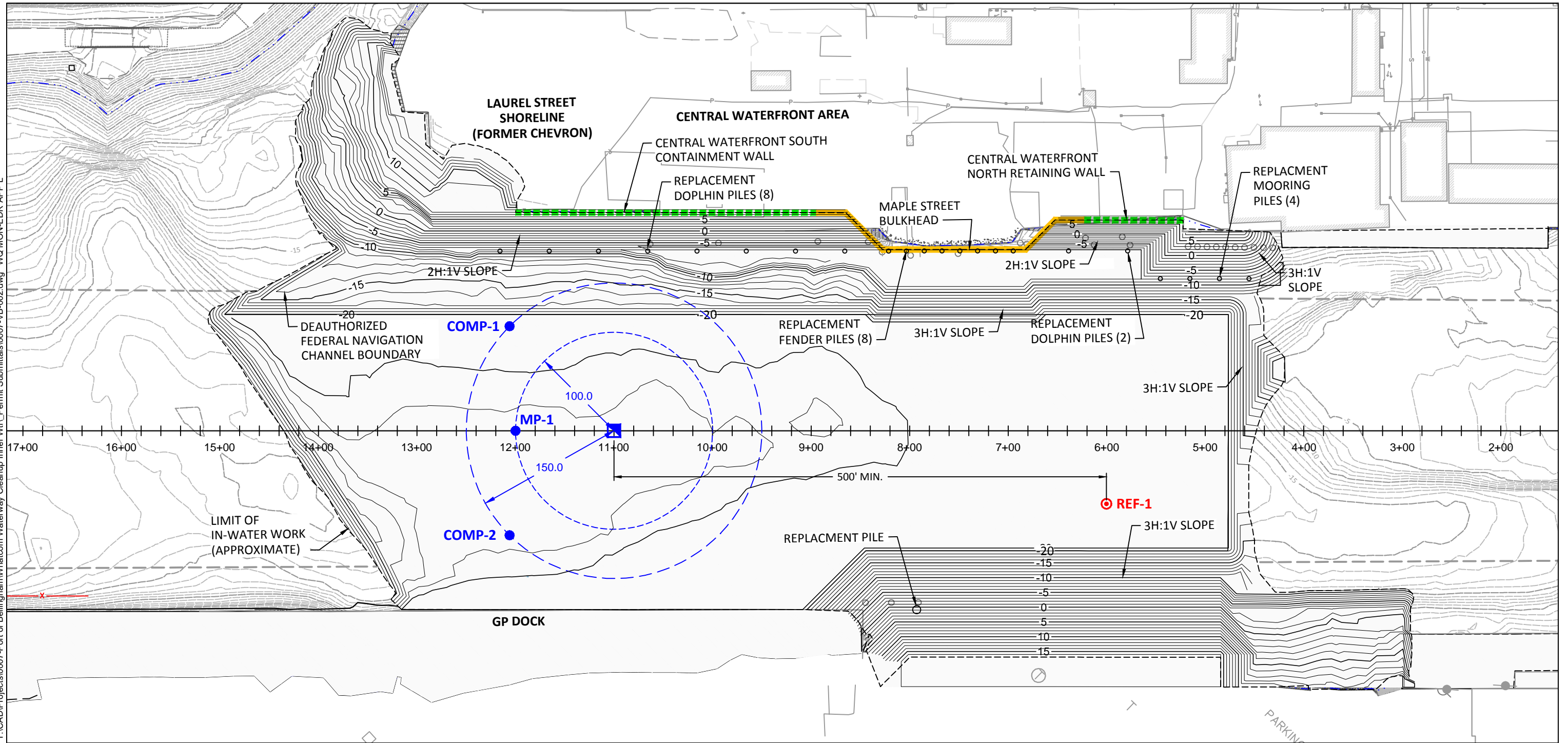
8 REFERENCES

Anchor QEA (Anchor QEA, LLC), 2010. *Pre-Remedial Design Investigation Data Report*.
Whatcom Waterway Site Cleanup. Prepared for Port of Bellingham. August 2010.

EPA (U.S. Environmental Protection Agency), 1993. *Interim Report on Data and Methods
for Assessment of 2,3,7,8-tetrachloro-dibenzodioxin Risk to Aquatic Life and
Associated Wildlife*. Environmental Research Laboratory, EPA/600/R-93-055.

FIGURES

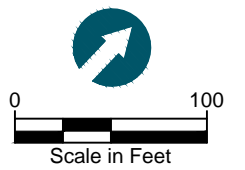
T:\CAD\Projects\0007-Port of Bellingham\Whatcom Waterway Cleanup Inner Wtr_Permit Submittals\0007-VB-002.dwg WQ MON-EDR APP L



SOURCE: Drawing prepared from surveys provided by Wilson Surveying and Engineering.
HORIZONTAL DATUM: Washington State Plane North, NAD83, U.S. Feet.
VERTICAL DATUM: Mean Lower Low Water (MLLW).

- NOTES:**
1. Water quality monitoring locations are shown relative to location of work and will move with project progress.
 2. Capping to be completed throughout in-water limits of work. Bathymetry shown is for post-capping conditions.
 3. Contour Interval is 1-foot.

- LEGEND:**
- REF-1 (red circle with dot) Reference Location and Designation
 - (blue square) Location of Dredging or Capping Activities
 - COMP-1 (blue dot) Water Quality Monitoring Location and Designation



Feb 06, 2015 3:57pm epipkin



Figure L-1
 Proposed Water Quality Monitoring Locations
 Appendix L - Water Quality Monitoring Plan
 Whatcom Waterway Cleanup in Phase 1 Site Areas - Final EDR

ATTACHMENT 1
EVALUATION OF WATER QUALITY
IMPACTS DURING DREDGING

Attachment 1
Evaluation of Water Quality Impacts During Remedial Construction

ANALYTE	UNIT 1C OUTER WATERWAY		UNIT 2A/3B INNER WATERWAY		WHATCOM WATERWAY SITE WATER		MAX. CONCENTRATION 150-FT. COMPLIANCE BOUNDARY		AMBIENT WATER QUALITY CRITERIA		
	1C-01-VC-U-COMP		2A-3B-01-COMP		1/16/2009		Estimated		Acute	Chronic	Ref.
	2/17/2009		2/10/2009		Site Water (Anchor QEA 2010)		Dredge Plume at 15X Dilution Factor ^[2]				
	DRET (Anchor QEA 2010)		DRET (Anchor QEA 2010)		Total	Dissolved	Total	Dissolved			
	Total	Dissolved	Total	Dissolved							
Conventionals (mg/L)											
Total Suspended Solids	185	--	158	--	12.4 J	--	22	--	BG + 10 mg/L		[a]
Ammonia	0.733	0.727	3.75	3.74	0.082 J	--	0.33	--	6.0	0.9	[b]
Metals dissolved (µg/L)											
Antimony	--	0.8	--	0.9	--	0.5 U	--	< 0.5	--	--	
Arsenic	--	2	--	1.9	--	1.0 U	--	< 1	69	36	[c]
Cadmium	--	0.5 U	--	0.5 U	--	0.5 U	--	< 0.5	42	9.3	[c]
Chromium	--	1.0 U	--	1.0 U	--	1	--	1	--	--	
Copper	--	3	--	2	--	3	--	3	4.8	3.1	[c]
Lead	--	2.0 U	--	2.0 U	--	2.0 U	--	< 2	210	8.1	[c]
Mercury	--	0.1 U	--	0.1 U	--	0.1 UP	--	< 0.1	1.8	--	[c]
Nickel	--	12	--	5	--	4	--	4.5	74	8.2	[c]
Selenium	--	10	--	7	--	5	--	5.3	290	71	[c]
Silver	--	0.5 U	--	0.5 U	--	0.5 U	--	< 0.5	1.9	--	[c]
Zinc	--	10 U	--	10 U	--	10 U	--	< 10	90	81	[c]
Metals total (µg/L)											
Antimony	0.7	--	1	--	0.5 U	--	< 0.5	--	--	--	
Arsenic	2	--	2	--	2	--	2	--	--	--	
Cadmium	0.5 U	--	0.5 U	--	0.5 U	--	< 0.5	--	--	--	
Chromium	12	--	12	--	2	--	2.7	--	--	--	
Copper	12	--	13	--	3	--	3.7	--	--	--	
Lead	3	--	11	--	2.0 U	--	< 2.0	--	--	--	
Mercury	0.11	--	0.13	--	0.1 UP	--	< 0.1	--	--	0.025	[c]
Nickel	21	--	17	--	4	--	5.1	--	--	--	
Selenium	6	--	8	--	6	--	6.1	--	--	--	
Silver	0.5 U	--	0.5 U	--	0.5 U	--	< 0.5	--	--	--	
Zinc	20	--	30	--	10 U	--	< 10	--	--	--	
Dioxin (µg/L)											
2,3,7,8-TCDD	NA	NA	NA	NA	NA	NA	1.0E-8 ^[1]	--	1.E-04	1.E-05	[d]
Aromatic Hydrocarbons (µg/L)											
1-Methylnaphthalene	1.0 U	1.0 U	1.0 U	1.0 U	1.4 UP	--	< 1	< 1	312	75	[e]
2-Methylnaphthalene	1.0 U	1.0 U	1.0 U	1.0 U	1.4 UP	--	< 1	< 1	300	72	[e]
Acenaphthene	1.0 U	1.0 U	1.0 U	1.0 U	1.4 UP	--	< 1	< 1	233	56	[e]
Acenaphthylene	1.0 U	1.0 U	1.0 U	1.0 U	1.4 UP	--	< 1	< 1	1277	307	[e]
Anthracene	1.0 U	1.0 U	1.0 U	1.0 U	1.4 UP	--	< 1	< 1	87	21	[e]
Benzo(a)anthracene	1.0 U	1.0 U	1.0 U	1.0 U	1.4 UP	--	< 1	< 1	92	22	[e]
Benzo(a)pyrene	1.0 U	1.0 U	1.0 U	1.0 U	1.4 UP	--	< 1	< 1	4.0	0.96	[e]
Benzo(b)fluoranthene	1.0 U	1.0 U	1.0 U	1.0 U	1.4 UP	--	< 1	< 1	2.8	0.68	[e]
Benzo(g,h,i)perylene	1.0 U	1.0 U	1.0 U	1.0 U	1.4 UP	--	< 1	< 1	1.8	0.44	[e]
Benzo(k)fluoranthene	1.0 U	1.0 U	1.0 U	1.0 U	1.4 UP	--	< 1	< 1	2.7	0.64	[e]
Chrysene	1.0 U	1.0 U	1.0 U	1.0 U	1.4 UP	--	< 1	< 1	8.3	2	[e]
Dibenzo(a,h)anthracene	1.0 U	1.0 U	1.0 U	1.0 U	1.4 UP	--	< 1	< 1	1.2	0.28	[e]
Fluoranthene	1.0 U	1.0 U	1.0 U	1.0 U	1.4 UP	--	< 1	< 1	30	7.1	[e]
Fluorene	1.0 U	1.0 U	1.0 U	1.0 U	1.4 UP	--	< 1	< 1	162	39	[e]
Indeno(1,2,3-c,d)pyrene	1.0 U	1.0 U	1.0 U	1.0 U	1.4 UP	--	< 1	< 1	1.2	0.28	[e]
Naphthalene	1.0 U	1.0 U	1.0 U	1.0 U	1.4 UP	--	< 1	< 1	807	194	[e]
Phenanthrene	1.0 U	1.0 U	1.0 U	1.0 U	1.4 UP	--	< 1	< 1	79	19	[e]
Pyrene	1.0 U	1.0 U	1.0 U	1.0 U	1.4 UP	--	< 1	< 1	42	10	[e]
Semi-Volatiles (µg/L)											
1,2,4-Trichlorobenzene	1.0 U	1.0 U	1.0 U	1.0 U	1.4 UP	--	< 1	< 1	--	--	
1,2-Dichlorobenzene	1.0 U	1.0 U	1.0 U	1.0 U	1.4 UP	--	< 1	< 1	--	--	
1,3-Dichlorobenzene	1.0 U	1.0 U	1.0 U	1.0 U	1.4 UP	--	< 1	< 1	--	--	
1,4-Dichlorobenzene	1.0 U	1.0 U	1.0 U	1.0 U	1.4 UP	--	< 1	< 1	--	--	
2,4-Dimethylphenol	1.0 U	1.0 U	1.0 U	1.0 U	1.4 UP	--	< 1	< 1	--	--	
2-Methoxyphenol (Guaiacol)	1.0 U	1.0 U	1.0 U	1.0 U	1.4 UP	--	< 1	< 1	--	--	
2-Methylphenol (o-Cresol)	1.0 U	1.0 U	1.0 U	1.0 U	1.4 UP	--	< 1	< 1	--	--	
3,4,5-Trichloroguaiacol	1.0 U	1.0 U	1.0 U	1.0 U	1.4 UP	--	< 1	< 1	--	--	
4,5,6-Trichloroguaiacol	1.0 U	1.0 U	1.0 U	1.0 U	1.4 UP	--	< 1	< 1	--	--	
4,5-Dichloroguaiacol	1.0 U	1.0 U	1.0 U	1.0 U	1.4 UP	--	< 1	< 1	--	--	
4-Methylphenol (p-Cresol)	1.0 U	1.0 U	1.0 U	1.0 U	1.4 UP	--	< 1	< 1	--	--	
Benzoic acid	10 U	10 U	10 U	10 U	1.4 UP	--	< 10	< 10	--	--	
Benzyl alcohol	5.0 U	5.0 U	5.0 U	5.0 U	6.8 UP	--	< 5	< 5	--	--	
Bis(2-ethylhexyl) phthalate	24	1.0 U	1.0 U	1.0 U	1.4 UP	--	2.3	< 1	--	--	
Butylbenzyl phthalate	1.0 U	1.0 U	1.0 U	1.0 U	1.4 UP	--	< 1	< 1	--	--	
Dibenzofuran	1.0 U	1.0 U	1.0 U	1.0 U	1.4 UP	--	< 1	< 1	--	--	
Diethyl phthalate	1.0 U	1.0 U	1.0 U	1.0 U	1.4 UP	--	< 1	< 1	--	--	
Dimethyl phthalate	1.0 U	1.0 U	1.0 U	1.0 U	1.4 UP	--	< 1	< 1	--	--	
Di-n-butyl phthalate	1.0 U	1.0 U	1.0 U	1.0 U	1.4 UP	--	< 1	< 1	--	--	
Di-n-octyl phthalate	1.0 U	1.0 U	1.0 U	1.0 U	1.4 UP	--	< 1	< 1	--	--	
Hexachlorobenzene	1.0 U	1.0 U	1.0 U	1.0 U	1.4 UP	--	< 1	< 1	--	--	
Hexachlorobutadiene	1.0 U	1.0 U	1.0 U	1.0 U	1.4 UP	--	< 1	< 1	--	--	
Hexachloroethane	1.0 U	1.0 U	1.0 U	1.0 U	1.4 UP	--	< 1	< 1	--	--	
N-Nitrosodiphenylamine	1.0 U	1.0 U	1.0 U	1.0 U	1.4 UP	--	< 1	< 1	--	--	

Attachment 1

Evaluation of Water Quality Impacts During Remedial Construction

ANALYTE	UNIT 1C OUTER WATERWAY		UNIT 2A/3B INNER WATERWAY		WHATCOM WATERWAY SITE WATER		MAX. CONCENTRATION 150-FT. COMPLIANCE BOUNDARY		AMBIENT WATER QUALITY CRITERIA		
	1C-01-VC-U-COMP		2A-3B-01-COMP		1/16/2009		Estimated		Acute	Chronic	Ref.
	2/17/2009		2/10/2009		Site Water (Anchor QEA 2010)		Dredge Plume at 15X Dilution Factor ^[2]				
	DRET (Anchor QEA 2010)		DRET (Anchor QEA 2010)		Total	Dissolved	Total	Dissolved			
	Total	Dissolved	Total	Dissolved					Total	Dissolved	
Pentachlorophenol	5.0 U	5.0 U	5.0 U	5.0 U	6.8 UP	--	< 5	< 5	--	--	
Phenol	1.0 U	1.0 U	1.0 U	1.0 U	1.4 UP	--	< 1	< 1	--	--	
Tetrachloroguaiacol	1.0 U	1.0 U	1.0 U	1.0 U	1.4 UP	--	< 1	< 1	--	--	

References:

- [a] WAC 173-201A-210(1)(e); Background plus 5 NTU turbidity ~ Background plus 10 mg/L TSS
- [b] EPA 1989 Ambient Water Quality Criteria for Ammonia (Saltwater); T = 10°C, pH = 8.4; Salinity = 30 ppt
- [c] WAC 173-201A-240(3)
- [d] EPA 1993; based on acute toxicity test data for juvenile salmon and rainbow trout; assume acute-chronic ratio ~ 10
- [e] EPA 2003 final chronic values; acute-chronic ratio = 4.16

Notes:

Bold = Detected result

-- Sample was not submitted for chemical analysis.

J = Estimated value

U = Compound analyzed, but not detected above detection limit

P = Data considered usable; however, hold-times were exceeded.

µg/L = microgram per liter; DRET = dredged elutriate test; EPA = U.S. Environmental Protection Agency; mg/L = milligram per liter; NTU = nephelometric turbidity unit; TSS = total suspended solids; WAC = Washington Administrative Code

1. Estimated from range of bulk sediment 2,3,7,8-TCDD concentrations measured in Unit 1C sediments during Pre-Remedial Design Investigations (Anchor QEA 2010).
2. Concentrations estimated assuming that dredging-related turbidity is maintained at or below background levels plus 10 mg/L at the acute monitoring station.

Based on the DRET data, compliance with turbidity criteria requires a minimum dilution factor of at least 15X (158 mg/L divided by 10 mg/L) from the point of dredging.

The resulting concentration is estimated as the background concentration plus the incremental concentration over background measured in the DRET elutriate divided by 15.

APPENDIX M
RESULTS OF ADDITIONAL
GEOTECHNICAL AND ENVIRONMENTAL
TESTING ALONG THE CENTRAL
WATERFRONT SITE

(Appendix M data reports are available on CD from Ecology)

MEMORANDUM

To: Lucille T. McInerney, P.E., Ecology
Brian Sato, P.E., Ecology

Date: February 5, 2013

From: Tom Wang, P.E., Anchor QEA, LLC

Project: 080007-01.02

Cc: John Hergesheimer, Port of Bellingham
Mike Stoner, Port of Bellingham
Brian Gouran, Port of Bellingham

Re: Whatcom Waterway Site – Consent Decree No. 07-2-02257-7 – Pre-Remedial
Design Investigation Work Plan Addendum #2
Central Waterfront Site – Agreed Order No. DE3341 – RI/FS Work Plan
Addendum #4
Supplemental Central Waterfront Shoreline Design Investigation Results

Anchor QEA, LLC is currently conducting remedial design and permitting activities in support of the Whatcom Waterway Site Cleanup project. This work is being performed in accordance with the First Amendment to Consent Decree No. 07-2-02257-7, which was filed in Whatcom County Court on August 19, 2011. The design and permitting work is being performed on behalf of the Port of Bellingham and other signatories to the Consent Decree. In addition, ongoing Remedial Investigation/Feasibility Study (RI/FS) activities are being performed at the Central Waterfront site in accordance with Agreed Order No. DE 3441.

PURPOSE AND BACKGROUND

In support of the Whatcom Waterway engineering design, supplemental geotechnical and environmental data needs were identified relating to the partially exposed containment wall and Maple Street bulkhead replacement design along the northern shoreline of the Whatcom Waterway site. The alignment of the proposed wall and bulkhead replacement is presented on Figure 1. The shoreline is located within the cleanup area of the Whatcom Waterway site and includes the southern portion of the Central Waterfront site where the presence of concrete debris and petroleum impacted soils and groundwater has been documented.

A supplemental investigation was performed between October 25 and October 29 to fill identified data needs. Investigation work included seven geoprobe transects perpendicular to the shoreline (20 borings total) and two hollow-stem auger soil borings to collect geotechnical information. Work was performed consistent with the Supplemental Central Waterfront Shoreline Investigation Work Plan Addendum dated October 19, 2012. This memorandum presents the investigation methods and findings of environmental and geotechnical work to support the proposed wall and bulkhead design. In addition to supporting the Whatcom Waterway site engineering design, these investigation results will inform the anticipated revisions to the Central Waterfront RI/FS, which is currently undergoing Ecology review.

INVESTIGATION METHODS AND FINDINGS

The following section describes the soil environmental and geotechnical investigation methodologies and findings. All work was performed in compliance with the site-specific health and safety plan. The investigation locations are presented on Figure 1.

Wall Alignment Survey and Utility Locates

A licensed surveyor, Wilson Engineering LLC (Wilson) surveyed and marked the proposed wall and bulkhead replacement alignment along the shoreline as shown on Figure 1. Permanent survey point markers were installed to allow access to the future wall alignment throughout the design process as needed.

A private locating contractor, Applied Professional Services, Inc., performed a utility locate to identify potential utilities in the investigation areas as well as to inform potential design needs related to utility abandonment or replacement. Findings of the utility locate are shown on Figure 1. The following utilities were identified:

- Electrical: Three electrical lines were identified in the following locations:
 - Along the eastern shoreline
 - A loading ramp to a small utility shed
 - The western area in the boatyard from the shoreline to the utility shed
 - Hydraulic: One hydraulic line was identified from the loading ramp to the small utility shed.
-

- Water: One potable water line in the western area along the shoreline.
- Monitoring wells: Two existing monitoring wells were identified in the eastern area.
- Surface stormwater system features: Visible stormwater system features (e.g., catch basins) were identified and surveyed by Wilson.

Concrete Debris Survey and Soil Analytical Testing

Direct push borings were completed by Geoprobe methodology on October 25 and 26 to delineate the presence or absence of subsurface concrete debris and petroleum and metals contamination along the proposed wall alignment. All temporary borings were advanced to depths of 15 to 20 feet below ground surface (bgs). Final boring locations were determined in the field based on rig access and locations of subsurface utilities. Final sampling locations are shown on Figure 1.

A total of seven transects were completed as shown on Figure 1. Direct push borings at each transect were first attempted approximately 5 feet from the shoreline, if access allowed, along the proposed wall alignment markings. The first boring at each transect where no concrete debris (refusal) was encountered was advanced to 20 feet bgs and continuously logged and sampled at select depth intervals. Soils observed in these borings were logged by the field geologist; boring logs are included in Attachment A. Additional direct push borings were completed in each transect and along the proposed wall alignment to a depth of 15 feet bgs to observe the presence or absence of concrete debris (refusal). Refusal was encountered in only one area at transect CWSI-06 at the first and third attempt (second attempt was logged and sampled). Refusal was encountered at 3 feet bgs and 1.5 feet bgs, respectively.

Soil sampling was performed at multiple depth intervals at each direct push boring location; generally at approximately 3 feet bgs (overburden) and 7 feet bgs (smear zone) with additional deeper samples collected based on field observations. Samples were field screened for sheen, PID readings, and hydrocarbon odors. A total of 16 soil samples were submitted for laboratory analysis including:

- Gasoline range hydrocarbons
 - Diesel/motor oil range hydrocarbons (using silica gel cleanup procedures)
 - BTEX compounds
-

- Priority pollutant metals

Soil sampling results are presented in Table 1 and laboratory analytical reports are included in Attachment B. To evaluate potential disposal requirements for soils excavated in conjunction with construction of source control structures, soil analytical results are compared to Model Toxics Control Act (MTCA) Method A criteria for unrestricted site use rather than site-specific screening levels developed as part of the RI/FS. The analytical data will also be analyzed separately as part of the Central Waterfront Site RI/FS. Gasoline range hydrocarbon concentrations detected above the MTCA A cleanup level of 30 mg/kg (with the presence of benzene) were identified at 2 of the 7 sampling areas. CWSI-05 and CWSI-06 both had gasoline range hydrocarbon concentrations greater than 30 mg/kg only at the water table depth within the smear zone between a depth of 8 to 14 feet bgs. Benzene was detected above the MTCA cleanup level of 30 µg/kg at only one location (CWSI-05), also within the water table smear zone. No soil samples had petroleum concentrations detected above the MTCA Method A cleanup level of 2,000 mg/kg (sum of diesel and motor oil).

Priority pollutant metals were analyzed at all sampling locations except CWSI-03. Arsenic, cadmium, chromium, and lead exceeded applicable MTCA cleanup levels, as defined by Method A and Method B soil cleanup levels, and by natural background concentrations. Arsenic was detected above the MTCA cleanup level (20 mg/kg) at CWSI-02 at a concentration of 25 mg/kg. Cadmium was detected at above the MTCA cleanup level (2.0 mg/kg) at CWSI-05 at a concentration of 11.7 mg/kg. Total chromium concentrations were detected above the MTCA Method A cleanup level applicable to hexavalent chromium (19 mg/kg), but all soil samples were well below the cleanup level applicable for trivalent chromium. The total chromium results at CWSI-01 (57 mg/kg) and CWSI-02 (128 mg/kg) were both above the natural background concentration determined for Puget Sound Region soils (48 mg/kg; Ecology 1994). Lead was detected at three locations (CWSI-02, CWSI-4, and CWSI-06) above the MTCA cleanup level of 250 mg/kg. Lead concentrations ranged between 452 mg/kg to 1,260 mg/kg.

Geotechnical Borings and Testing

The hollow-stem auger soil borings were drilled to an approximate depth of 50 feet bgs. The purposes of the explorations were to investigate the subsurface conditions and obtain soil

samples for laboratory analysis. Two samplers were utilized to obtain soil samples—2-inch outside diameter Standard Penetration Test (SPT) split-spoon sampler and 3-inch outside diameter Shelby tube. A total of 16 samples were obtained from SPT samplers and 6 from Shelby tubes. Geotechnical laboratory tests performed include the following:

- 22 – Moisture Content (ASTM D2216)
- 8 – Sieve Analysis (ASTM D422)
- 6 – Atterberg Limits (ASTM D4318)
- 6 – One-dimensional Consolidation (ASTM D4235)
- 6 – Undrained Unconsolidated Triaxial Compression (ASTM D2850)

The explorations performed along the Central Waterfront shoreline encountered three distinct soil units—fill, alluvium, and glacial marine drift. At the subsurface locations, the ground surface is approximately +13 feet mean lower low water (MLLW). Groundwater was observed at approximately 6 feet bgs at the time of drilling. Descriptions of the soil units encountered are provided below:

Fill (SP/SM): The unit was observed to consist primarily of loose to medium dense, poorly graded sand with varying silt and gravel. Construction debris such as wood and brick was encountered at various locations between depths of 10 and 17 feet bgs. The SPT N-values ranged from 3 to 24 blows per foot. Thickness of the layer ranged from approximately 17 feet at CWS – B1, near the northeastern region of the shoreline, to 20 feet at CWS – B2, near the middle region of the shoreline.

Alluvium (SM): This unit was observed to consist primarily of medium dense, fine-grained silty sand. The SPT N-values ranged from 13 to 34 blows per foot. Thickness of the layer is approximately 7 feet.

Glacial Marine Drift (CL): This soil unit consists of stiff, silty clay of medium plasticity. The SPT N-values ranged from 3 to 18 blows per foot. Moisture contents ranged from 18% to 31%. Undrained shear strength derived from tri-axial compression tests were found to range from 1,350 to 2,150 psf. The soil borings were terminated in this layer.

The geotechnical laboratory reports are included in Attachment C.

CONCLUSIONS

The results of the geotechnical laboratory analysis were used to update earth pressure recommendations for structural design for the source control structures and Maple Street bulkhead replacement. The soil borings and in situ testing allowed a more refined estimate of elevations of soil unit contacts and physical characteristics of soil properties. In general, the in-situ and laboratory test results confirmed the assumptions originally made for the fill and alluvium, therefore no changes were made to the earth pressures developed for the 60% design. The glacial marine drift (i.e., clay), however, was found to exhibit a higher undrained shear strength than originally assumed prior to the supplemental investigation. This higher undrained shear strength translates to an increase in the passive earth pressures originally developed for the 60% design and ultimately justifies a reduction of materials required for walls and foundation elements.

The results of soil sampling and probing confirmed the presence of petroleum contamination in the eastern portion of the project area. Analytical results will be incorporated into the Central Waterfront RI/FS development. However, based on the comparison of analytical results to MTCMA Method A criteria for unrestricted site use, all vadose zone soils (above the water table fluctuation or smear zone) that are excavated in conjunction with implementation of the Whatcom Waterway cleanup can be reused on site as fill. Soils within the smear zone that are excavated in conjunction with source control structure construction will be profiled for off-site disposal. Probing observations generally indicated that concrete debris is not present in the area of the proposed wall, except at location CWSI-06 in near surface soils. Concrete was present at the surface in all probing locations.

Please do not hesitate to contact us with any questions or comments.

Sincerely,

Tom Wang, P.E.

Figure:

Figure 1: Investigation Locations

Attachments:

Attachment A: Boring Logs

Attachment B: Analytical Laboratory and Data Validation Reports

Attachment C: Geotechnical Laboratory Reports

FIGURES



Q:\Jobs\120007-01.01_Central_Waterfront_RIFS\Map\Memo\Geotech_Sample_Locations.mxd nkochie 12/19/2012 3:46:11 PM

Sampling Locations

- Hollow-stem Auger Boring
- Soil Logging/Sample Boring
- Debris Probe
- TPH-G Concentration >30 mg/kg

Design Feature

- Proposed Partially-Exposed Containment Wall
- Proposed Maple Street Bulkhead Replacement

Utilities

- Approximate Electrical Locate
- Approximate Hydraulic Locate
- Approximate Water Locate

Notes:

1. Proposed wall alignment is approximate and subject to change pending final design.
2. Utilities were identified prior to subsurface sampling activities and were conducted by a private locating contractor. Utility locate did not include identification of stormwater conveyance due to piping material (e.g. OVC).
3. Direct push transects were performed in areas that allowed for access based on tenant operations.
4. Refusal was encountered at one transect (CWSI-06) at two probing locations at depths of 3-feet and 1.5-feet bgs.

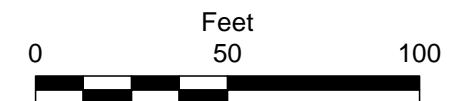
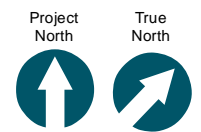


Figure 1
Investigation Locations
Central Waterfront Shoreline Investigation
Whatcom Waterway Cleanup in Phase 1 Area

TABLES

**Table 1
Summary of Chemical Testing Results**

Area	Location ID	East Transects							
		CWSI-01		CWSI-02			CWSI-03		CWSI-07
Sample ID	Sample Date	CWSI-01-3-5	CWSI-01-11-13	CWSI-02-1-3	CWSI-02-7-8	CWSI-02-12-13	CWSI-03-2-4	CWSI-03-7-9	CWSI-07-2-4
Depth	Method A/B	10/25/2012		10/25/2012			10/25/2012		10/26/2012
Easting	MTCA	3 - 5 ft	11 - 13 ft	1 - 3 ft	7 - 8 ft	12 - 13 ft	2 - 4 ft	7 - 9 ft	2 - 4 ft
Constiuent	Method A/B	1241515.069		1241464.667			1241277.725		1241414.839
Northing	Cleanup Level	643326.409		643255.767			643079.964		643208.870
Total Petroleum Hydrocarbons (mg/kg)									
Gasoline Range Hydrocarbons	30	10 U	6.4 U	6.5 U	7.6	7 U	9.5 U	8.8 U	7.3 U
Diesel Range Hydrocarbons	2,000	41	95	5.2 U	150	39	100	300	230
Motor Oil Range	2,000	140	120	10 U	280	98	84	410	220
Total Diesel and Motor Oil (U = 1/2)	2,000	181	215	10 U	430	137	184	710	450
Total Diesel and Motor Oil (U = 0)	2,000	181	215	10 U	430	137	184	710	450
BTEX Compounds (µg/kg)									
Benzene	30 (A)	1.2 J	1 U	1.1 J	0.9 J	0.8 J	1.4 U	2.3	2.7
Ethylbenzene	6,000 (A)	1.3 U	1 U	1.2 U	1.2 U	0.6 J	1.4 U	0.6 J	1.2 U
Toluene	7,000 (A)	0.7 J	1 U	1 J	1.2 U	0.6 J	1.6	2.7	2.8
m,p-Xylene	9,000 (A)	1.3 U	1 U	1.2 U	1.2 U	1 U	1.4 U	1.6	1.1 J
o-Xylene	9,000 (A)	1.3 U	1 U	1.2 U	1.2 U	1 U	1.4 U	0.8 J	1.2 U
Priority Pollutant Metals (mg/kg)									
Antimony	3.2 (B)	20 UJ	30 UJ	5 J	60 UJ	30 UJ	--	--	6 UJ
Arsenic	20 (A)	20 U	30 U	25	60 U	30 U	--	--	11
Beryllium	--	0.3 U	0.6 U	0.1	1 U	0.6 U	--	--	0.2
Cadmium	2.0 (A)	1.4	1 U	0.2 U	2 U	1	--	--	0.3
Chromium	19 (A)/48	38	57	14.2	128	30	--	--	34.1
Copper	2,960 (B)	148	359	41.4	403	209	--	--	33 J
Lead	250 (A)	166	110	16	1,260	40	--	--	25
Mercury	2.0 (A)	0.06	0.22	0.03 U	0.05	0.02 U	--	--	0.04
Nickel	1,600 (B)	39	109	19	160	39	--	--	28
Selenium	400 (B)	20 U	30 U	5 U	60 U	30 U	--	--	6 U
Silver	400 (B)	0.9 U	2 U	0.3 U	4 U	2 U	--	--	0.3 U
Thallium	--	20 U	30 U	5 U	60 U	30 U	--	--	6 U
Zinc	24,000 (B)	347	273	52	250	162	--	--	106 J

**Table 1
Summary of Chemical Testing Results**

Area	Location ID	West Transects							
		CWSI-04			CWSI-05			CWSI-06	
Sample ID	Sample Date	CWSI-04-2-4	CWSI-04-6-8	CWSI-04-13.5-15	CWSI-05-2-4	CWSI-05-7-9	CWSI-05-12-14	CWSI-06-8-10	CWSI-06-12-14
Sample Date	Depth	10/25/2012			10/26/2012			10/26/2012	
Depth	Easting	2 - 4 ft	6 - 8 ft	13.5 - 15 ft	2 - 4 ft	7 - 9 ft	12 - 14 ft	8 - 10 ft	12 - 14 ft
Easting	Northing	1241207.421			1241174.122			1241144.947	
Constiuent	Northing	643013.658			642980.831			642965.046	
Total Petroleum Hydrocarbons (mg/kg)									
Gasoline Range Hydrocarbons	30	6.4 U	7.8 U	19	24	7.6 U	160	1,300	62
Diesel Range Hydrocarbons	2,000	67	24	200	69	200	420	1,300	240
Motor Oil Range	2,000	97	37	260	130	250	590	640	330
Total Diesel and Motor Oil (U = 1/2)	2,000	164	61	460	199	450	1,010	1,940	570
Total Diesel and Motor Oil (U = 0)	2,000	164	61	460	199	450	1,010	1,940	570
BTEX Compounds (µg/kg)									
Benzene	30 (A)	1.1 U	1.2 U	17	1.6	1.5 U	63	2.4 U	3
Ethylbenzene	6,000 (A)	1.1 U	1.2 U	1.2 U	1.3 U	1.5 U	7.5	2.4 U	1.8
Toluene	7,000 (A)	1.1 U	0.6 J	1.1 J	1.3 J	1.5 U	11	3.5 U	1.3
m,p-Xylene	9,000 (A)	1.1 U	1.2 U	1.2 U	1.3 U	1.5 U	29	2.4 U	3
o-Xylene	9,000 (A)	1.1 U	1.2 U	1.2 U	1.3 U	1.5 U	5.4	2.4 U	0.5 J
Priority Pollutant Metals (mg/kg)									
Antimony	3.2 (B)	6 UJ	6 UJ	10 UJ	6 UJ	6 UJ	6 UJ	7 UJ	6 UJ
Arsenic	20 (A)	6 U	6 U	10 U	6 U	18	7	9	6 U
Beryllium	--	0.2	0.1	0.3 U	0.1	0.2	0.1 U	0.1 U	0.1 U
Cadmium	2.0 (A)	0.7	0.3 U	11.7	0.3	0.4	0.3	0.7	0.5
Chromium	19 (A)/48	35.9	37.8	22	27.4	22.7	21.1	29.8	15.8
Copper	2,960 (B)	40.9	34.5	30.3	27.2 J	50.1 J	35.3 J	89.4 J	41.4 J
Lead	250 (A)	30	22	452	23	33	69	145	511
Mercury	2.0 (A)	0.16	0.08	0.2	0.17	0.12	0.09	0.38	0.33
Nickel	1,600 (B)	40	23	17	30	26	18	33	15
Selenium	400 (B)	6 U	6 U	10 U	6 U	6 U	6 U	7 U	6 U
Silver	400 (B)	0.3 U	0.4 U	0.9 U	0.3 U	0.4 U	0.4 U	0.4 U	0.4 U
Thallium	--	6 U	6 U	10 U	6 U	6 U	6 U	7 U	6 U
Zinc	24,000 (B)	84	48	5,050	73 J	100 J	156 J	202 J	180 J

Notes:

Bold = Detected result

J = Estimated value

U = Compound analyzed, but not detected above detection limit

UJ = Compound analyzed, but not detected above estimated detection limit

ATTACHMENT A
BORING LOGS

ANCHOR QEA

WHATCOM WATERWAY – PROPOSED SHEETPILE WALL

NO.	REVISIONS	BY	DATE

WILSON ENGINEERING, LLC
805 DUPONT STREET
BELLINGHAM, WA 98225
(360) 733-6100 • FAX (360) 647-9061
www.wilsonengineering.com



CONTROL NOTES

- HORIZONTAL DATUM:** WASHINGTON STATE PLANE NAD83 LAMBERT CONFORMAL NORTH ZONE GRID, PER THE 1998 ADJUSTMENT, AS DERIVED FROM THE 2005 CITY OF BELLINGHAM GPS DENSIFICATION AND REMONUMENTATION AS RECORDED UNDER AF#2071002449. ALL COORDINATES AND DISTANCES SHOWN ARE IN US SURVEY FEET.

SURVEY NOTES

- THIS EXHIBIT IS INTENDED TO BE A RECORD OF THE POINTS STAKED ON THE GROUND OCTOBER 18, 2012 BY WILSON ENGINEERING.
- THE SHEETPILE ALIGNMENT AS SHOWN, COORDINATED, AND STAKED ON THE GROUND WAS BASED UPON A DWG FILE PROVIDED TO WILSON ENGINEERING BY ANCHOR QEA NAMED "PROPOSED PLAN 9-14-12". THE COORDINATION OF THAT FILE APPEARED TO BE ON THE SAME DATUM (WA STATE PLANE, NORTH ZONE, NAD83) AS THE WILSON ENGINEERING BASEMAP FOR ANCHOR ENVIRONMENTAL TITLED "BELLINGHAM BAY HYDROGRAPHY" AND DATED APRIL 2008. NO ADJUSTMENTS WERE MADE TO THE COORDINATION OF THE QEA PROVIDED DRAWING.

LEGEND

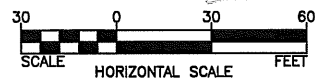
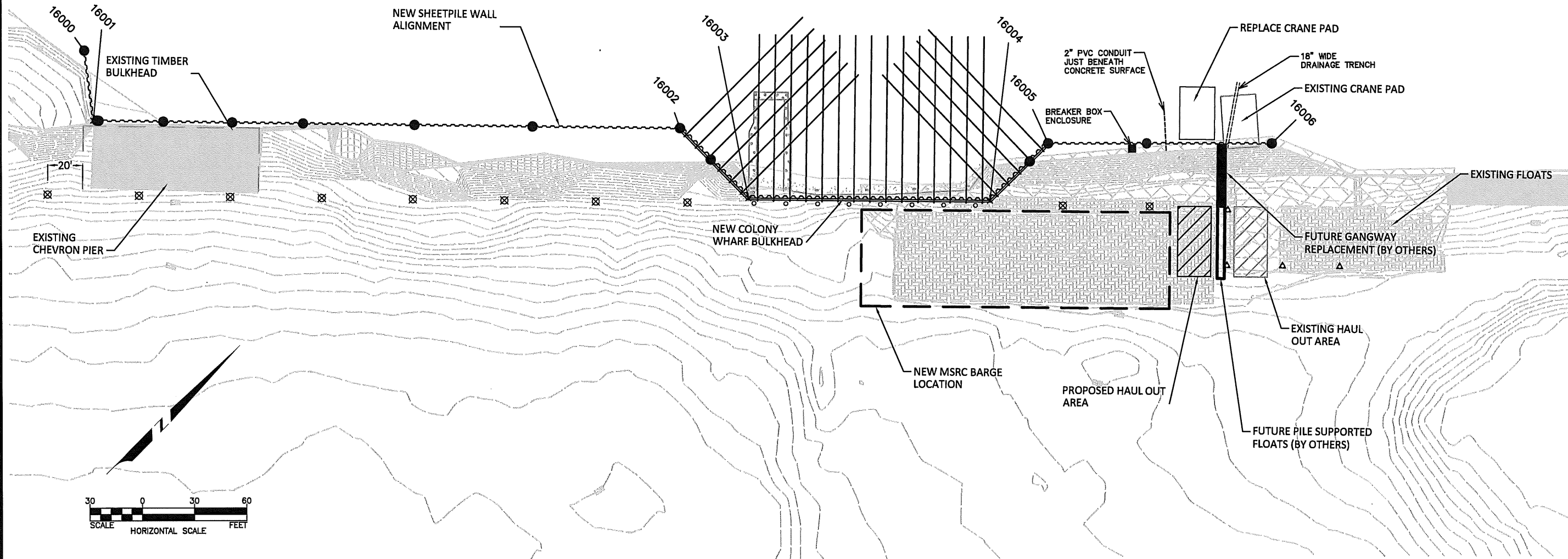
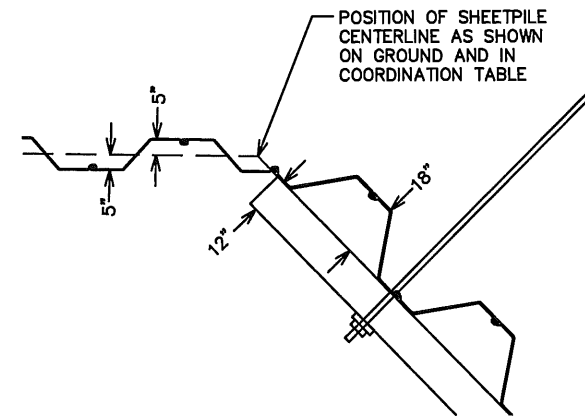
- 16004 CALCULATED SHEETPILE WALL POINT DERIVED FROM ANCHOR EXTERNAL REFERENCE DWG
- STAKED ALIGNMENT POINT (10-18-2012)

CALCULATED SHEETPILE WALL COORDINATES

PER PROPOSED PLAN 9-14-12.DWG, PROVIDED BY ANCHOR QEA

POINT	NORTHING	EASTING	DESCRIPTION
16000	642882.4	1241007.6	END OF SHEETPILE
16001	642857.9	1241039.4	SHEETPILE ANGLE POINT
16002	643092.4	1241280.9	SHEETPILE ANGLE POINT
16003	643091.6	1241336.7	SHEETPILE ANGLE POINT
16004	643187.8	1241435.7	SHEETPILE ANGLE POINT
16005	643234.3	1241436.4	SHEETPILE ANGLE POINT
16006	643324.5	1241527.5	END OF SHEETPILE

CALCULATED SHEETPILE CENTERLINE DETAIL



DESIGNED BY: _____
DRAWN BY: AKM
CHECKED BY: _____

ANCHOR QEA
WASHINGTON
WHATCOM WATERWAY
BELLINGHAM
PROPOSED SHEETPILE WALL EXHIBIT

DATE: OCT 31, 2012
SCALE: AS SHOWN
JOB NUMBER: 2012-129

SHEET: 1 OF 1

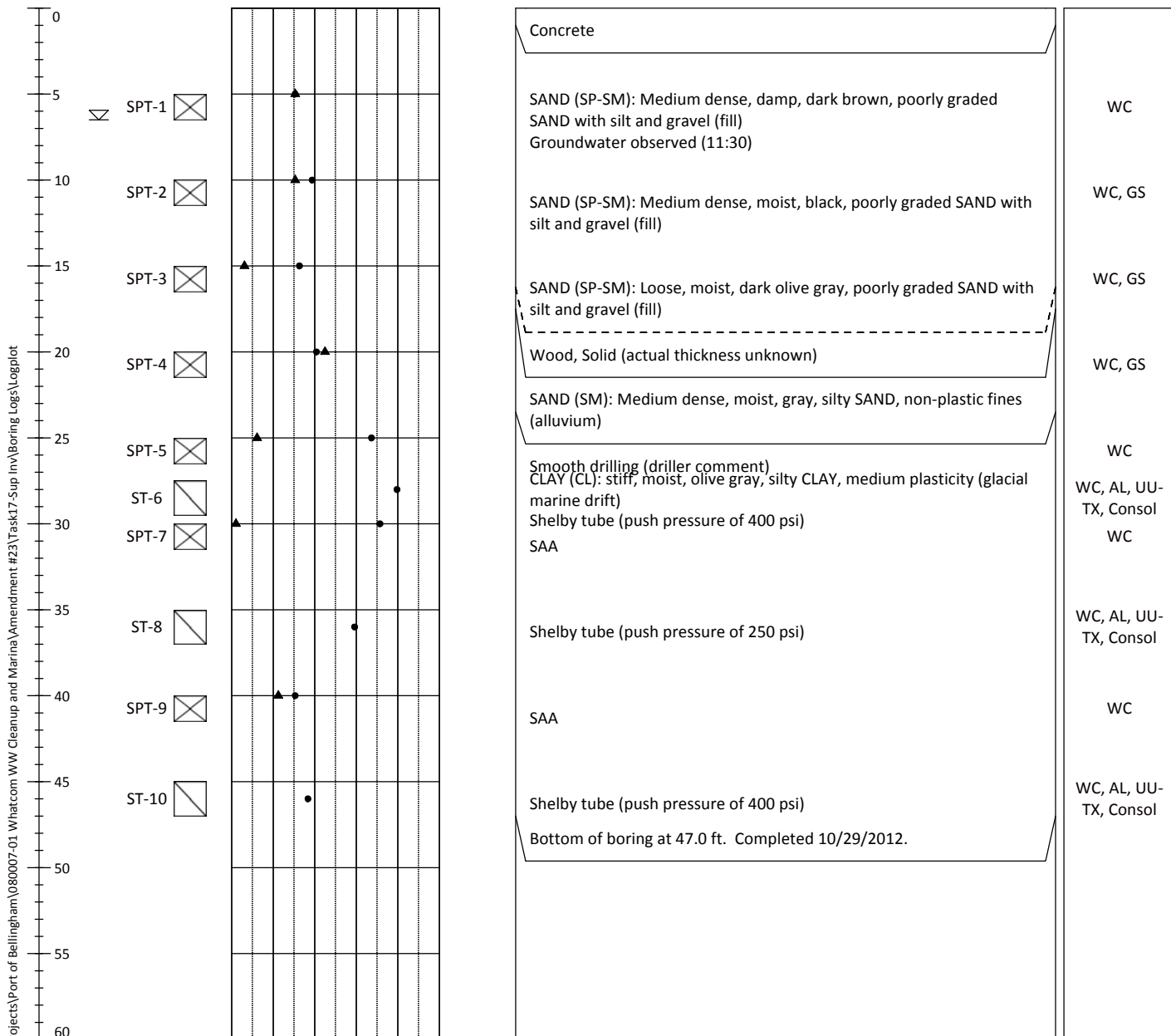
Soil Boring Log

CWS - B1

Sheet 1 of 1

Project: Whatcom Waterway Cleanup in Phase 1 Areas		Location: Bellingham, WA		Method: Hollow Stem Auger	
Project #: 080007-01.02		Northing: 1241468.6436		Easting: 643277.1076	
Client: Port of Bellingham		Horizontal Datum: NAD83 WA SP N Feet		Total Depth (ft): 47.0	
Collection Date: 10/29/2012		Vertical Datum: MLLW (feet)		Observed GW (bgs): 6.5 (ft, bgs)	
Contractor: Gregory Drilling		Sampler(s): 2in O.D. Split - Spoon		Hammer: 140lb / 30in drop	
Logged By: ZLK		3in O.D. Shelby Tube		Hammer Efficiency: 89%	

Depth (ft)	Water Level	Samples	Uncorrected Standard Penetration Resistance (blows per foot) and Water Content (%)	Values Greater than 50	Soil Description	Lab Test
			0 10 20 30 40 50		Samples and descriptions are in recovered depths. Classification scheme: USCS	



I:\Projects\Port of Bellingham\080007-01 Whatcom WW Cleanup and Marina\Amendment #23\Task17_Sup Inv\Boring_Logs\Logplot



▲ SPT N-Value
● Water Content (%)

Notes: 1. Soil descriptions and stratum lines are interpretive and actual conditions may vary
2. Groundwater level was observed at the time and date

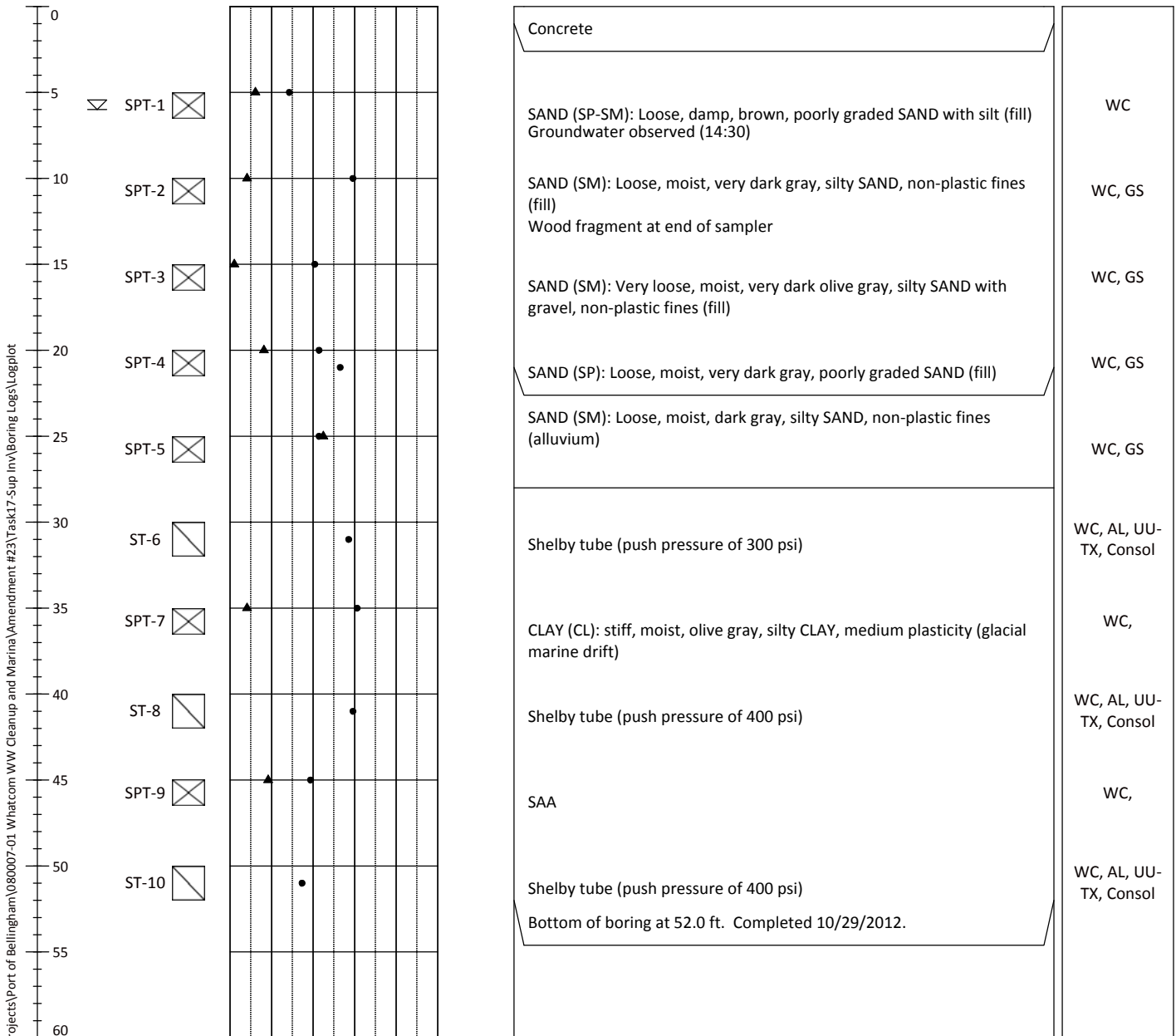
Soil Boring Log

CWS - B2

Sheet 1 of 1

Project: Whatcom Waterway Cleanup in Phase 1 Areas		Location: Bellingham, WA		Method: Hollow Stem Auger	
Project #: 080007-01.02		Northing: 1241217.7964 Easting: 643039.1484		Total Depth (ft): 52.0	
Client: Port of Bellingham		Horizontal Datum: NAD83 WA SP N Feet		Observed GW (bgs): 6.0 (ft, bgs)	
Collection Date: 10/29/2012		Vertical Datum: MLLW (feet)		Ground Surface Elevation (ft): +13 (approx)	
Contractor: Gregory Drilling		Sampler(s): 2in O.D. Split - Spoon		Hammer: 140lb / 30in drop	
Logged By: ZLK		3in O.D. Shelby Tube		Hammer Efficiency: 89%	

Depth (ft)	Water Level	Samples	Uncorrected Standard Penetration Resistance (blows per foot) and Water Content (%)	Values Greater than 50	Soil Description	Lab Test
			0 10 20 30 40 50		Samples and descriptions are in recovered depths. Classification scheme: USCS	



I:\Projects\Port of Bellingham\080007-01 Whatcom WW Cleanup and Marina\Amendment #23\Task17-Sup Inv\Boring Logs\Logplot



720 Olive Way
Seattle, WA 98101
(206) 903-9130

▲ SPT N-Value
● Water Content (%)


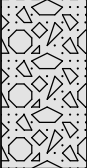

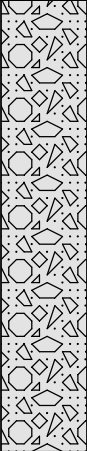
Notes: 1. Soil descriptions and stratum lines are interpretive and actual conditions may vary
2. Groundwater level was observed at the time and date

Direct Push Borings

CWSI - 01

Sheet 1 of 1

Project: Whatcom Waterway Cleanup in Phase 1 Areas	Location: Bellingham, WA	Method: GeoProbe
Project #: 080007-01.02	Northing: 643326.409 Easting: 1241515.069	Total Depth (ft): 20.0
Client: Port of Bellingham	Horizontal Datum: NAD83 WA SP N Feet	Observed GW (bgs): 8.0
Collection Date: 10/25/2012	Vertical Datum: MLLW (feet)	Ground Surface Elevation (ft): +13.0 ft
Contractor: Cascade Drilling	Hole Diameter: 2 inch	Logged By: BH/JA

Depth (ft)	Water Level	Samples	Lab Test	PID	Soil Description Samples and descriptions are in recovered depths. Classification scheme: USCS	Graphic Log
0					Concrete	
5	N	CWSI - 01 - 3 - 5	BTEX, TPH - G, TPH - DX (w/SGC), PP Metals	5.5	(medium dense), slightly moist, dark brown, poorly graded gravelly SAND, occasional debris	
10					Wood	
15		CWSI - 01 - 11 - 13 CWSI - 01 - 13 - 15	BTEX, TPH - G, TPH - DX (w/SGC), PP Metals Archive	3.8	(medium dense), slightly moist, dark brown, poorly graded gravelly SAND, occasional organic matter @13 ft - wet, gray, gravelly SAND occasional organic matter, some odor	
20					Bottom of geoprobe at 20.0 ft. Completed 10/25/2012.	
25						


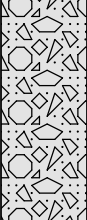
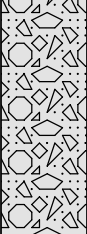
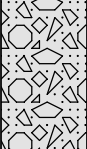
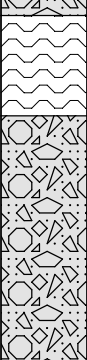
I:\Projects\Port of Bellingham\080007-01 Whatcom WW Cleanup and Marina\Amendment #23\Task17_Sup Inv\Boring Logs\Logplot

Direct Push Borings

CWSI - 02

Sheet 1 of 1

Project: Whatcom Waterway Cleanup in Phase 1 Areas	Location: Bellingham, WA	Method: GeoProbe
Project #: 080007-01.02	Northing: 643255.767 Easting: 1241464.667	Total Depth (ft): 20.0
Client: Port of Bellingham	Horizontal Datum: NAD83 WA SP N Feet	Observed GW (bgs): 7.5
Collection Date: 10/25/2012	Vertical Datum: MLLW (feet)	Ground Surface Elevation (ft): +13.0 ft
Contractor: Cascade Drilling	Hole Diameter: 2 inch	Logged By: BH/JA

Depth (ft)	Water Level	Samples	Lab Test	PID	Soil Description Samples and descriptions are in recovered depths. Classification scheme: USCS	Graphic Log
0					Concrete	
3		CWSI - 02 - 1 - 3	BTEX, TPH - G, TPH - DX (w/SGC), PP Metals		(medium dense), slightly moist, light to medium olive gray, fine to course grained gravelly SAND	
7.5	N	CWSI - 02 - 7 - 8	BTEX, TPH - G, TPH - DX (w/SGC), PP Metals		@ 5 ft - grades to dark brown to black, gravelly SAND, occasional pockets of orange/brown brick-like aggregates, some debris	
12		CWSI - 02 - 12 - 13	BTEX, TPH - G, TPH - DX (w/SGC), PP Metals		wood debris	
15					(medium dense), wet, gray, fine to medium grained, SAND with trace silt	
20					Bottom of geoprobe at 20.0 ft. Completed 10/25/2012.	
25						

I:\Projects\Port of Bellingham\080007-01 Whatcom WW Cleanup and Marina\Amendment #23\Task17-Sup Inv\Boring Logs\Logplot

Direct Push Borings

CWSI - 03

Sheet 1 of 1

Project: Whatcom Waterway Cleanup in Phase 1 Areas	Location: Bellingham, WA	Method: GeoProbe
Project #: 080007-01.02	Northing: 643079.964 Easting: 1241277.725	Total Depth (ft): 20.0
Client: Port of Bellingham	Horizontal Datum: NAD83 WA SP N Feet	Observed GW (bgs): 7.0
Collection Date: 10/25/2012	Vertical Datum: MLLW (feet)	Ground Surface Elevation (ft): +13.0 ft
Contractor: Cascade Drilling	Hole Diameter: 2 inch	Logged By: BH/JA

Depth (ft)	Water Level	Samples	Lab Test	PID	Soil Description Samples and descriptions are in recovered depths. Classification scheme: USCS	Graphic Log
0					Concrete	
3.8		CWSI - 03 - 2 - 4	BTEX, TPH - G, TPH - DX (w/SGC)	3.8	(medium dense), slightly moist, light gray to brown, well graded gravelly SAND	
4.3	N	CWSI - 03 - 7 - 9	BTEX, TPH - G, TPH - DX (w/SGC)	4.3	@ 5 to 7 ft - brick fragments	
5.1		CWSI - 03 - 11 - 13	Archive	5.1	@ 10 ft - grades to dark grey gravelly SAND	
14.5					@ 14 ft - wood debris over a thin layer of silt	
14.5					@ 14.5 ft - grades to gray to dark gray SAND with gravel	
20.0					Bottom of geoprobe at 20.0 ft. Completed 10/25/2012.	
25						

I:\Projects\Port of Bellingham\080007-01 Whatcom WW Cleanup and Marina\Amendment #23\Task17-Sup Inv\Boring Logs\Logplot



Notes: 1. Soil descriptions and stratum lines are interpretive and actual conditions may vary
2. Groundwater level was observed at the time of date specified.

Direct Push Borings

CWSI - 04

Sheet 1 of 1

Project: Whatcom Waterway Cleanup in Phase 1 Areas	Location: Bellingham, WA	Method: GeoProbe
Project #: 080007-01.02	Northing: 643013.658 Easting: 1241207.421	Total Depth (ft): 20.0
Client: Port of Bellingham	Horizontal Datum: NAD83 WA SP N Feet	Observed GW (bgs): 6.5
Collection Date: 10/25/2012	Vertical Datum: MLLW (feet)	Ground Surface Elevation (ft): +13.0 ft
Contractor: Cascade Drilling	Hole Diameter: 2 inch	Logged By: BH/JA

Depth (ft)	Water Level	Samples	Lab Test	PID	Soil Description Samples and descriptions are in recovered depths. Classification scheme: USCS	Graphic Log
0					Concrete	
5	N	CWSI - 04 - 2 - 4	BTEX, TPH - G, TPH - DX (w/SGC), PP Metals	12.0	(medium dense), dry to moist, brown and gray, gravelly SAND	
10		CWSI - 04 - 6 - 8	BTEX, TPH - G, TPH - DX (w/SGC), PP Metals		@5 ft - grades to wet, orange to brown, gravelly SAND with brick fragments @6 ft - brick fragments (very dense), moist, light gray to gray, fine to medium grained SAND, trace silt	
15		CWSI - 04 - 13 - 15	BTEX, TPH - G, TPH - DX (w/SGC), PP Metals	10.3	@13.5 ft - slight rainbow sheen	
20		CWSI - 04 - 18 - 20	Archive	8.6	@ 18 ft - grades to fine to course grained, gravelly SAND and shell fragments	
25					Bottom of geoprobe at 20.0 ft. Completed 10/25/2012.	

I:\Projects\Port of Bellingham\080007-01 Whatcom WW Cleanup and Marina\Amendment #23\Task17-Sup Inv\Boring Logs\Logplot

Direct Push Borings

CWSI - 05

Sheet 1 of 1

Project: Whatcom Waterway Cleanup in Phase 1 Areas	Location: Bellingham, WA	Method: GeoProbe
Project #: 080007-01.02	Northing: 642980.831 Easting: 1241174.122	Total Depth (ft): 20.0
Client: Port of Bellingham	Horizontal Datum: NAD83 WA SP N Feet	Observed GW (bgs): 7.0
Collection Date: 10/25/2012	Vertical Datum: MLLW (feet)	Ground Surface Elevation (ft): +13.0 ft
Contractor: Cascade Drilling	Hole Diameter: 2 inch	Logged By: BH/JA

Depth (ft)	Water Level	Samples	Lab Test	PID	Soil Description Samples and descriptions are in recovered depths. Classification scheme: USCS	Graphic Log
0					Concrete	
5.1		CWSI - 05 - 2 - 4	BTEX, TPH - G, TPH - DX (w/SGC), PP Metals	5.1	(medium dense), dark brown to gray, gravelly SAND	
11.6	N	CWSI - 05 - 6 - 8	BTEX, TPH - G, TPH - DX (w/SGC), PP Metals	11.6	@11 ft - moderate petroleum like odor, slight sheen	
15		CWSI - 05 - 13 - 15	BTEX, TPH - G, TPH - DX (w/SGC), PP Metals	69.2	(medium dense), wet, gray SAND with trace gravels and intermittent silt layers	
20		CWSI - 05 - 16 - 18	Archive	41.2	(medium dense), wet, gray to dark gray, SAND with gravel and shell fragments	
25					Bottom of geoprobe at 20.0 ft. Completed 10/25/2012.	

I:\Projects\Port of Bellingham\080007-01 Whatcom WW Cleanup and Marina\Amendment #23\Task17-Sup Inv\Boring Logs\Logplot

Direct Push Borings

CWSI - 06

Sheet 1 of 1

Project: Whatcom Waterway Cleanup in Phase 1 Areas	Location: Bellingham, WA	Method: GeoProbe
Project #: 080007-01.02	Northing: 642965.046 Easting: 1241144.947	Total Depth (ft): 20.0
Client: Port of Bellingham	Horizontal Datum: NAD83 WA SP N Feet	Observed GW (bgs): 7.0
Collection Date: 10/25/2012	Vertical Datum: MLLW (feet)	Ground Surface Elevation (ft): +13.0 ft
Contractor: Cascade Drilling	Hole Diameter: 2 inch	Logged By: BH/JA

Depth (ft)	Water Level	Samples	Lab Test	PID	Soil Description Samples and descriptions are in recovered depths. Classification scheme: USCS	Graphic Log
0					Concrete	
5	N	CWSI - 06 - 4 - 6	Archive		(medium dense), brown to gray, SAND with varying gravel and silt content and occasional construction debris	
10		CWSI - 06 - 8 - 10	BTEX, TPH - G, TPH - DX (w/SGC), PP Metals	202	@ 7 to 8 ft - brick material; soils are moist to wet @ 8 ft - moderate petroleum like odor	
15		CWSI - 06 - 12 - 14	BTEX, TPH - G, TPH - DX (w/SGC), PP Metals	65.7	@ 11 ft - intermittent silt layers @ 12 ft - moderate to heavy petroleum like odor and sheen, occasional wood fragments	
20		CWSI - 06 - 16 - 18	Archive		@ 16 ft - very light petroleum and H2S odor	
25					Bottom of geoprobe at 20.0 ft. Completed 10/26/2012.	

I:\Projects\Port of Bellingham\080007-01 Whatcom WW Cleanup and Marina\Amendment #23\Task17-Sup Inv\Boring Logs\Logplot



Notes: 1. Soil descriptions and stratum lines are interpretive and actual conditions may vary
2. Groundwater level was observed at the time of date specified.

Direct Push Borings

CWSI - 07

Sheet 1 of 1

Project: Whatcom Waterway Cleanup in Phase 1 Areas	Location: Bellingham, WA	Method: GeoProbe
Project #: 080007-01.02	Northing: 643208.87 Easting: 1241414.839	Total Depth (ft): 20.0
Client: Port of Bellingham	Horizontal Datum: NAD83 WA SP N Feet	Observed GW (bgs): 7.0
Collection Date: 10/25/2012	Vertical Datum: MLLW (feet)	Ground Surface Elevation (ft): +13.0 ft
Contractor: Cascade Drilling	Hole Diameter: 2 inch	Logged By: BH/JA

Depth (ft)	Water Level	Samples	Lab Test	PID	Soil Description Samples and descriptions are in recovered depths. Classification scheme: USCS	Graphic Log
0					Concrete	[Concrete symbol]
5	N	CWSI - 07 - 2 - 4	BTEX, TPH - G, TPH - DX (w/SGC), PP Metals		(medium dense), brown to gray, SAND with varying gravel and silt content and occasional construction debris @ 3 ft - brick layer (thickness not known)	[Sand/Gravel symbol]
10		CWSI - 07 - 7 - 10	Archive		@8ft - loose SAND and GRAVEL @11 ft - intermittent silt layers @12 ft - moderate to heavy petroleum like odor and sheen, occasional wood fragments	[Sand/Gravel symbol]
15					(medium dense), wet, dark gray, fine to medium grained SAND with occasional shell fragments	[Sand/Gravel symbol]
20					Bottom of geoprobe at 20.0 ft. Completed 10/26/2012.	[Sand/Gravel symbol]
25						[Sand/Gravel symbol]

I:\Projects\Port of Bellingham\080007-01 Whatcom WW Cleanup and Marina\Amendment #23\Task17-Sup Inv\Boring Logs\Logplot

ATTACHMENT B
ANALYTICAL LABORATORY REPORT AND
DATA VALIDATION REPORT

ANALYTICAL LABORATORY REPORT

Table of Contents: ARI Job VP40, VP41

Client: Anchor QEA LLC

Project: Central Waterfront Shoreline Inves.

	Page From:	Page To:
Inventory Sheet		
Cover Letter	<u>1</u>	<u>1</u>
Chain of Custody Documentation	<u>2</u>	<u>6</u>
Case Narrative, Data Qualifiers, Control Limits	<u>7</u>	<u>23</u>
Volatile Analysis		
Report and Summary QC Forms	<u>24</u>	<u>65</u>
TPHD Analysis		
Report and Summary QC Forms	<u>66</u>	<u>132</u>
TPHG Analysis		
Report and Summary QC Forms	<u>133</u>	<u>194</u>
Metals Analysis		
Report and Summary QC Forms	<u>195</u>	<u>238</u>
Total Solids		
Report and Summary QC Forms	<u>234</u>	<u>246</u>
METALS RAW DATA	<u>247</u>	<u>441</u>

 BC
Signature

November-06-2012
Date



Analytical Resources, Incorporated
Analytical Chemists and Consultants

November 7, 2012

Ben Howard
Anchor QEA
720 Olive Way, Suite 1900
Seattle, WA 98101

RE: Client Project: Central Waterfront Shoreline Investigation
ARI Job Nos.: VP40 & VP41

Dear Cindy:

Please find enclosed the Chain of Custody records (COCs), sample receipt documentation, and the final data package for samples from the project referenced above.

Sample receipt and details regarding these analyses are discussed in the Case Narrative.

An electronic copy of this package will remain on file with ARI. Should you have any questions or problems, please feel free to contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

A handwritten signature in black ink, appearing to read "Cheronne Oreiro", with a large, stylized flourish at the end.

Cheronne Oreiro
Project Manager
(206) 695-6214
cheronneo@arilabs.com
www.arilabs.com

cc: eFile VP40_VP41

Enclosures

Chain of Custody Documentation

ARI Job ID: VP40, VP41

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: VPLD Turn-around Requested: Standard
 ARI Client Company: Anchor OEA Phone: 360-753-4311
 Client Contact: Ben Howard
 Client Project Name: Central Waterfront Shoreline Investigation
 Client Project #:

Page: 2 of 1
 Date: 10/25/2012 Ice Present? Y
 No. of Coolers: 1 Cooler Temps: 1/1

Analytical Resources, Incorporated
 Analytical Chemists and Consultants
 4611 South 134th Place, Suite 100
 Tukwila, WA 98168
 206-695-6200 206-695-6201 (fax)



Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested				Notes/Comments	
					BTEX	TPH-G	TPH-Ox (w/ SEC)	PP Metals		Archive
CWS1-04-2-4	10/25/12	1449	S017	8	X	X	X	X		
CWS1-04-6-8		1459		8	X	X	X			
CWS1-04-13.5-15		1503		8	X	X	X			
CWS1-04-18.5-20		1531		1				X		
CWS1-TB-01		9:00		2	X					

Comments/Special Instructions										
TPH-Ox with silica gel cleanup (SGC)					Relinquished by: <u>Ben Howard</u> (Signature) <u>Ben Howard</u> Printed Name: <u>Ben Howard</u> Company: <u>Anchor OEA</u> Date & Time: <u>10/25/2012 1615</u>		Received by: <u>Ben Howard</u> (Signature) <u>Ben Howard</u> Printed Name: <u>Ben Howard</u> Company: <u>Anchor OEA</u> Date & Time: <u>10-26-12 0600</u>		Relinquished by: <u>Ben Howard</u> (Signature) <u>Ben Howard</u> Printed Name: <u>Ben Howard</u> Company: <u>Anchor OEA</u> Date & Time: <u>10-26-12 0600</u>	Received by: <u>Ben Howard</u> (Signature) <u>Ben Howard</u> Printed Name: <u>Ben Howard</u> Company: <u>Anchor OEA</u> Date & Time: <u>10-26-12 0600</u>

Limits of Liability: ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.



Cooler Receipt Form

ARI Client: ANLWOR

Project Name: Central Waterfront Shoreline Investigation

COC No(s): _____ (NA)

Delivered by FEDEX UPS Courier Hand Delivered Other _____

Assigned ARI Job No VP40

Tracking No 7934 3146 1780 NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler? YES NO

Were custody papers included with the cooler? YES NO

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

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry) 4.1

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 908 7952

Cooler Accepted by TS Date 10-26-12 Time 600

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? YES NO

What kind of packing material was used? Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: _____

Was sufficient ice used (if appropriate)? NA YES NO

Were all bottles sealed in individual plastic bags? YES NO

Did all bottles arrive in good condition (unbroken)? YES NO

Were all bottle labels complete and legible? YES NO

Did the number of containers listed on COC match with the number of containers received? YES NO

Did all bottle labels and tags agree with custody papers? YES NO

Were all bottles used correct for the requested analyses? YES NO

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs). NA YES NO

Were all VOC vials free of air bubbles? NA YES NO

Was sufficient amount of sample sent in each bottle? YES NO

Date VOC Trip Blank was made at ARI. NA 10/22/12

Was Sample Split by ARI: NA YES Date/Time _____ Equipment _____ Split by _____

Samples Logged by: JM Date: 10/26/12 Time: 1305

**** Notify Project Manager of discrepancies or concerns ****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:
CWSI-TB-01 = sm in 2082 CWSI-TB-01 not marked on COC for TPH₄. Logged for TPH₄ per ARI PM. as 10/26/12

By JM Date 10/26/12

Small Air Bubbles - 2mm	Peabubbles 2-4 mm	LARGE Air Bubbles > 4 mm	Small → "sm"
			Peabubbles → "pb"
			Large → "lg"
			Headspace → "hs"

Chain of Custody Record & Laboratory Analysis Request

Analytical Resources, Incorporated
 Analytical Chemists and Consultants
 4611 South 134th Place, Suite 100
 Tukwila, WA 98168
 206-695-6200 206-695-6201 (fax)



Page: 1 of 1
 Date: 10/25/2012
 No. of Coolers: _____
 Ice Present? _____
 Cooler Temps: _____

ARI Assigned Number: _____
 Turn-around Requested: Standard
 ARI Client Company: Ancher OEA
 Phone: 360-733-4311
 Client Contact: Ben Howard
 Client Project Name: Central Waterfront Shoreline Investigation
 Client Project #: _____
 Samplers: _____

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested				Notes/Comments	
					BTEX	TPH-G	TPH-DI (W/SGC)	PP Metals		Archive
CWS1-02-1-3	10/25/12	0932	Soil	8	X	X	X	X		
CWS1-02-7-8		0937		8	X	X	X	X		
CWS1-02-12-13		0942		8	X	X	X	X		
CWS1-01-3-5		1201		8	X	X	X	X		
CWS1-01-11-13		1206		8	X	X	X	X		
CWS1-01-13-15		1212		1				X		
CWS1-03-2-4		1345		8	X	X	X			
CWS1-03-7-9		1351		8	X	X	X			
CWS1-03-11-13		1357		1				X		
CWS1-TB-01		9:00		2	X					
Comments/Special Instructions TPH-DI W/ SGC gel cleanup (SGC)					Relinquished by (Signature) <i>Ben Howard</i> Printed Name: Ben Howard Company: Anchor OEA Date & Time: 10/25/12 1615		Received by (Signature) <i>Ben Howard</i> Printed Name: Ben Howard Company: Anchor OEA Date & Time: 10/26/12 1000		Relinquished by (Signature) _____ Printed Name: _____ Company: _____ Date & Time: _____	

Limits of Liability: ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

11/25/12 09:50:11



Cooler Receipt Form

ARI Client Ancho
COC No(s) _____ (NA)
Assigned ARI Job No V full

Project Name: Central water front
Delivered by ~~FedEx~~ UPS Courier Hand Delivered Other: _____
Tracking No: 7539 3689 1481 NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler? YES NO
Were custody papers included with the cooler? YES NO
Were custody papers properly filled out (ink, signed, etc.) YES NO
Temperature of Cooler(s) (°C) (recommended 2 0-6.0 °C for chemistry) 3.8

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID# 90977932

Cooler Accepted by TS Date: 10-25-12 Time 1000

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? YES NO
What kind of packing material was used? Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: _____
Was sufficient ice used (if appropriate)? NA YES NO
Were all bottles sealed in individual plastic bags? YES NO
Did all bottles arrive in good condition (unbroken)? YES NO
Were all bottle labels complete and legible? YES NO
Did the number of containers listed on COC match with the number of containers received? YES NO
Did all bottle labels and tags agree with custody papers? YES NO
Were all bottles used correct for the requested analyses? YES NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs). NA YES NO
Were all VOC vials free of air bubbles? NA YES NO
Was sufficient amount of sample sent in each bottle? YES NO
Date VOC Trip Blank was made at ARI... NA 10-25-12
Was Sample Split by ARI: NA YES Date/Time _____ Equipment _____ Split by _____

Samples Logged by TS Date 10-25-12 Time 1430

**** Notify Project Manager of discrepancies or concerns ****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:
CWS1-TB-01 not marked on COC only 4 VOCs for CWS1-03-79
BY TPHG logged for TPHG per ARE PM. on 10/25/12
By TS Date 10-25-12

			Small → "sm"
			Peabubbles → "pb"
			Large → "lg"
			Headspace → "hs"

Case Narrative, Data Qualifiers, Control Limits

ARI Job ID: VP40, VP41



Case Narrative

Client: Anchor QEA
Project: Central Waterfront Shoreline Investigation
ARI Job Nos.: VP40 & VP41

Sample receipt

Four soil samples and a trip blank were received on October 26, 2012 under ARI job VP40. The cooler temperature measured by IR thermometer following ARI SOP was 4.1°C. One sample was archived upon receipt. For further details regarding sample receipt, please refer to the Cooler Receipt Form.

Nine soil samples and a trip blank were received on October 26, 2012 under ARI job VP41. The cooler temperature measured by IR thermometer following ARI SOP was 3.8°C. Select samples were archived upon receipt. For further details regarding sample receipt, please refer to the Cooler Receipt Form.

BETX by SW8260C

The samples were analyzed within the method recommended holding times.

Initial and continuing calibrations were within method requirements for requested compounds. Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blanks were clean at the reporting limits. The LCS and LCSD percent recoveries were within control limits.

Acid/Silica Cleaned NWTPH-Dx

The samples and associated laboratory QC were extracted and analyzed within the method recommended holding times.

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits.

The method blank was clean at the reporting limits. The LCS and LCSD percent recoveries were within control limits.

The matrix spike and matrix spike duplicate percent recoveries were within advisory control limits.



NWTPH-Gx

The samples were analyzed within the method recommended holding times.

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits.

The method blank was clean at the reporting limit. The LCS and LCSD percent recoveries were within control limits.

Metals by SW6010C/7471A

The samples and associated laboratory QC were digested and analyzed within method recommended holding times.

Copper was present in the method blank at a level that was greater than the reporting limit. All samples had copper detections greater than ten times the level found in the method blank. No corrective action was taken.

The LCS percent recoveries were within control limits.

The matrix spike percent recovery of antimony fell outside the control limits low for sample **CWS1-04-2-4**. A post digestion spike was performed and the recovery was within control limits. All relevant data have been flagged with an "N" qualifier on the Form V. No further corrective action was taken.

Sample ID Cross Reference Report



ARI Job No: VP40
Client: Anchor QEA LLC
Project Event: N/A
Project Name: Central Waterfront Shoreline Inves.

Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1. CWS1-04-2-4	VP40A	12-21289	Soil	10/25/12 14:49	10/26/12 10:00
2. CWS1-04-6-8	VP40B	12-21290	Soil	10/25/12 14:59	10/26/12 10:00
3. CWS1-04-13.5-15	VP40C	12-21291	Soil	10/25/12 15:03	10/26/12 10:00
4. CWS1-04-18.5-20	VP40D	12-21292	Soil	10/25/12 15:31	10/26/12 10:00
5. CWS1-TB-01	VP40E	12-21293	Water	10/25/12	10/26/12 10:00

Sample ID Cross Reference Report



ARI Job No: VP41
Client: Anchor QEA LLC
Project Event: N/A
Project Name: Central Waterfront Shoreline Inves.

Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1. CWS1-02-1-3	VP41A	12-21279	Soil	10/25/12 09:32	10/26/12 10:00
2. CWS1-02-7-8	VP41B	12-21280	Soil	10/25/12 09:37	10/26/12 10:00
3. CWS1-02-12-13	VP41C	12-21281	Soil	10/25/12 09:42	10/26/12 10:00
4. CWS1-01-3-5	VP41D	12-21282	Soil	10/25/12 12:01	10/26/12 10:00
5. CWS1-01-11-13	VP41E	12-21283	Soil	10/25/12 12:06	10/26/12 10:00
6. CWS1-01-13-15	VP41F	12-21284	Soil	10/25/12 12:12	10/26/12 10:00
7. CWS1-03-2-4	VP41G	12-21285	Soil	10/25/12 13:45	10/26/12 10:00
8. CWS1-03-7-9	VP41H	12-21286	Soil	10/25/12 13:51	10/26/12 10:00
9. CWS1-03-11-13	VP41I	12-21287	Soil	10/25/12 13:57	10/26/12 10:00
10. CWS1-TB-01	VP41J	12-21288	Water	10/25/12	10/26/12 10:00



Data Reporting Qualifiers

Effective 2/14/2011

Inorganic Data

- U Indicates that the target analyte was not detected at the reported concentration
- * Duplicate RPD is not within established control limits
- B Reported value is less than the CRDL but \geq the Reporting Limit
- N Matrix Spike recovery not within established control limits
- NA Not Applicable, analyte not spiked
- H The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible
- L Analyte concentration is ≤ 5 times the Reporting Limit and the replicate control limit defaults to ± 1 RL instead of the normal 20% RPD

Organic Data

- U Indicates that the target analyte was not detected at the reported concentration
- * Flagged value is not within established control limits
- B Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.
- J Estimated concentration when the value is less than ARI's established reporting limits
- D The spiked compound was not detected due to sample extract dilution
- E Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.
- Q Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria ($< 20\%$ RSD, $< 20\%$ Drift or minimum RRF).



- S Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte
- NA The flagged analyte was not analyzed for
- NR Spiked compound recovery is not reported due to chromatographic interference
- NS The flagged analyte was not spiked into the sample
- M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses
- M2 The sample contains PCB congeners that do not match any standard Aroclor pattern. The PCBs are identified and quantified as the Aroclor whose pattern most closely matches that of the sample. The reported value is an estimate.
- N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"
- Y The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.
- EMPC Estimated Maximum Possible Concentration (EMPC) defined in EPA Statement of Work DLM02.2 as a value "calculated for 2,3,7,8-substituted isomers for which the quantitation and /or confirmation ion(s) has signal to noise in excess of 2.5, but does not meet identification criteria" **(Dioxin/Furan analysis only)**
- C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column
- P The analyte was detected on both chromatographic columns but the quantified values differ by $\geq 40\%$ RPD with no obvious chromatographic interference
- X Analyte signal includes interference from polychlorinated diphenyl ethers. **(Dioxin/Furan analysis only)**
- Z Analyte signal includes interference from the sample matrix or perfluorokerosene ions. **(Dioxin/Furan analysis only)**



Geotechnical Data

- A The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.
- F Samples were frozen prior to particle size determination
- SM Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations
- SS Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis
- W Weight of sample in some pipette aliquots was below the level required for accurate weighting



**DL¹ LOD¹, LOQ¹ and Control Limits Summary
VOA Analysis of Soil (EPA Method 8260C)**

Analyte	DL ^{1,5} µg/kg	LOD ¹ µg/kg	LOQ ¹ µg/kg	LCS Recovery ² %	Replicate RPD ³
Dichlorodifluoromethane	0.207	0.5	1.0	67 – 142	≤ 40
Chloromethane	0.263	0.5	1.0	65 – 129	≤ 40
Vinyl Chloride	0.235	0.5	1.0	74 – 134	≤ 40
Bromomethane	0.187	0.5	1.0	40 – 172	≤ 40
Chloroethane	0.462	0.5	1.0	53 – 154	≤ 40
Trichlorofluoromethane	0.266	0.5	1.0	57 – 161	≤ 40
Acrolein*	3.809	25	50.0	60 – 130	≤ 40
Acetone*	0.482	2.5	5.0	48 – 132	≤ 40
1,1,2-Trichloro-1,2,2-Trifluoroethane	0.287	1.0	2.0	72 – 142	≤ 40
1,1-Dichloroethene	0.336	0.5	1.0	73 – 138	≤ 40
Bromoethane	0.440	1.0	2.0	74 – 132	≤ 40
Iodomethane (Methyl Iodide)	0.215	0.5	1.0	34 – 181	≤ 40
Methylene Chloride	0.635	1.0	2.0	61 – 128	≤ 40
Carbon Disulfide	0.559	1.0	1.0	72 – 146	≤ 40
Acrylonitrile	1.026	2.5	5.0	59 – 124	≤ 40
Methyl-t-butyl ether (MTBE)	0.231	0.5	1.0	68 – 124	≤ 40
trans-1,2-Dichloroethene	0.266	0.5	1.0	73 – 131	≤ 40
Vinyl Acetate	0.381	2.5	5.0	54 – 138	≤ 40
1,1-Dichloroethane	0.203	0.5	1.0	65 – 139	≤ 40
2-Butanone*	0.513	2.5	5.0	64 – 120	≤ 40
2,2-Dichloropropane	0.292	0.5	1.0	77 – 137	≤ 40
cis-1,2-Dichloroethene	0.240	0.5	1.0	75 – 124	≤ 40
Chloroform	0.234	0.5	1.0	75 – 126	≤ 40
Bromochloromethane	0.323	0.5	1.0	69 – 133	≤ 40
1,1,1-Trichloroethane	0.226	0.5	1.0	78 – 133	≤ 40
1,1-Dichloropropene	0.312	0.5	1.0	80 – 123	≤ 40
Carbon Tetrachloride	0.213	0.5	1.0	76 – 136	≤ 40
1,2-Dichloroethane	0.191	0.5	1.0	77 – 120	≤ 40
Benzene	0.296	0.5	1.0	80 – 120	≤ 40
Trichloroethene	0.212	0.5	1.0	80 – 120	≤ 40
1,2-Dichloropropane	0.162	0.5	1.0	74 – 120	≤ 40
Bromodichloromethane	0.254	0.5	1.0	80 – 122	≤ 40
Dibromomethane	0.147	0.5	1.0	80 – 120	≤ 40



**DL¹ LOD¹, LOQ¹ and Control Limits Summary
VOA Analysis of Soil (EPA Method 8260C)**

Analyte	DL ^{1,5} µg/kg	LOD ¹ µg/kg	LOQ ¹ µg/kg	LCS Recovery ^{2,4}	Replicate RPD ³
2-Chloroethyl Vinyl Ether	0.276	2.5	5.0	20 – 157	≤ 40
4-Methyl-2-Pentanone*	0.420	2.5	5.0	70 – 124	≤ 40
cis-1,3-Dichloropropene	0.226	0.5	1.0	80 – 124	≤ 40
Toluene	0.151	0.5	1.0	78 – 120	≤ 40
trans-1,3-Dichloropropene	0.216	0.5	1.0	80 – 126	≤ 40
1,1,2-Trichloroethane	0.286	0.5	1.0	77 – 120	≤ 40
1,2-Dibromoethane (Ethylene Dibromide)	0.176	0.5	1.0	79 – 120	≤ 40
2-Hexanone*	0.439	2.5	5.0	62 – 128	≤ 40
1,3-Dichloropropane	0.209	0.5	1.0	77 – 120	≤ 40
Tetrachloroethene	0.257	0.5	1.0	76 – 131	≤ 40
Dibromochloromethane	0.266	0.5	1.0	77 – 123	≤ 40
Chlorobenzene	0.219	0.5	1.0	80 – 120	≤ 40
1,1,1,2-Tetrachloroethane	0.233	0.5	1.0	80 – 120	≤ 40
Ethyl Benzene	0.202	0.5	1.0	80 – 120	≤ 40
m,p-Xylene	0.392	0.5	1.0	80 – 123	≤ 40
o-Xylene	0.224	0.5	1.0	80 – 120	≤ 40
Styrene	0.138	0.5	1.0	80 – 122	≤ 40
Bromoform	0.297	0.5	1.0	63 – 120	≤ 40
Isopropyl Benzene	0.233	0.5	1.0	77 – 127	≤ 40
1,1,2,2-Tetrachloroethane	0.253	0.5	1.0	71 – 120	≤ 40
1,2,3-Trichloropropane	0.517	1.0	2.0	75 – 120	≤ 40
trans-1,4-Dichloro-2-Butene	0.437	2.5	5.0	62 – 127	≤ 40
n-Propyl Benzene	0.272	0.5	1.0	76 – 126	≤ 40
Bromobenzene	0.153	0.5	1.0	75 – 120	≤ 40
1,3,5-Trimethylbenzene	0.254	0.5	1.0	77 – 126	≤ 40
2-Chlorotoluene	0.300	0.5	1.0	76 – 120	≤ 40
4-Chlorotoluene	0.277	0.5	1.0	75 – 121	≤ 40
t-Butylbenzene	0.306	0.5	1.0	77 – 125	≤ 40
1,2,4-Trimethylbenzene	0.230	0.5	1.0	77 – 125	≤ 40
s-Butylbenzene	0.240	0.5	1.0	77 – 127	≤ 40
4-Isopropyl Toluene	0.236	0.5	1.0	78 – 131	≤ 40
1,3-Dichlorobenzene	0.227	0.5	1.0	76 – 120	≤ 40
1,4-Dichlorobenzene	0.232	0.5	1.0	75 – 120	≤ 40



**DL¹ LOD¹, LOQ¹ and Control Limits Summary
VOA Analysis of Soil (EPA Method 8260C)**

Analyte	DL ^{1,5} µg/kg	LOD ¹ µg/kg	LOQ ¹ µg/kg	LCS Recovery ² %	Replicate RPD ³
n-Butylbenzene	0.262	0.5	1.0	75 – 134	≤ 40
1,2-Dichlorobenzene	0.293	0.5	1.0	77 – 120	≤ 40
1,2-Dibromo-3-Chloropropane	0.586	2.5	5.0	61 – 128	≤ 40
1,2,4-Trichlorobenzene	0.332	2.5	5.0	75 – 130	≤ 40
Hexachloro-1,3-Butadiene	0.410	2.5	5.0	72 – 135	≤ 40
Naphthalene	0.429	2.5	5.0	71 – 122	≤ 40
1,2,3-Trichlorobenzene	0.305	2.5	5.0	76 – 122	≤ 40
Surrogate Standards			MB / LCS	Samples	RPD
1,2-Dichloroethane-d ₄			80 – 122	80 – 149	≤ 40
1,2-Dichlorobenzene-d ₄			80 – 120	80 – 120	≤ 40
Toluene-d ₈			80 – 120	77 – 120	≤ 40
4-Bromofluorobenzene			80 – 120	80 – 120	≤ 40

(1) Detection Limit (DL), Limit of Detection (LOD) and Limit of Quantitation (LOQ) are defined in ARI SOP 1018S

(2) Control limits calculated using all data from 1/1/12 through 5/31/12.

(3) Relative Percent Difference between analytes in replicate analyzes. If C_O and C_D are the concentrations of the original and duplicate respectively then

$$RPD = \frac{|C_o - C_D|}{\frac{C_o + C_D}{2}} \times 100$$

(4) Highlighted control limits (**bold font**) are adjusted from the calculated values to reflect that:

- a. ARI does not use control limits < 10 for the lower limit or < 100 for the upper limit or
- b. Control limits for analytes with no separate preparation procedure are adjusted to reflect the minimum uncertainty in the calibration of the instrument allowed by the referenced analytical method.

(5) MDL study QD19 – 3/8/10



Analysis Code	Analyte ⁵	DL ¹ ppm	LOD ¹ ppm	LOQ ² ppm	Spike % Recovery Control Limits ³			RPD ⁴
					LCS	MB/LCS Surrogate	Sample Surrogate	
HCIWVX	NWTPH-HCID – Water Samples	--	--	0.50 ⁷	--	--	50-150	≤ 40
HCISVX	NWTPH-HCID – Solid Samples	--	--	50 ⁷	--	--	50-150	
Aqueous Samples – No Extract Clean-up – Separatory Funnel Extraction – 500 to 1.0 mL								
DIESWI	DRO – NWTPH-Dext (C ₁₂ -C ₂₄)	0.022	0.05	0.1	64-112	50-150	50-150	≤ 40
AK2WSI	DRO – AK102 (C ₁₀ -C ₂₅)	0.022	0.05	0.1	75-125 ⁶	60-120	50-150	
OILWSI	RRO – NWTPH-Dext (C ₂₄ -C ₃₈)	0.044	0.1	0.2	60 – 130 ⁸	50-150	50-150	
AK3WSI	RRO – AK103 (C ₂₅ -C ₃₆)	0.030 ⁹	0.1	0.2	60-120 ⁶	60-120	50-150	
Aqueous Samples – With Acid and/or Silica Gel Clean-up – Separatory Funnel Extraction – 500 to 1.0 mL								
DIESWI	DRO – NWTPH-Dext (C ₁₂ -C ₂₄)	0.039	0.05	0.1	61-104	50-150	50-150	≤ 40
AK2WSI	DRO – AK102 (C ₁₀ -C ₂₅)	0.042	0.05	0.1	75-125 ⁶	60-120	50-150	
OILWSI	RRO – NWTPH-Dext (C ₂₄ -C ₃₈)	0.010	0.1	0.2	60 – 130 ⁸	50-150	50-150	
AK3WSI	RRO – AK103 (C ₂₅ -C ₃₆)	0.030 ⁸	0.1	0.2	60-120 ⁶	60-120	50-150	
Solid Matrix Samples – No Extract Clean-up – Microwave Extraction – 10 g to 1 mL								
DIESMI	DRO – NWTPH-Dext (C ₁₂ -C ₂₄)	1.35	2.5	5	62-119	50-150	50-150	≤ 40
DIESMI	DRO – NWTPH-Dext Jet A	2.22 ¹¹	2.5	5	60 – 130 ⁸	50-150	50-150	
AK2SMI	DRO – AK102 (C ₁₀ -C ₂₅)	2.43	2.5	5	75-125 ⁶	60-120	50-150	
OILSMI	RRO – NWTPH-Dext (C ₂₄ -C ₃₈)	2.48	5	10	60 – 130 ⁸	50-150	50-150	
AK3SMI	RRO – AK103 (C ₂₅ -C ₃₆)	0.665 ⁹	5	10	60-120 ⁶	60-120	50-150	
Solid Matrix Samples – With Acid and/or Silica Gel Clean-up – Microwave Extraction – 10 g to 1 mL								
DIESMI	DRO – NWTPH-Dext (C ₁₂ -C ₂₄)	1.28	2.5	5	60-108	50-150	50-150	≤ 40
AK2SMI	DRO – AK102 (C ₁₀ -C ₂₅)	2.06	2.5	5	75-125 ⁶	60-120	50-150	
OILSMI	RRO – NWTPH-Dext (C ₂₄ -C ₃₈)	1.57	5	10	60 – 130 ⁸	50-150	50-150	
AK3SMI	RRO – AK103 (C ₂₅ -C ₃₆)	0.665 ¹⁰	5	10	60-120 ⁶	60-120	50-150	

(1) DL (Detection Limit) and LOD (Limit of Detection) as defined in ARI SOP 1018S.

(2) Limit of Quantitation as defined in ARI SOP 1018S. The spike concentration used to determine the DL and the concentration of the lowest standard used to calibrate the GC-FID instrument.

(3) All surrogate recovery limits are specified in the published methods (AK102, AK103 & NWTPH-Dext). The surrogate standard is o-Terphenyl.

(4) Acceptance criteria for the relative percent difference (RPD) between analytes in replicate analyzes. If C_O and C_D are the concentrations of the original and duplicate respectively then

$$RPD = \frac{|C_O - C_D|}{\frac{C_O + C_D}{2}} \times 100$$

(5) DRO = Diesel Range Organics and RRO = Residual Range Organics as defined in the methods referenced in footnote 3.

(6) Method specified LCS acceptance limits.

(7) Method specified reporting limits

(8) Default LCS control limits pending calculation of historic limits

(9) MDL study QD55 completed 2/12/10

(10) MDL study QD35 completed 1/29/10

(11) LOD Study UI44 completed 2/28/12



Quality Control Criteria Gasoline and BTEX

Method	Analyte	DL ¹	LOD ¹	LOQ ¹	Spike % Recovery Control Limits			RPD ³
					LCS	MB/LCS Surrogate	Sample Surrogate	
Aqueous Samples 5 mL purge volume (DL, LOD & LOQ values in µg/L (ppb) for BTEX and mg/L (ppm) for gasoline)								
NWTPH-G	Toluene – Naphthalene	0.057	0.125	0.25	80 – 120	--	--	≤ 40
8015B	2-methylpentane – 1,2,4-Trimethylbenzene	0.031	0.125	0.25	80 – 120	--	--	
WA-TPH-G	Toluene – nC ₁₂)	0.087	0.125	0.25	80 – 120	--	--	
AK-101	nC ₆ – nC ₁₂	0.032	0.050	0.10	80 – 120	--	--	
	Trifluorotoluene (TFT)	--	--	--	--	80 - 120	80 – 120	
	Bromobenzene	--	--	--	--	80 - 120	80 – 120	
8021B	Benzene	0.094	0.5	1.0	76 – 120	--	--	≤ 40
8021B	Toluene	0.113	0.5	1.0	77 – 122	--	--	
8021B	Ethylbenzene	0.117	0.5	1.0	68 – 120	--	--	
8021B	m/p-Xylene	0.265	1.0	2.0	75 – 120	--	--	
8021B	o-Xylene	0.136	0.5	1.0	75 – 121	--	--	
	Trifluorotoluene (TFT)	--	--	--	--	80 – 120	80 - 120	
	Bromobenzene	--	--	--	--	80 – 120	77 - 120	
Solid Samples - (DL, LOD & LOQ values in µg/kg (ppb) for BTEX and mg/kg (ppm) for gasoline)								
NWTPH-G	Toluene – Naphthalene	1.66	2.5	5	80 – 120	--	--	≤ 40
8015B	2-methylpentane – 1,2,4-Trimethylbenzene	1.57	2.5	5	80 – 120	--	--	
WA-TPH-G	Toluene – nC ₁₂)	1.54	2.5	5	80 – 120	--	--	
AK-101	nC ₆ – nC ₁₂	1.84	2.5	5	80 – 127	--	--	
	Trifluorotoluene (TFT)	--	--	--	--	80 - 120	65-128	
	Bromobenzene	--	--	--	--	80 - 120	52-149	
8021B	Benzene	4.59	12.5	25	78 – 120	--	--	≤ 40
8021B	Toluene	7.13	12.5	25	80 – 120	--	--	
8021B	Ethylbenzene	4.98	12.5	25	73 – 120	--	--	
8021B	m/p-Xylene	11.9	25.0	50	79 – 120	--	--	
8021B	o-Xylene	6.23	12.5	25	80 – 120	--	--	
	Trifluorotoluene (TFT)	--	--	--	--	80 - 120	69 – 126	
	Bromobenzene	--	--	--	--	80 - 120	49 – 143	

(1) Detection Limit (DL), Limit of Detection (LOD) and Limit of Quantitation (LOQ) as defined in ARI SOP 1018S.

(2) Highlighted control limits (bold font) are adjusted from the calculated values as follows:

a) Highlighted control limits (**bold font**) adjusted to demonstrate that ARI does not use control limits < 10 for the lower limit or < 100 for the upper limit.

b) Control limits for analytes with no separate preparation procedure are adjusted to reflect the minimum uncertainty in the calibration of the instrument allowed by the referenced analytical method.

(3) Acceptance criteria for the relative percent difference (RPD) between analytes in replicate analyzes. If C_O and C_D are the concentrations of the original and duplicate respectively then

$$RPD = \frac{|C_o - C_D|}{\frac{C_o + C_D}{2}} \times 100$$

(4) Default control limits pending sufficient data to calculate historic limits.



Quality Control Parameters for Metals Analysis-ICP-OES 200.7/6010C

Analyte	Aqueous Samples ²			Spike Recovery		RPD ⁵	Solids ³	Tissue ⁴
	DL ¹ µg/L	LOD ¹ µg/L	LOQ ¹ µg/L	Matrix Spike	LCS		LOQ mg/kg	LOQ mg/kg
Aluminum	7.57	25	50	75 – 125	80 – 120	≤ 20	5.0	1.0
Antimony	6.28	25	50	75 – 125	80 – 120	≤ 20	5.0	1.0
Arsenic	3.33	25	50	75 – 125	80 – 120	≤ 20	5.0	1.0
Barium	1.33	1.5	3.0	75 – 125	80 – 120	≤ 20	0.3	0.06
Beryllium	0.16	0.5	1.0	75 – 125	80 – 120	≤ 20	0.1	0.02
Boron	7.39	10	20	75 – 125	80 – 120	≤ 20	2.0	0.4
Cadmium	0.18	0.5	2.0	75 – 125	80 – 120	≤ 20	0.2	0.04
Calcium	11.27	25	50	75 – 125	80 – 120	≤ 20	5.0	1.0
Chromium	1.24	2.5	5.0	75 – 125	80 – 120	≤ 20	0.5	0.1
Cobalt	0.27	1.5	3.0	75 – 125	80 – 120	≤ 20	0.3	0.06
Copper	0.92	1.0	2.0	75 – 125	80 – 120	≤ 20	0.2	0.04
Iron	7.50	25	50	75 – 125	80 – 120	≤ 20	5.0	1.0
Lead	1.55	10	20	75 – 125	80 – 120	≤ 20	2.0	0.4
Magnesium	9.61	25	50	75 – 125	80 – 120	≤ 20	5.0	1.0
Manganese	0.28	0.5	1.0	75 – 125	80 – 120	≤ 20	0.1	0.02
Molybdenum	0.79	2.5	5.0	75 – 125	80 – 120	≤ 20	0.5	0.1
Nickel	3.86	5.0	10	75 – 125	80 – 120	≤ 20	1.0	0.2
Potassium	65.70	250	500	75 – 125	80 – 120	≤ 20	50	10
Selenium	4.99	25	50	75 – 125	80 – 120	≤ 20	5.0	1.0
Silicon	8.17	30	60	75 – 125	80 – 120	≤ 20	(6)	(6)
Silver	0.43	1.5	3.0	75 – 125	80 – 120	≤ 20	0.3	0.06
Sodium	11.35	250	500	75 – 125	80 – 120	≤ 20	50	10
Strontium	0.09	1.0	1.0	75 – 125	80 – 120	≤ 20	0.1	0.02
Thallium	3.10	25	50	75 – 125	80 – 120	≤ 20	5.0	1.0
Tin	1.41	5.0	10	75 – 125	80 – 120	≤ 20	1.0	0.2
Titanium	2.11	2.5	5.0	75 – 125	80 – 120	≤ 20	0.5	0.01
Vanadium	0.27	1.5	3.0	75 – 125	80 – 120	≤ 20	0.3	0.06
Zinc	1.45	5.0	10	75 – 125	80 – 120	≤ 20	1.0	0.2

(1) Detection Limit (DL), Limit of Detection Limit (LOD) and Limit of Quantitation (LOQ) as defined in ARI SOP 1018S

(2) 50 mL sample and 50 mL final volume

(3) Solids LOQ based on 100% solids using 1.0 g sample with 100 mL final volume.

(4) Tissue is reported on an "as received" (wet weight) basis using 2.5 g sample with 50 mL final volume.

(5) Relative Percent Difference between analytes in replicate analyzes. If C_O and C_D are the concentrations of the

original and duplicate respectively then

$$RPD = \frac{|C_O - C_D|}{\frac{C_O + C_D}{2}} \times 100$$

(6) ARI does not analyze for Silicon in solids or tissue samples



Quality Control Parameters for Metals Analysis ICP-MS 200.8/6020A								
Analyte	Mass	Aqueous Samples ²			Spike Recovery		RPD ⁴	Solids ³
		DL ¹ µg/L	LOD ¹ µg/L	LOQ ¹ µg/L	Matrix Spike	LCS		LOQ ¹ mg/kg
Aluminum	27	1.601	10	20.0	75 – 125	80 – 120	≤ 20	20.0
Antimony	121	0.010	0.1	0.2	75 – 125	80 – 120	≤ 20	0.2
	123	0.011	0.1	0.2	75 – 125	80 – 120	≤ 20	0.2
Arsenic #1	75	0.048	0.1	0.2	75 – 125	80 – 120	≤ 20	0.2
Arsenic #2	75	0.092	0.25	0.5	75 – 125	80 – 120	≤ 20	0.5
Barium	135	0.020	0.25	0.5	75 – 125	80 – 120	≤ 20	0.5
	137	0.019	0.25	0.5	75 – 125	80 – 120	≤ 20	0.5
Beryllium	9	0.021	0.1	0.2	75 – 125	80 – 120	≤ 20	0.2
Cadmium	111	0.010	0.05	0.1	75 – 125	80 – 120	≤ 20	0.1
	114	0.005	0.05	0.1	75 – 125	80 – 120	≤ 20	0.1
Calcium	43	3.983	25	50.0	75 – 125	80 – 120	≤ 20	50.0
Chromium	52	0.045	0.25	0.5	75 – 125	80 – 120	≤ 20	0.5
	53	0.118	0.25	0.5	75 – 125	80 – 120	≤ 20	0.5
Cobalt	59	0.011	0.1	0.2	75 – 125	80 – 120	≤ 20	0.2
Copper	63	0.158	0.25	0.5	75 – 125	80 – 120	≤ 20	0.5
	65	0.236	0.25	0.5	75 – 125	80 – 120	≤ 20	0.5
Iron	54	5.753	10	20.0	75 – 125	80 – 120	≤ 20	20.0
	57	3.876	10	20.0	75 – 125	80 – 120	≤ 20	20.0
Lead	208	0.046	0.05	0.1	75 – 125	80 – 120	≤ 20	0.1
Magnesium	24	0.297	10	20.0	75 – 125	80 – 120	≤ 20	20.0
Manganese	55	0.022	0.25	0.5	75 – 125	80 – 120	≤ 20	0.5
Molybdenum	98	0.013	0.1	0.2	75 – 125	80 – 120	≤ 20	0.2
Nickel	60	0.079	0.25	0.5	75 – 125	80 – 120	≤ 20	0.5
	62	0.089	0.25	0.5	75 – 125	80 – 120	≤ 20	0.5
Potassium	39	2.944	10	20.0	75 – 125	80 – 120	≤ 20	20.0
Selenium	82	0.127	0.25	0.5	75 – 125	80 – 120	≤ 20	0.5
	78	0.324	0.25	2.0	75 – 125	80 – 120	≤ 20	2.0
Silver	107	0.008	0.1	0.2	75 – 125	80 – 120	≤ 20	0.2
Sodium	23	2.833	50	100.0	75 – 125	80 – 120	≤ 20	100.0
Thorium ⁵	232	0.013	0.1	0.2	75 – 125	80 – 120	≤ 20	0.2
Thallium	205	0.004	0.1	0.2	75 – 125	80 – 120	≤ 20	0.2
Uranium ⁵	238	0.003	0.1	0.2	75 – 125	80 – 120	≤ 20	0.2
Vanadium	51	0.043	0.1	0.2	75 – 125	80 – 120	≤ 20	0.2
Zinc	66	0.497	2	4.0	75 – 125	80 – 120	≤ 20	4.0
	67	0.531	2	4.0	75 – 125	80 – 120	≤ 20	4.0
	68	0.524	2	4.0	75 – 125	80 – 120	≤ 20	4.0

(1) Detection Limit (DL), Limit of Detection Limit (LOD) and Limit of Quantitation (LOQ) as defined in ARI SOP 1018S

(2) 50 mL sample and 50 mL final volume

(3) Solids LOQ based on 100% solids using 1.0 g sample with 100 mL final volume.

(4) Relative Percent Difference between analytes in replicate analyzes. If C_O and C_D are the concentrations of the

original and duplicate respectively then

$$RPD = \frac{|C_O - C_D|}{\frac{C_O + C_D}{2}} \times 100$$



(5) ARI has no accreditation for these elements.



Quality Control Parameters for Mercury Analysis using CVAA						
	Aqueous Samples²			Spike Recovery		RPD⁵
	DL¹ µg/L	LOD¹ µg/L	LOQ¹ µg/L	Matrix Spike	LCS	
Mercury	0.0069	0.05	0.10²	75 – 125	80 – 120	≤ 20
Mercury (low level)	0.0026	0.01	0.02²	75 – 125	80 – 120	≤ 20
	Soil / Sediment Samples			Spike Recovery		RPD⁵
	DL¹ mg/kg	LOD¹ mg/kg	LOQ¹ mg/kg	Matrix Spike	LCS	
Mercury	0.0021	0.0125	0.025 ³	75 – 125	80 – 120	≤ 20
	Tissue Samples			Spike Recovery		RPD⁵
	DL¹ mg/kg	LOD¹ mg/kg	LOQ¹ mg/kg	Matrix Spike	LCS	
Mercury	0.0021	0.0125	0.005 ⁴	75 – 125	80 – 120	≤ 20

(1) Detection Limit (DL), Limit of Detection Limit (LOD) and Limit of Quantitation (LOQ) as defined in ARI SOP 1018S

(2) 20 mL sample with 20 mL final volume

(3) 0.2 g sample with 50 mL final volume assuming 100% dry weight. Soil and sediment are reported on a dry weight basis.

(4) Tissue LOQ is 0.005 mg/kg as received (wet weight) based on 1 g sample with 50 mL final volume.

(5) Relative Percent Difference between analytes in replicate analyzes. If C_o and C_d are the concentrations of the original and duplicate respectively then

$$RPD = \frac{|C_o - C_d|}{\frac{C_o + C_d}{2}} \times 100$$

**Volatile Analysis
Report and Summary QC Forms**

ARI Job ID: VP40, VP41

ORGANICS ANALYSIS DATA SHEET

Volatiles by Purge & Trap GC/MS-Method SW8260C

Sample ID: CWS1-04-2-4

Page 1 of 1

SAMPLE

Lab Sample ID: VP40A

QC Report No: VP40-Anchor QEA LLC

LIMS ID: 12-21289

Project: Central Waterfront Shoreline Inves.

Matrix: Soil

Data Release Authorized: *mmw*

Date Sampled: 10/25/12

Reported: 11/01/12

Date Received: 10/26/12

Instrument/Analyst: NT5/PAB

Sample Amount: 4.53 g-dry-wt

Date Analyzed: 10/30/12 14:48

Purge Volume: 5.0 mL

Moisture: 17.8%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.1	< 1.1	U
108-88-3	Toluene	1.1	< 1.1	U
100-41-4	Ethylbenzene	1.1	< 1.1	U
179601-23-1	m,p-Xylene	1.1	< 1.1	U
95-47-6	o-Xylene	1.1	< 1.1	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	89.8%
d8-Toluene	97.1%
Bromofluorobenzene	94.5%
d4-1,2-Dichlorobenzene	102%

ORGANICS ANALYSIS DATA SHEET

Volatiles by Purge & Trap GC/MS-Method SW8260C

Sample ID: CWS1-04-6-8

Page 1 of 1

SAMPLE

Lab Sample ID: VP40B

QC Report No: VP40-Anchor QEA LLC

LIMS ID: 12-21290

Project: Central Waterfront Shoreline Inves.

Matrix: Soil

Data Release Authorized: *MMW*

Date Sampled: 10/25/12

Reported: 11/01/12

Date Received: 10/26/12

Instrument/Analyst: NT5/PAB

Sample Amount: 4.27 g-dry-wt

Date Analyzed: 10/30/12 15:11

Purge Volume: 5.0 mL

Moisture: 24.1%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.2	< 1.2	U
108-88-3	Toluene	1.2	0.6	J
100-41-4	Ethylbenzene	1.2	< 1.2	U
179601-23-1	m,p-Xylene	1.2	< 1.2	U
95-47-6	o-Xylene	1.2	< 1.2	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	91.2%
d8-Toluene	97.5%
Bromofluorobenzene	97.9%
d4-1,2-Dichlorobenzene	99.3%



ORGANICS ANALYSIS DATA SHEET

Volatiles by Purge & Trap GC/MS-Method SW8260C

Sample ID: CWS1-04-13.5-15

Page 1 of 1

SAMPLE

Lab Sample ID: VP40C

QC Report No: VP40-Anchor QEA LLC

LIMS ID: 12-21291

Project: Central Waterfront Shoreline Inves.

Matrix: Soil

Data Release Authorized: *mmw*

Date Sampled: 10/25/12

Reported: 11/01/12

Date Received: 10/26/12

Instrument/Analyst: NT5/PAB

Sample Amount: 4.02 g-dry-wt

Date Analyzed: 10/30/12 15:33

Purge Volume: 5.0 mL

Moisture: 19.4%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.2	17	
108-88-3	Toluene	1.2	1.1	J
100-41-4	Ethylbenzene	1.2	< 1.2	U
179601-23-1	m,p-Xylene	1.2	< 1.2	U
95-47-6	o-Xylene	1.2	< 1.2	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	85.8%
d8-Toluene	96.9%
Bromofluorobenzene	97.4%
d4-1,2-Dichlorobenzene	101%

ORGANICS ANALYSIS DATA SHEET

Volatiles by Purge & Trap GC/MS-Method SW8260C

Sample ID: CWS1-TB-01

Page 1 of 1

SAMPLE

Lab Sample ID: VP40E

QC Report No: VP40-Anchor QEA LLC

LIMS ID: 12-21293

Project: Central Waterfront Shoreline Inves.

Matrix: Water

Data Release Authorized: *MW*

Date Sampled: 10/25/12

Reported: 11/01/12

Date Received: 10/26/12

Instrument/Analyst: NT5/PAB

Sample Amount: 5.00 mL

Date Analyzed: 10/30/12 15:56

Purge Volume: 5.0 mL

CAS Number	Analyte	LOQ	Result	Q
71-43-2	Benzene	1.0	< 1.0	U
108-88-3	Toluene	1.0	< 1.0	U
100-41-4	Ethylbenzene	1.0	< 1.0	U
179601-23-1	m,p-Xylene	2.0	< 2.0	U
95-47-6	o-Xylene	1.0	< 1.0	U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	85.2%
d8-Toluene	97.4%
Bromofluorobenzene	100%
d4-1,2-Dichlorobenzene	97.0%

VOA SURROGATE RECOVERY SUMMARY



Matrix: Soil

QC Report No: VP40-Anchor QEA LLC
 Project: Central Waterfront Shoreline Inves.

ARI ID	Client ID	Level	DCE	TOL	BFB	DCB	TOT OUT
VP40A	CWS1-04-2-4	Low	89.8%	97.1%	94.5%	102%	0
VP40B	CWS1-04-6-8	Low	91.2%	97.5%	97.9%	99.3%	0
MB-103012A	Method Blank	Low	84.0%	97.6%	98.8%	97.6%	0
LCS-103012A	Lab Control	Low	80.1%	97.6%	99.0%	95.6%	0
LCSD-103012A	Lab Control Dup	Low	83.6%	96.8%	100%	96.5%	0
VP40C	CWS1-04-13.5-15	Low	85.8%	96.9%	97.4%	101%	0

LCS/MB LIMITS

QC LIMITS

	LCS/MB LIMITS		QC LIMITS	
	Low	Med	Low	Med
(DCE) = d4-1,2-Dichloroethane	80-122	76-120	80-149	69-120
(TOL) = d8-Toluene	80-120	80-120	77-120	80-120
(BFB) = Bromofluorobenzene	80-120	80-120	80-120	76-128
(DCB) = d4-1,2-Dichlorobenzene	80-120	80-120	80-120	80-120

Log Number Range: 12-21289 to 12-21291

VOA SURROGATE RECOVERY SUMMARY



Matrix: Water

QC Report No: VP40-Anchor QEA LLC
 Project: Central Waterfront Shoreline Inves.

ARI ID	Client ID	PV	DCE	TOL	BFB	DCB	TOT OUT
MB-103012A	Method Blank	5	84.0%	97.6%	98.8%	97.6%	0
LCS-103012A	Lab Control	5	80.1%	97.6%	99.0%	95.6%	0
LCSD-103012A	Lab Control Dup	5	83.6%	96.8%	100%	96.5%	0
VP40E	CWS1-TB-01	5	85.2%	97.4%	100%	97.0%	0

LCS/MB LIMITS

QC LIMITS

SW8260C

(DCE) = d4-1,2-Dichloroethane
 (TOL) = d8-Toluene
 (BFB) = Bromofluorobenzene
 (DCB) = d4-1,2-Dichlorobenzene

80-122
 80-120
 80-120
 80-120

80-125
 80-120
 80-120
 80-120

Prep Method: SW5030B
 Log Number Range: 12-21293 to 12-21293

ORGANICS ANALYSIS DATA SHEET

Volatiles by Purge & Trap GC/MS-Method SW8260C

Sample ID: CWS1-02-1-3

Page 1 of 1

SAMPLE


Lab Sample ID: VP41A

QC Report No: VP41-Anchor QEA LLC

LIMS ID: 12-21279

Project: Central Waterfront Shoreline Inves.

Matrix: Soil

Data Release Authorized: 

Date Sampled: 10/25/12

Reported: 11/01/12

Date Received: 10/26/12

Instrument/Analyst: NT5/PAB

Sample Amount: 4.34 g-dry-wt

Date Analyzed: 10/30/12 16:19

Purge Volume: 5.0 mL

Moisture: 7.4%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.2	1.1	J
108-88-3	Toluene	1.2	1.0	J
100-41-4	Ethylbenzene	1.2	< 1.2	U
179601-23-1	m,p-Xylene	1.2	< 1.2	U
95-47-6	o-Xylene	1.2	< 1.2	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	90.6%
d8-Toluene	97.5%
Bromofluorobenzene	101%
d4-1,2-Dichlorobenzene	98.8%

ORGANICS ANALYSIS DATA SHEET

Volatiles by Purge & Trap GC/MS-Method SW8260C

Sample ID: CWS1-02-7-8

Page 1 of 1

SAMPLE

Lab Sample ID: VP41B

QC Report No: VP41-Anchor QEA LLC

LIMS ID: 12-21280

Project: Central Waterfront Shoreline Inves.

Matrix: Soil

Data Release Authorized: *AB*

Date Sampled: 10/25/12

Reported: 11/01/12

Date Received: 10/26/12

Instrument/Analyst: NT5/PAB

Sample Amount: 4.20 g-dry-wt

Date Analyzed: 10/30/12 16:42

Purge Volume: 5.0 mL

Moisture: 18.4%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.2	0.9	J
108-88-3	Toluene	1.2	< 1.2	U
100-41-4	Ethylbenzene	1.2	< 1.2	U
179601-23-1	m,p-Xylene	1.2	< 1.2	U
95-47-6	o-Xylene	1.2	< 1.2	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	90.3%
d8-Toluene	98.3%
Bromofluorobenzene	99.7%
d4-1,2-Dichlorobenzene	97.9%

ORGANICS ANALYSIS DATA SHEET

Volatiles by Purge & Trap GC/MS-Method SW8260C

Sample ID: CWS1-02-12-13

Page 1 of 1

SAMPLE


Lab Sample ID: VP41C

QC Report No: VP41-Anchor QEA LLC

LIMS ID: 12-21281

Project: Central Waterfront Shoreline Inves.

Matrix: Soil

Data Release Authorized: 

Date Sampled: 10/25/12

Reported: 11/01/12

Date Received: 10/26/12

Instrument/Analyst: NT5/PAB

Sample Amount: 5.01 g-dry-wt

Date Analyzed: 10/30/12 17:04

Purge Volume: 5.0 mL

Moisture: 19.7%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.0	0.8	J
108-88-3	Toluene	1.0	0.6	J
100-41-4	Ethylbenzene	1.0	0.6	J
179601-23-1	m,p-Xylene	1.0	< 1.0	U
95-47-6	o-Xylene	1.0	< 1.0	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	87.8%
d8-Toluene	97.5%
Bromofluorobenzene	94.0%
d4-1,2-Dichlorobenzene	105%

ORGANICS ANALYSIS DATA SHEET

Volatiles by Purge & Trap GC/MS-Method SW8260C

Page 1 of 1

Sample ID: CWS1-01-3-5

SAMPLE



Lab Sample ID: VP41D

LIMS ID: 12-21282

Matrix: Soil

Data Release Authorized: *AB*

Reported: 11/01/12

QC Report No: VP41-Anchor QEA LLC

Project: Central Waterfront Shoreline Inves.

Date Sampled: 10/25/12

Date Received: 10/26/12

Instrument/Analyst: NT5/PAB

Date Analyzed: 10/30/12 17:27

Sample Amount: 3.89 g-dry-wt

Purge Volume: 5.0 mL

Moisture: 20.7%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.3	1.2	J
108-88-3	Toluene	1.3	0.7	J
100-41-4	Ethylbenzene	1.3	< 1.3	U
179601-23-1	m,p-Xylene	1.3	< 1.3	U
95-47-6	o-Xylene	1.3	< 1.3	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	89.2%
d8-Toluene	97.7%
Bromofluorobenzene	90.4%
d4-1,2-Dichlorobenzene	96.4%

ORGANICS ANALYSIS DATA SHEET

Volatiles by Purge & Trap GC/MS-Method SW8260C

Sample ID: CWS1-01-11-13

Page 1 of 1

SAMPLE

Lab Sample ID: VP41E

QC Report No: VP41-Anchor QEA LLC

LIMS ID: 12-21283

Project: Central Waterfront Shoreline Inves.

Matrix: Soil

Data Release Authorized: *AB*

Date Sampled: 10/25/12

Reported: 11/01/12

Date Received: 10/26/12

Instrument/Analyst: NT5/PAB

Sample Amount: 4.98 g-dry-wt

Date Analyzed: 10/30/12 17:50

Purge Volume: 5.0 mL

Moisture: 22.8%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.0	< 1.0	U
108-88-3	Toluene	1.0	< 1.0	U
100-41-4	Ethylbenzene	1.0	< 1.0	U
179601-23-1	m,p-Xylene	1.0	< 1.0	U
95-47-6	o-Xylene	1.0	< 1.0	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	91.8%
d8-Toluene	97.3%
Bromofluorobenzene	98.9%
d4-1,2-Dichlorobenzene	98.2%

ORGANICS ANALYSIS DATA SHEET

Volatiles by Purge & Trap GC/MS-Method SW8260C

Sample ID: CWS1-03-2-4

Page 1 of 1

SAMPLE


Lab Sample ID: VP41G

QC Report No: VP41-Anchor QEA LLC

LIMS ID: 12-21285

Project: Central Waterfront Shoreline Inves.

Matrix: Soil

Data Release Authorized: 

Date Sampled: 10/25/12

Reported: 11/01/12

Date Received: 10/26/12

Instrument/Analyst: NT5/PAB

Sample Amount: 3.66 g-dry-wt

Date Analyzed: 10/30/12 18:13

Purge Volume: 5.0 mL

Moisture: 11.9%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.4	< 1.4	U
108-88-3	Toluene	1.4	1.6	
100-41-4	Ethylbenzene	1.4	< 1.4	U
179601-23-1	m,p-Xylene	1.4	< 1.4	U
95-47-6	o-Xylene	1.4	< 1.4	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	89.2%
d8-Toluene	97.8%
Bromofluorobenzene	100%
d4-1,2-Dichlorobenzene	99.0%

ORGANICS ANALYSIS DATA SHEET

Volatiles by Purge & Trap GC/MS-Method SW8260C

Sample ID: CWS1-03-7-9

Page 1 of 1

SAMPLE


Lab Sample ID: VP41H

QC Report No: VP41-Anchor QEA LLC

LIMS ID: 12-21286

Project: Central Waterfront Shoreline Inves.

Matrix: Soil

Data Release Authorized: 

Date Sampled: 10/25/12

Reported: 11/01/12

Date Received: 10/26/12

Instrument/Analyst: NT5/PAB

Sample Amount: 4.32 g-dry-wt

Date Analyzed: 10/30/12 18:35

Purge Volume: 5.0 mL

Moisture: 28.4%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.2	2.3	
108-88-3	Toluene	1.2	2.7	
100-41-4	Ethylbenzene	1.2	0.6	J
179601-23-1	m,p-Xylene	1.2	1.6	
95-47-6	o-Xylene	1.2	0.8	J

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	88.6%
d8-Toluene	97.1%
Bromofluorobenzene	93.9%
d4-1,2-Dichlorobenzene	101%

ORGANICS ANALYSIS DATA SHEET

Volatiles by Purge & Trap GC/MS-Method SW8260C

Sample ID: CWS1-TB-01

Page 1 of 1

SAMPLE

Lab Sample ID: VP41J

QC Report No: VP41-Anchor QEA LLC

LIMS ID: 12-21288

Project: Central Waterfront Shoreline Inves.

Matrix: Water

Data Release Authorized: *W*

Date Sampled: 10/25/12

Reported: 11/07/12

Date Received: 10/26/12

Instrument/Analyst: NT5/PAB

Sample Amount: 5.00 mL

Date Analyzed: 10/30/12 18:58

Purge Volume: 5.0 mL

CAS Number	Analyte	LOQ	Result	Q
71-43-2	Benzene	1.0	< 1.0	U
108-88-3	Toluene	1.0	< 1.0	U
100-41-4	Ethylbenzene	1.0	< 1.0	U
179601-23-1	m,p-Xylene	2.0	< 2.0	U
95-47-6	o-Xylene	1.0	< 1.0	U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	84.9%
d8-Toluene	98.1%
Bromofluorobenzene	102%
d4-1,2-Dichlorobenzene	96.9%

VOA SURROGATE RECOVERY SUMMARY



Matrix: Soil

QC Report No: VP41-Anchor QEA LLC
 Project: Central Waterfront Shoreline Inves.

ARI ID	Client ID	Level	DCE	TOL	BFB	DCB	TOT OUT
MB-103012A	Method Blank	Low	84.0%	97.6%	98.8%	97.6%	0
LCS-103012A	Lab Control	Low	80.1%	97.6%	99.0%	95.6%	0
LCSD-103012A	Lab Control Dup	Low	83.6%	96.8%	100%	96.5%	0
VP41A	CWS1-02-1-3	Low	90.6%	97.5%	101%	98.8%	0
VP41B	CWS1-02-7-8	Low	90.3%	98.3%	99.7%	97.9%	0
VP41C	CWS1-02-12-13	Low	87.8%	97.5%	94.0%	105%	0
VP41D	CWS1-01-3-5	Low	89.2%	97.7%	90.4%	96.4%	0
VP41E	CWS1-01-11-13	Low	91.8%	97.3%	98.9%	98.2%	0
VP41G	CWS1-03-2-4	Low	89.2%	97.8%	100%	99.0%	0
VP41H	CWS1-03-7-9	Low	88.6%	97.1%	93.9%	101%	0

SW8260C	LCS/MB LIMITS		QC LIMITS	
	Low	Med	Low	Med
(DCE) = d4-1,2-Dichloroethane	80-122	76-120	80-149	69-120
(TOL) = d8-Toluene	80-120	80-120	77-120	80-120
(BFB) = Bromofluorobenzene	80-120	80-120	80-120	76-128
(DCB) = d4-1,2-Dichlorobenzene	80-120	80-120	80-120	80-120

Log Number Range: 12-21279 to 12-21286

VOA SURROGATE RECOVERY SUMMARY



Matrix: Water

QC Report No: VP41-Anchor QEA LLC
 Project: Central Waterfront Shoreline Inves.

ARI ID	Client ID	PV	DCE	TOL	BFB	DCB	TOT OUT
MB-103012A	Method Blank	5	84.0%	97.6%	98.8%	97.6%	0
LCS-103012A	Lab Control	5	80.1%	97.6%	99.0%	95.6%	0
LCSD-103012A	Lab Control Dup	5	83.6%	96.8%	100%	96.5%	0
VP41J	CWS1-TB-01	5	84.9%	98.1%	102%	96.9%	0

LCS/MB LIMITS

QC LIMITS

SW8260C

(DCE) = d4-1,2-Dichloroethane	80-122	80-125
(TOL) = d8-Toluene	80-120	80-120
(BFB) = Bromofluorobenzene	80-120	80-120
(DCB) = d4-1,2-Dichlorobenzene	80-120	80-120

Prep Method: SW5030B
 Log Number Range: 12-21288 to 12-21288



ORGANICS ANALYSIS DATA SHEET

Volatiles by Purge & Trap GC/MS-Method SW8260C
Page 1 of 1

Sample ID: LCS-103012A
LAB CONTROL SAMPLE

Lab Sample ID: LCS-103012A
LIMS ID: 12-21291
Matrix: Soil
Data Release Authorized: *MM*
Reported: 11/01/12

QC Report No: VP40-Anchor QEA LLC
Project: Central Waterfront Shoreline Inves.
Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: NT5/PAB
LCSD: NT5/PAB
Date Analyzed LCS: 10/30/12 11:44
LCSD: 10/30/12 12:07

Sample Amount LCS: 5.00 g-dry-wt
LCSD: 5.00 g-dry-wt
Purge Volume LCS: 5.0 mL
LCSD: 5.0 mL
Moisture: NA

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Benzene	52.4	50.0	105%	53.0	50.0	106%	1.1%
Toluene	51.2	50.0	102%	51.7	50.0	103%	1.0%
Ethylbenzene	54.9	50.0	110%	55.3	50.0	111%	0.7%
m,p-Xylene	112	100	112%	113	100	113%	0.9%
o-Xylene	53.8	50.0	108%	54.4	50.0	109%	1.1%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	80.1%	83.6%
d8-Toluene	97.6%	96.8%
Bromofluorobenzene	99.0%	100%
d4-1,2-Dichlorobenzene	95.6%	96.5%

ORGANICS ANALYSIS DATA SHEET

Volatiles by Purge & Trap GC/MS-Method SW8260C

Sample ID: LCS-103012A

Page 1 of 1

LAB CONTROL SAMPLE

Lab Sample ID: LCS-103012A

QC Report No: VP40-Anchor QEA LLC

LIMS ID: 12-21293

Project: Central Waterfront Shoreline Inves.

Matrix: Water

Data Release Authorized: *mmw*

Date Sampled: NA

Reported: 11/01/12

Date Received: NA

Instrument/Analyst LCS: NT5/PAB

Sample Amount LCS: 5.00 mL

LCSD: NT5/PAB

LCSD: 5.00 mL

Date Analyzed LCS: 10/30/12 11:44

Purge Volume LCS: 5.0 mL

LCSD: 10/30/12 12:07

LCSD: 5.0 mL

Analyte	LCS	Spike	LCS	LCSD	Spike	LCSD	RPD
		Added-LCS	Recovery		Added-LCSD	Recovery	
Benzene	52.4	50.0	105%	53.0	50.0	106%	1.1%
Toluene	51.2	50.0	102%	51.7	50.0	103%	1.0%
Ethylbenzene	54.9	50.0	110%	55.3	50.0	111%	0.7%
m,p-Xylene	112	100	112%	113	100	113%	0.9%
o-Xylene	53.8	50.0	108%	54.4	50.0	109%	1.1%

Reported in µg/L (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	80.1%	83.6%
d8-Toluene	97.6%	96.8%
Bromofluorobenzene	99.0%	100%
d4-1,2-Dichlorobenzene	95.6%	96.5%

4A
VOLATILE METHOD BLANK SUMMARY

Method Blank ID.

MB1030

Lab Name: ANALYTICAL RESOURCES INC
 ARI Job No: VP41
 Lab File ID: MB1030
 Date Analyzed: 10/30/12
 Instrument ID: NT5

Client: ANCHOR QEA LLC
 Project: CENTRAL WATERFRONT
 Lab Sample ID: MB1030
 Time Analyzed: 1229
 Heated Purge: (Y/N) Y

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
	=====	=====	=====	=====
01	LCS1030	LCS1030	LCS1030	1144
02	LCS1030	LCS1030	LCS1030A	1207
03	CWS1-02-1-3	VP41A	VP41A	1619
04	CWS1-02-7-8	VP41B	VP41B	1642
05	CWS1-02-12-1	VP41C	VP41C	1704
06	CWS1-01-3-5	VP41D	VP41D	1727
07	CWS1-01-11-1	VP41E	VP41E	1750
08	CWS1-03-2-4	VP41G	VP41G	1813
09	CWS1-03-7-9	VP41H	VP41H	1835
10	CWS1-TB-01	VP41J	VP41J	1858
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

COMMENTS:

4A
VOLATILE METHOD BLANK SUMMARY

Method Blank ID.

MB1030

Lab Name: ANALYTICAL RESOURCES INC

Client: ANCHOR QEA LLC

ARI Job No: VP40

Project: CENTRAL WATERFRONT

Lab File ID: MB1030

Lab Sample ID: MB1030

Date Analyzed: 10/30/12

Time Analyzed: 1229

Instrument ID: NT5

Heated Purge: (Y/N) Y

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
	=====	=====	=====	=====
01	LCS1030	LCS1030	LCS1030	1144
02	LCS1030	LCS1030	LCS1030A	1207
03	CWS1-04-2-4	VP40A	VP40A	1448
04	CWS1-04-6-8	VP40B	VP40B	1511
05	CWS1-04-13.5	VP40C	VP40C	1533
06	CWS1-TB-01	VP40E	VP40E	1556
07				
08				
09				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

COMMENTS :



ORGANICS ANALYSIS DATA SHEET

Volatiles by Purge & Trap GC/MS-Method SW8260C

Sample ID: MB-103012A

METHOD BLANK

Page 1 of 1

Lab Sample ID: MB-103012A

QC Report No: VP40-Anchor QEA LLC

LIMS ID: 12-21291

Project: Central Waterfront Shoreline Inves.

Matrix: Soil

Data Release Authorized: *MMW*

Date Sampled: NA

Reported: 11/01/12

Date Received: NA

Instrument/Analyst: NT5/PAB

Sample Amount: 5.00 g-dry-wt

Date Analyzed: 10/30/12 12:29

Purge Volume: 5.0 mL

Moisture: NA

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.0	< 1.0	U
108-88-3	Toluene	1.0	< 1.0	U
100-41-4	Ethylbenzene	1.0	< 1.0	U
179601-23-1	m,p-Xylene	1.0	< 1.0	U
95-47-6	o-Xylene	1.0	< 1.0	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	84.0%
d8-Toluene	97.6%
Bromofluorobenzene	98.8%
d4-1,2-Dichlorobenzene	97.6%

ORGANICS ANALYSIS DATA SHEET

Volatiles by Purge & Trap GC/MS-Method SW8260C

Sample ID: MB-103012A

Page 1 of 1

METHOD BLANK

Lab Sample ID: MB-103012A

QC Report No: VP41-Anchor QEA LLC

LIMS ID: 12-21288

Project: Central Waterfront Shoreline Inves.

Matrix: Water

Data Release Authorized: *mw*

Date Sampled: NA

Reported: 11/07/12

Date Received: NA

Instrument/Analyst: NT5/PAB

Sample Amount: 5.00 mL

Date Analyzed: 10/30/12 12:29

Purge Volume: 5.0 mL

CAS Number	Analyte	LOQ	Result	Q
71-43-2	Benzene	1.0	< 1.0	U
108-88-3	Toluene	1.0	< 1.0	U
100-41-4	Ethylbenzene	1.0	< 1.0	U
179601-23-1	m,p-Xylene	2.0	< 2.0	U
95-47-6	o-Xylene	1.0	< 1.0	U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	84.0%
d8-Toluene	97.6%
Bromofluorobenzene	98.8%
d4-1,2-Dichlorobenzene	97.6%

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ANALYTICAL RESOURCES INC Contract: ANCHOR QEA LLC
 Lab Code: ARI Case No.: CENTRAL WATERFRONT SDG No.: VP40
 Lab File ID: BFB1024A BFB Injection Date: 10/24/12
 Instrument ID: NT5 BFB Injection Time: 0905
 GC Column: RTXVMS ID: 0.18 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	18.9
75	30.0 - 66.0% of mass 95	45.2
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.5
173	Less than 2.0% of mass 174	0.2 (0.3)1
174	50.0 - 101.0% of mass 95	81.9
175	4.0 - 9.0% of mass 174	6.0 (7.3)1
176	95.0 - 101.0% of mass 174	80.2 (97.9)1
177	5.0 - 9.0% of mass 176	5.3 (6.5)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD5	IC1024	0051024	10/24/12	1026
02	VSTD10	IC1024	0101024	10/24/12	1049
03	VSTD50	IC1024	0501024	10/24/12	1112
04	VSTD100	IC1024	1001024	10/24/12	1135
05	VSTD125	IC1024	1251024	10/24/12	1241
06	VSTD1	IC1024	0011024	10/24/12	1343
07	VSTD2	IC1024	0021024	10/24/12	1419
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ANALYTICAL RESOURCES INC Contract: ANCHOR QEA LLC
 Lab Code: ARI Case No.: CENTRAL WATERFRONT SDG No.: VP40
 Lab File ID: BFB1030 BFB Injection Date: 10/30/12
 Instrument ID: NT5 BFB Injection Time: 1009
 GC Column: RTXVMS ID: 0.18 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	19.3
75	30.0 - 66.0% of mass 95	45.5
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.3
173	Less than 2.0% of mass 174	0.2 (0.2)1
174	50.0 - 101.0% of mass 95	84.2
175	4.0 - 9.0% of mass 174	6.1 (7.3)1
176	95.0 - 101.0% of mass 174	81.2 (96.5)1
177	5.0 - 9.0% of mass 176	5.3 (6.5)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD50	CC1030	CC1030	10/30/12	1044
02	LCS1030	LCS1030	LCS1030	10/30/12	1144
03	LCS1030	LCS1030	LCS1030A	10/30/12	1207
04	MB1030	MB1030	MB1030	10/30/12	1229
05	CWS1-04-2-4	VP40A	VP40A	10/30/12	1448
06	CWS1-04-6-8	VP40B	VP40B	10/30/12	1511
07	CWS1-04-13.5-15	VP40C	VP40C	10/30/12	1533
08	CWS1-TB-01	VP40E	VP40E	10/30/12	1556
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ANALYTICAL RESOURCES INC Contract: ANCHOR QEA LLC
 Lab Code: ARI Case No.: CENTRAL WATERFRONT SDG No.: VP41
 Lab File ID: BFB1030 BFB Injection Date: 10/30/12
 Instrument ID: NT5 BFB Injection Time: 1009
 GC Column: RTXVMS ID: 0.18 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	19.3
75	30.0 - 66.0% of mass 95	45.5
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.3
173	Less than 2.0% of mass 174	0.2 (0.2)1
174	50.0 - 101.0% of mass 95	84.2
175	4.0 - 9.0% of mass 174	6.1 (7.3)1
176	95.0 - 101.0% of mass 174	81.2 (96.5)1
177	5.0 - 9.0% of mass 176	5.3 (6.5)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD50	CC1030	CC1030	10/30/12	1044
02	LCS1030	LCS1030	LCS1030	10/30/12	1144
03	LCS1030	LCS1030	LCS1030A	10/30/12	1207
04	MB1030	MB1030	MB1030	10/30/12	1229
05	CWS1-02-1-3	VP41A	VP41A	10/30/12	1619
06	CWS1-02-7-8	VP41B	VP41B	10/30/12	1642
07	CWS1-02-12-13	VP41C	VP41C	10/30/12	1704
08	CWS1-01-3-5	VP41D	VP41D	10/30/12	1727
09	CWS1-01-11-13	VP41E	VP41E	10/30/12	1750
10	CWS1-03-2-4	VP41G	VP41G	10/30/12	1813
11	CWS1-03-7-9	VP41H	VP41H	10/30/12	1835
12	CWS1-TB-01	VP41J	VP41J	10/30/12	1858
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC

Client: ANCHOR QEA LLC

ARI Job No: VP40

Project: CENTRAL WATERFRONT

Instrument ID: NT5

Calibration Date: 10/24/12

LAB FILE ID: RF1: 0011024

RF2: 0021024

RF5: 0051024

RF10: 0101024

RF50: 0501024

COMPOUND	RF1	RF2	RF5	RF10	RF50
Chloromethane	1.444	1.371	1.668	1.524	1.304
Vinyl Chloride	1.234	1.445	1.530	1.512	1.280
Bromomethane	0.855	0.903	0.855	0.778	0.585
Chloroethane	0.933	0.859	0.799	0.866	0.541
Trichlorofluoromethane	1.274	1.251	1.094	1.427	0.783
Acrolein	0.177	0.178	0.197	0.084	0.187
1,1,1-Trichloroethane	0.811	0.956	0.913	0.602	0.705
Acetone	0.382	0.284	0.272	0.241	0.248
1,1-Dichloroethene	0.899	0.966	1.010	0.661	0.758
Bromoethane	0.622	0.696	0.728	0.428	0.556
Iodomethane	0.516	0.560	0.722	0.465	0.901
Methylene Chloride	0.998	1.089	1.076	1.016	0.886
Acrylonitrile	0.357	0.332	0.393	0.381	0.367
Carbon Disulfide	2.919	3.367	3.325	2.170	2.635
Trans-1,2-Dichloroethene	0.955	1.118	1.108	1.052	0.863
Vinyl Acetate	1.515	1.532	1.721	1.699	1.623
1,1-Dichloroethane	1.830	2.142	2.200	2.120	1.749
2-Butanone	0.103	0.099	0.111	0.113	0.108
2,2-Dichloropropane	1.542	1.690	1.767	1.694	1.373
Cis-1,2-Dichloroethene	0.944	1.269	1.162	1.119	0.935
Chloroform	1.681	1.847	1.930	1.894	1.574
Bromochloromethane	0.487	0.520	0.543	0.529	0.461
1,1,1-Trichloroethane	1.477	1.728	1.753	1.688	1.355
1,1-Dichloropropene	0.504	0.547	0.532	0.526	0.424
Carbon Tetrachloride	0.388	0.462	0.454	0.445	0.362
1,2-Dichloroethane	0.429	0.457	0.481	0.473	0.407
Benzene	1.401	1.588	1.596	1.611	1.294
Trichloroethene	0.349	0.392	0.388	0.374	0.308
1,2-Dichloropropane	0.367	0.431	0.425	0.427	0.362
Bromodichloromethane	0.394	0.450	0.450	0.450	0.396
Dibromomethane	0.169	0.177	0.192	0.190	0.171
2-Chloroethyl Vinyl Ether	0.156	0.149	0.181	0.185	0.177
4-Methyl-2-Pentanone	0.116	0.127	0.143	0.148	0.144
Cis 1,3-dichloropropene	0.530	0.574	0.594	0.588	0.526
Toluene	0.997	1.060	1.021	1.017	0.823
Trans 1,3-Dichloropropene	0.459	0.474	0.508	0.521	0.470
2-Hexanone	0.161	0.161	0.182	0.186	0.182

FORM VI VOA

VP40: 00050

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC

Client: ANCHOR QEA LLC

ARI Job No: VP40

Project: CENTRAL WATERFRONT

Instrument ID: NT5

Calibration Date: 10/24/12

LAB FILE ID: RF1: 0011024

RF2: 0021024

RF5: 0051024

RF10: 0101024

RF50: 0501024

COMPOUND	RF1	RF2	RF5	RF10	RF50
1,1,2-Trichloroethane	0.260	0.276	0.292	0.292	0.261
1,3-Dichloropropane	0.366	0.379	0.409	0.417	0.369
Tetrachloroethene	0.280	0.324	0.307	0.306	0.244
Chlorodibromomethane	0.200	0.228	0.224	0.236	0.214
1,2-Dibromoethane	0.251	0.255	0.268	0.275	0.253
Chlorobenzene	0.714	0.819	0.778	0.775	0.646
Ethyl Benzene	1.371	1.474	1.435	1.442	1.142
1,1,1,2-Tetrachloroethane	0.213	0.252	0.256	0.256	0.218
m,p-xylene	0.508	0.533	0.535	0.532	0.430
o-Xylene	0.443	0.508	0.501	0.503	0.423
Styrene	0.760	0.803	0.827	0.854	0.719
Bromoform	0.236	0.256	0.263	0.283	0.254
1,1,2,2-Tetrachloroethane	0.420	0.464	0.474	0.510	0.448
1,2,3-Trichloropropane	0.132	0.142	0.143	0.150	0.134
Trans-1,4-Dichloro 2-Butene	0.160	0.168	0.172	0.179	0.168
N-Propyl Benzene	2.672	2.978	2.819	2.897	2.228
Bromobenzene	0.595	0.584	0.548	0.569	0.468
Isopropyl Benzene	2.179	2.410	2.298	2.425	1.890
2-Chloro Toluene	1.596	1.766	1.667	1.744	1.369
4-Chloro Toluene	1.685	1.824	1.733	1.788	1.424
T-Butyl Benzene	1.552	1.743	1.673	1.773	1.380
1,3,5-Trimethyl Benzene	1.802	1.975	1.931	1.975	1.583
1,2,4-Trimethylbenzene	1.796	1.998	1.882	1.961	1.580
S-Butyl Benzene	2.398	2.635	2.482	2.589	2.035
4-Isopropyl Toluene	1.953	2.122	2.032	2.085	1.685
1,3-Dichlorobenzene	1.113	1.142	1.065	1.075	0.877
1,4-Dichlorobenzene	1.170	1.223	1.087	1.097	0.896
N-Butyl Benzene	1.952	2.114	1.975	1.950	1.582
1,2-Dichlorobenzene	1.038	1.091	0.998	1.037	0.848
1,2-Dibromo 3-Chloropropane	0.086	0.075	0.078	0.085	0.082
1,2,4-Trichlorobenzene	0.854	0.800	0.703	0.699	0.618
Hexachloro 1,3-Butadiene	0.482	0.508	0.456	0.435	0.357
Naphthalene	1.945	1.507	1.478	1.545	1.421
1,2,3-Trichlorobenzene	0.790	0.683	0.660	0.647	0.585
Dichlorodifluoromethane	0.760	1.001	1.080	0.949	0.850
Methyl tert butyl ether	2.338	2.656	2.911	2.848	2.614

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC

Client: ANCHOR QEA LLC

ARI Job No: VP40

Project: CENTRAL WATERFRONT

Instrument ID: NT5

Calibration Date: 10/24/12

LAB FILE ID: RF1: 0011024

RF2: 0021024

RF5: 0051024

RF10: 0101024

RF50: 0501024

COMPOUND	RF1	RF2	RF5	RF10	RF50
d4-1,2-Dichloroethane	0.954	0.962	1.003	0.987	0.982
d8-Toluene	1.447	1.440	1.440	1.435	1.458
4-Bromofluorobenzene	0.554	0.556	0.561	0.553	0.557
d4-1,2-Dichlorobenzene	0.946	0.963	0.952	0.958	0.942
Dibromofluoromethane	0.988	1.015	1.029	0.998	1.024

FORM VI VOA

VP40 00052

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC

Client: ANCHOR QEA LLC

ARI Job No: VP40

Project: CENTRAL WATERFRONT

Instrument ID: NT5

Calibration Date: 10/24/12

LAB FILE ID: RF100: 1001024 RF125: 1251024

COMPOUND	RF100	RF125
Chloromethane	1.626	1.715
Vinyl Chloride	1.617	1.703
Bromomethane	0.693	0.734
Chloroethane	0.644	0.886
Trichlorofluoromethane	0.964	1.264
Acrolein	0.196	0.189
1,1,1-Trichloro-2,2,2-Trifluoroethane	0.871	0.569
Acetone	0.254	0.246
1,1-Dichloroethene	0.900	0.592
Bromoethane	0.658	0.682
Iodomethane		
Methylene Chloride	1.011	1.027
Acrylonitrile	0.394	0.381
Carbon Disulfide	3.088	
Trans-1,2-Dichloroethene	1.054	1.133
Vinyl Acetate	1.744	1.738
1,1-Dichloroethane	2.106	2.225
2-Butanone	0.119	0.112
2,2-Dichloropropane	1.717	1.868
Cis-1,2-Dichloroethene	1.109	1.317
Chloroform	1.896	1.965
Bromochloromethane	0.539	0.542
1,1,1-Trichloroethane	1.705	1.811
1,1-Dichloropropene	0.536	0.581
Carbon Tetrachloride	0.460	0.492
1,2-Dichloroethane	0.473	0.468
Benzene	1.562	1.599
Trichloroethene	0.380	0.407
1,2-Dichloropropane	0.437	0.444
Bromodichloromethane	0.471	0.474
Dibromomethane	0.195	0.190
2-Chloroethyl Vinyl Ether	0.206	0.199
4-Methyl-2-Pentanone	0.155	0.142
Cis 1,3-dichloropropene	0.617	0.624
Toluene	0.982	0.982
Trans 1,3-Dichloropropene	0.539	0.534
2-Hexanone	0.192	0.180

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC

Client: ANCHOR QEA LLC

ARI Job No: VP40

Project: CENTRAL WATERFRONT

Instrument ID: NT5

Calibration Date: 10/24/12

LAB FILE ID: RF100: 1001024 RF125: 1251024

COMPOUND	RF100	RF125
1,1,2-Trichloroethane	0.295	0.286
1,3-Dichloropropane	0.417	0.418
Tetrachloroethene	0.300	0.337
Chlorodibromomethane	0.249	0.248
1,2-Dibromoethane	0.284	0.274
Chlorobenzene	0.750	0.777
Ethyl Benzene	1.293	1.155
1,1,1,2-Tetrachloroethane	0.241	0.194
m,p-xylene	0.382	
o-Xylene	0.504	0.502
Styrene	0.754	
Bromoform	0.310	
1,1,2,2-Tetrachloroethane	0.548	
1,2,3-Trichloropropane	0.163	
Trans-1,4-Dichloro 2-Butene	0.168	
N-Propyl Benzene	2.879	
Bromobenzene	0.605	
Isopropyl Benzene	2.491	
2-Chloro Toluene	1.784	
4-Chloro Toluene	1.689	1.692
T-Butyl Benzene	1.842	
1,3,5-Trimethyl Benzene	2.020	2.392
1,2,4-Trimethylbenzene	1.955	2.201
S-Butyl Benzene	2.486	2.676
4-Isopropyl Toluene	2.149	
1,3-Dichlorobenzene	1.005	1.281
1,4-Dichlorobenzene	0.964	1.133
N-Butyl Benzene	2.091	
1,2-Dichlorobenzene	1.036	
1,2-Dibromo 3-Chloropropane	0.095	
1,2,4-Trichlorobenzene	0.759	
Hexachloro 1,3-Butadiene	0.478	
Naphthalene	1.614	
1,2,3-Trichlorobenzene	0.690	
Dichlorodifluoromethane	1.110	1.173
Methyl tert butyl ether	2.897	2.858

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC

Client: ANCHOR QEA LLC

ARI Job No: VP40

Project: CENTRAL WATERFRONT

Instrument ID: NT5

Calibration Date: 10/24/12

LAB FILE ID: RF100: 1001024 RF125: 1251024

COMPOUND	RF100	RF125
d4-1,2-Dichloroethane	0.985	0.958
d8-Toluene	1.448	1.434
4-Bromofluorobenzene	0.562	0.553
d4-1,2-Dichlorobenzene	1.032	
Dibromofluoromethane	1.024	1.020

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC

Client: ANCHOR QEA LLC

ARI Job No: VP40

Project: CENTRAL WATERFRONT

Instrument ID: NT5

Calibration Date: 10/24/12

COMPOUND	CURVE TYPE	AVE RF	%RSD OR R ²
Chloromethane	AVRG	1.522	10.2
Vinyl Chloride	AVRG	1.475	11.5
Bromomethane	AVRG	0.772	14.3
Chloroethane	AVRG	0.790	18.2
Trichlorofluoromethane	AVRG	1.151	19.0
Acrolein	LINR		0.9973
1,1,1-Trichloro-2,2,2-Trifluoroethane	AVRG	0.775	19.6
Acetone	AVRG	0.275	17.9
1,1-Dichloroethene	AVRG	0.827	19.2
Bromoethane	AVRG	0.624	16.4
Iodomethane	LINR		0.9920
Methylene Chloride	AVRG	1.015	6.5
Acrylonitrile	AVRG	0.372	6.0
Carbon Disulfide	AVRG	2.917	15.6
Trans-1,2-Dichloroethene	AVRG	1.040	9.5
Vinyl Acetate	AVRG	1.653	5.9
1,1-Dichloroethane	AVRG	2.053	9.1
2-Butanone	AVRG	0.109	6.1
2,2-Dichloropropane	AVRG	1.664	9.7
Cis-1,2-Dichloroethene	AVRG	1.122	13.0
Chloroform	AVRG	1.827	7.9
Bromochloromethane	AVRG	0.517	6.1
1,1,1-Trichloroethane	AVRG	1.645	10.0
1,1-Dichloropropene	AVRG	0.521	9.4
Carbon Tetrachloride	AVRG	0.438	10.4
1,2-Dichloroethane	AVRG	0.455	6.0
Benzene	AVRG	1.522	8.1
Trichloroethene	AVRG	0.371	8.9
1,2-Dichloropropane	AVRG	0.413	8.2
Bromodichloromethane	AVRG	0.441	7.4
Dibromomethane	AVRG	0.183	5.9
2-Chloroethyl Vinyl Ether	AVRG	0.179	11.6
4-Methyl-2-Pentanone	AVRG	0.139	9.6
Cis 1,3-dichloropropene	AVRG	0.579	6.7
Toluene	AVRG	0.983	7.7
Trans 1,3-Dichloropropene	AVRG	0.501	6.5
2-Hexanone	AVRG	0.178	6.8

<- Indicates value outside QC limits:
(%RSD < 20% or R² > 0.990)

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC

Client: ANCHOR QEA LLC

ARI Job No: VP40

Project: CENTRAL WATERFRONT

Instrument ID: NT5

Calibration Date: 10/24/12

COMPOUND	CURVE TYPE	AVE RF	%RSD OR R^2
1,1,2-Trichloroethane	AVRG	0.280	5.4
1,3-Dichloropropane	AVRG	0.396	6.1
Tetrachloroethene	AVRG	0.300	10.2
Chlorodibromomethane	AVRG	0.228	7.8
1,2-Dibromoethane	AVRG	0.266	4.8
Chlorobenzene	AVRG	0.751	7.5
Ethyl Benzene	AVRG	1.330	10.3
1,1,1,2-Tetrachloroethane	AVRG	0.233	10.5
m,p-xylene	AVRG	0.487	13.4
o-Xylene	AVRG	0.484	7.2
Styrene	AVRG	0.786	6.4
Bromoform	AVRG	0.267	9.7
1,1,2,2-Tetrachloroethane	AVRG	0.477	9.5
1,2,3-Trichloropropane	AVRG	0.144	7.9
Trans-1,4-Dichloro 2-Butene	AVRG	0.169	3.5
N-Propyl Benzene	AVRG	2.746	10.0
Bromobenzene	AVRG	0.561	8.9
Isopropyl Benzene	AVRG	2.282	9.7
2-Chloro Toluene	AVRG	1.654	9.4
4-Chloro Toluene	AVRG	1.691	7.6
T-Butyl Benzene	AVRG	1.661	10.2
1,3,5-Trimethyl Benzene	AVRG	1.954	12.5
1,2,4-Trimethylbenzene	AVRG	1.910	10.0
S-Butyl Benzene	AVRG	2.472	8.7
4-Isopropyl Toluene	AVRG	2.004	8.5
1,3-Dichlorobenzene	AVRG	1.080	11.5
1,4-Dichlorobenzene	AVRG	1.081	10.6
N-Butyl Benzene	AVRG	1.944	9.8
1,2-Dichlorobenzene	AVRG	1.008	8.3
1,2-Dibromo 3-Chloropropane	AVRG	0.084	8.3
1,2,4-Trichlorobenzene	AVRG	0.739	11.3
Hexachloro 1,3-Butadiene	AVRG	0.453	11.7
Naphthalene	AVRG	1.585	11.9
1,2,3-Trichlorobenzene	AVRG	0.676	9.9
Dichlorodifluoromethane	AVRG	0.989	14.9
Methyl tert butyl ether	AVRG	2.732	7.7

<- Indicates value outside QC limits:
(%RSD < 20% or R^2 > 0.990)

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC

Client: ANCHOR QEA LLC

ARI Job No: VP40

Project: CENTRAL WATERFRONT

Instrument ID: NT5

Calibration Date: 10/24/12

COMPOUND	CURVE TYPE	AVE RF	%RSD OR R ²
d4-1,2-Dichloroethane	AVRG	0.976	1.9
d8-Toluene	AVRG	1.443	0.6
4-Bromofluorobenzene	AVRG	0.557	0.6
d4-1,2-Dichlorobenzene	AVRG	0.966	3.5
Dibromofluoromethane	AVRG	1.014	1.5

<- Indicates value outside QC limits:
(%RSD < 20% or R² > 0.990)

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC

Client: ANCHOR QEA LLC

ARI Job No: VP40

Project: CENTRAL WATERFRONT

Instrument ID: NT5

Cont. Calib. Date: 10/30/12

Init. Calib. Date: 10/24/12

Cont. Calib. Time: 1044

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
Chloromethane	1.522	1.4714	0.100	AVRG	-3.3
Vinyl Chloride	1.474	1.4651	0.010	AVRG	-0.6
Bromomethane	0.772	0.6338	0.010	AVRG	-17.9
Chloroethane	0.790	0.8382	0.010	AVRG	6.1
Trichlorofluoromethane	1.151	1.3262	0.010	AVRG	15.2
Acrolein	250.00	232.78	0.010	LINR	-6.9
1,1,2-Trichloro-1,2,2-Trifluoroethane	0.775	0.6092	0.010	AVRG	-21.4 <-
Acetone	0.275	0.2296	0.010	AVRG	-16.5
1,1-Dichloroethene	0.826	0.6306	0.010	AVRG	-23.6 <-
Bromoethane	0.624	0.5894	0.010	AVRG	-5.5
Iodomethane	50.000	43.827	0.010	LINR	-12.3
Methylene Chloride	1.015	0.9721	0.010	AVRG	-4.2
Acrylonitrile	0.372	0.3524	0.010	AVRG	-5.3
Carbon Disulfide	2.917	2.2033	0.010	AVRG	-24.5 <-
Trans-1,2-Dichloroethene	1.040	0.9824	0.010	AVRG	-5.5
Vinyl Acetate	1.653	1.5820	0.010	AVRG	-4.3
1,1-Dichloroethane	2.053	1.9635	0.100	AVRG	-4.4
2-Butanone	0.109	0.0983	0.010	AVRG	-9.8
2,2-Dichloropropane	1.664	1.5884	0.010	AVRG	-4.5
Cis-1,2-Dichloroethene	1.122	1.1548	0.010	AVRG	2.9
Chloroform	1.827	1.7472	0.010	AVRG	-4.4
Bromochloromethane	0.517	0.4884	0.010	AVRG	-5.5
1,1,1-Trichloroethane	1.645	1.5731	0.010	AVRG	-4.4
1,1-Dichloropropene	0.521	0.5740	0.010	AVRG	10.2
Carbon Tetrachloride	0.438	0.5150	0.010	AVRG	17.6
1,2-Dichloroethane	0.455	0.5049	0.010	AVRG	11.0
Benzene	1.522	1.7226	0.010	AVRG	13.2
Trichloroethene	0.371	0.4204	0.010	AVRG	13.3
1,2-Dichloropropane	0.413	0.4658	0.010	AVRG	12.8
Bromodichloromethane	0.441	0.5134	0.010	AVRG	16.4
Dibromomethane	0.183	0.2044	0.010	AVRG	11.7
2-Chloroethyl Vinyl Ether	0.179	0.2024	0.010	AVRG	13.1
4-Methyl-2-Pentanone	0.139	0.1594	0.010	AVRG	14.7
Cis 1,3-dichloropropene	0.579	0.6612	0.010	AVRG	14.2
Toluene	0.983	1.0749	0.010	AVRG	9.3
Trans 1,3-Dichloropropene	0.501	0.5810	0.010	AVRG	16.0
2-Hexanone	0.178	0.2060	0.010	AVRG	15.7

<- Exceeds QC limit of 20% D

* RF less than minimum RF

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC

Client: ANCHOR QEA LLC

ARI Job No: VP40

Project: CENTRAL WATERFRONT

Instrument ID: NT5

Cont. Calib. Date: 10/30/12

Init. Calib. Date: 10/24/12

Cont. Calib. Time: 1044

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
1,1,2-Trichloroethane	0.280	0.3113	0.010	AVRG	11.2
1,3-Dichloropropane	0.396	0.4533	0.010	AVRG	14.5
Tetrachloroethene	0.300	0.3362	0.010	AVRG	12.1
Chlorodibromomethane	0.228	0.2737	0.010	AVRG	20.0 <-
1,2-Dibromoethane	0.266	0.2922	0.010	AVRG	9.8
Chlorobenzene	0.751	0.8470	0.300	AVRG	12.8
Ethyl Benzene	1.330	1.5502	0.010	AVRG	16.6
1,1,1,2-Tetrachloroethane	0.233	0.2937	0.010	AVRG	26.0 <-
m,p-xylene	0.487	0.5814	0.010	AVRG	19.4
o-Xylene	0.483	0.5567	0.010	AVRG	15.2
Styrene	0.786	0.9415	0.010	AVRG	19.8
Bromoform	0.267	0.3277	0.100	AVRG	22.7 <-
1,1,2,2-Tetrachloroethane	0.477	0.5024	0.300	AVRG	5.3
1,2,3-Trichloropropane	0.144	0.1572	0.010	AVRG	9.2
Trans-1,4-Dichloro 2-Butene	0.169	0.1916	0.010	AVRG	13.4
N-Propyl Benzene	2.746	3.1039	0.010	AVRG	13.0
Bromobenzene	0.562	0.6119	0.010	AVRG	8.9
Isopropyl Benzene	2.282	2.5748	0.010	AVRG	12.8
2-Chloro Toluene	1.654	1.8500	0.010	AVRG	11.8
4-Chloro Toluene	1.691	1.9217	0.010	AVRG	13.6
T-Butyl Benzene	1.660	1.8868	0.010	AVRG	13.7
1,3,5-Trimethyl Benzene	1.954	2.1640	0.010	AVRG	10.7
1,2,4-Trimethylbenzene	1.910	2.1310	0.010	AVRG	11.6
S-Butyl Benzene	2.472	2.8270	0.010	AVRG	14.4
4-Isopropyl Toluene	2.004	2.3409	0.010	AVRG	16.8
1,3-Dichlorobenzene	1.080	1.1799	0.010	AVRG	9.2
1,4-Dichlorobenzene	1.081	1.1974	0.010	AVRG	10.8
N-Butyl Benzene	1.944	2.2661	0.010	AVRG	16.6
1,2-Dichlorobenzene	1.008	1.1131	0.010	AVRG	10.4
1,2-Dibromo 3-Chloropropane	0.084	0.0942	0.010	AVRG	12.1
1,2,4-Trichlorobenzene	0.739	0.8250	0.010	AVRG	11.6
Hexachloro 1,3-Butadiene	0.453	0.5121	0.010	AVRG	13.0
Naphthalene	1.585	1.6848	0.010	AVRG	6.3
1,2,3-Trichlorobenzene	0.676	0.7433	0.010	AVRG	10.0
Dichlorodifluoromethane	0.989	0.9510	0.010	AVRG	-3.8
Methyl tert butyl ether	2.732	2.5913	0.010	AVRG	-5.2

<- Exceeds QC limit of 20% D

* RF less than minimum RF

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC

Client: ANCHOR QEA LLC

ARI Job No: VP40

Project: CENTRAL WATERFRONT

Instrument ID: NT5

Cont. Calib. Date: 10/30/12

Init. Calib. Date: 10/24/12

Cont. Calib. Time: 1044

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
d4-1,2-Dichloroethane	0.976	0.8177	0.010	AVRG	-16.2
d8-Toluene	1.443	1.4045	0.010	AVRG	-2.7
4-Bromofluorobenzene	0.556	0.5528	0.010	AVRG	-0.6
d4-1,2-Dichlorobenzene	0.966	0.9408	0.010	AVRG	-2.6
Dibromofluoromethane	1.014	0.8210	0.010	AVRG	-19.0

<- Exceeds QC limit of 20% D

* RF less than minimum RF

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC

Client: ANCHOR QEA LLC

ARI Job No: VP40

Project: CENTRAL WATERFRONT

Ical Midpoint ID: 0101024

Ical Date: 10/24/12

Instrument ID: NT5

Project Run Date: 10/30/12

	IS1 (PFB) AREA #	RT #	IS2 (DFB) AREA #	RT #	IS3 (CLB) AREA #	RT #
ICAL MIDPT	293920	4.68	892488	5.14	1156383	7.62
UPPER LIMIT	587840	5.18	1784976	5.64	2312766	8.12
LOWER LIMIT	146960	4.18	446244	4.64	578192	7.12
Sample ID						
01 LCS1030	281144	4.68	728785	5.14	926713	7.62
02 LCS1030	293996	4.68	771703	5.13	989066	7.62
03 MB1030	283552	4.68	735942	5.13	948724	7.62
04 CWS1-04-2-4	259219	4.68	676457	5.14	852470	7.62
05 CWS1-04-6-8	272402	4.68	714787	5.13	926552	7.62
06 CWS1-04-13.5	259707	4.69	662239	5.14	816943	7.62
07 CWS1-TB-01	291259	4.68	762172	5.13	988136	7.62
08						
09						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						

IS1 (PFB) = Pentafluorobenzene
 IS2 (DFB) = 1,4-Difluorobenzene
 IS3 (CLB) = d5-Chlorobenzene

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
 AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Ical midpoint
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Ical midpoint

* Values outside of QC limits.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC

Client: ANCHOR QEA LLC

ARI Job No: VP40

Project: CENTRAL WATERFRONT

Ical Midpoint ID: 0101024

Ical Date: 10/24/12

Instrument ID: NT5

Project Run Date: 10/30/12

	IS4 (DCB)					
	AREA #	RT #	AREA #	RT #	AREA #	RT #
=====	=====	=====	=====	=====	=====	=====
ICAL MIDPT	634885	9.69				
UPPER LIMIT	1269770	10.19				
LOWER LIMIT	317442	9.19				
=====	=====	=====	=====	=====	=====	=====
Sample ID						
=====	=====	=====	=====	=====	=====	=====
01 LCS1030	518650	9.70				
02 LCS1030	558943	9.70				
03 MB1030	529698	9.69				
04 CWS1-04-2-4	405617	9.69				
05 CWS1-04-6-8	486663	9.69				
06 CWS1-04-13.5	394940	9.69				
07 CWS1-TB-01	560083	9.69				
08						
09						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						

IS4 (DCB) = d4-1,4-Dichlorobenzene

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
 AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Ical midpoint
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Ical midpoint

* Values outside of QC limits.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC

Client: ANCHOR QEA LLC

ARI Job No: VP41

Project: CENTRAL WATERFRONT

Ical Midpoint ID: 0101024

Ical Date: 10/24/12

Instrument ID: NT5

Project Run Date: 10/30/12

	IS1 (PFB) AREA #	RT #	IS2 (DFB) AREA #	RT #	IS3 (CLB) AREA #	RT #
ICAL MIDPT	293920	4.68	892488	5.14	1156383	7.62
UPPER LIMIT	587840	5.18	1784976	5.64	2312766	8.12
LOWER LIMIT	146960	4.18	446244	4.64	578192	7.12
Sample ID						
01 LCS1030	281144	4.68	728785	5.14	926713	7.62
02 LCS1030	293996	4.68	771703	5.13	989066	7.62
03 MB1030	283552	4.68	735942	5.13	948724	7.62
04 CWS1-02-1-3	270300	4.68	714760	5.14	932213	7.62
05 CWS1-02-7-8	286832	4.68	743076	5.13	966241	7.62
06 CWS1-02-12-1	248762	4.69	643835	5.14	799411	7.62
07 CWS1-01-3-5	280567	4.68	723986	5.13	891501	7.62
08 CWS1-01-11-1	262779	4.68	688951	5.14	890828	7.62
09 CWS1-03-2-4	280441	4.68	728272	5.14	951630	7.62
10 CWS1-03-7-9	272294	4.69	711723	5.14	883795	7.62
11 CWS1-TB-01	295739	4.68	774119	5.13	1014738	7.62
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						

IS1 (PFB) = Pentafluorobenzene
 IS2 (DFB) = 1,4-Difluorobenzene
 IS3 (CLB) = d5-Chlorobenzene

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
 AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Ical midpoint
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Ical midpoint

* Values outside of QC limits.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC

Client: ANCHOR QEA LLC

ARI Job No: VP41

Project: CENTRAL WATERFRONT

Ical Midpoint ID: 0101024

Ical Date: 10/24/12

Instrument ID: NT5

Project Run Date: 10/30/12

	IS4 (DCB)					
	AREA #	RT #	AREA #	RT #	AREA #	RT #
=====	=====	=====	=====	=====	=====	=====
ICAL MIDPT	634885	9.69				
UPPER LIMIT	1269770	10.19				
LOWER LIMIT	317442	9.19				
=====	=====	=====	=====	=====	=====	=====
Sample ID						
=====	=====	=====	=====	=====	=====	=====
01 LCS1030	518650	9.70				
02 LCS1030	558943	9.70				
03 MB1030	529698	9.69				
04 CWS1-02-1-3	530003	9.69				
05 CWS1-02-7-8	521599	9.69				
06 CWS1-02-12-1	365477	9.69				
07 CWS1-01-3-5	399561	9.69				
08 CWS1-01-11-1	469651	9.69				
09 CWS1-03-2-4	530921	9.69				
10 CWS1-03-7-9	404158	9.69				
11 CWS1-TB-01	592309	9.69				
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						

IS4 (DCB) = d4-1,4-Dichlorobenzene

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
 AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Ical midpoint
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Ical midpoint

* Values outside of QC limits.

**TPHD Analysis
Report and Summary QC Forms**

ARI Job ID: VP40, VP41

**ORGANICS ANALYSIS DATA SHEET
TOTAL DIESEL RANGE HYDROCARBONS**

NWTPHD by GC/FID-Silica and Acid Cleaned
Extraction Method: SW3546
Page 1 of 1

QC Report No: VP40-Anchor QEA LLC
Project: Central Waterfront Shoreline In

Matrix: Soil
Data Release Authorized: *MW*
Reported: 11/05/12

ARI ID	Sample ID	Extraction Date	Analysis Date	EFV DL	Range/Surrogate	RL	Result
MB-103012 12-21289	Method Blank HC ID: ---	10/30/12	10/31/12 FID4A	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	5.0 10	< 5.0 U < 10 U 86.3%
VP40A 12-21289	CWS1-04-2-4 HC ID: DIESEL/MOTOR OIL	10/30/12	10/31/12 FID4A	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	6.0 12	67 97 72.2%
VP40B 12-21290	CWS1-04-6-8 HC ID: DIESEL/MOTOR OIL	10/30/12	10/31/12 FID4A	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	6.2 12	24 37 74.8%
VP40C 12-21291	CWS1-04-13.5-15 HC ID: DIESEL/MOTOR OIL	10/30/12	11/01/12 FID4A	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	5.8 12	200 260 63.3%

Reported in mg/kg (ppm)

EFV-Effective Final Volume in mL.
DL-Dilution of extract prior to analysis.
RL-Reporting limit.

Diesel range quantitation on total peaks in the range from C12 to C24.
Motor Oil range quantitation on total peaks in the range from C24 to C38.
HC ID: DRO/RRO indicate results of organics or additional hydrocarbons in ranges are not identifiable.

Analytical Resources Inc.
TPH Quantitation Report

Data file: /chem3/fid4a.i/20121031b.b/1031a034.d ARI ID: VP40MBS1
 Method: /chem3/fid4a.i/20121031b.b/ftphfid4a.m Client ID:
 Instrument: fid4a.i Injection: 31-OCT-2012 19:57
 Operator: JR/VTS
 Report Date: 11/03/2012 Dilution Factor: 1
 Macro: 31-OCT-2012
 Calibration Dates: Gas:28-SEP-2012 Diesel:31-OCT-2012 M.Oil:09-OCT-2012

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc
Toluene	1.237	0.004	2754	4279	WATPHG	(Tol-C12)	236194	12.75
C8	1.459	-0.003	1044	1634	WATPHD	(C12-C24)	202643	13.60
C10	3.123	0.005	489	446	WATPHM	(C24-C38)	99904	<u>7.60</u>
C12	4.018	-0.013	337	360	AK102	(C10-C25)	230426	13.11
C14	4.723	0.010	1563	2608	AK103	(C25-C36)	80459	8.74
C16	5.303	0.002	1813	2276	OR.DIES	(C10-C28)	254509	14.42
C18	5.857	-0.003	1594	1022				
C20	6.424	0.000	1310	2539	JET-A	(C10-C18)	164386	30.35
C22	6.975	0.000	1191	1384	MIN.OIL	(C24-C38)	99904	7.43
C24	7.494	-0.002	913	1666				
C25	7.761	0.014	971	2060				
C26	7.985	-0.004	752	951				
C28	8.440	-0.006	1127	1788				
C32	9.246	-0.003	1869	2724				
C34	9.614	-0.006	548	788				
Filter Peak	11.350	0.001	1300	1739	BUNKERC	(C10-C38)	326404	35.65
C36	9.985	0.007	688	948				
C38	10.335	0.006	783	354				
C40	10.673	0.001	1148	1593				
o-terph	5.997	-0.001	1003286	760488				
Triacon Surr	8.870	-0.003	748851	711533	NAS DIES	(C10-C24)	226500	12.92

Range Times: NW Diesel (4.031 - 7.495) AK102 (3.12 - 7.75) Jet A (3.12 - 5.86)
 NW M.Oil (7.50 - 10.33) AK103 (7.75 - 9.98) OR Diesel (3.12 - 8.45)

Surrogate	Area	Amount	%Rec
o-Terphenyl	760488	38.8	86.3
Triacantane	711533	37.7	83.8

Handwritten: 11/03/12

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	19588.1	31-OCT-2012
Triacon Surr	18864.5	09-OCT-2012
Gas	18517.9	28-SEP-2012
Diesel	14902.8	31-OCT-2012
Motor Oil	13149.3	09-OCT-2012
AK102	17570.8	31-OCT-2012
AK103	9202.1	25-SEP-2012
JetA	5416.5	11-AUG-2012
Min Oil	13440.7	09-MAY-2012
OR Diesel	17647.1	31-OCT-2012
NAS Diesel	17529.9	31-OCT-2012
Bunker C	9156.1	24-AUG-2012

Data File: /chem3/fid4a.1/20121031b.b/1031a034.d

Date: 31-OCT-2012 19:57

Client ID:

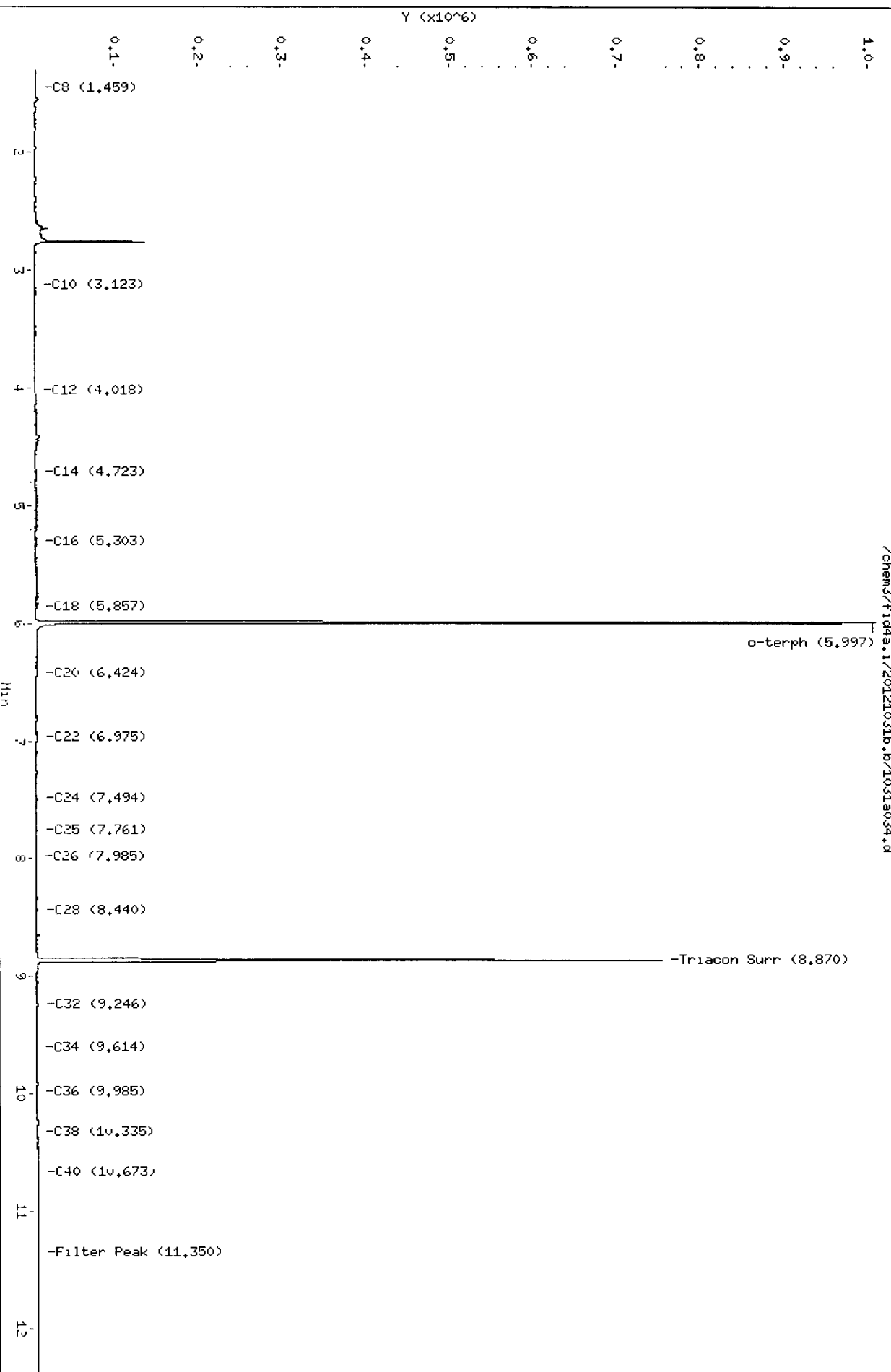
Sample Info: WP40HBS1

Column phase: RTX-1

Instrument: fid4a.1

Operator: JR/VTS

Column diameter: 0.25



0000000000000000

Analytical Resources Inc.
TPH Quantitation Report

Data file: /chem3/fid4a.i/20121031b.b/1031a037.d
Method: /chem3/fid4a.i/20121031b.b/ftphfid4a.m
Instrument: fid4a.i
Operator: JR/VTS
Report Date: 11/03/2012
Macro: 31-OCT-2012

ARI ID: VP40A
Client ID:
Injection: 31-OCT-2012 21:02
Dilution Factor: 1

Calibration Dates: Gas:28-SEP-2012 Diesel:31-OCT-2012 M.Oil:09-OCT-2012

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc
Toluene	1.233	0.000	6529	4690	WATPHG	(Tol-C12)	946320	51.10
C8	1.472	0.009	11405	15851	WATPHD	(C12-C24)	8350261	<u>560.31</u>
C10	3.116	-0.002	47140	35659	WATPHM	(C24-C38)	10641671	<u>809.30</u>
C12	4.029	-0.002	74489	55260	AK102	(C10-C25)	9313026	<u>530.03</u>
C14	4.710	-0.004	85304	69291	AK103	(C25-C36)	9616800	1045.07
C16	5.297	-0.004	87105	76632	OR.DIES	(C10-C28)	12724349	721.04
C18	5.856	-0.004	87142	94415				
C20	6.420	-0.005	116907	127388	JET-A	(C10-C18)	4147162	765.65
C22	6.970	-0.005	130150	151976	MIN.OIL	(C24-C38)	10641671	791.75
C24	7.493	-0.002	132830	149111				
C25	7.743	-0.004	148902	164394				
C26	7.987	-0.003	130934	176272				
C28	8.444	-0.003	131660	196151				
C32	9.251	0.002	85542	110094				
C34	9.607	-0.013	63307	61408				
Filter Peak	11.347	-0.002	4124	1447	BUNKERC	(C10-C38)	19542427	2134.36
C36	9.971	-0.007	39919	49108				
C38	10.333	0.004	26409	36362				
C40	10.673	0.001	16765	15173				
o-terph	5.997	-0.001	894941	636537				
Triacon Surr	8.870	-0.004	742012	682394	NAS DIES	(C10-C24)	8900756	507.75

Range Times: NW Diesel (4.031 - 7.495) AK102 (3.12 - 7.75) Jet A (3.12 - 5.86)
NW M.Oil (7.50 - 10.33) AK103 (7.75 - 9.98) OR Diesel (3.12 - 8.45)

Surrogate	Area	Amount	%Rec
o-Terphenyl	636537	32.5	72.2 M
Triacontane	682394	36.2	80.4 M

M 11/03/12

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	19588.1	31-OCT-2012
Triacon Surr	18864.5	09-OCT-2012
Gas	18517.9	28-SEP-2012
Diesel	14902.8	31-OCT-2012
Motor Oil	13149.3	09-OCT-2012
AK102	17570.8	31-OCT-2012
AK103	9202.1	25-SEP-2012
JetA	5416.5	11-AUG-2012
Min Oil	13440.7	09-MAY-2012
OR Diesel	17647.1	31-OCT-2012
NAS Diesel	17529.9	31-OCT-2012
Bunker C	9156.1	24-AUG-2012

Data File: /chem3/fid4a.1/20121031b.b/1031a037.d
Date: 31-OCT-2012 21:02

Client ID:
Sample Info: WP40A

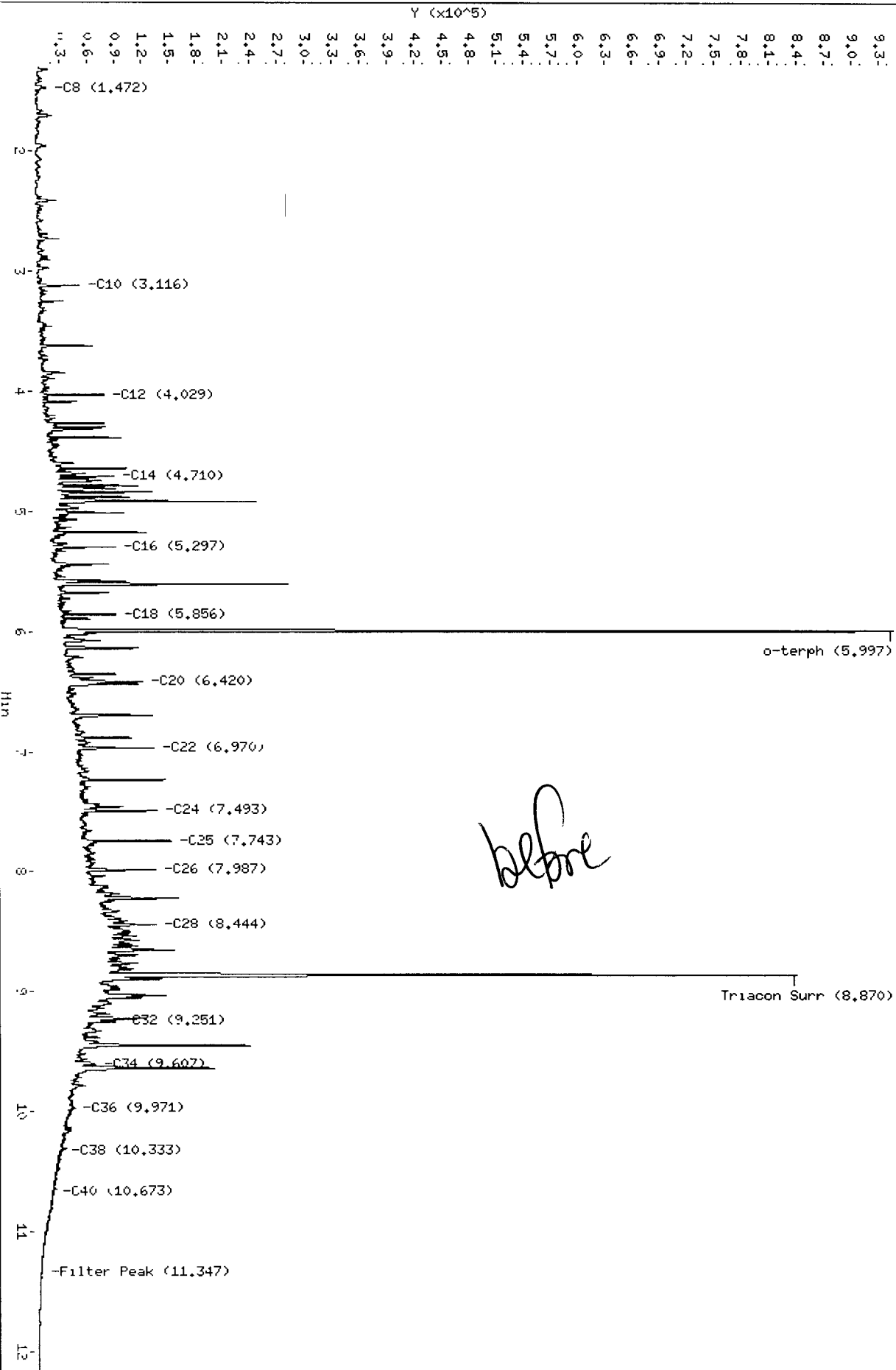
Column phase: RTX-1

Instrument: fid4a.1

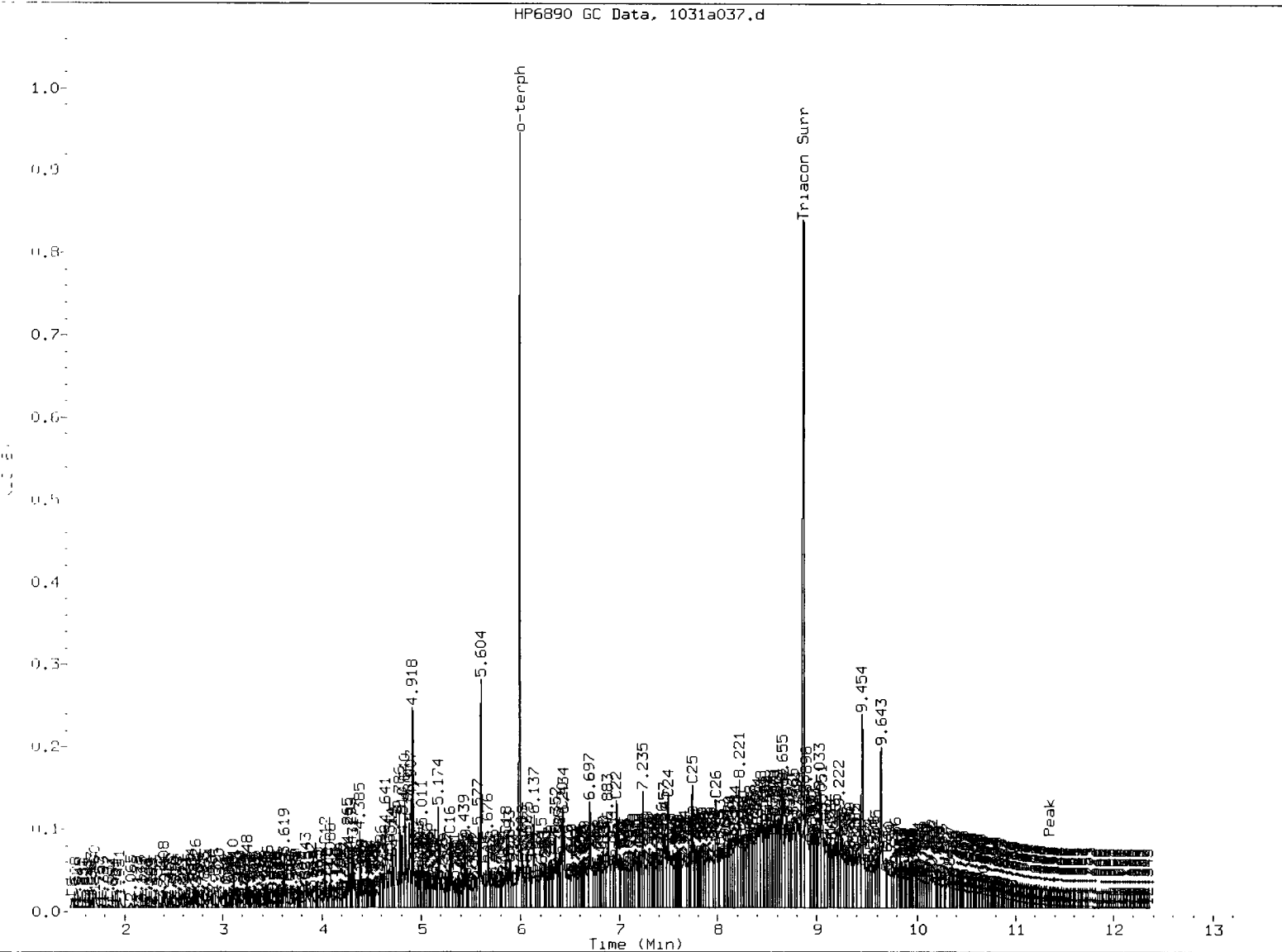
Operator: JR/VTS

Column diameter: 0.25

/chem3/fid4a.1/20121031b.b/1031a037.d



HP6890 GC Data, 1031a037.d



MANUAL INTEGRATION

- 1. Baseline correction
- 3. Peak not found
- 5. Skimmed surrogate

Analyst: *R*

Date: 11/03/12

Analytical Resources Inc.
TPH Quantitation Report

Data file: /chem3/fid4a.i/20121031b.b/1031a038.d ARI ID: VP40B
 Method: /chem3/fid4a.i/20121031b.b/ftphfid4a.m Client ID:
 Instrument: fid4a.i Injection: 31-OCT-2012 21:23
 Operator: JR/VTS
 Report Date: 11/03/2012 Dilution Factor: 1
 Macro: 31-OCT-2012
 Calibration Dates: Gas:28-SEP-2012 Diesel:31-OCT-2012 M.Oil:09-OCT-2012

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc
Toluene	1.230	-0.003	4663	6623	WATPHG	(Tol-C12)	230801	12.46
C8	1.461	-0.001	3032	4793	WATPHD	(C12-C24)	2876423	193.01
C10	3.119	0.001	4753	4963	WATPHM	(C24-C38)	3927808	298.71
C12	4.032	0.001	13544	13073	AK102	(C10-C25)	3173699	180.62
C14	4.712	-0.001	16075	16317	AK103	(C25-C36)	3474644	377.59
C16	5.297	-0.003	17906	20022	OR.DIES	(C10-C28)	4315044	244.52
C18	5.855	-0.005	21646	26197				
C20	6.418	-0.006	33177	29376	JET-A	(C10-C18)	1058481	195.42
C22	6.968	-0.006	33860	49543	MIN.OIL	(C24-C38)	3927808	292.23
C24	7.489	-0.006	35220	41571				
C25	7.740	-0.007	40573	51866				
C26	7.983	-0.006	36590	56668				
C28	8.439	-0.007	44051	54721				
C32	9.249	0.001	31418	56229				
C34	9.615	-0.005	25580	50836				
Filter Peak	11.352	0.003	3439	3700	BUNKERC	(C10-C38)	6932376	757.13
C36	9.974	-0.003	20056	32543				
C38	10.322	-0.007	18784	33429				
C40	10.681	0.009	10057	3082				
o-terph	5.996	-0.002	899522	659388				
Triacon Surr	8.869	-0.004	692290	627237	NAS DIES	(C10-C24)	3004568	171.40

Range Times: NW Diesel(4.031 - 7.495) AK102(3.12 - 7.75) Jet A(3.12 - 5.86)
 NW M.Oil(7.50 - 10.33) AK103(7.75 - 9.98) OR Diesel(3.12 - 8.45)

Surrogate	Area	Amount	%Rec
o-Terphenyl	659388	33.7	74.8 M
Triacontane	627237	33.2	73.9 M

M 11/03/12

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	19588.1	31-OCT-2012
Triacon Surr	18864.5	09-OCT-2012
Gas	18517.9	28-SEP-2012
Diesel	14902.8	31-OCT-2012
Motor Oil	13149.3	09-OCT-2012
AK102	17570.8	31-OCT-2012
AK103	9202.1	25-SEP-2012
JetA	5416.5	11-AUG-2012
Min Oil	13440.7	09-MAY-2012
OR Diesel	17647.1	31-OCT-2012
NAS Diesel	17529.9	31-OCT-2012
Bunker C	9156.1	24-AUG-2012

Data File: /chem3/fid4a.1/20121031b.b/1031a038.d

Date: 31-OCT-2012 21:23

Client ID:

Sample Info: WP40B

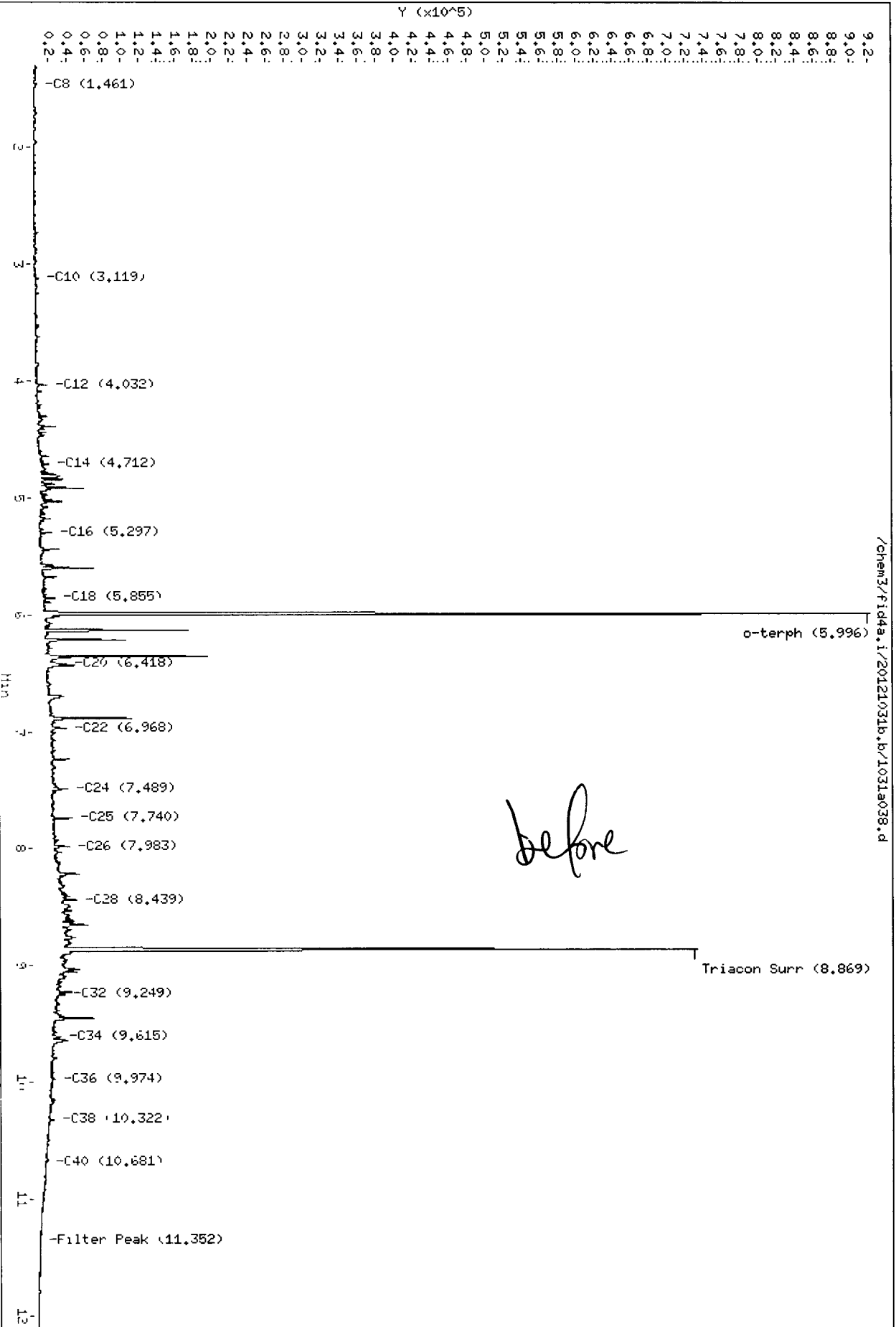
Column phase: RTX-1

Instrument: fid4a.1

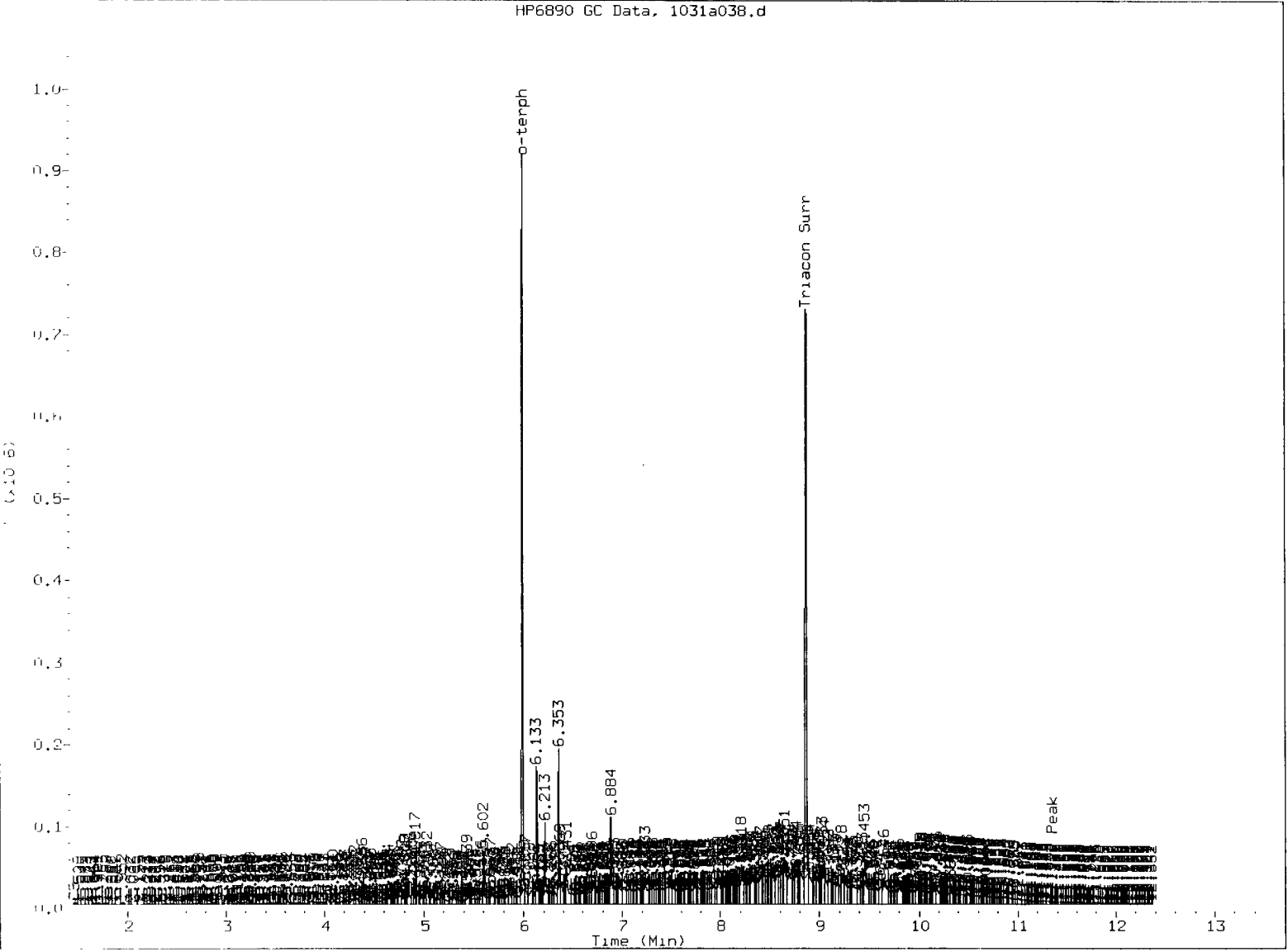
Operator: JP/VTS

Column diameter: 0.25

Page 1



0515 : 0007H



MANUAL INTEGRATION

- 1. Baseline correction
- 3. Peak not found
- ⑤ Skimmed surrogate

Analyst: *JK*

Date: 11/09/12

Analytical Resources Inc.
TPH Quantitation Report

Data file: /chem3/fid4a.i/20121101.b/1101a013.d
Method: /chem3/fid4a.i/20121101.b/ftphfid4a.m
Instrument: fid4a.i
Operator: JR/VTS
Report Date: 11/03/2012
Macro: 01-NOV-2012
Calibration Dates: Gas:28-SEP-2012 Diesel:01-NOV-2012 M.Oil:09-OCT-2012

ARI ID: VP40C
Client ID:
Injection: 01-NOV-2012 14:17
Dilution Factor: 1

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc
Toluene	1.220	-0.008	13800	15458	WATPHG	(Tol-C12)	1092662	59.01
C8	1.452	-0.004	11000	15178	WATPHD	(C12-C24)	25009525	1718.40
C10	3.115	-0.001	20474	15635	WATPHM	(C24-C38)	29010106	2206.21
C12	4.028	-0.002	41875	53601	AK102	(C10-C25)	27346850	1594.66
C14	4.709	-0.003	55517	105733	AK103	(C25-C36)	25878885	2812.29
C16	5.298	-0.003	91492	95069				
C18	5.862	0.001	175047	218627				
C20	6.420	-0.003	185859	147075	JET-A	(C10-C18)	8550253	1578.56
C22	6.987	0.012	183750	95852				
C24	7.497	0.000	202411	274418				
C25	7.753	0.006	211493	334067				
C26	7.996	0.008	213337	285869				
C28	8.455	0.010	274322	464075				
C32	9.245	-0.002	183702	238506				
C34	9.607	-0.006	122891	97952				
Filter Peak	11.370	0.004	5567	9576	CREOSOT	(C12-C22)	19286669	9585.21 M
C36	9.964	-0.005	98160	98259				
C38	10.304	-0.010	75999	102567				
C40	10.646	-0.003	43550	28041				
o-terph	6.001	0.004	759650	548649				
Triacon Surr	8.882	0.007	676481	570577	NAS DIES	(C10-C24)	25707583	1502.66

Range Times: NW Diesel (4.030 - 7.497) AK102 (3.12 - 7.75) Jet A (3.12 - 5.86)
NW M.Oil (7.50 - 10.31) AK103 (7.75 - 9.97) OR Diesel (3.12 - 8.45)

Surrogate	Area	Amount	%Rec
o-Terphenyl	548649	28.5	63.3 M
Triacontane	570577	30.2	67.2 M

A 11/03/12

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	19248.4	01-NOV-2012
Triacon Surr	18864.5	09-OCT-2012
Gas	18517.9	28-SEP-2012
Diesel	14554.0	01-NOV-2012
Motor Oil	13149.3	09-OCT-2012
AK102	17149.0	01-NOV-2012
AK103	9202.1	25-SEP-2012
JetA	5416.5	11-AUG-2012
NAS Diesel	17108.0	01-NOV-2012
Creosote	2012.1	01-NOV-2011

Data File: /chem3/fid4a.1/20121101.b/1101a013.d
Date: 01-NOV-2012 14:17

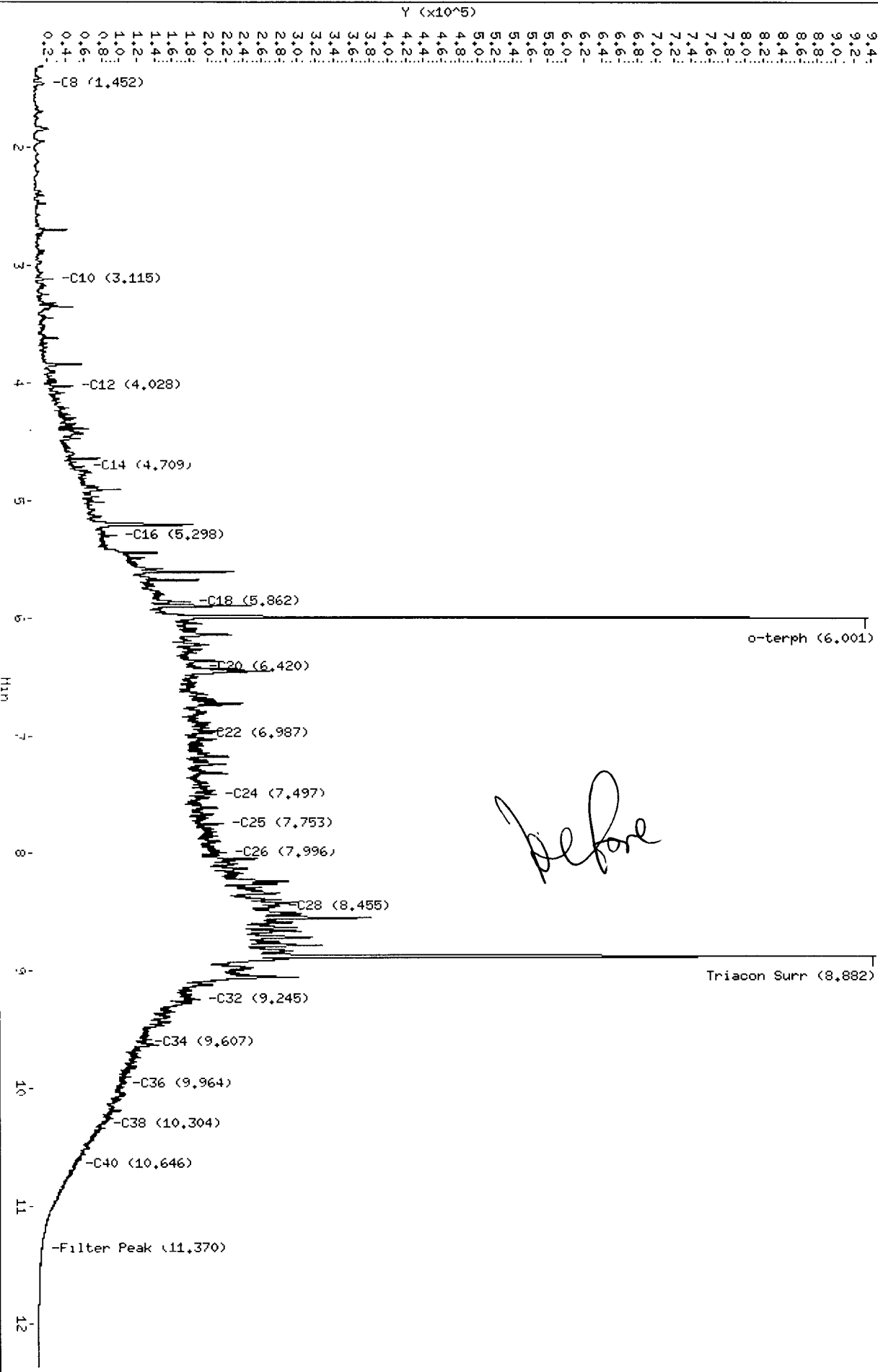
Client ID:
Sample Info: WP40C

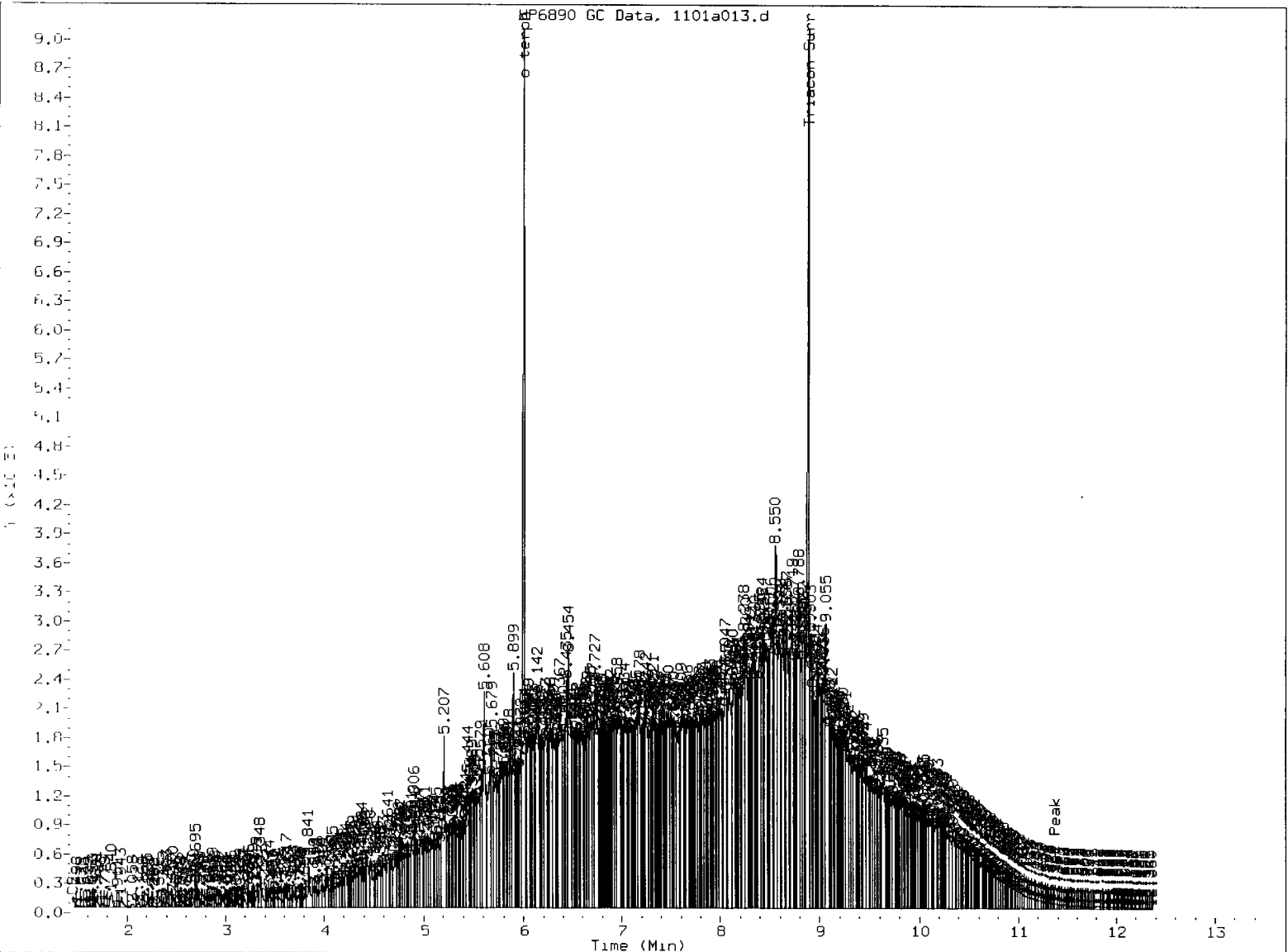
Column phase: RTX-1

Instrument: fid4a.1

Operator: JR/VTS
Column diameter: 0.25

/chem3/fid4a.1/20121101.b/1101a013.d





MANUAL INTEGRATION

- 1. Baseline correction
- 3. Peak not found
- 5. Skimmed surrogate

Analyst: *A* Date: 11/03/12

CLEANED TPHD SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: VP40-Anchor QEA LLC
Project: Central Waterfront Shoreline Inves.

<u>Client ID</u>	<u>OTER</u>	<u>TOT OUT</u>
MB-103012	86.3%	0
LCS-103012	88.1%	0
LCSD-103012	88.3%	0
CWS1-04-2-4	72.2%	0
CWS1-04-6-8	74.8%	0
CWS1-04-13.5-15	63.3%	0

LCS/MB LIMITS QC LIMITS

(OTER) = o-Terphenyl

(50-150)

(50-150)

Prep Method: SW3546
Log Number Range: 12-21289 to 12-21291

**ORGANICS ANALYSIS DATA SHEET
TOTAL DIESEL RANGE HYDROCARBONS**

NWTPHD by GC/FID-Silica and Acid Cleaned
Extraction Method: SW3546
Page 1 of 1

QC Report No: VP41-Anchor QEA LLC
Project: Central Waterfront Shoreline In

Matrix: Soil
Data Release Authorized: *MMW*
Reported: 11/05/12

ARI ID	Sample ID	Extraction Date	Analysis Date	EFV DL	Range/Surrogate	RL	Result
MB-103012 12-21279	Method Blank HC ID: ---	10/30/12	10/31/12 FID4A	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	5.0 10	< 5.0 U < 10 U 86.3%
VP41A 12-21279	CWS1-02-1-3 HC ID: ---	10/30/12	10/31/12 FID4A	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	5.2 10	< 5.2 U < 10 U 82.7%
VP41B 12-21280	CWS1-02-7-8 HC ID: DIESEL/MOTOR OIL	10/30/12	11/01/12 FID4A	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	5.7 11	150 280 72.8%
VP41C 12-21281	CWS1-02-12-13 HC ID: DIESEL/MOTOR OIL	10/30/12	11/01/12 FID4A	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	5.7 11	39 98 66.9%
VP41D 12-21282	CWS1-01-3-5 HC ID: DIESEL/MOTOR OIL	10/30/12	11/01/12 FID4A	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	5.7 11	41 140 67.1%
VP41E 12-21283	CWS1-01-11-13 HC ID: DIESEL/MOTOR OIL	10/30/12	11/01/12 FID4A	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	5.8 12	95 120 58.6%
VP41G 12-21285	CWS1-03-2-4 HC ID: DIESEL/MOTOR OIL	10/30/12	11/01/12 FID4A	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	5.6 11	100 84 69.0%
VP41H 12-21286	CWS1-03-7-9 HC ID: DIESEL/MOTOR OIL	10/30/12	11/01/12 FID4A	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	6.7 13	300 410 72.5%

Reported in mg/kg (ppm)

EFV-Effective Final Volume in mL.
DL-Dilution of extract prior to analysis.
RL-Reporting limit.

Diesel range quantitation on total peaks in the range from C12 to C24.
Motor Oil range quantitation on total peaks in the range from C24 to C38.
HC ID: DRO/RRO indicate results of organics or additional hydrocarbons in ranges are not identifiable.

Analytical Resources Inc.
TPH Quantitation Report

Data file: /chem3/fid4a.i/20121031b.b/1031a040.d ARI ID: VP41A
 Method: /chem3/fid4a.i/20121031b.b/ftphfid4a.m Client ID:
 Instrument: fid4a.i Injection: 31-OCT-2012 22:07
 Operator: JR/VTS
 Report Date: 11/03/2012 Dilution Factor: 1
 Macro: 31-OCT-2012
 Calibration Dates: Gas:28-SEP-2012 Diesel:31-OCT-2012 M.Oil:09-OCT-2012

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc
Toluene	1.224	-0.009	2736	5059	WATPHG	(Tol-C12)	86259	4.66
C8	1.456	-0.006	675	1230	WATPHD	(C12-C24)	697899	46.83
C10	3.121	0.002	1037	1324	WATPHM	(C24-C38)	1211387	92.13
C12	4.037	0.006	5155	4841	AK102	(C10-C25)	797761	45.40
C14	4.719	0.005	4826	8158	AK103	(C25-C36)	1075985	116.93
C16	5.301	0.000	6588	7459	OR.DIES	(C10-C28)	1196354	67.79
C18	5.855	-0.005	7849	5784				
C20	6.421	-0.004	8655	9817	JET-A	(C10-C18)	360002	66.46
C22	6.968	-0.006	9669	16176	MIN.OIL	(C24-C38)	1211387	90.13
C24	7.490	-0.005	12057	14984				
C25	7.741	-0.006	14362	23040				
C26	7.982	-0.007	12847	18767				
C28	8.438	-0.008	13677	22499				
C32	9.238	-0.010	10189	22827				
C34	9.601	-0.019	7441	15502				
Filter Peak	11.338	-0.011	2310	5444	BUNKERC	(C10-C38)	1958035	213.85
C36	9.978	0.000	5160	2713				
C38	10.331	0.002	4231	1587				
C40	10.670	-0.002	3692	1877				
o-terph	5.996	-0.001	984459	729196				
Triacon Surr	8.867	-0.007	753357	691331	NAS DIES	(C10-C24)	746648	42.59

Range Times: NW Diesel(4.031 - 7.495) AK102(3.12 - 7.75) Jet A(3.12 - 5.86)
 NW M.Oil(7.50 - 10.33) AK103(7.75 - 9.98) OR Diesel(3.12 - 8.45)

Surrogate	Area	Amount	%Rec
o-Terphenyl	729196	37.2	82.7
Triacontane	691331	36.6	81.4

Handwritten signature
11/03/12

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	19588.1	31-OCT-2012
Triacon Surr	18864.5	09-OCT-2012
Gas	18517.9	28-SEP-2012
Diesel	14902.8	31-OCT-2012
Motor Oil	13149.3	09-OCT-2012
AK102	17570.8	31-OCT-2012
AK103	9202.1	25-SEP-2012
JetA	5416.5	11-AUG-2012
Min Oil	13440.7	09-MAY-2012
OR Diesel	17647.1	31-OCT-2012
NAS Diesel	17529.9	31-OCT-2012
Bunker C	9156.1	24-AUG-2012

Data File: /chem3/fid4a,1/20121031b,b/1031a040,d
Date: 31-OCT-2012 22:07
Client ID:
Sample Info: WP41A

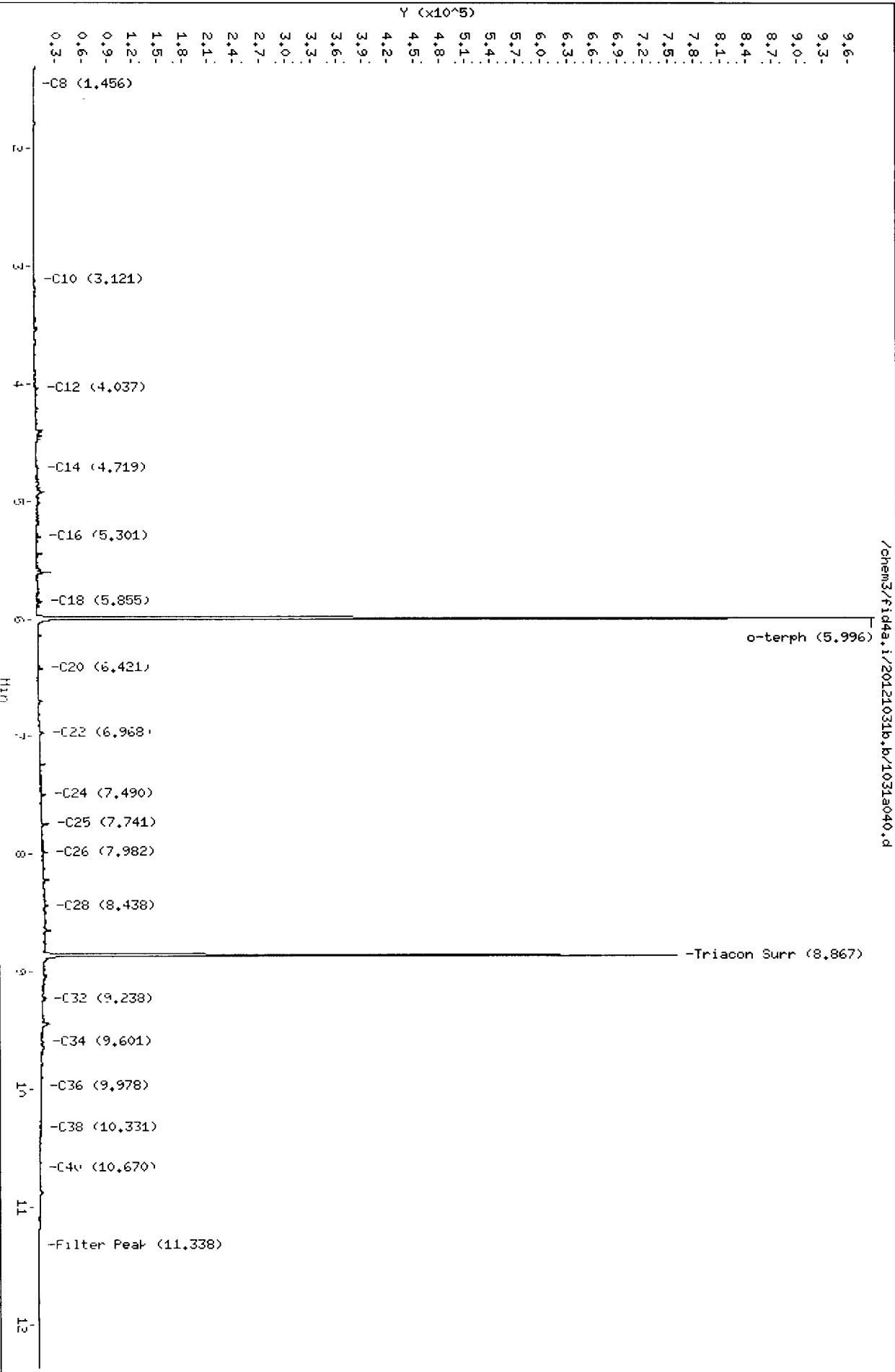
Column phase: RTX-1

Instrument: fid4a,1

Operator: JP/VTS

Column diameter: 0.25

Page 1



00000000

Analytical Resources Inc.
TPH Quantitation Report

Data file: /chem3/fid4a.i/20121101.b/1101a014.d
Method: /chem3/fid4a.i/20121101.b/ftphfid4a.m
Instrument: fid4a.i
Operator: JR/VTS
Report Date: 11/03/2012
Macro: 01-NOV-2012

ARI ID: VP41B
Client ID:
Injection: 01-NOV-2012 14:39
Dilution Factor: 1

Calibration Dates: Gas:28-SEP-2012 Diesel:01-NOV-2012 M.Oil:09-OCT-2012

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc
Toluene	1.226	-0.002	12050	9847	WATPHG	(Tol-C12)	462239	24.96
C8	1.468	0.012	7262	9097	WATPHD	(C12-C24)	18927497	1300.50
C10	3.115	-0.001	19435	15133	WATPHM	(C24-C38)	31983731	<u>2432.36</u>
C12	4.029	-0.001	33918	26309	AK102	(C10-C25)	20716354	1208.02
C14	4.709	-0.003	96893	64567	AK103	(C25-C36)	28010678	3043.95
C16	5.299	-0.002	265445	219054				
C18	5.863	0.002	319625	377019				
C20	6.436	0.013	265597	318625	JET-A	(C10-C18)	7551511	1394.17
C22	6.968	-0.006	117624	103002				
C24	7.502	0.004	171961	231578				
C25	7.754	0.007	193758	471428				
C26	7.993	0.005	186985	290249				
C28	8.449	0.003	258133	300454				
C32	9.238	-0.010	245200	362871				
C34	9.626	0.012	278744	571232				
Filter Peak	11.363	-0.004	4841	4657	CREOSOT	(C12-C22)	14885818	7398.04 M
C36	9.973	0.004	161178	69934				
C38	10.315	0.001	105886	68440				
C40	10.642	-0.008	53139	78586				
o-terph	6.003	0.005	852805	630959				
Triacon Surr	8.882	0.007	718136	673513	NAS DIES	(C10-C24)	19234878	1124.32

Range Times: NW Diesel(4.030 - 7.497) AK102(3.12 - 7.75) Jet A(3.12 - 5.86)
NW M.Oil(7.50 - 10.31) AK103(7.75 - 9.97) OR Diesel(3.12 - 8.45)

Surrogate	Area	Amount	%Rec
o-Terphenyl	630959	32.8	72.8 M
Triacontane	673513	35.7	79.3 M

JR 11/03/12

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	19248.4	01-NOV-2012
Triacon Surr	18864.5	09-OCT-2012
Gas	18517.9	28-SEP-2012
Diesel	14554.0	01-NOV-2012
Motor Oil	13149.3	09-OCT-2012
AK102	17149.0	01-NOV-2012
AK103	9202.1	25-SEP-2012
JetA	5416.5	11-AUG-2012
NAS Diesel	17108.0	01-NOV-2012
Creosote	2012.1	01-NOV-2011

Data File: /chem3/fid4a.1/20121101.b/1101a014.d

Date: 01-NOV-2012 14:39

Client ID:

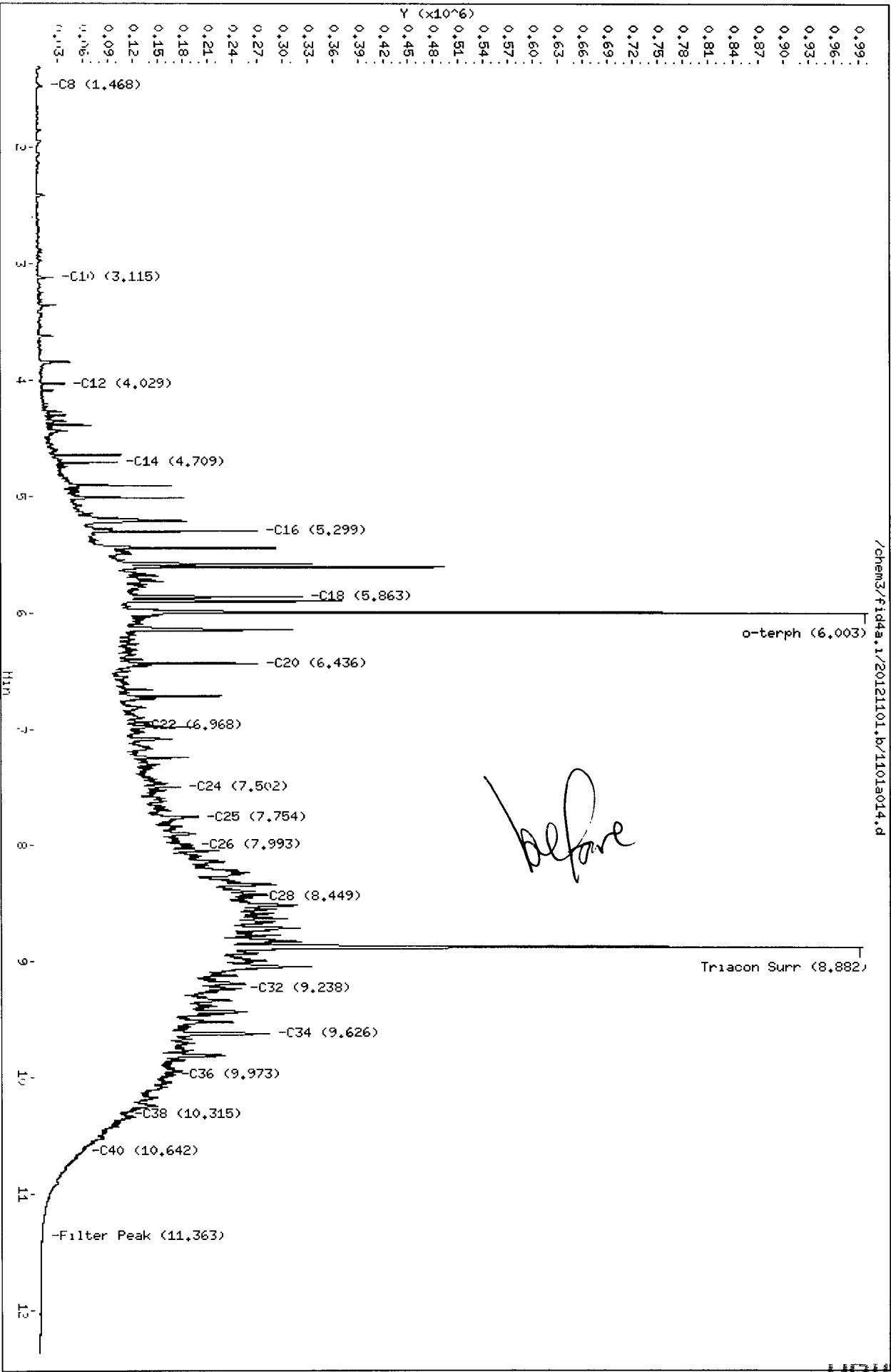
Sample Info: VP41B

Column phase: RTX-1

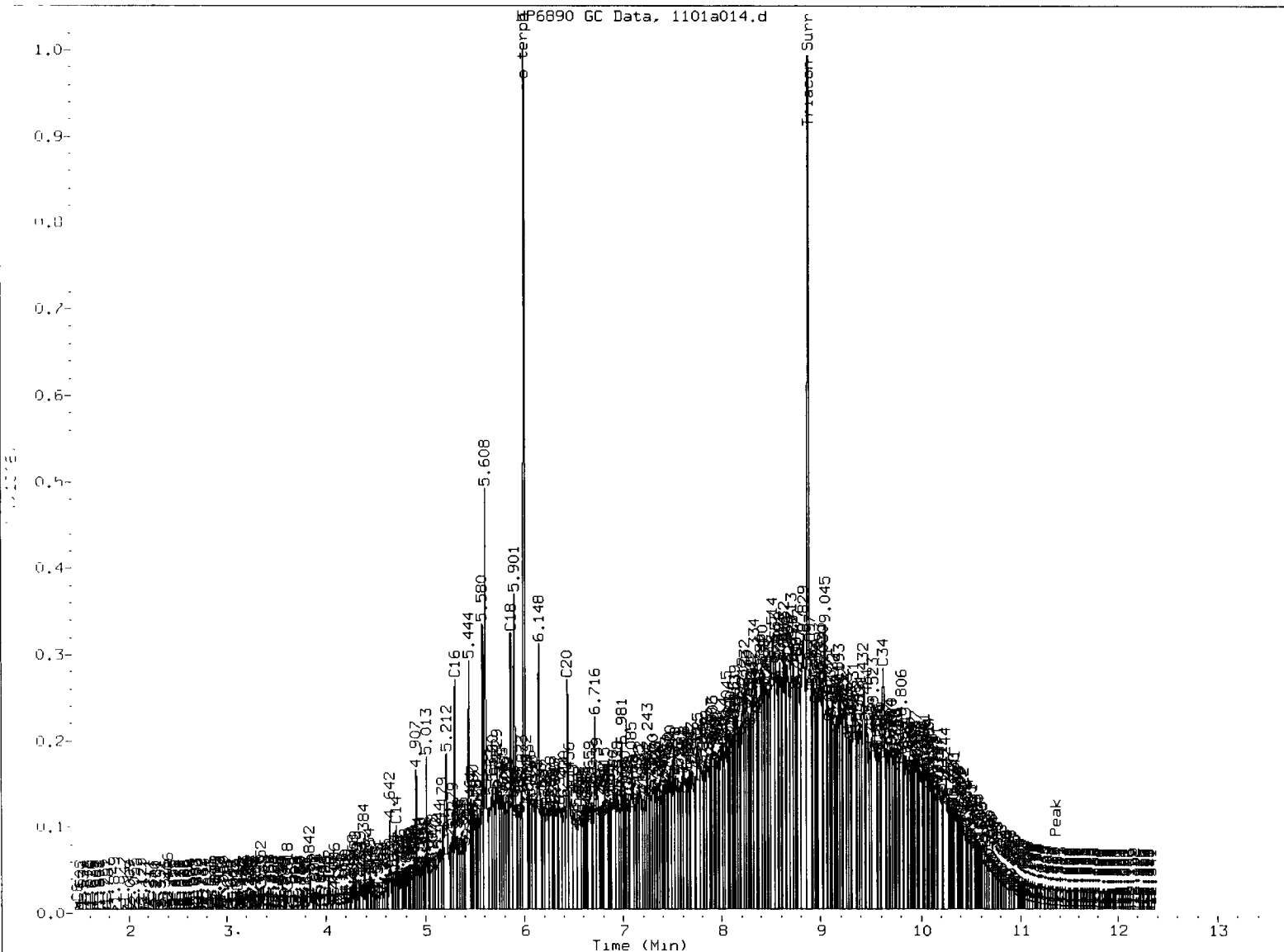
Instrument: fid4a.1

Operator: JR/VTS

Column diameter: 0.25



110000 00000



MANUAL INTEGRATION

- 1. Baseline correction
- 3. Peak not found
- 5. Skipped surrogate

Analyst: *JM* Date: 11/03/12

Analytical Resources Inc.
TPH Quantitation Report

Data file: /chem3/fid4a.i/20121031b.b/1031a046.d
Method: /chem3/fid4a.i/20121031b.b/ftphfid4a.m
Instrument: fid4a.i
Operator: JR/VTS
Report Date: 11/03/2012
Macro: 31-OCT-2012
Calibration Dates: Gas:28-SEP-2012 Diesel:31-OCT-2012 M.Oil:09-OCT-2012

ARI ID: VP41C
Client ID:
Injection: 01-NOV-2012 00:17
Dilution Factor: 1

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc
Toluene	1.239	0.006	4165	3637	WATPHG	(Tol-C12)	576126	31.11
C8	1.462	-0.001	26793	30613	WATPHD	(C12-C24)	5154425	345.87
C10	3.114	-0.004	32431	21864	WATPHM	(C24-C38)	11373468	864.95
C12	4.030	-0.001	25412	21316	AK102	(C10-C25)	5837752	332.24
C14	4.711	-0.003	25339	31722	AK103	(C25-C36)	9962609	1082.65
C16	5.296	-0.004	35708	35559	OR.DIES	(C10-C28)	8973058	508.47
C18	5.855	-0.006	45472	56537				
C20	6.417	-0.008	64823	85860	JET-A	(C10-C18)	1789815	330.44
C22	6.968	-0.006	49572	78097	MIN.OIL	(C24-C38)	11373468	846.20
C24	7.492	-0.004	65207	75755				
C25	7.742	-0.005	81450	81836				
C26	7.985	-0.004	93402	144225				
C28	8.443	-0.003	144800	163367				
C32	9.239	-0.009	147825	183640				
C34	9.602	-0.018	119654	289975				
Filter Peak	11.353	0.004	6082	10842	BUNKERC	(C10-C38)	16815913	1836.58
C36	9.973	-0.004	63460	103744				
C38	10.320	-0.009	50239	60734				
C40	10.674	0.002	33855	52394				
o-terph	5.995	-0.002	836625	589544				
Triacon Surr	8.869	-0.005	746762	699641	NAS DIES	(C10-C24)	5442445	310.47

Range Times: NW Diesel(4.031 - 7.495) AK102(3.12 - 7.75) Jet A(3.12 - 5.86)
NW M.Oil(7.50 - 10.33) AK103(7.75 - 9.98) OR Diesel(3.12 - 8.45)

Surrogate	Area	Amount	%Rec
o-Terphenyl	589544	30.1	66.9 M
Triacontane	699641	37.1	82.4 M

11/03/12

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	19588.1	31-OCT-2012
Triacon Surr	18864.5	09-OCT-2012
Gas	18517.9	28-SEP-2012
Diesel	14902.8	31-OCT-2012
Motor Oil	13149.3	09-OCT-2012
AK102	17570.8	31-OCT-2012
AK103	9202.1	25-SEP-2012
JetA	5416.5	11-AUG-2012
Min Oil	13440.7	09-MAY-2012
OR Diesel	17647.1	31-OCT-2012
NAS Diesel	17529.9	31-OCT-2012
Bunker C	9156.1	24-AUG-2012

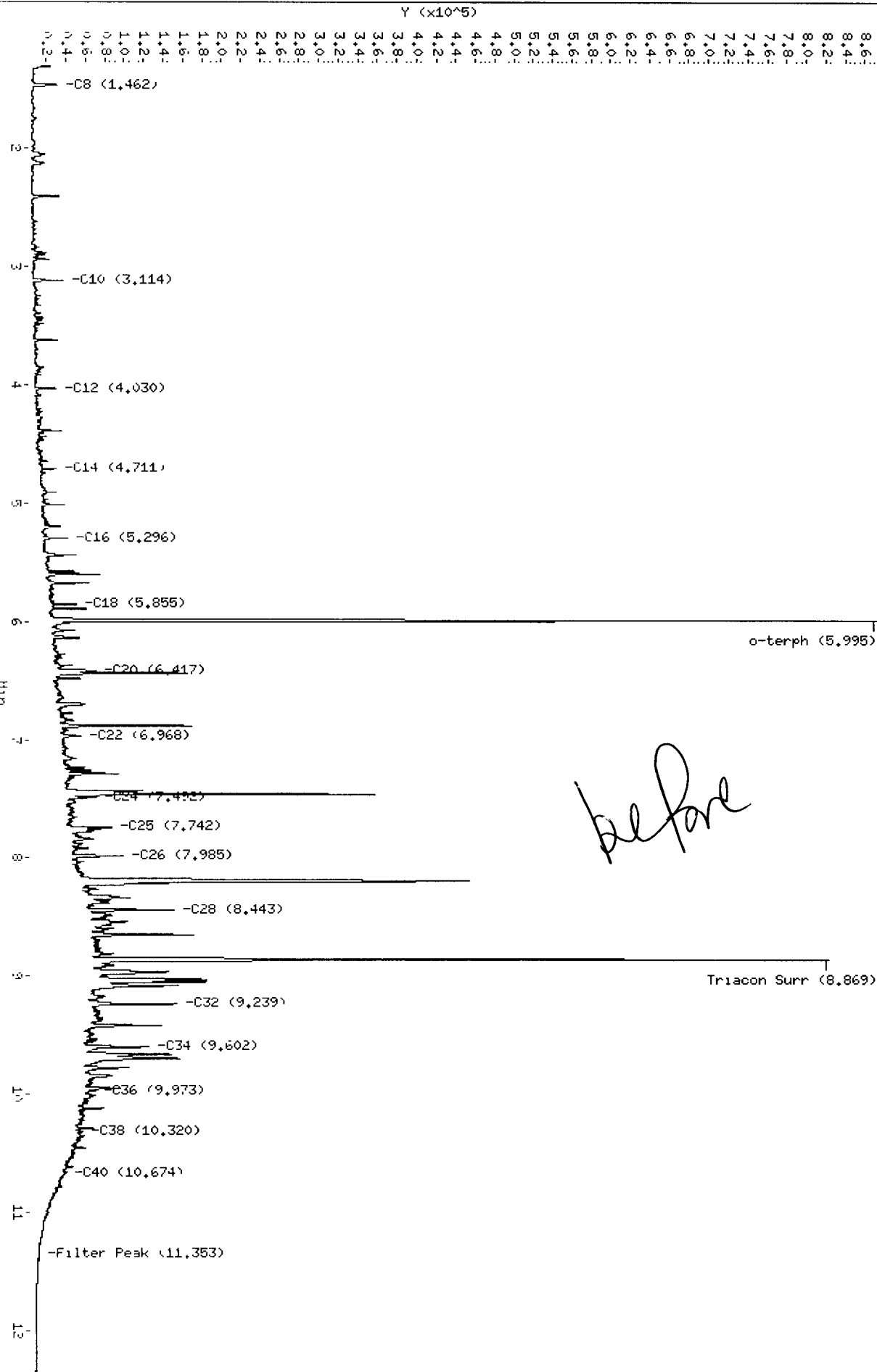
Data File: /chem3/fid4a.1/20121031b.b/1031a046.d
Date: 01-NOV-2012 00:17
Client ID:
Sample Info: WP41C

Column phase: RTX-1

Instrument: fid4a.1

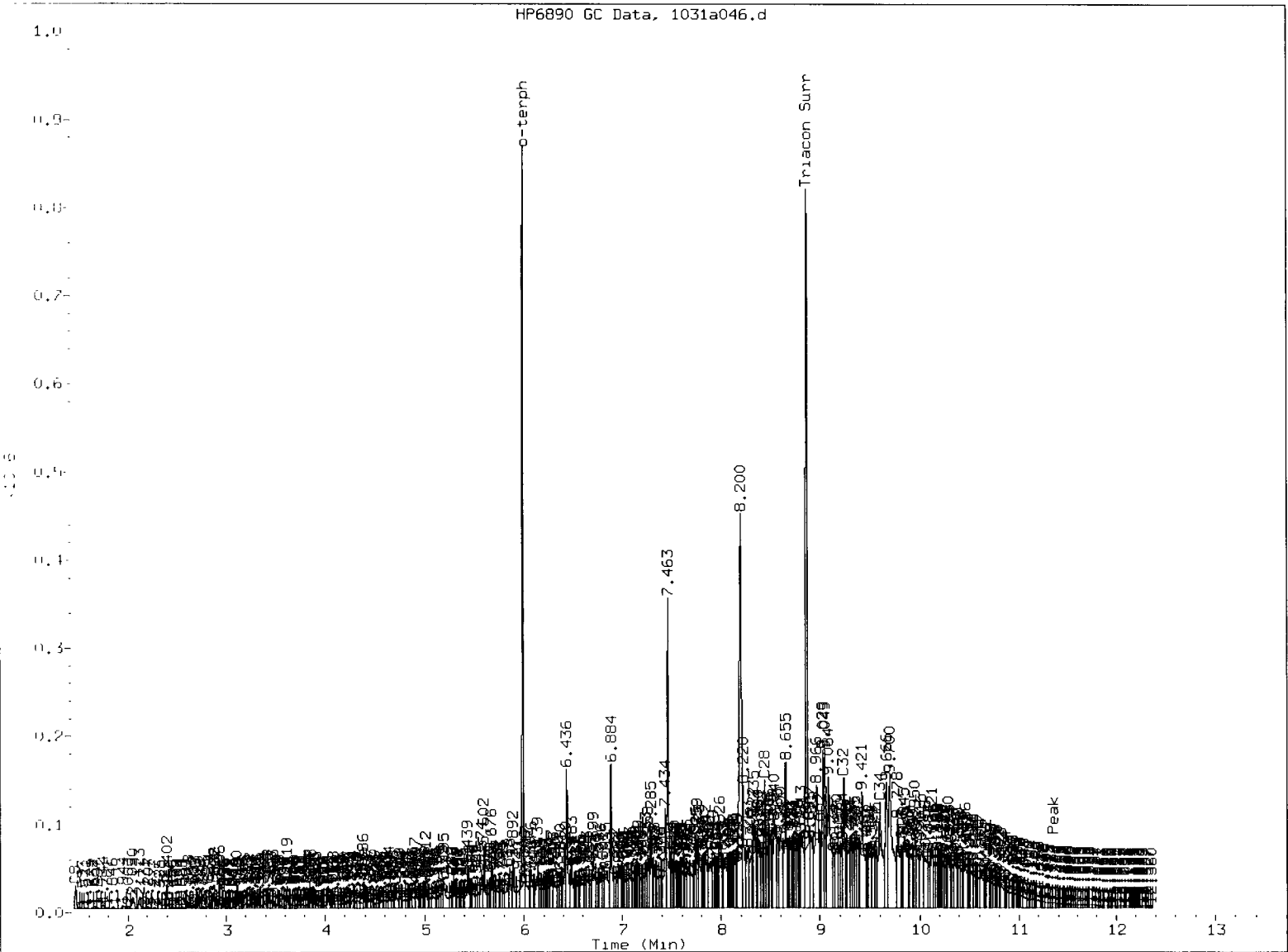
Operator: JR/VTS
Column diameter: 0.25

/chem3/fid4a.1/20121031b.b/1031a046.d



7 13000 00007

HP6890 GC Data, 1031a046.d



MANUAL INTEGRATION

- 1. Baseline correction
- 3. Peak not found
- 5. Skipped surrogate

Analyst: M

Date: 11/03/12

Analytical Resources Inc.
TPH Quantitation Report

Data file: /chem3/fid4a.i/20121031b.b/1031a047.d
Method: /chem3/fid4a.i/20121031b.b/ftphfid4a.m
Instrument: fid4a.i
Operator: JR/VTS
Report Date: 11/03/2012
Macro: 31-OCT-2012
Calibration Dates: Gas:28-SEP-2012 Diesel:31-OCT-2012 M.Oil:09-OCT-2012

ARI ID: VP41D
Client ID:
Injection: 01-NOV-2012 00:39
Dilution Factor: 1

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc
Toluene	1.229	-0.004	5374	7237	WATPHG	(Tol-C12)	384953	20.79
C8	1.458	-0.004	7905	10021	WATPHD	(C12-C24)	5376460	360.77
C10	3.117	-0.002	9011	7026	WATPHM	(C24-C38)	15915955	<u>1210.41</u>
C12	4.030	-0.001	49501	34593	AK102	(C10-C25)	6147182	349.85
C14	4.711	-0.003	23271	27908	AK103	(C25-C36)	13997725	1521.15
C16	5.297	-0.004	33404	33242	OR.DIES	(C10-C28)	10260247	581.41
C18	5.856	-0.004	40954	53199				
C20	6.419	-0.005	50652	47188	JET-A	(C10-C18)	1502578	277.41
C22	6.969	-0.006	58382	69020	MIN.OIL	(C24-C38)	15915955	1184.16
C24	7.492	-0.003	75894	118809				
C25	7.744	-0.003	87639	95292				
C26	7.987	-0.002	92911	155545				
C28	8.449	0.003	149171	209502				
C32	9.252	0.004	115232	105052				
C34	9.607	-0.013	99928	143834				
Filter Peak	11.351	0.002	7016	4799	BUNKERC	(C10-C38)	21536350	2352.13
C36	9.973	-0.004	81248	78023				
C38	10.332	0.003	67392	44276				
C40	10.666	-0.005	42407	58341				
o-terph	5.996	-0.002	848476	591463				
Triacon Surr	8.872	-0.002	737508	650092	NAS DIES	(C10-C24)	5620395	320.62

Range Times: NW Diesel(4.031 - 7.495) AK102(3.12 - 7.75) Jet A(3.12 - 5.86)
NW M.Oil(7.50 - 10.33) AK103(7.75 - 9.98) OR Diesel(3.12 - 8.45)

Surrogate	Area	Amount	%Rec
o-Terphenyl	591463	30.2	67.1 M
Triacotane	650092	34.5	76.6 M

M 11/03/12

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	19588.1	31-OCT-2012
Triacon Surr	18864.5	09-OCT-2012
Gas	18517.9	28-SEP-2012
Diesel	14902.8	31-OCT-2012
Motor Oil	13149.3	09-OCT-2012
AK102	17570.8	31-OCT-2012
AK103	9202.1	25-SEP-2012
JetA	5416.5	11-AUG-2012
Min Oil	13440.7	09-MAY-2012
OR Diesel	17647.1	31-OCT-2012
NAS Diesel	17529.9	31-OCT-2012
Bunker C	9156.1	24-AUG-2012

Data File: /chem3/fid4a.i/20121031b.b/1031a047.d
Date : 01-NOV-2012 00:39

Client ID:
Sample Info: WP41D

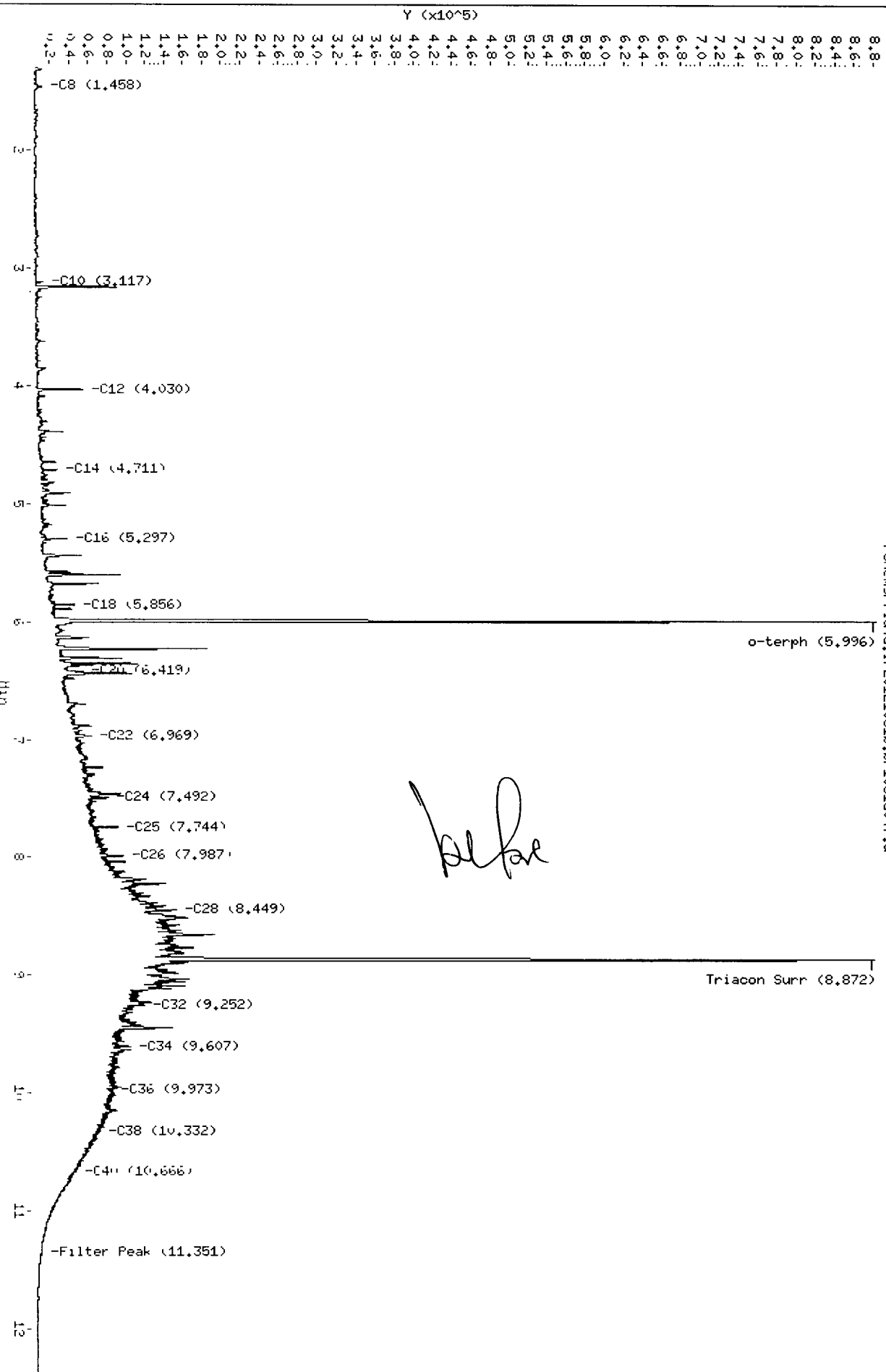
Column phase: RTX-1

Instrument: fid4a.1

Operator: JR/VTS

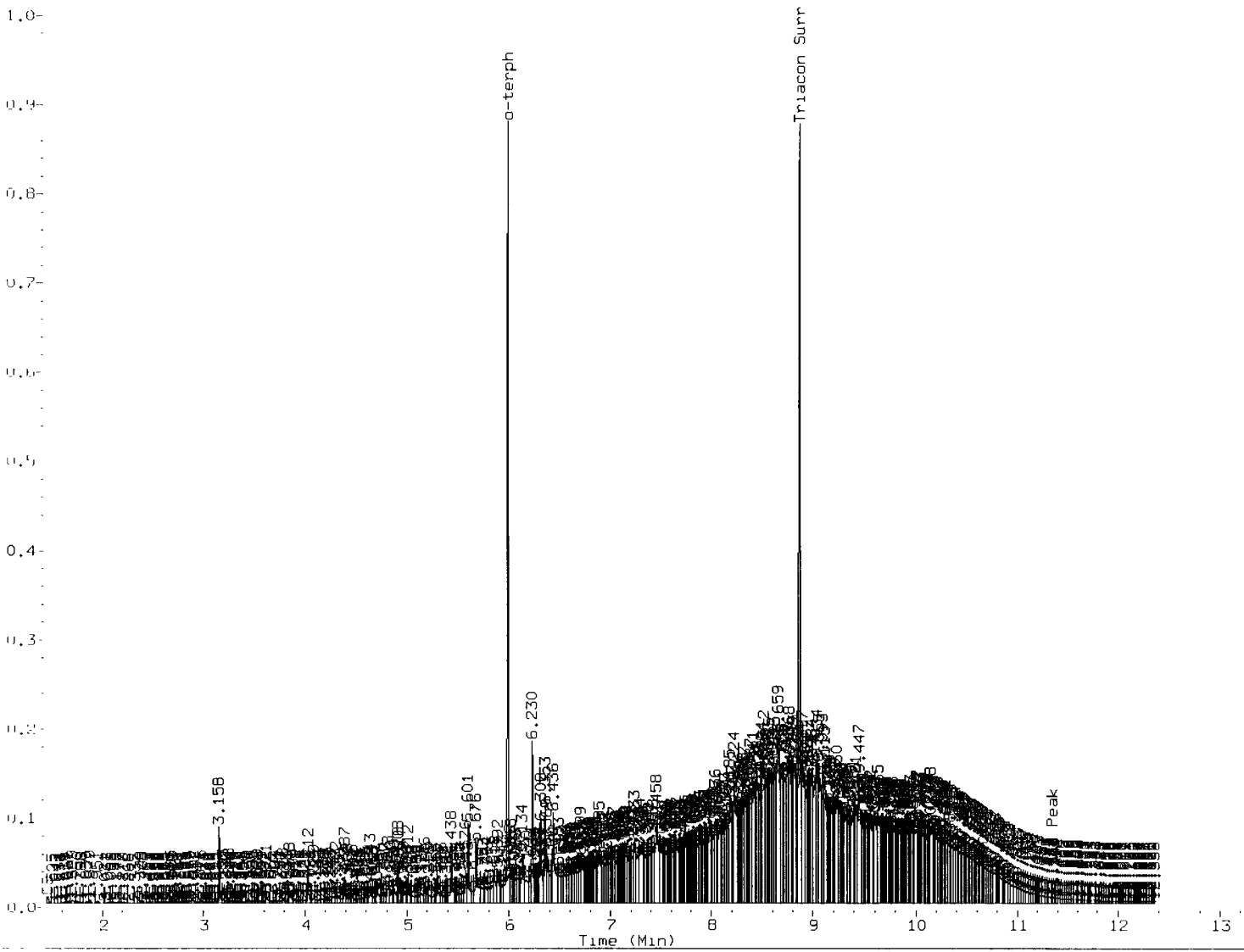
Column diameter: 0.25

/chem3/fid4a.i/20121031b.b/1031a047.d



000000 0105

HP6890 GC Data, 1031a047.d



MANUAL INTEGRATION

- 1. Baseline correction
- 3. Peak not found
- 5. Skipped surrogate

Analyst: _____ *a*

Date: *11/03/12*

Analytical Resources Inc.
TPH Quantitation Report

Data file: /chem3/fid4a.i/20121031b.b/1031a048.d
Method: /chem3/fid4a.i/20121031b.b/ftphfid4a.m
Instrument: fid4a.i
Operator: JR/VTS
Report Date: 11/03/2012
Macro: 31-OCT-2012

ARI ID: VP41E
Client ID:
Injection: 01-NOV-2012 01:01
Dilution Factor: 1

Calibration Dates: Gas:28-SEP-2012 Diesel:31-OCT-2012 M.Oil:09-OCT-2012

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc
Toluene	1.219	-0.014	6233	7266	WATPHG	(Tol-C12)	343734	18.56
C8	1.460	-0.002	2277	3293	WATPHD	(C12-C24)	12113858	812.86
C10	3.114	-0.004	12455	9589	WATPHM	(C24-C38)	13898235	1056.96
C12	4.028	-0.003	25872	22620	AK102	(C10-C25)	13010193	740.44
C14	4.709	-0.005	56992	51231	AK103	(C25-C36)	12213733	1327.28
C16	5.298	-0.003	146341	177913	OR.DIES	(C10-C28)	17058013	966.62
C18	5.861	0.000	161787	206241				
C20	6.431	0.007	131285	154204	JET-A	(C10-C18)	5538000	1022.43
C22	6.972	-0.002	101830	113586	MIN.OIL	(C24-C38)	13898235	1034.04
C24	7.492	-0.003	89712	130203				
C25	7.745	-0.002	92291	153032				
C26	7.988	-0.001	89281	159653				
C28	8.447	0.001	121333	117966				
C32	9.244	-0.005	95061	97017				
C34	9.626	0.006	70451	73448				
Filter Peak	11.354	0.005	4973	10427	BUNKERC	(C10-C38)	26268750	2868.99
C36	9.988	0.010	66516	53419				
C38	10.320	-0.009	49402	14315				
C40	10.665	-0.006	29060	42095				
o-terph	5.999	0.001	737380	516151				
Triacon Surr	8.868	-0.006	632546	530477	NAS DIES	(C10-C24)	12370515	705.68

Range Times: NW Diesel(4.031 - 7.495) AK102(3.12 - 7.75) Jet A(3.12 - 5.86)
NW M.Oil(7.50 - 10.33) AK103(7.75 - 9.98) OR Diesel(3.12 - 8.45)

Surrogate	Area	Amount	%Rec
o-Terphenyl	516151	26.4	58.6 M
Triacontane	530477	28.1	62.5 M

JR 11/03/12

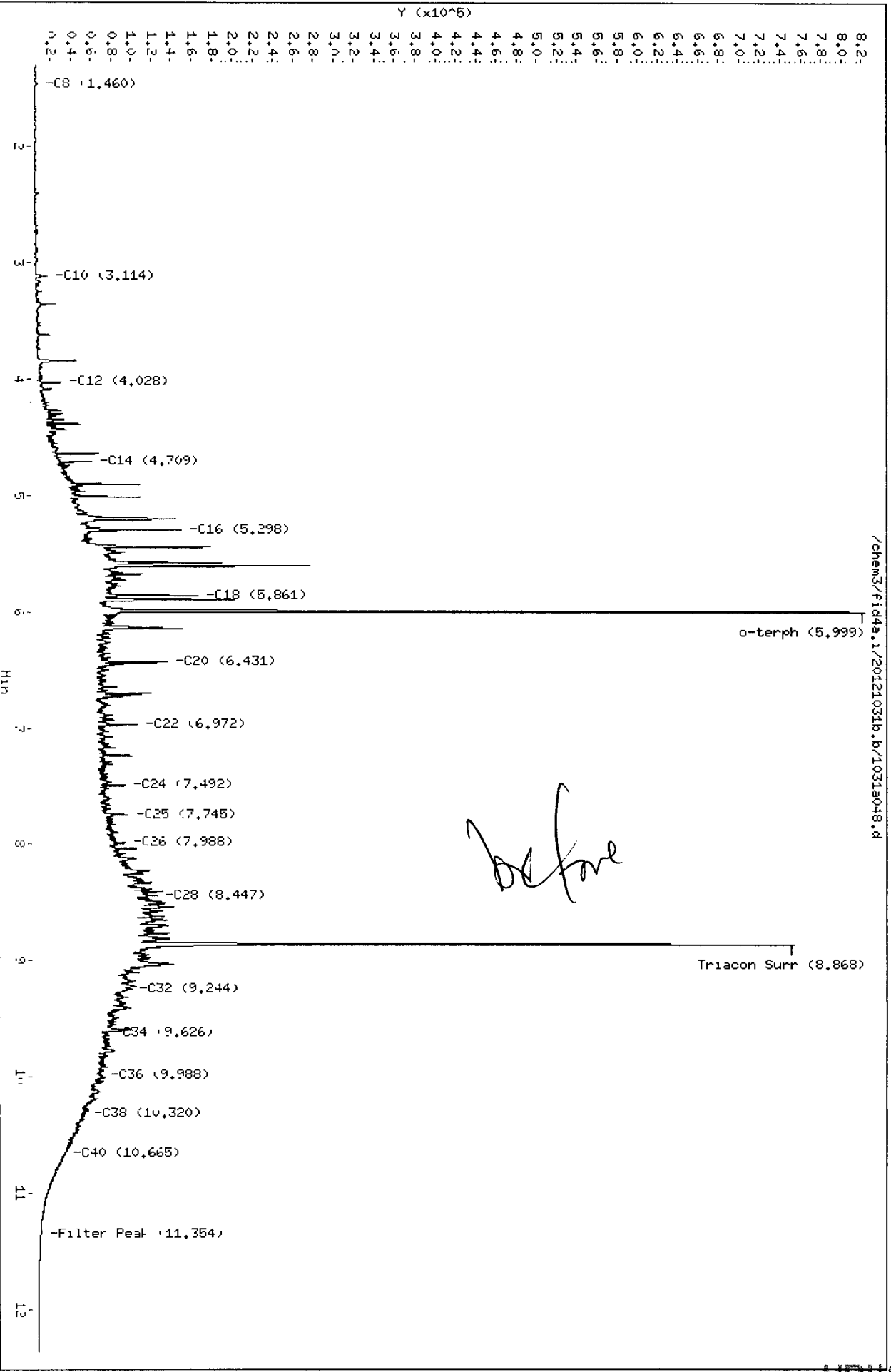
M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	19588.1	31-OCT-2012
Triacon Surr	18864.5	09-OCT-2012
Gas	18517.9	28-SEP-2012
Diesel	14902.8	31-OCT-2012
Motor Oil	13149.3	09-OCT-2012
AK102	17570.8	31-OCT-2012
AK103	9202.1	25-SEP-2012
JetA	5416.5	11-AUG-2012
Min Oil	13440.7	09-MAY-2012
OR Diesel	17647.1	31-OCT-2012
NAS Diesel	17529.9	31-OCT-2012
Bunker C	9156.1	24-AUG-2012

Data File: /chem3/fid4a.1/20121031b.b/1031a048.d
 Date: 01-NOV-2012 01:01
 Client ID:
 Sample Info: WP41E

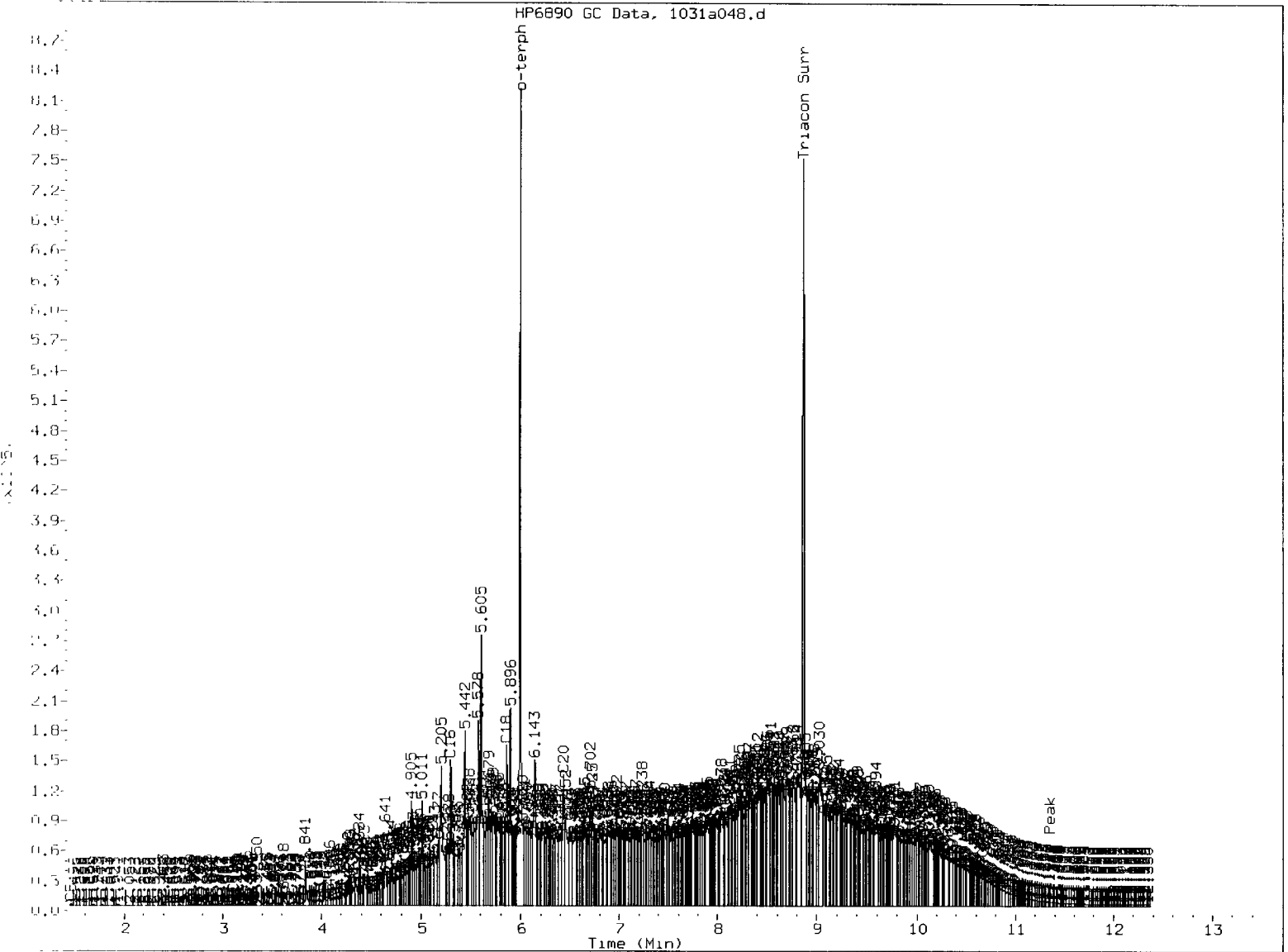
Column phase: RTX-1

Instrument: fid4a.1
 Operator: JR/VTS
 Column diameter: 0.25



00000000000000

HP6890 GC Data, 1031a048.d



MANUAL INTEGRATION

- 1. Baseline correction
- 3. Peak not found
- 5. Skipped surrogate

Analyst: *R*

Date: 11/09/12

Analytical Resources Inc.
TPH Quantitation Report

Data file: /chem3/fid4a.i/20121031b.b/1031a049.d ARI ID: VP41G
 Method: /chem3/fid4a.i/20121031b.b/ftphfid4a.m Client ID:
 Instrument: fid4a.i Injection: 01-NOV-2012 01:22
 Operator: JR/VTS
 Report Date: 11/03/2012 Dilution Factor: 1
 Macro: 31-OCT-2012
 Calibration Dates: Gas:28-SEP-2012 Diesel:31-OCT-2012 M.Oil:09-OCT-2012

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc
Toluene	1.233	0.000	22530	28705	WATPHG	(Tol-C12)	2335809	126.14
C8	1.448	-0.014	16150	20052	WATPHD	(C12-C24)	13449009	902.45
C10	3.112	-0.006	80466	60609	WATPHM	(C24-C38)	9883414	751.63
C12	4.028	-0.003	222790	150883	AK102	(C10-C25)	15058071	856.99
C14	4.711	-0.003	246363	174307	AK103	(C25-C36)	9215489	1001.46
C16	5.298	-0.003	215319	173063	OR.DIES	(C10-C28)	17915793	1015.23
C18	5.857	-0.004	183475	153883				
C20	6.421	-0.004	218307	213417	JET-A	(C10-C18)	9771740	1804.07
C22	6.970	-0.004	266918	285294	MIN.OIL	(C24-C38)	9883414	735.34
C24	7.495	0.000	279640	245095				
C25	7.746	-0.001	337641	327219				
C26	7.987	-0.002	286799	310658				
C28	8.445	-0.001	236131	267454				
C32	9.268	0.019	57633	93166				
C34	9.635	0.015	327512	538162				
Filter Peak	11.362	0.013	2686	3910	BUNKERC	(C10-C38)	24596679	2686.37
C36	9.966	-0.011	25868	26486				
C38	10.332	0.003	14639	12322				
C40	10.672	0.000	9452	7441				
o-terph	5.996	-0.002	873234	608111				
Triacon Surr	8.868	-0.006	840113	772102	NAS DIES	(C10-C24)	14713265	839.33

Range Times: NW Diesel (4.031 - 7.495) AK102 (3.12 - 7.75) Jet A (3.12 - 5.86)
 NW M.Oil (7.50 - 10.33) AK103 (7.75 - 9.98) OR Diesel (3.12 - 8.45)

Surrogate	Area	Amount	%Rec
o-Terphenyl	608111	31.0	69.0 M
Triacontane	772102	40.9	91.0 M

A 11/03/12

M Indicates the peak was manually integrated

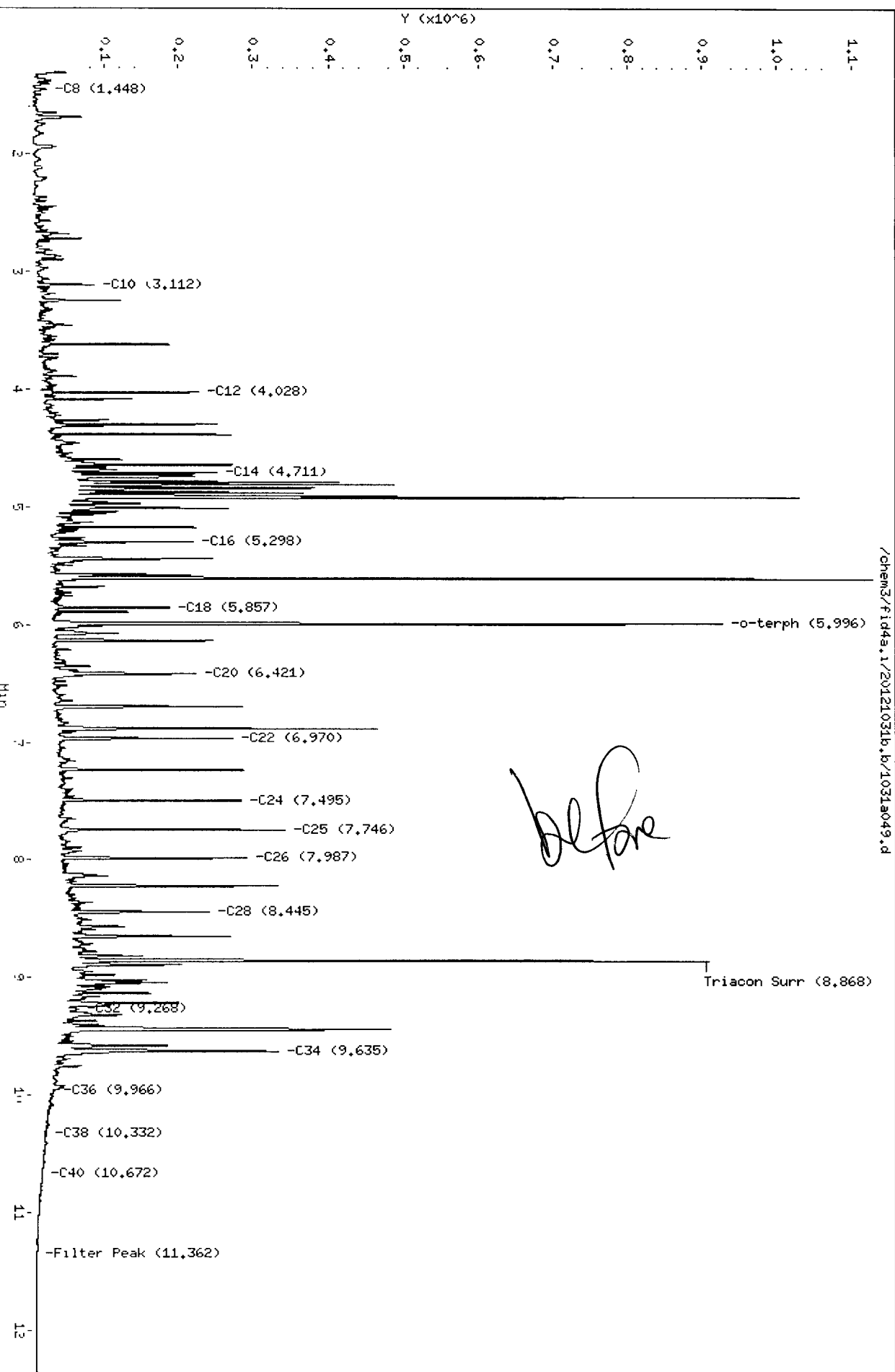
Analyte	RF	Curve Date
o-Terph Surr	19588.1	31-OCT-2012
Triacon Surr	18864.5	09-OCT-2012
Gas	18517.9	28-SEP-2012
Diesel	14902.8	31-OCT-2012
Motor Oil	13149.3	09-OCT-2012
AK102	17570.8	31-OCT-2012
AK103	9202.1	25-SEP-2012
JetA	5416.5	11-AUG-2012
Min Oil	13440.7	09-MAY-2012
OR Diesel	17647.1	31-OCT-2012
NAS Diesel	17529.9	31-OCT-2012
Bunker C	9156.1	24-AUG-2012

Data File: /chem3/fid4a,1/20121031b,b/1031a049.d
Date: 01-NOV-2012 01:22
Client ID:
Sample Info: WP41G

Column phase: RTX-1

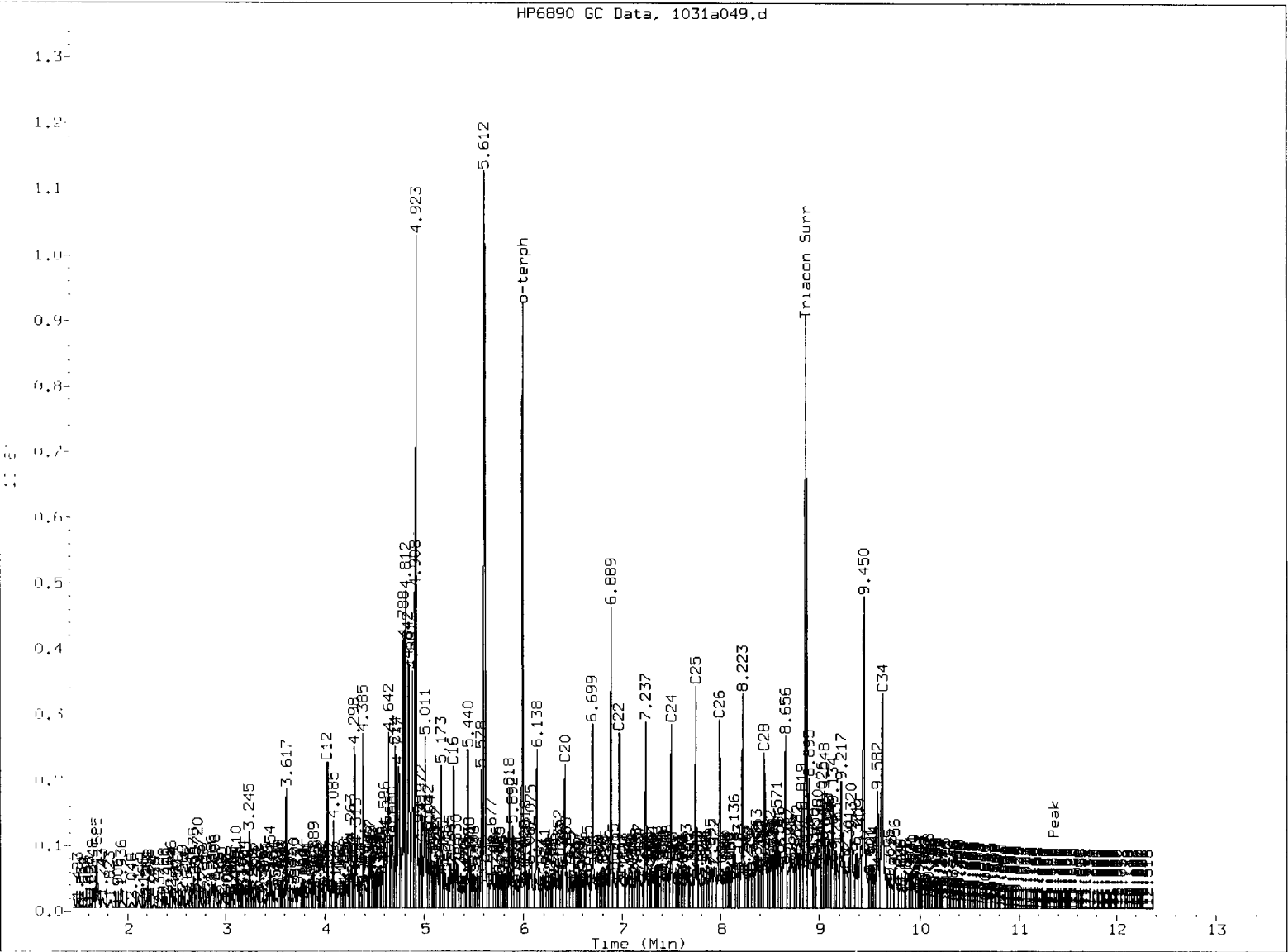
Instrument: fid4a,1
Operator: JR/VTS
Column diameter: 0.25

/chem3/fid4a,1/20121031b,b/1031a049.d



000000 000000

HP6890 GC Data, 1031a049.d



MANUAL INTEGRATION

- 1. Baseline correction
- 3. Peak not found
- 5. Skimmed surrogate

Analyst: *fl*

Date: 11/03/12

Analytical Resources Inc.
TPH Quantitation Report

Data file: /chem3/fid4a.i/20121101.b/1101a015.d
Method: /chem3/fid4a.i/20121101.b/ftphfid4a.m
Instrument: fid4a.i
Operator: JR/VTS
Report Date: 11/03/2012
Macro: 01-NOV-2012

ARI ID: VP41H
Client ID:
Injection: 01-NOV-2012 15:01
Dilution Factor: 1

Calibration Dates: Gas:28-SEP-2012 Diesel:01-NOV-2012 M.Oil:09-OCT-2012

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc
Toluene	1.233	0.005	16255	15894	WATPHG	(Tol-C12)	2748965	148.45
C8	1.448	-0.008	19854	27931	WATPHD	(C12-C24)	33155414	<u>2278.10</u>
C10	3.113	-0.002	97157	71187	WATPHM	(C24-C38)	40542221	<u>3083.23</u>
C12	4.029	-0.001	180709	167361	AK102	(C10-C25)	36561419	2131.99
C14	4.712	0.000	248748	215558	AK103	(C25-C36)	37054520	4026.76
C16	5.299	-0.001	257977	251496				
C18	5.861	0.001	245400	381396				
C20	6.426	0.003	382756	548337	JET-A	(C10-C18)	14651861	2705.05
C22	6.981	0.006	377600	594493				
C24	7.492	-0.005	224294	86307				
C25	7.756	0.009	435041	590737				
C26	7.999	0.011	387152	708650				
C28	8.461	0.015	451986	819850				
C32	9.239	-0.009	413002	666207				
C34	9.606	-0.007	217196	410011				
Filter Peak	11.366	-0.001	4830	4777	CREOSOT	(C12-C22)	26599170	13219.42 M
C36	9.980	0.010	130382	35590				
C38	10.312	-0.002	89213	50424				
C40	10.652	0.002	41330	49741				
o-terph	6.000	0.002	839153	628016				
Triacon Surr	8.882	0.007	897630	813683	NAS DIES	(C10-C24)	34960396	2043.51

Range Times: NW Diesel (4.030 - 7.497) AK102 (3.12 - 7.75) Jet A (3.12 - 5.86)
NW M.Oil (7.50 - 10.31) AK103 (7.75 - 9.97) OR Diesel (3.12 - 8.45)

Surrogate	Area	Amount	%Rec
o-Terphenyl	628016	32.6	72.5 M
Triacontane	813683	43.1	95.9 M

a 11/03/12

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	19248.4	01-NOV-2012
Triacon Surr	18864.5	09-OCT-2012
Gas	18517.9	28-SEP-2012
Diesel	14554.0	01-NOV-2012
Motor Oil	13149.3	09-OCT-2012
AK102	17149.0	01-NOV-2012
AK103	9202.1	25-SEP-2012
JetA	5416.5	11-AUG-2012
NAS Diesel	17108.0	01-NOV-2012
Creosote	2012.1	01-NOV-2011

Data File: /chem3/fid4a.i/20121101.b/1101a015.d

Date: 01-NOV-2012 15:01

Client ID:

Sample Info: WP41H

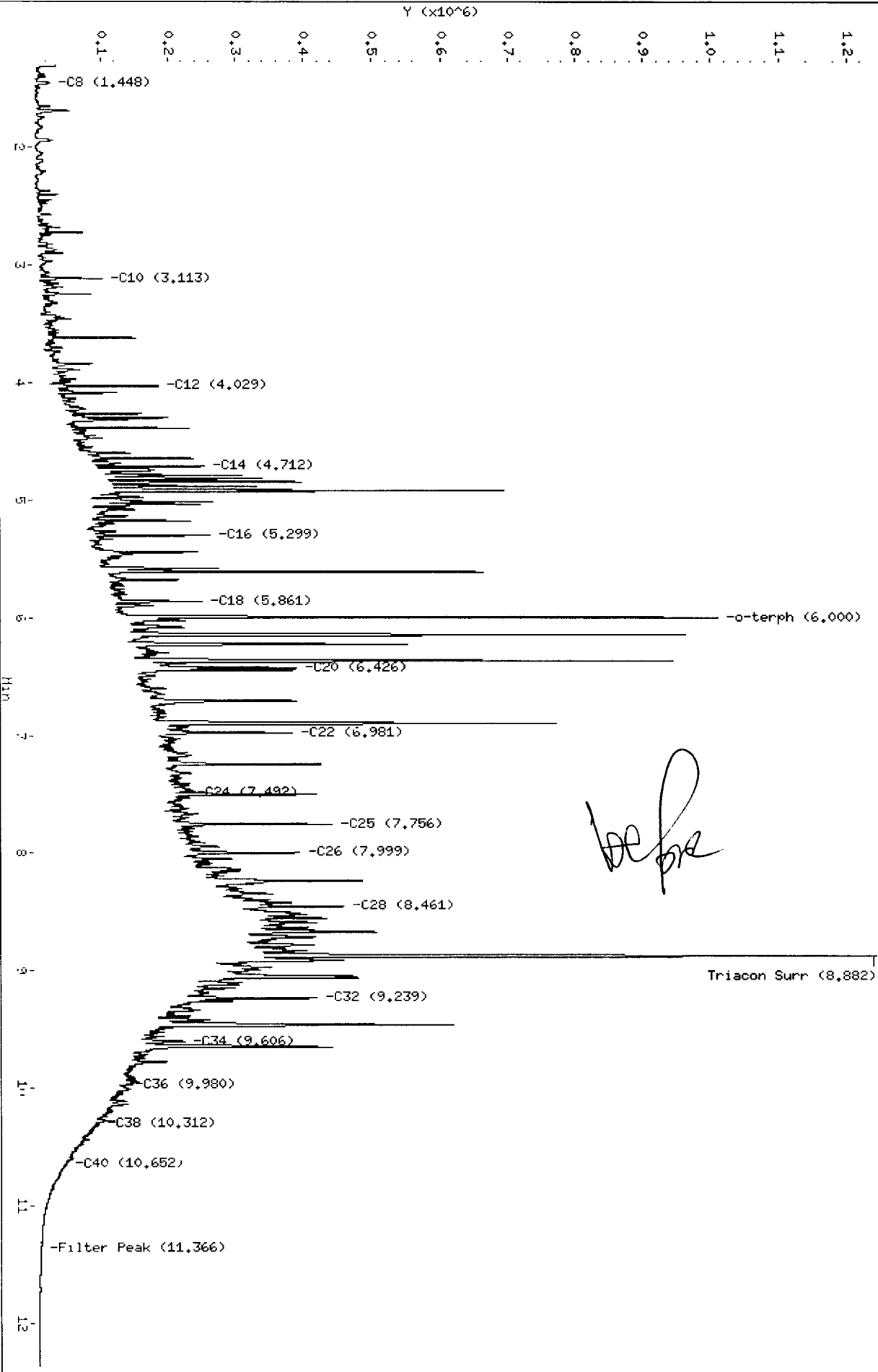
Column phase: RTX-1

Instrument: fid4a.1

Operator: JR/VTS

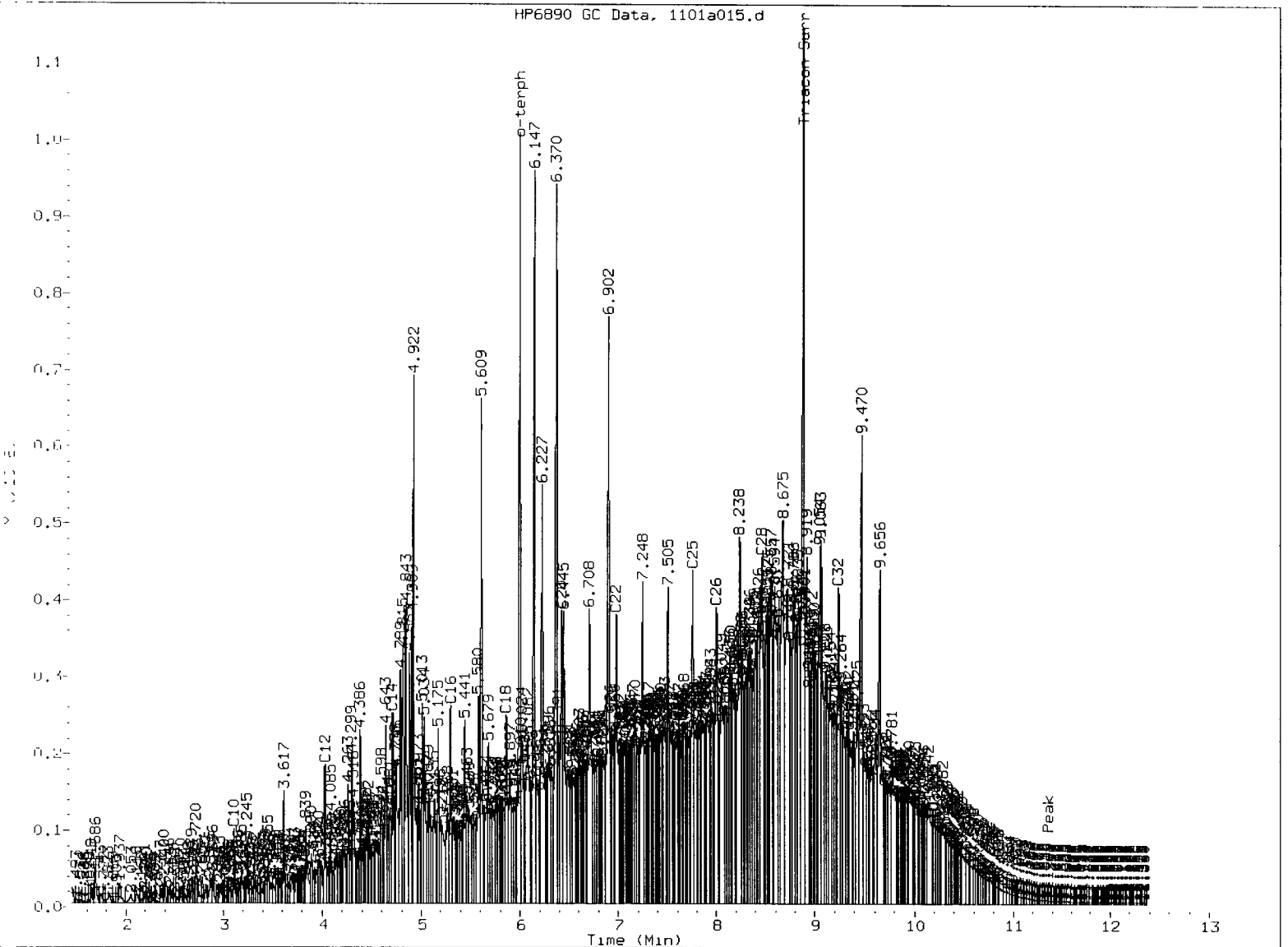
Column diameter: 0.25

/chem3/fid4a.i/20121101.b/1101a015.d



000000: 0115

HP6890 GC Data, 1101a015.d



MANUAL INTEGRATION

- 1. Baseline correction
- 3. Peak not found
- 5. Skipped surrogate

Analyst: *W*

Date: 11/03/12

CLEANED TPHD SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: VP41-Anchor QEA LLC
Project: Central Waterfront Shoreline Inves.

<u>Client ID</u>	<u>OTER</u>	<u>TOT OUT</u>
MB-103012	86.3%	0
LCS-103012	88.1%	0
LCSD-103012	88.3%	0
CWS1-02-1-3	82.7%	0
CWS1-02-1-3 MS	83.4%	0
CWS1-02-1-3 MSD	81.6%	0
CWS1-02-7-8	72.8%	0
CWS1-02-12-13	66.9%	0
CWS1-01-3-5	67.1%	0
CWS1-01-11-13	58.6%	0
CWS1-03-2-4	69.0%	0
CWS1-03-7-9	72.5%	0

LCS/MB LIMITS QC LIMITS

(OTER) = o-Terphenyl

(50-150)

(50-150)

Prep Method: SW3546
Log Number Range: 12-21279 to 12-21286

ORGANICS ANALYSIS DATA SHEET
NWTPHD by GC/FID-Silica and Acid Cleaned
 Page 1 of 1

Sample ID: CWS1-02-1-3
MS/MSD

Lab Sample ID: VP41A
 LIMS ID: 12-21279
 Matrix: Soil
 Data Release Authorized: *MW*
 Reported: 11/05/12

QC Report No: VP41-Anchor QEA LLC
 Project: Central Waterfront Shoreline Inves.
 Date Sampled: 10/25/12
 Date Received: 10/26/12

Date Extracted MS/MSD: 10/30/12
 Date Analyzed MS: 10/31/12 22:29
 MSD: 10/31/12 22:51
 Instrument/Analyst MS: FID/JGR
 MSD: FID/JGR

Sample Amount MS: 9.99 g-dry-wt
 MSD: 9.76 g-dry-wt
 Final Extract Volume MS: 1.0 mL
 MSD: 1.0 mL
 Dilution Factor MS: 1.0
 MSD: 1.0
 Percent Moisture: 7.9%

Range	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Diesel	< 5.2	114	150	76.0%	113	154	73.4%	0.9%

TPHD Surrogate Recovery

	MS	MSD
o-Terphenyl	83.4%	81.6%

Results reported in mg/kg
 RPD calculated using sample concentrations per SW846.

Analytical Resources Inc.
TPH Quantitation Report

Data file: /chem3/fid4a.i/20121031b.b/1031a041.d ARI ID: VP41AMS
 Method: /chem3/fid4a.i/20121031b.b/ftphfid4a.m Client ID:
 Instrument: fid4a.i Injection: 31-OCT-2012 22:29
 Operator: JR/VTS
 Report Date: 11/03/2012 Dilution Factor: 1
 Macro: 31-OCT-2012
 Calibration Dates: Gas:28-SEP-2012 Diesel:31-OCT-2012 M.Oil:09-OCT-2012

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc
Toluene	1.224	-0.010	6534	7950	WATPHG	(Tol-C12)	3752169	202.62
C8	1.462	0.000	5263	7816	WATPHD	(C12-C24)	16908317	1134.57
C10	3.114	-0.005	115706	80509	WATPHM	(C24-C38)	1835349	139.58
C12	4.028	-0.003	220905	188297	AK102	(C10-C25)	19681840	1120.14
C14	4.711	-0.003	360667	239276	AK103	(C25-C36)	1596539	173.50
C16	5.301	0.000	573110	425823	OR.DIES	(C10-C28)	20299948	1150.33
C18	5.862	0.001	454600	453941				
C20	6.423	-0.002	321420	312745	JET-A	(C10-C18)	14195561	2620.80
C22	6.970	-0.005	174803	148853	MIN.OIL	(C24-C38)	1835349	136.55
C24	7.490	-0.005	58421	60954				
C25	7.741	-0.006	36728	50913				
C26	7.982	-0.007	26064	31098				
C28	8.437	-0.009	20553	37039				
C32	9.238	-0.010	14479	31022				
C34	9.635	0.015	15427	43437				
Filter Peak	11.343	-0.006	2020	747	BUNKERC	(C10-C38)	21388563	2335.99
C36	9.990	0.012	6883	3107				
C38	10.321	-0.008	5614	3810				
C40	10.681	0.009	4492	5024				
o-terph	6.000	0.002	992243	734897				
Triacon Surr	8.866	-0.008	802045	685012	NAS DIES	(C10-C24)	19553214	1115.42

E

Range Times: NW Diesel (4.031 - 7.495) AK102 (3.12 - 7.75) Jet A (3.12 - 5.86)
 NW M.Oil (7.50 - 10.33) AK103 (7.75 - 9.98) OR Diesel (3.12 - 8.45)

11/03/12

Surrogate	Area	Amount	%Rec
o-Terphenyl	734897	37.5	83.4 M
Triacontane	685012	36.3	80.7 M

M Indicates the peak was manually integrated

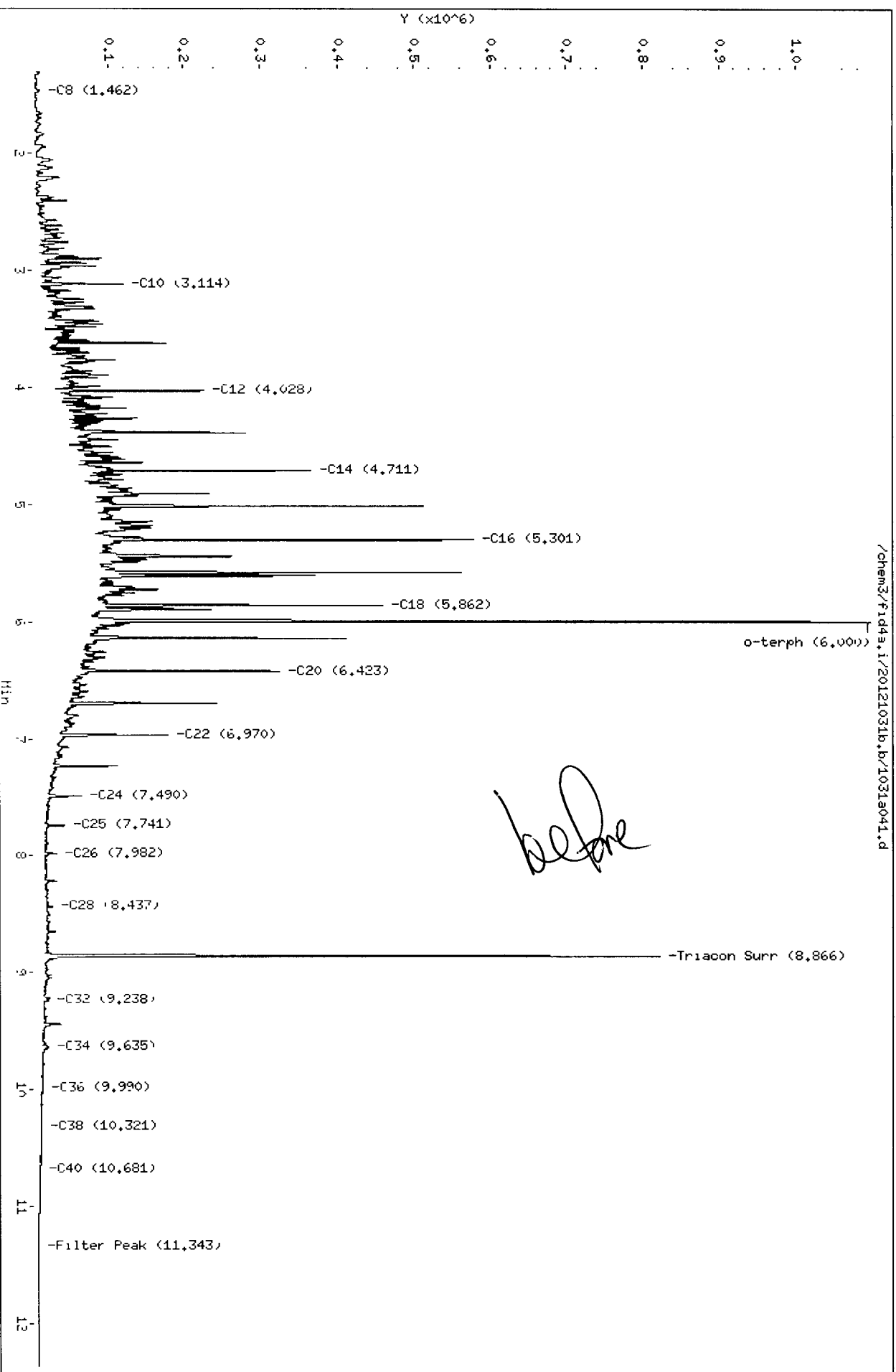
Analyte	RF	Curve Date
o-Terph Surr	19588.1	31-OCT-2012
Triacon Surr	18864.5	09-OCT-2012
Gas	18517.9	28-SEP-2012
Diesel	14902.8	31-OCT-2012
Motor Oil	13149.3	09-OCT-2012
AK102	17570.8	31-OCT-2012
AK103	9202.1	25-SEP-2012
JetA	5416.5	11-AUG-2012
Min Oil	13440.7	09-MAY-2012
OR Diesel	17647.1	31-OCT-2012
NAS Diesel	17529.9	31-OCT-2012
Bunker C	9156.1	24-AUG-2012

Data File: /chem3/fid4a.1/20121031b.b/1031a041.d
Date: 31-OCT-2012 22:29
Client ID:
Sample Info: WP41AMS

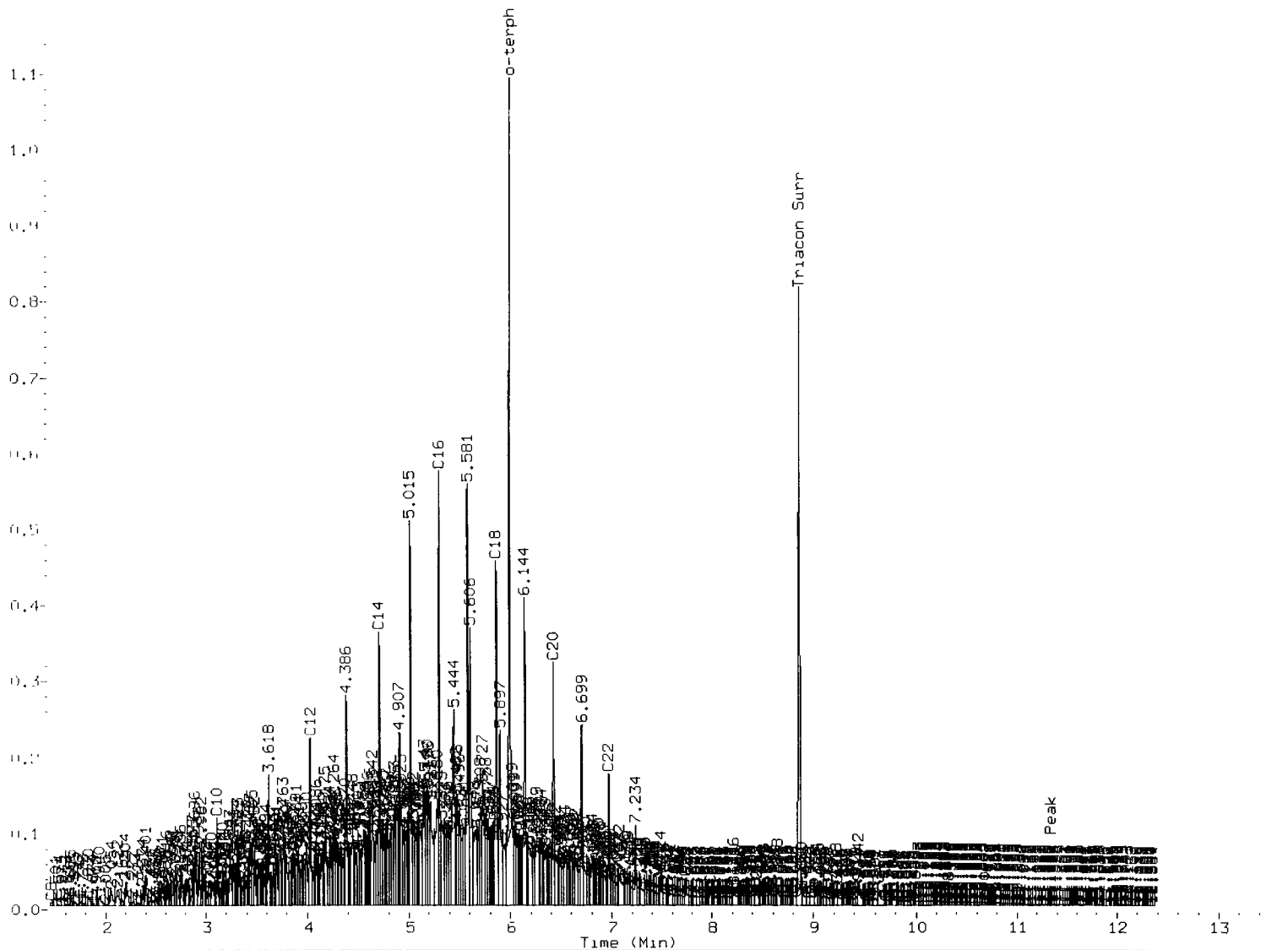
Column phase: RTX-1

Instrument: fid4a.1

Operator: JR/VTS
Column diameter: 0.25



HP6890 GC Data, 1031a041.d



MANUAL INTEGRATION

- 1. Baseline correction
- 3. Peak not found
- 5. Skimmed surrogate

Analyst: JK

Date: 11/03/12

Analytical Resources Inc.
TPH Quantitation Report

Data file: /chem3/fid4a.i/20121031b.b/1031a042.d ARI ID: VP41AMSD
 Method: /chem3/fid4a.i/20121031b.b/ftphfid4a.m Client ID:
 Instrument: fid4a.i Injection: 31-OCT-2012 22:51
 Operator: JR/VTS
 Report Date: 11/03/2012 Dilution Factor: 1
 Macro: 31-OCT-2012
 Calibration Dates: Gas:28-SEP-2012 Diesel:31-OCT-2012 M.Oil:09-OCT-2012

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc
Toluene	1.223	-0.010	7203	7551	WATPHG	(Tol-C12)	3765215	203.33
C8	1.463	0.001	5421	7955	WATPHD	(C12-C24)	16449310	1103.77
C10	3.113	-0.005	113574	82031	WATPHM	(C24-C38)	1427052	108.53
C12	4.028	-0.003	225810	189019	AK102	(C10-C25)	19227598	1094.29
C14	4.711	-0.003	363099	234314	AK103	(C25-C36)	1212343	131.75
C16	5.301	0.000	556979	441351	OR.DIES	(C10-C28)	19706950	1116.72
C18	5.862	0.001	444340	411513				
C20	6.422	-0.002	323031	305399	JET-A	(C10-C18)	14048300	2593.62
C22	6.969	-0.005	165565	157279	MIN.OIL	(C24-C38)	1427052	106.17
C24	7.491	-0.005	54837	59486				
C25	7.741	-0.005	31542	47612				
C26	7.982	-0.007	19994	23397				
C28	8.438	-0.008	15595	20756				
C32	9.234	-0.015	10801	19858				
C34	9.631	0.011	9342	15355				
Filter Peak	11.337	-0.012	1684	2685	BUNKERC	(C10-C38)	20533204	2242.57
C36	9.974	-0.004	5259	2237				
C38	10.335	0.006	4079	2130				
C40	10.664	-0.008	3378	3167				
o-terph	5.998	0.001	924627	718964				
Triacon Surr	8.865	-0.009	788616	677445	NAS DIES	(C10-C24)	19106152	1089.92

E

Range Times: NW Diesel (4.031 - 7.495) AK102 (3.12 - 7.75) Jet A (3.12 - 5.86)
 NW M.Oil (7.50 - 10.33) AK103 (7.75 - 9.98) OR Diesel (3.12 - 8.45)

Surrogate	Area	Amount	%Rec
o-Terphenyl	718964	36.7	81.6 M
Triacontane	677445	35.9	79.8 M

2 11/03/12

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	19588.1	31-OCT-2012
Triacon Surr	18864.5	09-OCT-2012
Gas	18517.9	28-SEP-2012
Diesel	14902.8	31-OCT-2012
Motor Oil	13149.3	09-OCT-2012
AK102	17570.8	31-OCT-2012
AK103	9202.1	25-SEP-2012
JetA	5416.5	11-AUG-2012
Min Oil	13440.7	09-MAY-2012
OR Diesel	17647.1	31-OCT-2012
NAS Diesel	17529.9	31-OCT-2012
Bunker C	9156.1	24-AUG-2012

Data File: /chem3/fid4a.i/20121031b.b/1031a042.d

Date: 31-OCT-2012 22:51

Client ID:

Sample Info: WP41AHSD

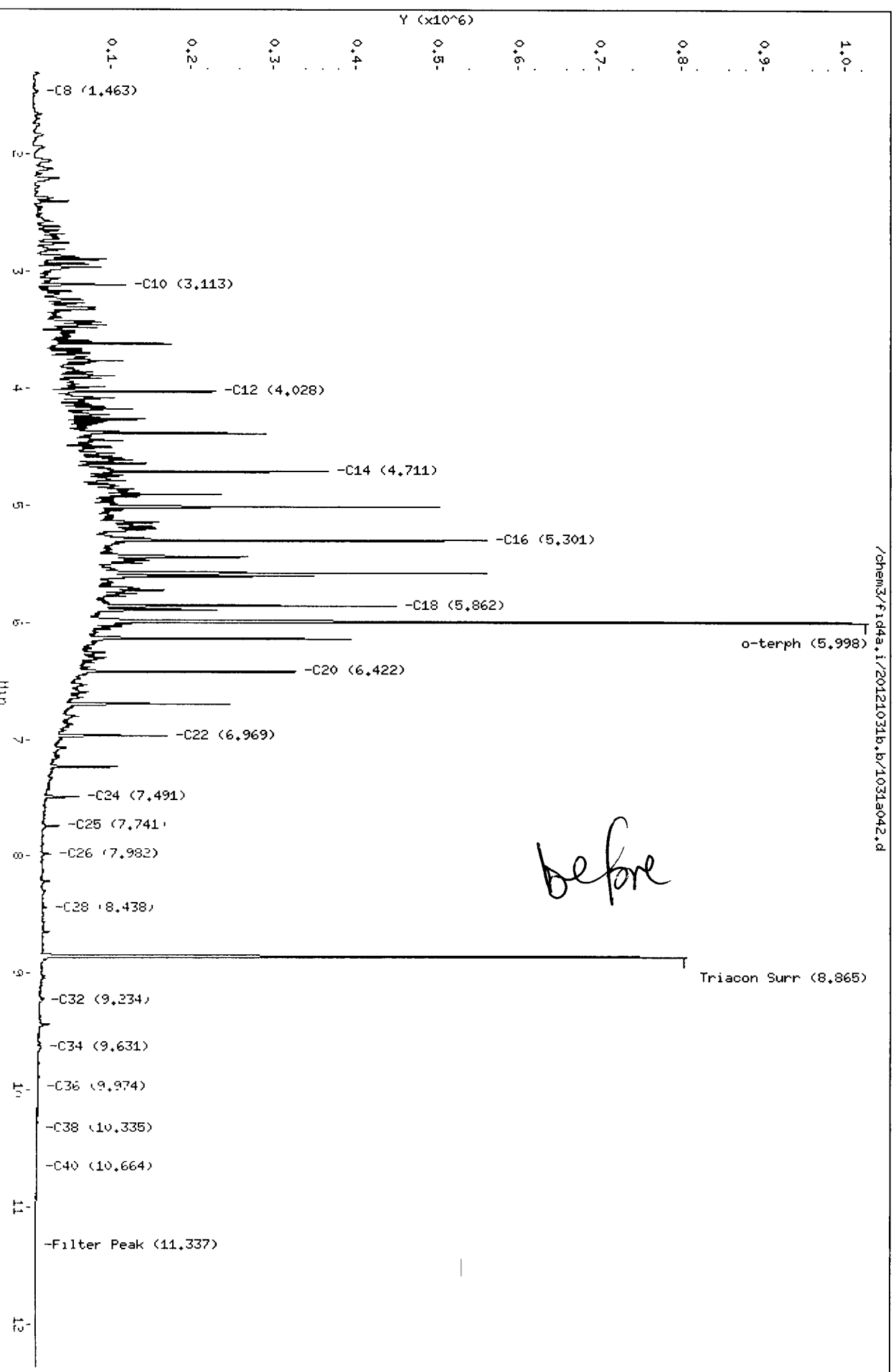
Column phase: RTX-1

Instrument: fid4a.i

Operator: JR/VTS

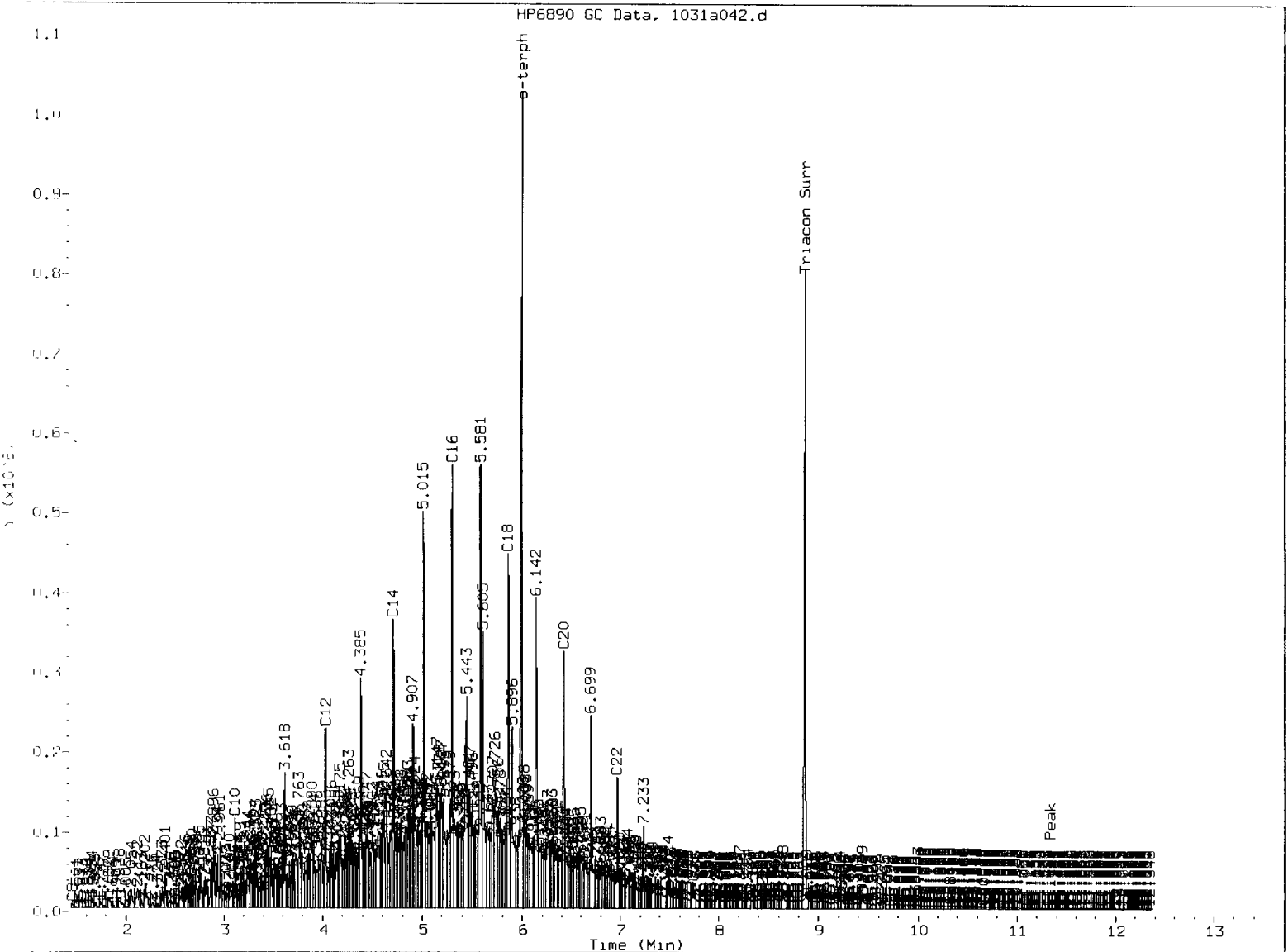
Column diameter: 0.25

Page 1



WP41A 00107

HP6890 GC Data, 1031a042.d



MANUAL INTEGRATION

- 1. Baseline correction
- 3. Peak not found
- 5. Skimmed surrogate

Analyst: JK Date: 11/03/12

ORGANICS ANALYSIS DATA SHEET
NWTPHD by GC/FID-Silica and Acid Cleaned
 Page 1 of 1

Sample ID: LCS-103012
LCS/LCSD

Lab Sample ID: LCS-103012
 LIMS ID: 12-21279
 Matrix: Soil
 Data Release Authorized: *mwj*
 Reported: 11/05/12

QC Report No: VP41-Anchor QEA LLC
 Project: Central Waterfront Shoreline Inves.
 Date Sampled: 10/25/12
 Date Received: 10/26/12

Date Extracted LCS/LCSD: 10/30/12
 Date Analyzed LCS: 10/31/12 20:18
 LCSD: 10/31/12 20:40
 Instrument/Analyst LCS: FID/JGR
 LCSD: FID/JGR

Sample Amount LCS: 10.0 g
 LCSD: 10.0 g
 Final Extract Volume LCS: 1.0 mL
 LCSD: 1.0 mL
 Dilution Factor LCS: 1.0
 LCSD: 1.0

Range	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Diesel	118	150	78.7%	120	150	80.0%	1.7%

TPHD Surrogate Recovery

	LCS	LCSD
o-Terphenyl	88.1%	88.3%

Results reported in mg/kg
 RPD calculated using sample concentrations per SW846.

Analytical Resources Inc.
TPH Quantitation Report

Data file: /chem3/fid4a.i/20121031b.b/1031a035.d
Method: /chem3/fid4a.i/20121031b.b/ftphfid4a.m
Instrument: fid4a.i
Operator: JR/VTS
Report Date: 11/03/2012
Macro: 31-OCT-2012

ARI ID: VP40LCSS1
Client ID:
Injection: 31-OCT-2012 20:18
Dilution Factor: 1

Calibration Dates: Gas:28-SEP-2012 Diesel:31-OCT-2012 M.Oil:09-OCT-2012

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc
Toluene	1.228	-0.005	7437	7468	WATPHG	(Tol-C12)	4184589	225.98
C8	1.469	0.007	5622	8507	WATPHD	(C12-C24)	17631877	1183.12
C10	3.115	-0.004	122136	90056	WATPHM	(C24-C38)	256455	19.50
C12	4.028	-0.003	232460	204481	AK102	(C10-C25)	20645351	1174.98
C14	4.710	-0.003	394633	260967	AK103	(C25-C36)	178725	19.42
C16	5.301	0.001	589918	479653	OR.DIES	(C10-C28)	20766729	1176.78
C18	5.863	0.002	497493	469105				
C20	6.423	-0.001	342577	372385	JET-A	(C10-C18)	15435344	2849.69
C22	6.969	-0.005	165153	161026	MIN.OIL	(C24-C38)	256455	19.08
C24	7.491	-0.004	43901	55125				
C25	7.740	-0.007	18422	27720				
C26	7.983	-0.006	7613	11022				
C28	8.440	-0.006	2274	3420				
C32	9.243	-0.005	1827	2400				
C34	9.613	-0.007	458	643				
Filter Peak	11.343	-0.006	997	1103	BUNKERC	(C10-C38)	20835049	2275.54
C36	9.989	0.012	476	666				
C38	10.336	0.007	641	828				
C40	10.667	-0.005	854	882				
o-terph	6.000	0.002	1004755	776636				
Triacon Surr	8.868	-0.005	782468	717522	NAS DIES	(C10-C24)	20578595	1173.92

E

Range Times: NW Diesel(4.031 - 7.495) AK102(3.12 - 7.75) Jet A(3.12 - 5.86)
NW M.Oil(7.50 - 10.33) AK103(7.75 - 9.98) OR Diesel(3.12 - 8.45)

Surrogate	Area	Amount	%Rec
o-Terphenyl	776636	39.6	88.1 M
Triacotane	717522	38.0	84.5

11/03/12

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	19588.1	31-OCT-2012
Triacon Surr	18864.5	09-OCT-2012
Gas	18517.9	28-SEP-2012
Diesel	14902.8	31-OCT-2012
Motor Oil	13149.3	09-OCT-2012
AK102	17570.8	31-OCT-2012
AK103	9202.1	25-SEP-2012
JetA	5416.5	11-AUG-2012
Min Oil	13440.7	09-MAY-2012
OR Diesel	17647.1	31-OCT-2012
NAS Diesel	17529.9	31-OCT-2012
Bunker C	9156.1	24-AUG-2012

Data File: /chem3/fid4a.1/20121031b.b/1031a035.d

Date: 31-OCT-2012 20:18

Client ID:

Sample Info: WP40LCSS1

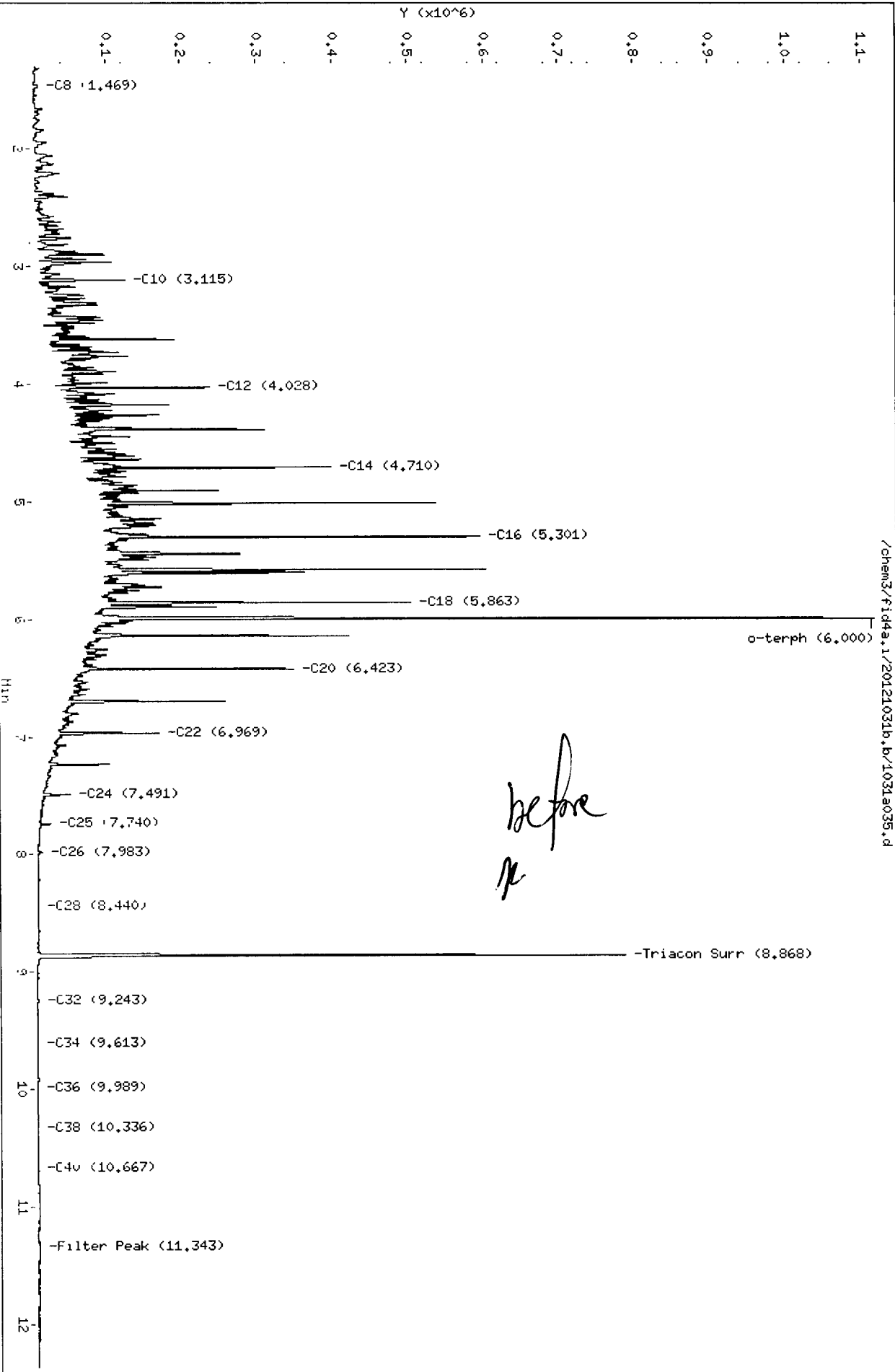
Column phase: RTX-1

Instrument: fid4a.1

Operator: JR/VTS

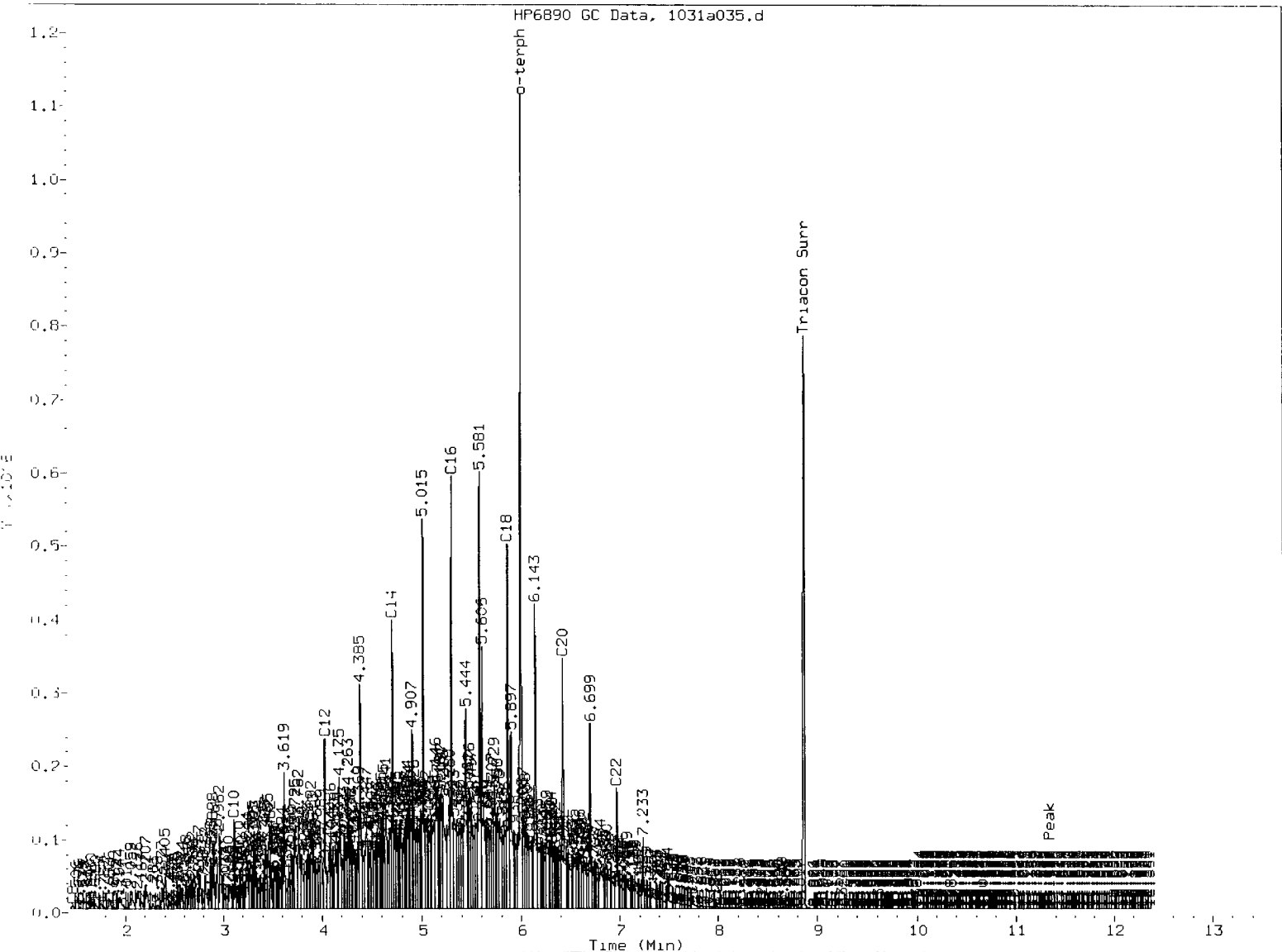
Column diameter: 0.25

Page 1



WP40LCSS1

HP6890 GC Data, 1031a035.d



MANUAL INTEGRATION

- 1. Baseline correction
- 3. Peak not found
- 3. Skipped surrogate

Analyst: *h* Date: 11/03/12

Analytical Resources Inc.
TPH Quantitation Report

Data file: /chem3/fid4a.i/20121031b.b/1031a036.d
Method: /chem3/fid4a.i/20121031b.b/ftphfid4a.m
Instrument: fid4a.i
Operator: JR/VTS
Report Date: 11/03/2012
Macro: 31-OCT-2012
Calibration Dates: Gas:28-SEP-2012 Diesel:31-OCT-2012 M.Oil:09-OCT-2012

ARI ID: VP40LCSDS1
Client ID:
Injection: 31-OCT-2012 20:40
Dilution Factor: 1

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc
Toluene	1.228	-0.006	7616	8011	WATPHG (Tol-C12)		4081557	220.41
C8	1.467	0.004	5550	8471	WATPHD (C12-C24)		17866608	1198.87 <i>E</i>
C10	3.115	-0.004	114649	88028	WATPHM (C24-C38)		244367	18.58
C12	4.029	-0.003	220101	199086	AK102 (C10-C25)		20778505	1182.56
C14	4.711	-0.003	380771	253734	AK103 (C25-C36)		178951	19.45
C16	5.302	0.001	572131	459840	OR.DIES (C10-C28)		20897542	1184.19
C18	5.863	0.002	465364	469223				
C20	6.423	-0.001	330264	314242	JET-A (C10-C18)		15382279	2839.90
C22	6.970	-0.005	168628	174460	MIN.OIL (C24-C38)		244367	18.18
C24	7.492	-0.003	44345	56208				
C25	7.742	-0.005	17523	29786				
C26	7.985	-0.004	7464	10230				
C28	8.439	-0.008	2379	3595				
C32	9.239	-0.010	1906	2393				
C34	9.614	-0.007	435	193				
Filter Peak	11.341	-0.008	972	1130	BUNKERC (C10-C38)		20969373	2290.21
C36	9.980	0.002	499	411				
C38	10.328	-0.001	635	563				
C40	10.672	0.000	1281	2827				
o-terph	6.001	0.003	976175	778664				
Triacon Surr	8.868	-0.006	816790	719355	NAS DIES (C10-C24)		20725006	1182.27

Range Times: NW Diesel (4.031 - 7.495) AK102 (3.12 - 7.75) Jet A (3.12 - 5.86)
NW M.Oil (7.50 - 10.33) AK103 (7.75 - 9.98) OR Diesel (3.12 - 8.45)

Surrogate	Area	Amount	%Rec
o-Terphenyl	778664	39.8	88.3 M
Triacontane	719355	38.1	84.7

A 11/03/12

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	19588.1	31-OCT-2012
Triacon Surr	18864.5	09-OCT-2012
Gas	18517.9	28-SEP-2012
Diesel	14902.8	31-OCT-2012
Motor Oil	13149.3	09-OCT-2012
AK102	17570.8	31-OCT-2012
AK103	9202.1	25-SEP-2012
JetA	5416.5	11-AUG-2012
Min Oil	13440.7	09-MAY-2012
OR Diesel	17647.1	31-OCT-2012
NAS Diesel	17529.9	31-OCT-2012
Bunker C	9156.1	24-AUG-2012

Data File: /chem3/fid4a.1/20121031b.b/1031a036.d

Date: 31-OCT-2012 20:40

Client ID:

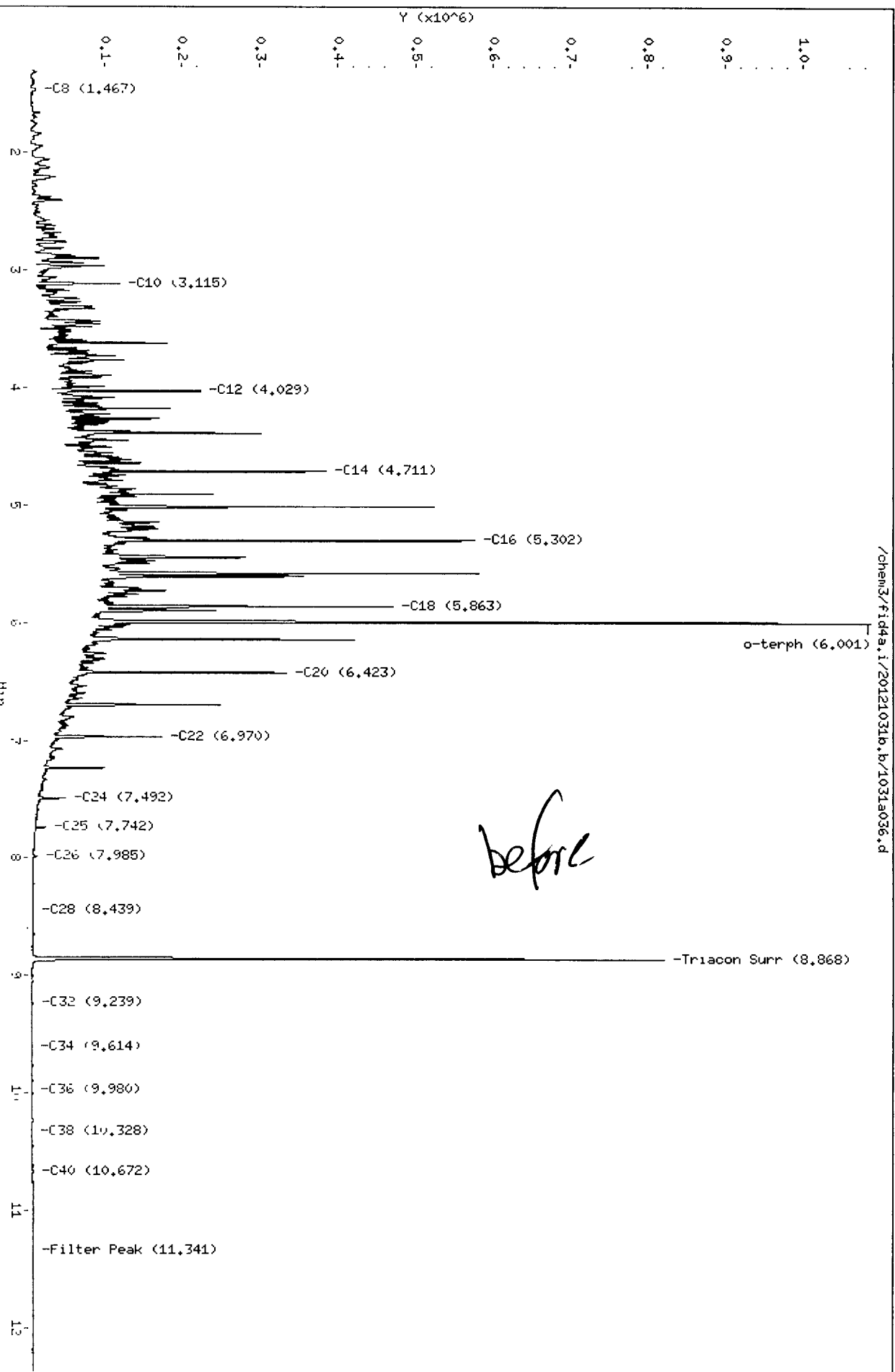
Sample Info: WP40LCSDS1

Column phase: RTX-1

Instrument: fid4a.1

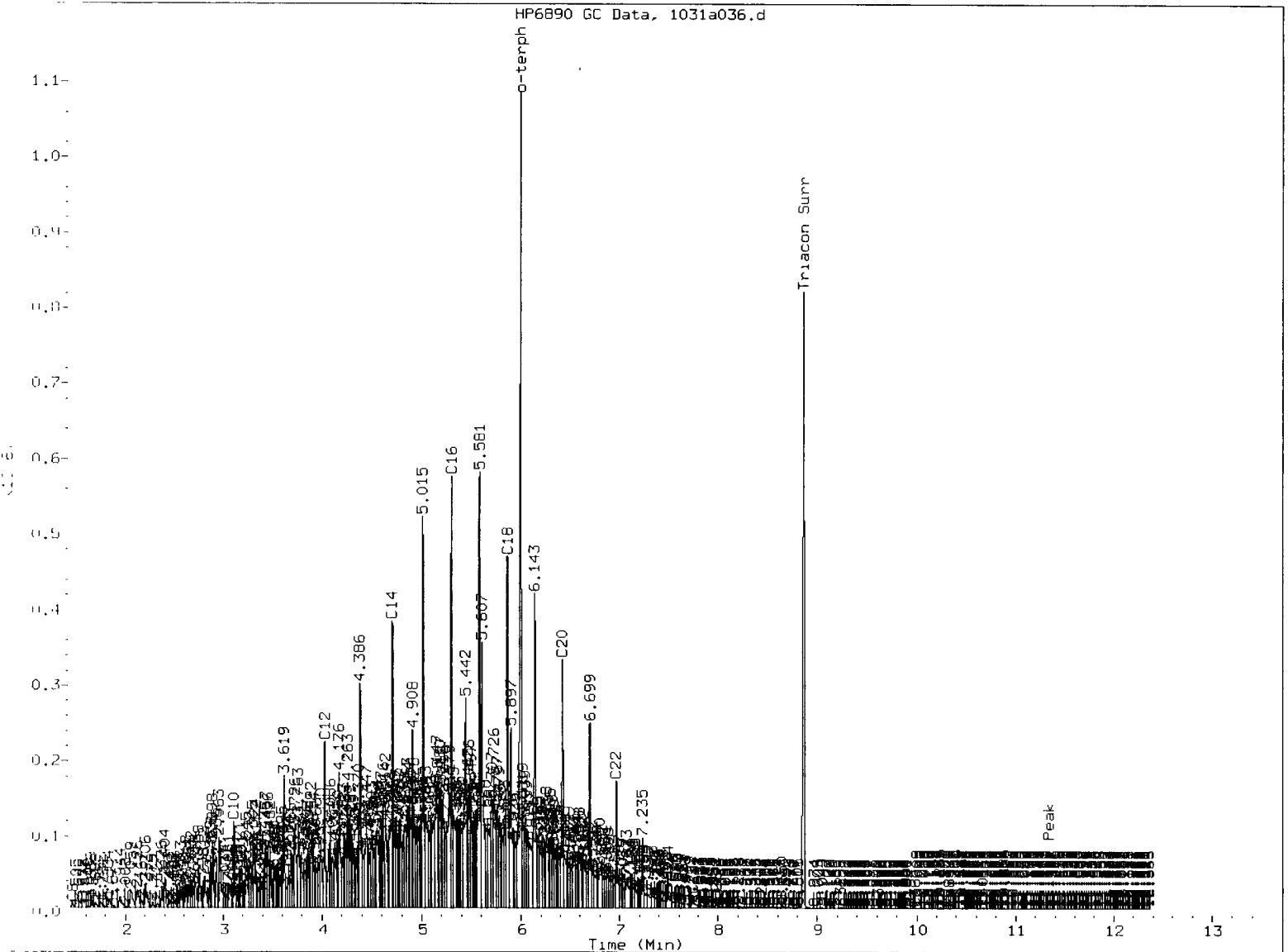
Operator: JR/VTS

Column diameter: 0.25



0010 0011 0012

HP6890 GC Data, 1031a036.d



MANUAL INTEGRATION

- 1. Baseline correction
- 3. Peak not found
- 5. Skipped surrogate

Analyst: *n* Date: 11/03/12

TOTAL DIESEL RANGE HYDROCARBONS-EXTRACTION REPORT

Matrix: Soil
Date Received: 10/26/12

ARI Job: VP41
Project: Central Waterfront Shoreline Inves.

ARI ID	Client ID	Client Amt	Final Vol	Basis	Prep Date
12-21279-103012MB1	Method Blank	10.0 g	1.00 mL	-	10/30/12
12-21279-103012LCS1	Lab Control	10.0 g	1.00 mL	-	10/30/12
12-21279-103012LCSD1	Lab Control Dup	10.0 g	1.00 mL	-	10/30/12
12-21279-VP41A	CWS1-02-1-3	9.68 g	1.00 mL	D	10/30/12
12-21279-VP41AMS	CWS1-02-1-3	9.99 g	1.00 mL	D	10/30/12
12-21279-VP41AMSD	CWS1-02-1-3	9.76 g	1.00 mL	D	10/30/12
12-21280-VP41B	CWS1-02-7-8	8.76 g	1.00 mL	D	10/30/12
12-21281-VP41C	CWS1-02-12-13	8.81 g	1.00 mL	D	10/30/12
12-21282-VP41D	CWS1-01-3-5	8.77 g	1.00 mL	D	10/30/12
12-21283-VP41E	CWS1-01-11-13	8.54 g	1.00 mL	D	10/30/12
12-21285-VP41G	CWS1-03-2-4	8.95 g	1.00 mL	D	10/30/12
12-21286-VP41H	CWS1-03-7-9	7.46 g	1.00 mL	D	10/30/12

TOTAL DIESEL RANGE HYDROCARBONS-EXTRACTION REPORT

Matrix: Soil
Date Received: 10/26/12

ARI Job: VP40
Project: Central Waterfront Shoreline Inves.

ARI ID	Client ID	Client Amt	Final Vol	Basis	Prep Date
12-21289-103012MB1	Method Blank	10.0 g	1.00 mL	-	10/30/12
12-21289-103012LCS1	Lab Control	10.0 g	1.00 mL	-	10/30/12
12-21289-103012LCSD1	Lab Control Dup	10.0 g	1.00 mL	-	10/30/12
12-21289-VP40A	CWS1-04-2-4	8.33 g	1.00 mL	D	10/30/12
12-21290-VP40B	CWS1-04-6-8	8.02 g	1.00 mL	D	10/30/12
12-21291-VP40C	CWS1-04-13.5-15	8.58 g	1.00 mL	D	10/30/12

4
TPH METHOD BLANK SUMMARY

BLANK NO.

VP40MBS1

Lab Name: ANALYTICAL RESOURCES INC

Client: ANCHOR QEA LLC

SDG No.: VP40

Project No.: CENTRAL WATERFRONT

Date Extracted: 10/30/12

Matrix: SOLID

Date Analyzed : 10/31/12

Instrument ID : FID4A

Time Analyzed : 1957

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED
	=====	=====	=====
01	VP40LCSS1	VP40LCSS1	10/31/12
02	VP40LCSDS1	VP40LCSDS1	10/31/12
03	CWS1-04-2-4	VP40A	10/31/12
04	CWS1-04-6-8	VP40B	10/31/12
05	CWS1-04-13.5	VP40C	10/31/12
06	CWS1-02-1-3	VP41A	10/31/12
07	CWS1-02-1-3	VP41AMS	10/31/12
08	CWS1-02-1-3	VP41AMSD	10/31/12
09	CWS1-02-7-8	VP41B	10/31/12
10	CWS1-02-12-1	VP41C	11/01/12
11	CWS1-01-3-5	VP41D	11/01/12
12	CWS1-01-11-1	VP41E	11/01/12
13	CWS1-03-2-4	VP41G	11/01/12
14	CWS1-03-7-9	VP41H	11/01/12
15	CWS1-04-13.5	VP40C	11/01/12
16	CWS1-02-7-8	VP41B	11/01/12
17	CWS1-03-7-9	VP41H	11/01/12
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			

6a
DIESEL INITIAL CALIBRATION

Lab Name: ANALYTICAL RESOURCES, INC.

Client: ANCHOR QEA

Instrument: FID4A.I

Project: CENTRAL WATERFRONT

Calibration Date: 31-OCT-2012

SDG No.: VP40

Diesel Range	RF1 50	RF2 100	RF3 250	RF4 500	RF5 1000	RF6 2500	Ave RF	%RSD
WA Diesel	14810	14599	14844	15434	14893	****	14903	2.13
AK Diesel	17371	17255	17514	18147	17567	****	17571	1.96
OR Diesel	17445	17325	17593	18225	17647	****	17647	1.97
Cal Diesel	17339	17217	17467	18104	17522	****	17530	1.95
o-Terph	18422	19003	19595	20752	20168	****	19588	4.70

<- Indicates %RSD outside limits
Surrogate areas are not included in Diesel RF calculation.

Quant Ranges : WA Diesel C12-C24 (4.031-7.495)
 AK Diesel C10-C25 (3.118-7.747)
 OR Diesel C10-C28 (3.118-8.446)
 Cal Diesel C10-C24 (3.118-7.495)

Calibration Files Analysis Time

1031a025.d	31-OCT-2012 16:37
1031a026.d	31-OCT-2012 16:59
1031a027.d	31-OCT-2012 17:22
1031a028.d	31-OCT-2012 17:44
1031a029.d	31-OCT-2012 18:06
1031a030.d	31-OCT-2012 18:28

6a
NW MOTOR OIL RANGE INITIAL CALIBRATION

Lab Name: ANALYTICAL RESOURCES, INC.

Client: ANCHOE QEA LLC

Instrument: FID4A.I

Project: CENTRAL WATERFRONT

Calibration Date: 09-OCT-2012

SDG No.: VP40

Product Range	RF1 100	RF2 250	RF3 500	RF4 1000	RF5 2500	RF6 5000	Ave RF	%RSD
WA M.Oil C24-C38	13319	13271	13023	14002	13089	12192	13149	4.4
Triac Surr	17032	18644	18484	20301	19481	19246	18865	5.9

<- Indicates %RSD outside limits
Surrogate areas are not included in Motor Oil RF calculation.

Calibration Files Analysis Time

1009a027.d	09-OCT-2012 20:56
1009a028.d	09-OCT-2012 21:17
1009a029.d	09-OCT-2012 21:38
1009a030.d	09-OCT-2012 21:59
1009a031.d	09-OCT-2012 22:20
1009a032.d	09-OCT-2012 22:41

7a
DIESEL CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC.

Client: ANCHOR QEA LLC

ICal Date: 31-OCT-2012

Project: CENTRAL WATERFRONT

CCal Date: 31-OCT-2012

SDG No.: VP40

Analysis Time: 19:12

Lab ID: DIESEL#2

Instrument: FID4A.I

Lab File Name: 1031a032.d

Diesel Range	Area*	CalcAmnt	NomAmnt	% D
WADies(C12-C24)	3342855	224.3	250	-10.3
AK102 (C10-C25)	3938176	224.1	250	-10.3
NASDies(C10-C24)	3927818	224.1	250	-10.4
Terphenyl	788022	40.2	45	-10.6

* Surrogate areas are subtracted from range areas
<- Indicates a %D outside QC limits

7a
MOTOR OIL CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC.

Client: ANCHOR QEA LLC

ICal Date: 09-OCT-2012

Project: CENTRAL WATERFRONT

CCal Date: 31-OCT-2012

SDG No.: VP40

Analysis Time: 19:35

Lab ID: MOIL#2

Instrument: FID4A.I

Lab File Name: 1031a033.d

M.oil Range	Area*	CalcAmnt	NomAmnt	% D
WAMoil (C24-C38)	6190748	470.8	500	-5.8
AK103 (C25-C36)	5240766	569.5	500	13.9
OR MOIL (C28-C40)	5058705	669.8	500	34.0
CRUDE (Tol-C40)	7471486	989.2	500	97.8
n-Triacontane	795290	42.2	45	-6.3

* Surrogate areas are subtracted from range areas
 <- Indicates a %D outside QC limits

7a
DIESEL CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC. Client: ANCHOR QEA LLC
ICal Date: 31-OCT-2012 Project: CENTRAL WATERFRONT
CCal Date: 31-OCT-2012 SDG No.: VP40
Analysis Time: 23:12 Lab ID: DIESEL#3
Instrument: FID4A.I Lab File Name: 1031a043.d

Diesel Range	Area*	CalcAmnt	NomAmnt	% D
WADies (C12-C24)	3371081	226.2	250	-9.5
AK102 (C10-C25)	3967186	225.8	250	-9.7
NASDies (C10-C24)	3959555	225.9	250	-9.7
Terphenyl	792921	40.5	45	-10.0

* Surrogate areas are subtracted from range areas
<- Indicates a %D outside QC limits

7a
MOTOR OIL CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC.

Client: ANCHOR QEA LLC

ICal Date: 09-OCT-2012

Project: CENTRAL WATERFRONT

CCal Date: 31-OCT-2012

SDG No.: VP40

Analysis Time: 23:34

Lab ID: MOIL#3

Instrument: FID4A.I

Lab File Name: 1031a044.d

M.oil Range	Area*	CalcAmnt	NomAmnt	% D
WAMoil (C24-C38)	6416421	488.0	500	-2.4
AK103 (C25-C36)	5434030	590.5	500	18.1
OR MOIL (C28-C40)	5263616	696.9	500	39.4
CRUDE (Tol-C40)	7652435	1013.2	500	102.6
n-Triacontane	813190	43.1	45	-4.2

* Surrogate areas are subtracted from range areas
<- Indicates a %D outside QC limits

7a
DIESEL CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC.

Client: ANCHOR QEA LLC

ICal Date: 31-OCT-2012

Project: CENTRAL WATERFRONT

CCal Date: 01-NOV-2012

SDG No.: VP40

Analysis Time: 02:05

Lab ID: DIESEL#4

Instrument: FID4A.I

Lab File Name: 1031a051.d

Diesel Range	Area*	CalcAmnt	NomAmnt	% D
WADies(C12-C24)	3266468	219.2	250	-12.3
AK102 (C10-C25)	3850361	219.1	250	-12.3
NASDies(C10-C24)	3840098	219.1	250	-12.4
Terphenyl	778824	39.8	45	-11.6

* Surrogate areas are subtracted from range areas
<- Indicates a %D outside QC limits

7a
MOTOR OIL CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC. Client: ANCHOR QEA LLC
 ICal Date: 09-OCT-2012 Project: CENTRAL WATERFRONT
 CCal Date: 01-NOV-2012 SDG No.: VP40
 Analysis Time: 02:27 Lab ID: MOIL#4
 Instrument: FID4A.I Lab File Name: 1031a052.d

M.oil Range	Area*	CalcAmnt	NomAmnt	% D
WAMoil (C24-C38)	6512937	495.3	500	-0.9
AK103 (C25-C36)	5484558	596.0	500	19.2
OR MOIL (C28-C40)	5348538	708.2	500	41.6
CRUDE (Tol-C40)	7810826	1034.2	500	106.8
n-Triacontane	811484	43.0	45	-4.4

* Surrogate areas are subtracted from range areas
 <- Indicates a %D outside QC limits

7a
DIESEL CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC. Client: ANCHOR QEA LLC
 ICal Date: 01-NOV-2012 Project: CENTRAL WATERFRONT
 CCal Date: 01-NOV-2012 SDG No.: VP40
 Analysis Time: 13:32 Lab ID: DIESEL#1
 Instrument: FID4A.I Lab File Name: 1101a011.d

Diesel Range	Area*	CalcAmnt	NomAmnt	% D
WADies (C12-C24)	3465127	238.1	250	-4.8
AK102 (C10-C25)	4089906	238.5	250	-4.6
NASDies (C10-C24)	4080000	238.5	250	-4.6
Terphenyl	812682	42.2	45	-6.2

* Surrogate areas are subtracted from range areas
 <- Indicates a %D outside QC limits

7a
MOTOR OIL CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC. Client: ANCHOR QEA LLC
 ICal Date: 09-OCT-2012 Project: CENTRAL WATERFRONT
 CCal Date: 01-NOV-2012 SDG No.: VP40
 Analysis Time: 13:55 Lab ID: MOIL#1
 Instrument: FID4A.I Lab File Name: 1101a012.d

M.oil Range	Area*	CalcAmnt	NomAmnt	% D
WAMoil (C24-C38)	6594970	501.5	500	0.3
AK103 (C25-C36)	5594464	608.0	500	21.6
OR MOIL (C28-C40)	5390086	713.7	500	42.7
CRUDE (Tol-C40)	7911912	1047.6	500	109.5
n-Triacontane	856845	45.4	45	0.9

* Surrogate areas are subtracted from range areas
 <- Indicates a %D outside QC limits

7a
DIESEL CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC.

Client: ANCHOR QEA LLC

ICal Date: 01-NOV-2012

Project: CENTRAL WATERFRONT

CCal Date: 01-NOV-2012

SDG No.: VP40

Analysis Time: 15:24

Lab ID: DIESEL#2

Instrument: FID4A.I

Lab File Name: 1101a016.d

Diesel Range	Area*	CalcAmnt	NomAmnt	% D
WADies (C12-C24)	3496395	240.2	250	-3.9
AK102 (C10-C25)	4111598	239.8	250	-4.1
NASDies (C10-C24)	4101045	239.7	250	-4.1
Terphenyl	799360	41.5	45	-7.7

* Surrogate areas are subtracted from range areas
<- Indicates a %D outside QC limits

7a
MOTOR OIL CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC.

Client: ANCHOR QEA LLC

ICal Date: 09-OCT-2012

Project: CENTRAL WATERFRONT

CCal Date: 01-NOV-2012

SDG No.: VP40

Analysis Time: 15:46

Lab ID: MOIL#2

Instrument: FID4A.I

Lab File Name: 1101a017.d

M.oil Range	Area*	CalcAmnt	NomAmnt	% D
WAMoil (C24-C38)	6854036	521.2	500	4.2
AK103 (C25-C36)	5784064	628.6	500	25.7
OR MOIL (C28-C40)	5629180	745.3	500	49.1
CRUDE (Tol-C40)	8203734	1086.2	500	117.2
n-Triacontane	901798	47.8	45	6.2

<-

* Surrogate areas are subtracted from range areas
<- Indicates a %D outside QC limits

8
TPH ANALYTICAL SEQUENCE

Lab Name: ANALYTICAL RESOURCES INC

Client: ANCHOR QEA LLC

SDG No.: VP40

Project: CENTRAL WATERFRONT

Instrument ID: FID4A

GC Column: RTX-1

THE ANALYTICAL SEQUENCE OF BLANKS, SAMPLES, AND STANDARDS,
IS GIVEN BELOW:

SURROGATE RT FROM DAILY STANDARD						
TERPH: 6.00			TRIAc: 8.87			
CLIENT	LAB	DATE	TIME	TERPH	TRIAc	
SAMPLE NO.	SAMPLE ID	ANALYZED	ANALYZED	RT	#	#
=====	=====	=====	=====	=====	=====	=====
01	ZZZZZ	ZZZZZ	10/31/12	1421	6.00	8.89
02	RT	RT	10/31/12	1443	6.00	8.87
03	ZZZZZ	ZZZZZ	10/31/12	1508	6.00	8.88
04	ZZZZZ	ZZZZZ	10/31/12	1530	5.99	8.87
05	ZZZZZ	ZZZZZ	10/31/12	1552	6.00	8.87
06	IB	IB	10/31/12	1615	6.00	8.87
07	DIESEL 50	DIESEL 50	10/31/12	1637	5.99	8.87
08	DIESEL 100	DIESEL 100	10/31/12	1659	5.99	8.87
09	DIESEL 250	DIESEL 250	10/31/12	1722	6.00	8.88
10	DIESEL 500	DIESEL 500	10/31/12	1744	6.01	8.87
11	DIESEL 1000	DIESEL 1000	10/31/12	1806	6.02	8.87
12	DIESEL 2500	DIESEL 2500	10/31/12	1828	6.09*	8.86
13	DIESEL ICV	DIESEL ICV	10/31/12	1850	6.00	8.87
14	DIESEL#2	DIESEL#2	10/31/12	1912	6.00	8.87
15	MOIL#2	MOIL#2	10/31/12	1935	5.99	8.88
16	VP40MBS1	VP40MBS1	10/31/12	1957	6.00	8.87
17	VP40LCSS1	VP40LCSS1	10/31/12	2018	6.00	8.87
18	VP40LCSDS1	VP40LCSDS1	10/31/12	2040	6.00	8.87
19	CWS1-04-2-4	VP40A	10/31/12	2102	6.00	8.87
20	CWS1-04-6-8	VP40B	10/31/12	2123	6.00	8.87
21	CWS1-04-13.5	VP40C	10/31/12	2145	6.00	8.88
22	CWS1-02-1-3	VP41A	10/31/12	2207	6.00	8.87
23	CWS1-02-1-3	VP41AMS	10/31/12	2229	6.00	8.87
24	CWS1-02-1-3	VP41AMSD	10/31/12	2251	6.00	8.86
25	DIESEL#3	DIESEL#3	10/31/12	2312	6.00	8.86
26	MOIL#3	MOIL#3	10/31/12	2334	5.99	8.87
27	CWS1-02-7-8	VP41B	10/31/12	2356	6.00	8.88
28	CWS1-02-12-1	VP41C	11/01/12	0017	6.00	8.87
29	CWS1-01-3-5	VP41D	11/01/12	0039	6.00	8.87
30	CWS1-01-11-1	VP41E	11/01/12	0101	6.00	8.87
31	CWS1-03-2-4	VP41G	11/01/12	0122	6.00	8.87
32	CWS1-03-7-9	VP41H	11/01/12	0144	6.00	8.88

QC LIMITS

TERPH = o-terph (+/- 0.05 MINUTES)
 TRIAC = Triacon Surr (+/- 0.05 MINUTES)

* Values outside of QC limits.

TPH ANALYTICAL SEQUENCE

Lab Name: ANALYTICAL RESOURCES INC

Client: HDR ENGINEERING

SDG No.: VP40

Project: CENTRAL WATERFRONT

Instrument ID: FID4A

GC Column: RTX-1

THE ANALYTICAL SEQUENCE OF BLANKS, SAMPLES, AND STANDARDS,
IS GIVEN BELOW:

SURROGATE RT FROM DAILY STANDARD						
TERPH: 6.00			TRIAIC: 8.87			
CLIENT	LAB	DATE	TIME	TERPH	TRIAIC	
SAMPLE NO.	SAMPLE ID	ANALYZED	ANALYZED	RT	RT	#
=====	=====	=====	=====	=====	=====	=====
01 DIESEL#4	DIESEL#4	11/01/12	0205	6.00	8.89	
02 VP40	MOIL#4	11/01/12	0227	5.99	8.87	
03 ZZZZZ	ZZZZZ	11/01/12	0950	6.00	8.89	
04 RT	RT	11/01/12	1012	6.00	8.88	
05 IB	IB	11/01/12	1034	6.00	8.87	
06 DIESEL 50	DIESEL 50	11/01/12	1056	5.99	8.87	
07 DIESEL 100	DIESEL 100	11/01/12	1118	5.99	8.87	
08 DIESEL 250	DIESEL 250	11/01/12	1141	6.00	8.88	
09 DIESEL 500	DIESEL 500	11/01/12	1203	6.01	8.87	
10 DIESEL 1000	DIESEL 1000	11/01/12	1225	6.02	8.87	
11 DIESEL 2500	DIESEL 2500	11/01/12	1247	6.05	8.86	
12 DIESEL ICV	DIESEL ICV	11/01/12	1310	6.00	8.87	
13 DIESEL#1	DIESEL#1	11/01/12	1332	6.00	8.87	
14 MOIL#1	MOIL#1	11/01/12	1355	5.99	8.88	
15 CWS1-04-13.5	VP40C	11/01/12	1417	6.00	8.88	
16 CWS1-02-7-8	VP41B	11/01/12	1439	6.00	8.88	
17 CWS1-03-7-9	VP41H	11/01/12	1501	6.00	8.88	
18 DIESEL#2	DIESEL#2	11/01/12	1524	6.00	8.89	
19 MOIL#2	MOIL#2	11/01/12	1546	5.99	8.88	

QC LIMITS

TERPH = o-terph

(+/- 0.05 MINUTES)

TRIAIC = Triacon Surr

(+/- 0.05 MINUTES)

* Values outside of QC limits.

**TPHG Analysis
Report and Summary QC Forms**

ARI Job ID: VP40, VP41

•

ORGANICS ANALYSIS DATA SHEET

TPHG by Method NWTPHG

Matrix: Soil

QC Report No: VP40-Anchor QEA LLC

Project: Central Waterfront Shoreline Inves.

Event: NA

Date Sampled: 10/25/12

Date Received: 10/26/12

Data Release Authorized: *TWW*
Reported: 11/05/12

ARI ID	Client ID	Analysis Date	Basis	Range	Result
MB-103012 12-21289	Method Blank	10/30/12 PID2	Dry	Gasoline HC ID Trifluorotoluene Bromobenzene	< 5.0 U --- 97.7% 97.8%
VP40A 12-21289	CWS1-04-2-4	10/30/12 PID2	Dry	Gasoline HC ID Trifluorotoluene Bromobenzene	< 6.4 U --- 96.7% 98.0%
VP40B 12-21290	CWS1-04-6-8	10/30/12 PID2	Dry	Gasoline HC ID Trifluorotoluene Bromobenzene	< 7.8 U --- 95.2% 96.9%
VP40C 12-21291	CWS1-04-13.5-15	10/30/12 PID2	Dry	Gasoline HC ID Trifluorotoluene Bromobenzene	19 GAS 97.2% 99.4%

Gasoline values reported in mg/kg (ppm)

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

GAS: Indicates the presence of gasoline or weathered gasoline.

GRO: Positive result that does not match an identifiable gasoline pattern.

Results corrected for soil moisture content per Section 11.10.5 of EPA Method 8000C.

Analytical Resources Inc.
 BETX/Gas Quantitation Report

Data file 1: /chem3/pid2.i/103012-1.b/1030a006.d
 Data file 2: /chem3/pid2.i/103012-2.b/1030a006.d
 Method: /chem3/pid2.i/103012-2.b/PIDB.m
 Instrument: pid2.i
 Gas Ical Date: 20-OCT-2012
 BETX Ical Date: 20-OCT-2012

ARI ID: MB1030
 Client ID:
 Injection Date: 30-OCT-2012 11:44
 Matrix: WATER
 Dilution Factor: 1.000

FID Surrogates

RT	Shift	Height	Area	%Rec	Compound
7.201	-0.003	3622	45399	97.7	TFT(Surr)
14.801	-0.004	2031	20164	97.8	BB(Surr)

PETROLEUM HYDROCARBONS (FID)

Method	Range	RF	Total Area*	Amount
WATPHG	Tol-C12 (9.07 to 17.57)	391690	1	0.000
8015C	2MP-TMB (3.73 to 15.74)	825102	1	0.000
AK101	nC6-nC10 (4.19 to 14.47)	660003	0	0.000
NWTPHG	Tol-Nap (9.07 to 18.58)	406475	1	0.000

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area
 Range marker RT's are set by daily RT standard

JW
 10/31/12

PID Surrogates

RT	Shift	Response	%Rec	Compound
7.226	-0.003	13475	94.4	TFT(Surr)
14.819	-0.004	18570	92.2	BB(Surr)

SW8021B (PID)

RT	Shift	Response	Amount	Compound
ND	---	---	---	Benzene
ND	---	---	---	Toluene
ND	---	---	---	Ethylbenzene
ND	---	---	---	M/P-Xylene
ND	---	---	---	O-Xylene
ND	---	---	---	MTBE

A Indicates Peak Area was used for quantitation instead of Height

N Indicates peak was manually integrated

Data File: /chem3/pid2.i/103012-1.b/1030a006.d
Date : 30-OCT-2012 11:44

Page 1

Client ID:

Instrument: pid2.i

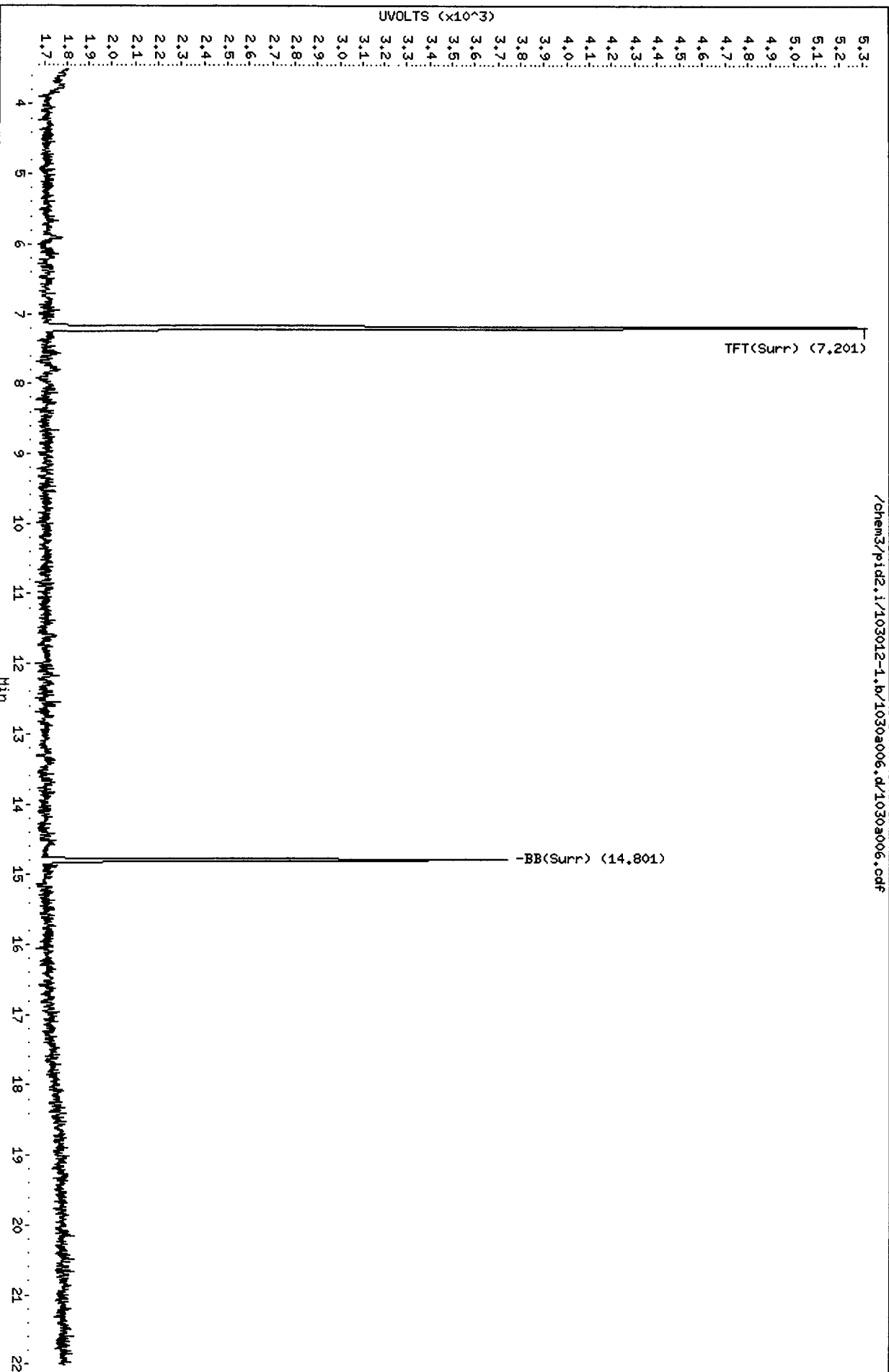
Sample Info: NB1030

Operator: JM

Column phase: RTX 502-2 FID

Column diameter: 0.18

/chem3/pid2.i/103012-1.b/1030a006.d/1030a006.cdf



0010 : 0010 0010

Analytical Resources Inc.
 BETX/Gas Quantitation Report

Data file 1: /chem3/pid2.i/103012-1.b/1030a018.d
 Data file 2: /chem3/pid2.i/103012-2.b/1030a018.d
 Method: /chem3/pid2.i/103012-2.b/PIDB.m
 Instrument: pid2.i
 Gas Ical Date: 20-OCT-2012
 BETX Ical Date: 20-OCT-2012

ARI ID: VP40A
 Client ID: CWS1-04-2-4
 Injection Date: 30-OCT-2012 17:47
 Matrix: SOIL
 Dilution Factor: 1.000

=====
 FID Surrogates

RT	Shift	Height	Area	%Rec	Compound
--	----	-----	----	----	-----
7.201	0.009	3583	46273	96.7	TFT(Surr) /
14.800	0.008	2036	19915	98.0	BB(Surr)

PETROLEUM HYDROCARBONS (FID)

Method	Range	RF	Total Area*	Amount
WATPHG	Tol-C12 (9.05 to 17.57)	391690	4603	0.012 M
8015C	2MP-TMB (3.73 to 15.73)	825102	1	0.000
AK101	nC6-nC10 (4.18 to 14.45)	660003	0	0.000
NWTPHG	Tol-Nap (9.05 to 18.58)	406475	16851	0.041 M /

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area
 Range marker RT's are set by daily RT standard

JW
11/3/12

=====
 PID Surrogates

RT	Shift	Response	%Rec	Compound
--	----	-----	----	-----
7.225	-0.003	13051	91.4	TFT(Surr)
14.818	-0.005	18274	90.7	BB(Surr)

SW8021B (PID)

RT	Shift	Response	Amount	Compound
--	----	-----	----	-----
ND	---	---	---	Benzene
ND	---	---	---	Toluene
ND	---	---	---	Ethylbenzene
ND	---	---	---	M/P-Xylene
ND	---	---	---	O-Xylene
ND	---	---	---	MTBE

N/2

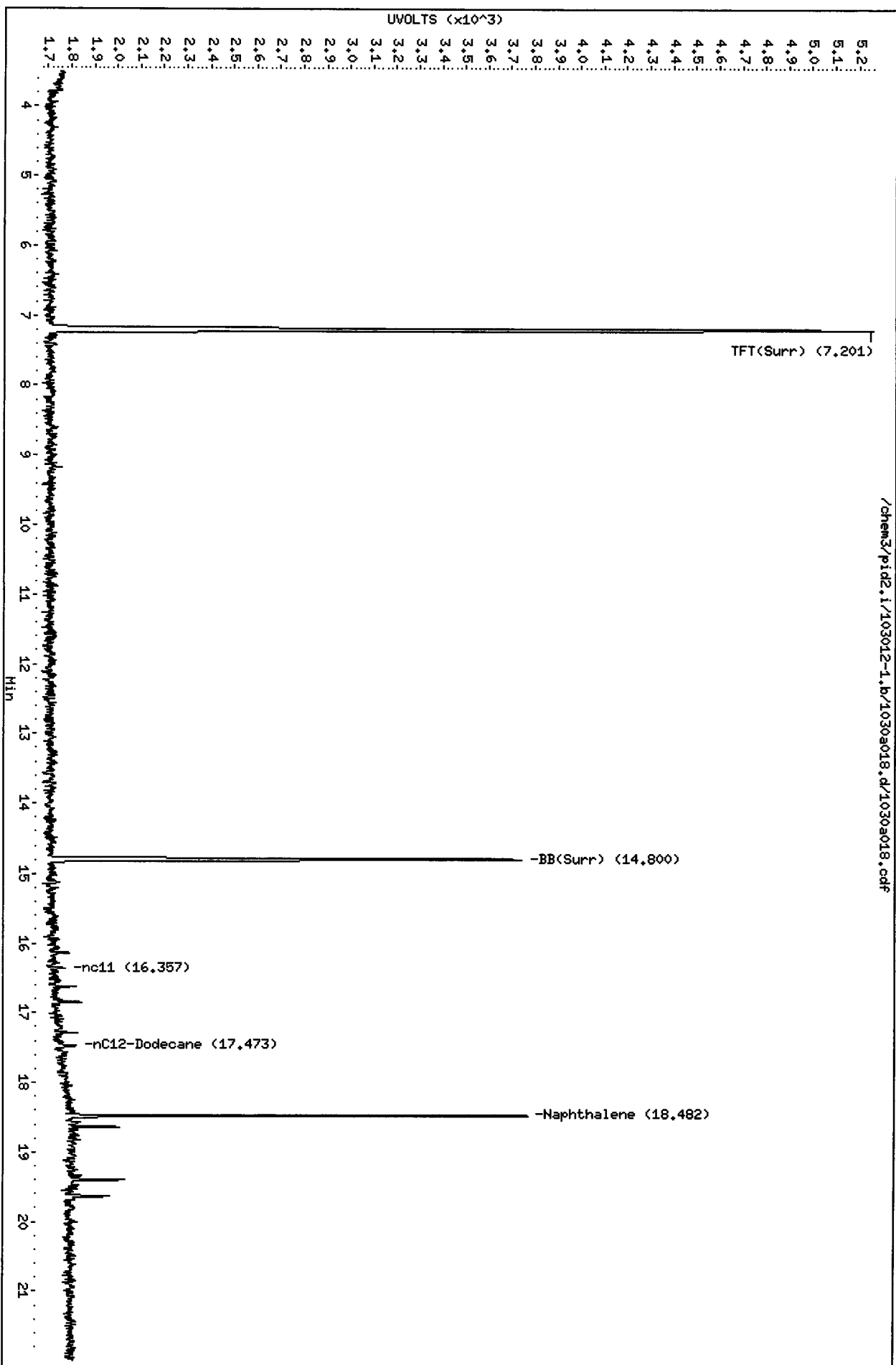
A Indicates Peak Area was used for quantitation instead of Height

N Indicates peak was manually integrated

Data File: /chem3/pid2.i/103012-1.b/1030a018.d
Date : 30-OCT-2012 17:47
Client ID: QMS1-04-2-4
Sample Info: VP40A

Column phase: RTX 502-2 FID

Instrument: pid2.i
Operator: JM
Column diameter: 0.18



/chem3/pid2.i/103012-1.b/1030a018.d/1030a018.cdf

Analytical Resources Inc.
 BETX/Gas Quantitation Report

Data file 1: /chem3/pid2.i/103012-1.b/1030a019.d
 Data file 2: /chem3/pid2.i/103012-2.b/1030a019.d
 Method: /chem3/pid2.i/103012-2.b/PIDB.m
 Instrument: pid2.i
 Gas Ical Date: 20-OCT-2012
 BETX Ical Date: 20-OCT-2012

ARI ID: VP40B
 Client ID: CWS1-04-6-8
 Injection Date: 30-OCT-2012 18:15
 Matrix: SOIL
 Dilution Factor: 1.000

FID Surrogates

RT	Shift	Height	Area	%Rec	Compound
--	----	-----	----	----	-----
7.195	0.003	3528	44106	95.2	TFT(Surr)
14.797	0.004	2012	21183	96.9	BB(Surr)

PETROLEUM HYDROCARBONS (FID)

Method	Range	RF	Total Area*	Amount
WATPHG	Tol-C12 (9.05 to 17.57)	391690	0	0.000
8015C	2MP-TMB (3.73 to 15.73)	825102	1	0.000
AK101	nC6-nC10 (4.18 to 14.45)	660003	1	0.000
NWTPHG	Tol-Nap (9.05 to 18.58)	406475	1784	0.004 M

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area
 Range marker RT's are set by daily RT standard

JW
11/3/12

PID Surrogates

RT	Shift	Response	%Rec	Compound
--	----	-----	----	-----
7.220	-0.009	12358	86.6	TFT(Surr)
14.814	-0.008	17659	87.6	BB(Surr)

SW8021B (PID)

RT	Shift	Response	Amount	Compound
--	----	-----	----	-----
ND	---	---	---	Benzene
ND	---	---	---	Toluene
ND	---	---	---	Ethylbenzene
ND	---	---	---	M/P-Xylene
ND	---	---	---	O-Xylene
ND	---	---	---	MTBE

NZ

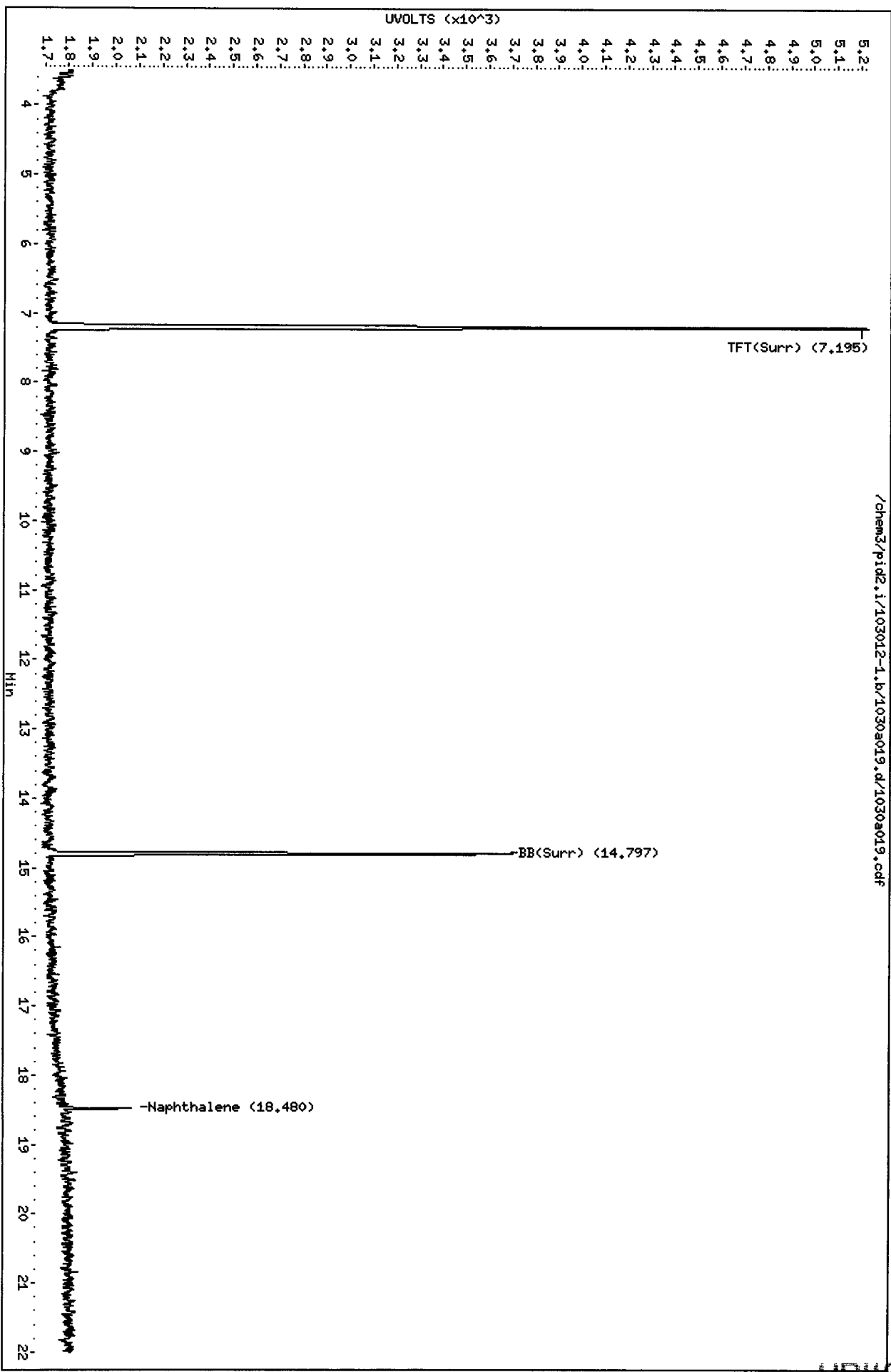
A Indicates Peak Area was used for quantitation instead of Height

N Indicates peak was manually integrated

Data File: /chem3/pid2.i/103012-1.b/1030a019.d
Date : 30-OCT-2012 18:15
Client ID: CMS1-04-6-8
Sample Info: VP40B

Column phase: RTX 502-2 FID

Instrument: pid2.i
Operator: JM
Column diameter: 0.18



/chem3/pid2.i/103012-1.b/1030a019.d/1030a019.cdf

0410 091415

Analytical Resources Inc.
BETX/Gas Quantitation Report

Data file 1: /chem3/pid2.i/103012-1.b/1030a020.d
Data file 2: /chem3/pid2.i/103012-2.b/1030a020.d
Method: /chem3/pid2.i/103012-2.b/PIDB.m
Instrument: pid2.i
Gas Ical Date: 20-OCT-2012
BETX Ical Date: 20-OCT-2012

ARI ID: VP40C
Client ID: CWS1-04-13.5-15
Injection Date: 30-OCT-2012 18:43
Matrix: SOIL
Dilution Factor: 1.000

FID Surrogates

RT	Shift	Height	Area	%Rec	Compound
--	----	-----	----	----	-----
7.195	0.003	3603	47953	97.2	TFT(Surr)
14.797	0.004	2065	20612	99.4	BB(Surr)

PETROLEUM HYDROCARBONS (FID)

Method	Range	RF	Total Area*	Amount
WATPHG	Tol-C12 (9.05 to 17.57)	391690	90090	0.230 M
8015C	2MP-TMB (3.73 to 15.73)	825102	187550	0.227 M
AK101	nC6-nC10 (4.18 to 14.45)	660003	166552	0.252 M
NWTPHG	Tol-Nap (9.05 to 18.58)	406475	117501	0.289 M

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area
Range marker RT's are set by daily RT standard

Jw
11/3/12

PID Surrogates

RT	Shift	Response	%Rec	Compound
--	----	-----	----	-----
7.219	-0.009	12686	88.9	TFT(Surr)
14.813	-0.010	18271	90.7	BB(Surr)

SW8021B (PID)

RT	Shift	Response	Amount	Compound
--	----	-----	----	-----
6.425	-0.009	4835	4.78	Benzene
9.177	-0.011	549	0.88	Toluene
12.015	-0.014	439	0.81	Ethylbenzene
12.171	-0.015	1513	2.79	M/P-Xylene
13.075	-0.016	223	0.50	O-Xylene
ND	---	---	---	MTBE

NK

A Indicates Peak Area was used for quantitation instead of Height
N Indicates peak was manually integrated

Data File: /chem3/pid2.i/103012-1.b/103020.d

Date: 30-OCT-2012 18:43

Client ID: CMS1-04-13.5-15

Sample Info: VP40C

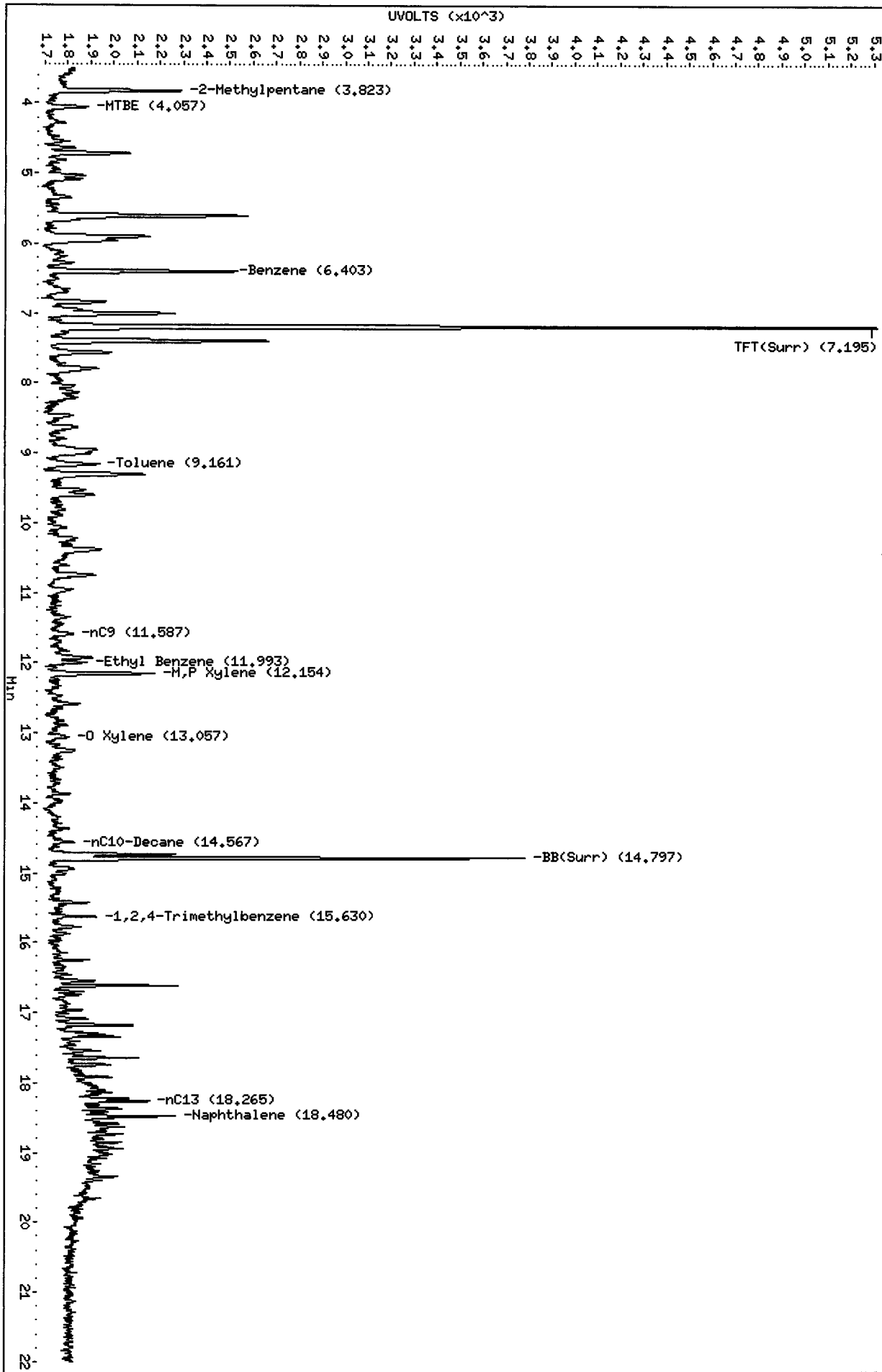
Column phase: RTX 502-2 FID

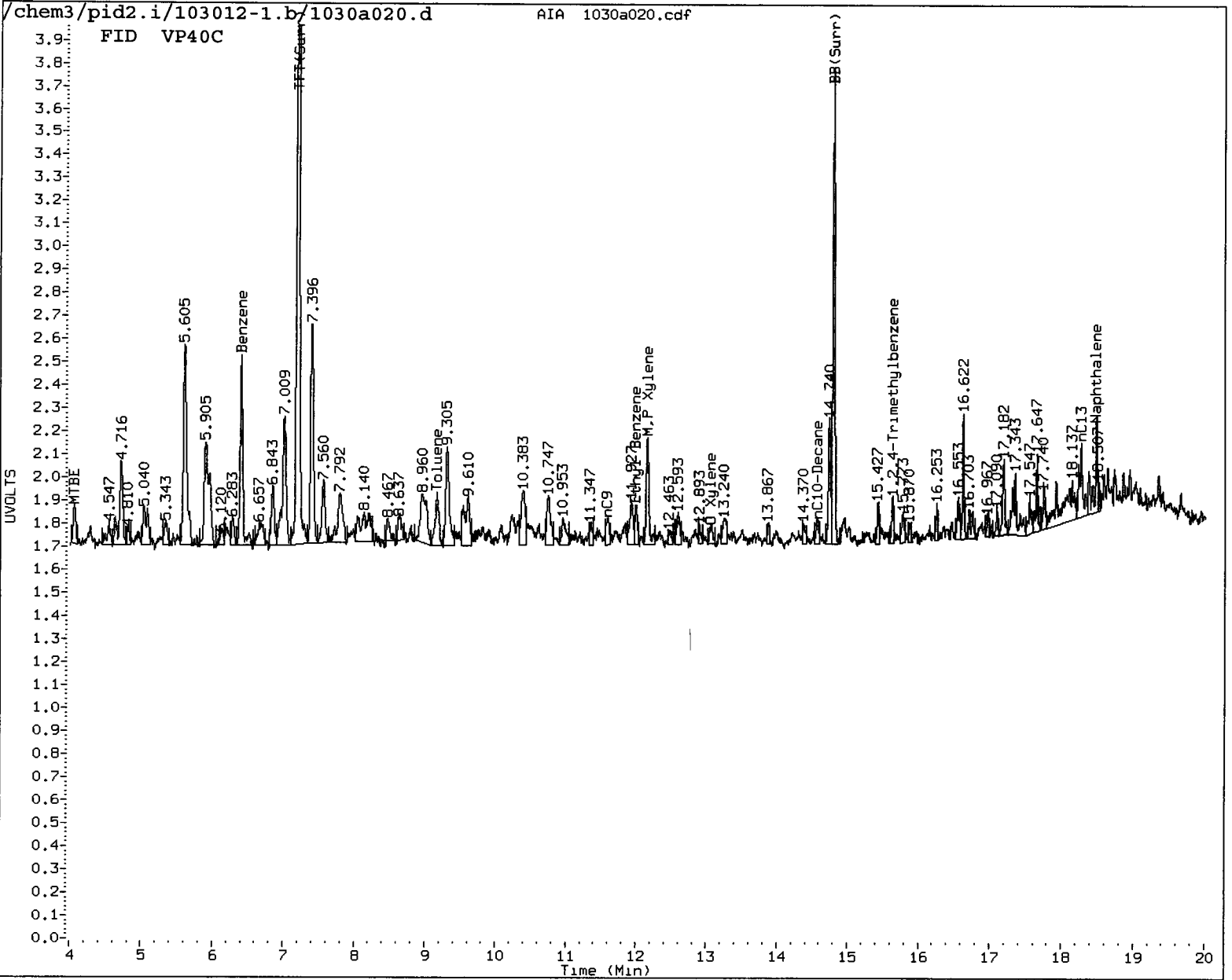
Instrument: pid2.i

Operator: JM

Column diameter: 0.18

/chem3/pid2.i/103012-1.b/103020.d/103020.cdf





MANUAL INTEGRATION

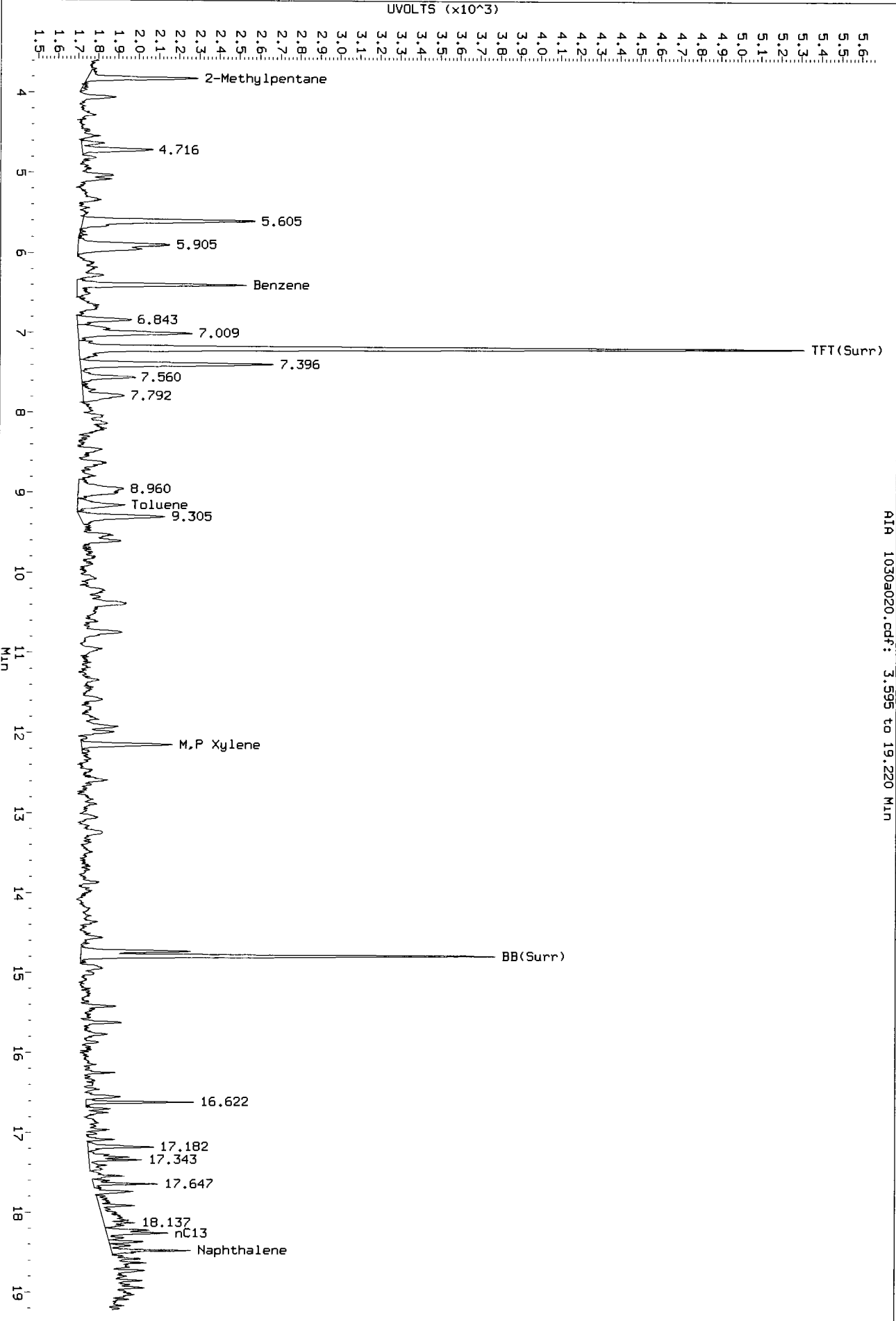
- ①. Baseline correction
- 2. Poor chromatography
- ③. Peak not found
- 4. Totals calculation
- 5. Other _____

Analyst: JW Date: 11/3/12

Data File: /chem3/pid2.1/103012-1.b/1030a020.d/1030a020.cdf
Injection Date: 30-OCT-2012 18:43
Instrument: pid2.1
Client Sample ID: CWS1-04-13.5-15

AIA 1030a020.cdf: 3.595 to 19.220 Min

Refer.



ORGANICS ANALYSIS DATA SHEET

TPHG by Method NWTPHG

Matrix: Water

QC Report No: VP40-Anchor QEA LLC

Project: Central Waterfront Shoreline Inves.

Event: NA

Date Sampled: 10/25/12

Date Received: 10/26/12

Data Release Authorized: *mmw*
Reported: 11/05/12

ARI ID	Client ID	Analysis Date	DL	Range	Result
VP40E 12-21293	CWS1-TB-01	10/30/12 PID2	1.0	Gasoline HC ID Trifluorotoluene Bromobenzene	< 0.25 U --- 99.4% 95.3%

Gasoline values reported in mg/L (ppm)

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

GAS: Indicates the presence of gasoline or weathered gasoline.

GRO: Positive result that does not match an identifiable gasoline pattern.

Analytical Resources Inc.
 BETX/Gas Quantitation Report

Data file 1: /chem3/pid2.i/103012-1.b/1030a013.d ARI ID: VP40E
 Data file 2: /chem3/pid2.i/103012-2.b/1030a013.d Client ID: CWS1-TB-01
 Method: /chem3/pid2.i/103012-2.b/PIDB.m Injection Date: 30-OCT-2012 15:27
 Instrument: pid2.i Matrix: WATER
 Gas Ical Date: 20-OCT-2012 Dilution Factor: 1.000
 BETX Ical Date: 20-OCT-2012

FID Surrogates

RT	Shift	Height	Area	%Rec	Compound
7.202	0.010	3685	47268	99.4	TFT(Surr)
14.804	0.011	1979	20011	95.3	BB(Surr)

PETROLEUM HYDROCARBONS (FID)

Method	Range	RF	Total Area*	Amount
WATPHG	Tol-C12 (9.05 to 17.57)	391690	0	0.000
8015C	2MP-TMB (3.73 to 15.73)	825102	1	0.000
AK101	nC6-nC10 (4.18 to 14.45)	660003	1	0.000
NWTPHG	Tol-Nap (9.05 to 18.58)	406475	0	0.000

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area
 Range marker RT's are set by daily RT standard

JW
11/3/12

PID Surrogates

RT	Shift	Response	%Rec	Compound
7.227	-0.002	13774	96.5	TFT(Surr)
14.821	-0.001	18278	90.7	BB(Surr)

SW8021B (PID)

RT	Shift	Response	Amount	Compound
ND	---	---	---	Benzene
ND	---	---	---	Toluene
ND	---	---	---	Ethylbenzene
ND	---	---	---	M/P-Xylene
ND	---	---	---	O-Xylene
ND	---	---	---	MTBE

NZ

A Indicates Peak Area was used for quantitation instead of Height
 N Indicates peak was manually integrated

Data File: /chem3/pid2.i/103012-1.b/1030a013.d

Date: 30-OCT-2012 15:27

Client ID: CMS1-TB-01

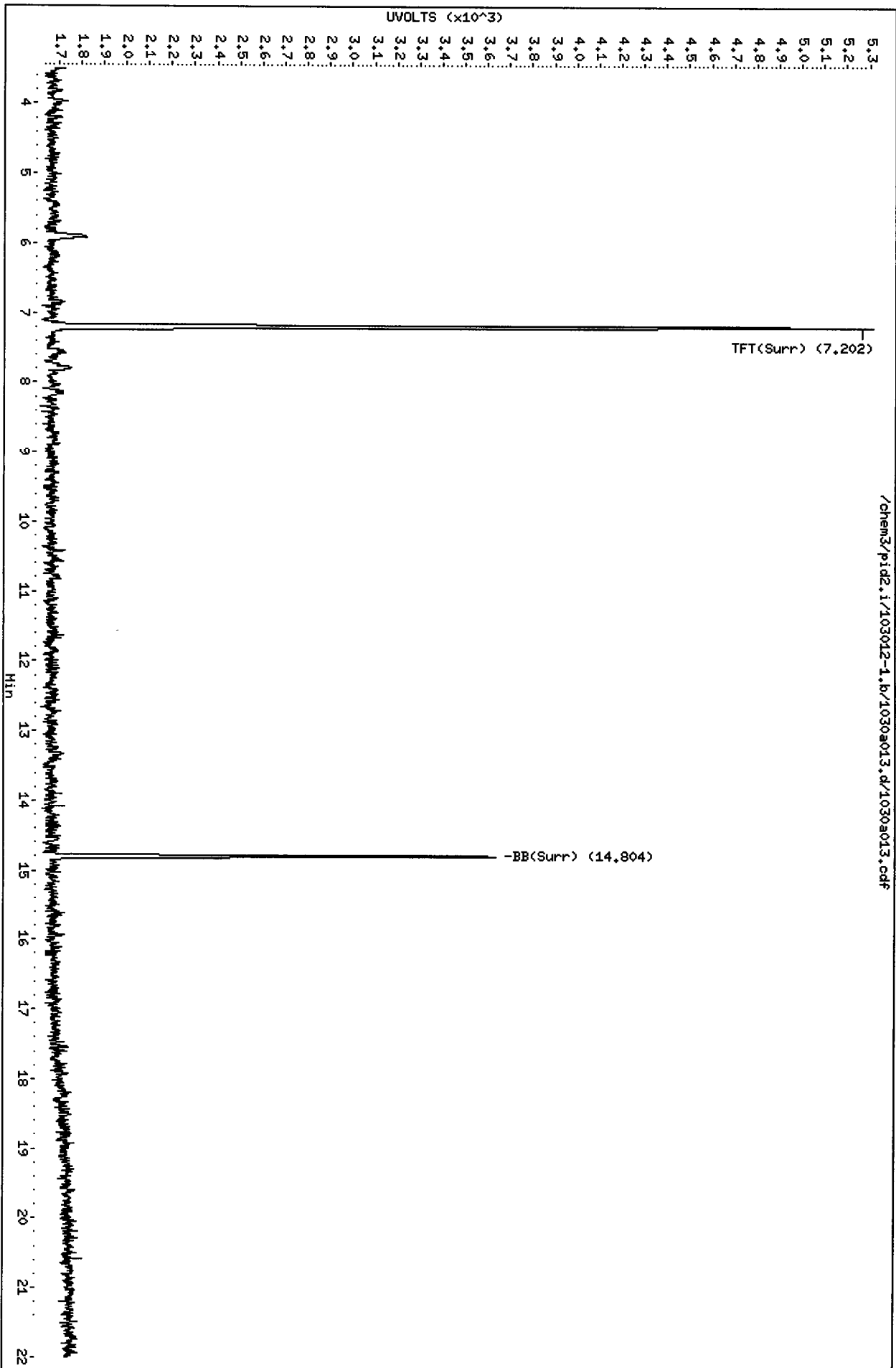
Sample Info: VP40E

Column phase: RTX 502-2 FID

Instrument: pid2.i

Operator: JM

Column diameter: 0.18



/chem3/pid2.i/103012-1.b/1030a013.d/1030a013.cdf

103012-1

TPHG SOIL SURROGATE RECOVERY SUMMARY

ARI Job: VP40
Matrix: Soil

QC Report No: VP40-Anchor QEA LLC
Project: Central Waterfront Shoreline Inves.
Event: NA

Client ID	BFB	TFT	BBZ	TOT OUT
MB-103012	NA	97.7%	97.8%	0
LCS-103012	NA	100%	98.2%	0
LCSD-103012	NA	101%	98.2%	0
CWS1-04-2-4	NA	96.7%	98.0%	0
CWS1-04-6-8	NA	95.2%	96.9%	0
CWS1-04-13.5-15	NA	97.2%	99.4%	0

	LCS/MB LIMITS	QC LIMITS
(TFT) = Trifluorotoluene	(80-120)	(65-128)
(BBZ) = Bromobenzene	(80-120)	(52-149)

Log Number Range: 12-21289 to 12-21291

TPHG WATER SURROGATE RECOVERY SUMMARY

ARI Job: VP40
Matrix: Water

QC Report No: VP40-Anchor QEA LLC
Project: Central Waterfront Shoreline Inves.
Event: NA

<u>Client ID</u>	<u>TFT</u>	<u>BBZ</u>	<u>TOT OUT</u>
CWS1-TB-01	99.4%	95.3%	0

	LCS/MB LIMITS	QC LIMITS
(TFT) = Trifluorotoluene	(80-120)	(80-120)
(BBZ) = Bromobenzene	(80-120)	(80-120)

Log Number Range: 12-21293 to 12-21293

ORGANICS ANALYSIS DATA SHEET

TPHG by Method NWTPHG

Matrix: Soil

QC Report No: VP41-Anchor QEA LLC

Project: Central Waterfront Shoreline Inves.

Event: NA

Date Sampled: 10/25/12

Date Received: 10/26/12

Data Release Authorized: *mmw*

Reported: 11/05/12



ARI ID	Client ID	Analysis Date	Basis	Range	Result
MB-103012 12-21279	Method Blank	10/30/12 PID2	Dry	Gasoline HC ID Trifluorotoluene Bromobenzene	< 5.0 U --- 97.7% 97.8%
VP41A 12-21279	CWS1-02-1-3	10/30/12 PID2	Dry	Gasoline HC ID Trifluorotoluene Bromobenzene	< 6.5 U --- 92.4% 94.4%
VP41B 12-21280	CWS1-02-7-8	10/30/12 PID2	Dry	Gasoline HC ID Trifluorotoluene Bromobenzene	7.6 GRO 94.1% 97.4%
VP41C 12-21281	CWS1-02-12-13	10/30/12 PID2	Dry	Gasoline HC ID Trifluorotoluene Bromobenzene	< 7.0 U --- 96.3% 99.6%
VP41D 12-21282	CWS1-01-3-5	10/30/12 PID2	Dry	Gasoline HC ID Trifluorotoluene Bromobenzene	< 10 U --- 93.5% 96.2%
VP41E 12-21283	CWS1-01-11-13	10/30/12 PID2	Dry	Gasoline HC ID Trifluorotoluene Bromobenzene	< 6.4 U --- 92.5% 95.1%
VP41G 12-21285	CWS1-03-2-4	10/30/12 PID2	Dry	Gasoline HC ID Trifluorotoluene Bromobenzene	< 9.5 U --- 93.8% 97.9%
VP41H 12-21286	CWS1-03-7-9	10/30/12 PID2	Dry	Gasoline HC ID Trifluorotoluene Bromobenzene	< 8.8 U --- 92.2% 96.3%

Gasoline values reported in mg/kg (ppm)

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

GAS: Indicates the presence of gasoline or weathered gasoline.

GRO: Positive result that does not match an identifiable gasoline pattern.

Results corrected for soil moisture content per Section 11.10.5 of EPA Method 8000C.

Analytical Resources Inc.
 BETX/Gas Quantitation Report

Data file 1: /chem3/pid2.i/103012-1.b/1030a022.d
 Data file 2: /chem3/pid2.i/103012-2.b/1030a022.d
 Method: /chem3/pid2.i/103012-2.b/PIDB.m
 Instrument: pid2.i
 Gas Ical Date: 20-OCT-2012
 BETX Ical Date: 20-OCT-2012

ARI ID: VP41A
 Client ID: CWS1-02-1-3
 Injection Date: 30-OCT-2012 19:39
 Matrix: SOIL
 Dilution Factor: 1.000

FID Surrogates

RT	Shift	Height	Area	%Rec	Compound
--	-----	-----	----	----	-----
7.194	0.002	3423	43391	92.4	TFT (Surr) ✓
14.794	0.002	1960	20545	94.4	BB (Surr)

PETROLEUM HYDROCARBONS (FID)

Method	Range	RF	Total Area*	Amount
WATPHG	Tol-C12 (9.05 to 17.57)	391690	0	0.000
8015C	2MP-TMB (3.73 to 15.73)	825102	0	0.000
AK101	nC6-nC10 (4.18 to 14.45)	660003	0	0.000
NWTPHG	Tol-Nap (9.05 to 18.58)	406475	0	0.000

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area
 Range marker RT's are set by daily RT standard

JW
11/6/12

PID Surrogates

RT	Shift	Response	%Rec	Compound
--	-----	-----	----	-----
7.218	-0.011	11912	83.5	TFT (Surr)
14.812	-0.011	17545	87.1	BB (Surr)

SW8021B (PID)

RT	Shift	Response	Amount	Compound
--	-----	-----	----	-----
ND	---	---	---	Benzene
ND	---	---	---	Toluene
ND	---	---	---	Ethylbenzene
ND	---	---	---	M/P-Xylene
ND	---	---	---	O-Xylene
ND	---	---	---	MTBE

NR

A Indicates Peak Area was used for quantitation instead of Height
 N Indicates peak was manually integrated

Data File: /chem3/pid2.i/103012-1.b/1030a022.d

Date: 30-OCT-2012 19:39

Client ID: CMS1-02-1-3

Sample Info: VP41A

Page 1

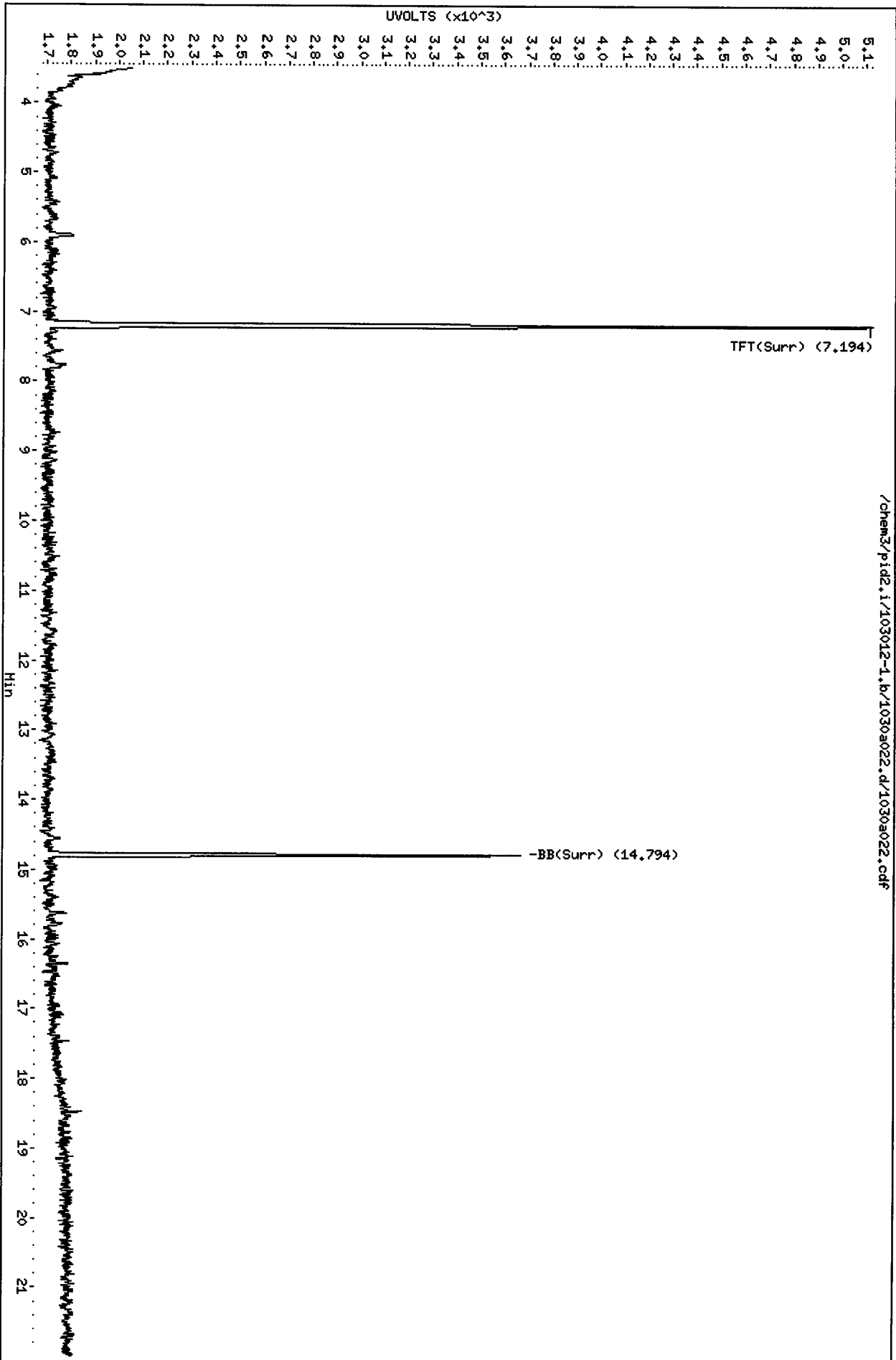
Instrument: pid2.i

Operator: JM

Column diameter: 0.18

Column phase: RTX 502-2 FID

/chem3/pid2.i/103012-1.b/1030a022.d/1030a022.cdf



Analytical Resources Inc.
 BETX/Gas Quantitation Report

Data file 1: /chem3/pid2.i/103012-1.b/1030a023.d
 Data file 2: /chem3/pid2.i/103012-2.b/1030a023.d
 Method: /chem3/pid2.i/103012-2.b/PIDB.m
 Instrument: pid2.i
 Gas Ical Date: 20-OCT-2012
 BETX Ical Date: 20-OCT-2012

ARI ID: VP41B
 Client ID: CWS1-02-7-8
 Injection Date: 30-OCT-2012 20:07
 Matrix: SOIL
 Dilution Factor: 1.000

FID Surrogates

RT	Shift	Height	Area	%Rec	Compound
7.194	0.002	3488	43616	94.1	TFT (Surr)
14.794	0.002	2023	21112	97.4	BB (Surr) ✓

PETROLEUM HYDROCARBONS (FID)

Method	Range	RF	Total Area*	Amount
WATPHG	Tol-C12 (9.05 to 17.57)	391690	46840	0.120 M
8015C	2MP-TMB (3.73 to 15.73)	825102	43492	0.053 M
AK101	nC6-nC10 (4.18 to 14.45)	660003	33584	0.051 M
NWTPHG	Tol-Nap (9.05 to 18.58)	406475	50760	0.125 M ✓

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area
 Range marker RT's are set by daily RT standard

JW
11/3/12

PID Surrogates

RT	Shift	Response	%Rec	Compound
7.218	-0.011	12101	84.8	TFT (Surr)
14.812	-0.011	17852	88.6	BB (Surr)

SW8021B (PID)

RT	Shift	Response	Amount	Compound
6.424	-0.009	176	0.17	Benzene
9.176	-0.013	185	0.30	Toluene
ND	---	---	---	Ethylbenzene
ND	---	---	---	M/P-Xylene
ND	---	---	---	O-Xylene
ND	---	---	---	MTBE

N/2

A Indicates Peak Area was used for quantitation instead of Height
 N Indicates peak was manually integrated

Data File: /chem3/pid2.i/103012-1.b/1030a023.d

Date: 30-OCT-2012 20:07

Client ID: CMS1-02-7-8

Sample Info: VP41B

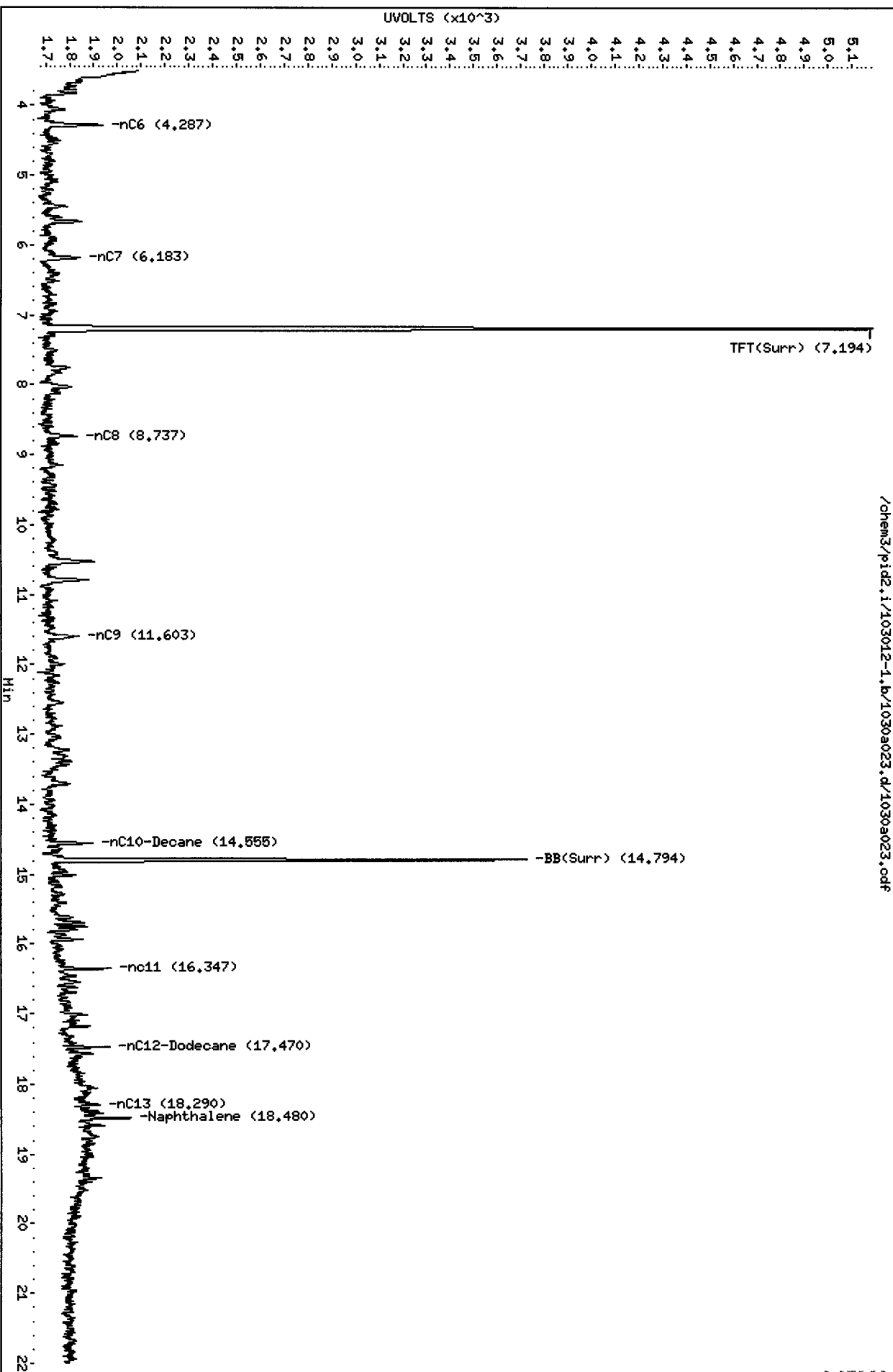
Column phase: RTX 502-2 FID

Instrument: pid2.i

Operator: JM

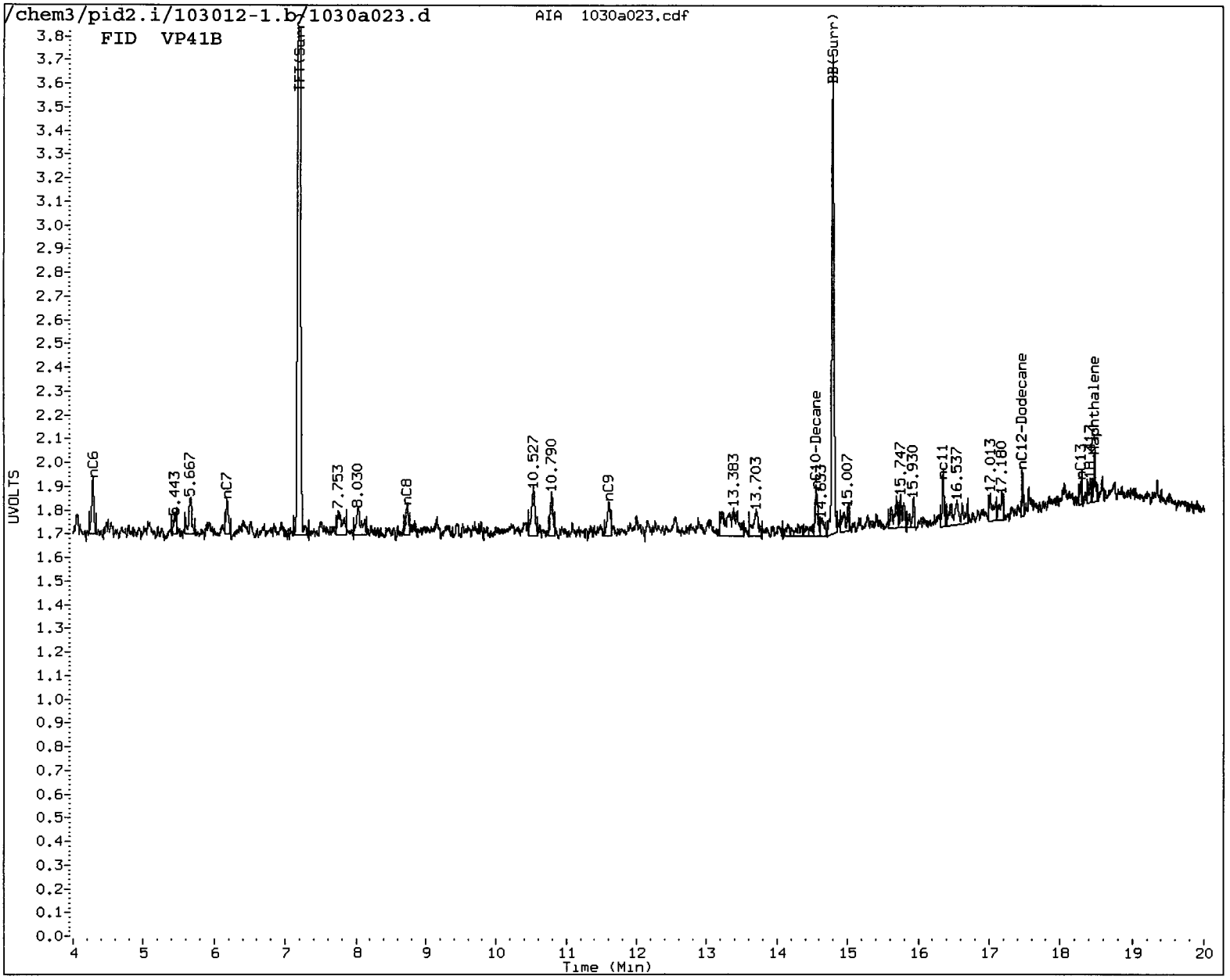
Column diameter: 0.18

Page 1



/chem3/pid2.i/103012-1.b/1030a023.d/1030a023.pdf

10:00:00



MANUAL INTEGRATION

- ① Baseline correction
- ② Poor chromatography
- ③ Peak not found
- ④ Totals calculation

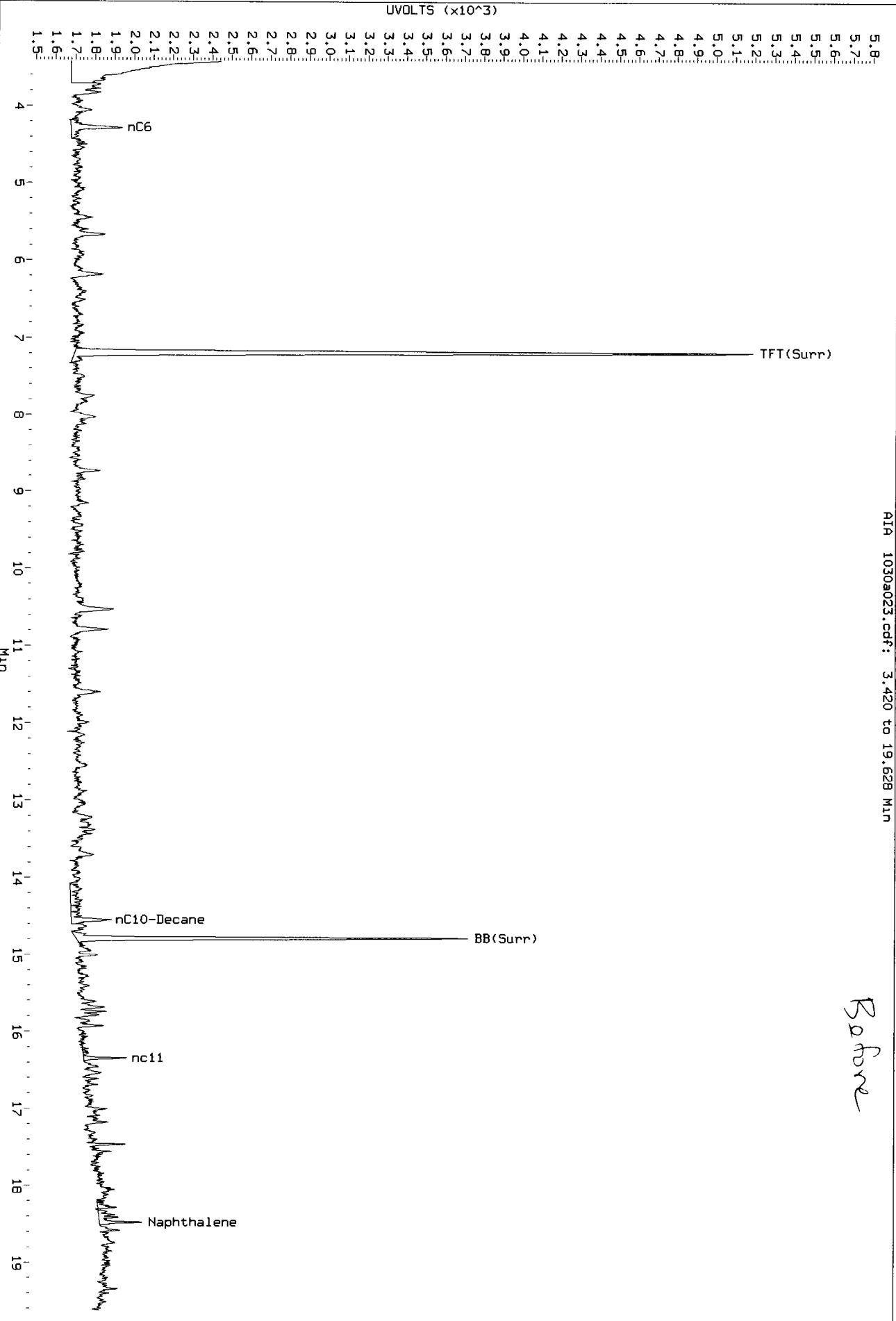
5. Other _____

Analyst: JW Date: 11/3/12

Data File: /chems3/pid2.1/103012-1.b/1030a023.d/1030a023.cdf
Injection Date: 30-OCT-2012 20:07
Instrument: pid2.1
Client Sample ID: CWS1-02-7-8

AIA 1030a023.cdf: 3.420 to 19.628 Min

Before



Analytical Resources Inc.
 BETX/Gas Quantitation Report

Data file 1: /chem3/pid2.i/103012-1.b/1030a024.d
 Data file 2: /chem3/pid2.i/103012-2.b/1030a024.d
 Method: /chem3/pid2.i/103012-2.b/PIDB.m
 Instrument: pid2.i
 Gas Ical Date: 20-OCT-2012
 BETX Ical Date: 20-OCT-2012

ARI ID: VP41C
 Client ID: CWS1-02-12-13
 Injection Date: 30-OCT-2012 20:36
 Matrix: SOIL
 Dilution Factor: 1.000

=====

FID Surrogates

RT	Shift	Height	Area	%Rec	Compound
--	-----	-----	----	----	-----
7.195	0.003	3569	46325	96.3	TFT(Surr) /
14.794	0.002	2069	20716	99.6	BB(Surr)

PETROLEUM HYDROCARBONS (FID)

Method	Range	RF	Total Area*	Amount
WATPHG	Tol-C12 (9.05 to 17.57)	391690	1	0.000
8015C	2MP-TMB (3.73 to 15.73)	825102	1	0.000
AK101	nC6-nC10 (4.18 to 14.45)	660003	0	0.000
NWTPHG	Tol-Nap (9.05 to 18.58)	406475	1	0.000

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area
 Range marker RT's are set by daily RT standard

JW
11/3/12

PID Surrogates

RT	Shift	Response	%Rec	Compound
--	-----	-----	----	-----
7.219	-0.010	12489	87.5	TFT(Surr)
14.812	-0.011	18325	90.9	BB(Surr)

SW8021B (PID)

RT	Shift	Response	Amount	Compound
--	-----	-----	----	-----
6.424	-0.009	335	0.33	Benzene
9.175	-0.013	207	0.33	Toluene
ND	---	---	---	Ethylbenzene
12.175	-0.011	180	0.33	M/P-Xylene
ND	---	---	---	O-Xylene
ND	---	---	---	MTBE

NR

A Indicates Peak Area was used for quantitation instead of Height
 N Indicates peak was manually integrated

Data File: /chem3/pid2.i/103012-1.b/1030a024.d

Date : 30-OCT-2012 20:36

Client ID: CMS1-02-12-13

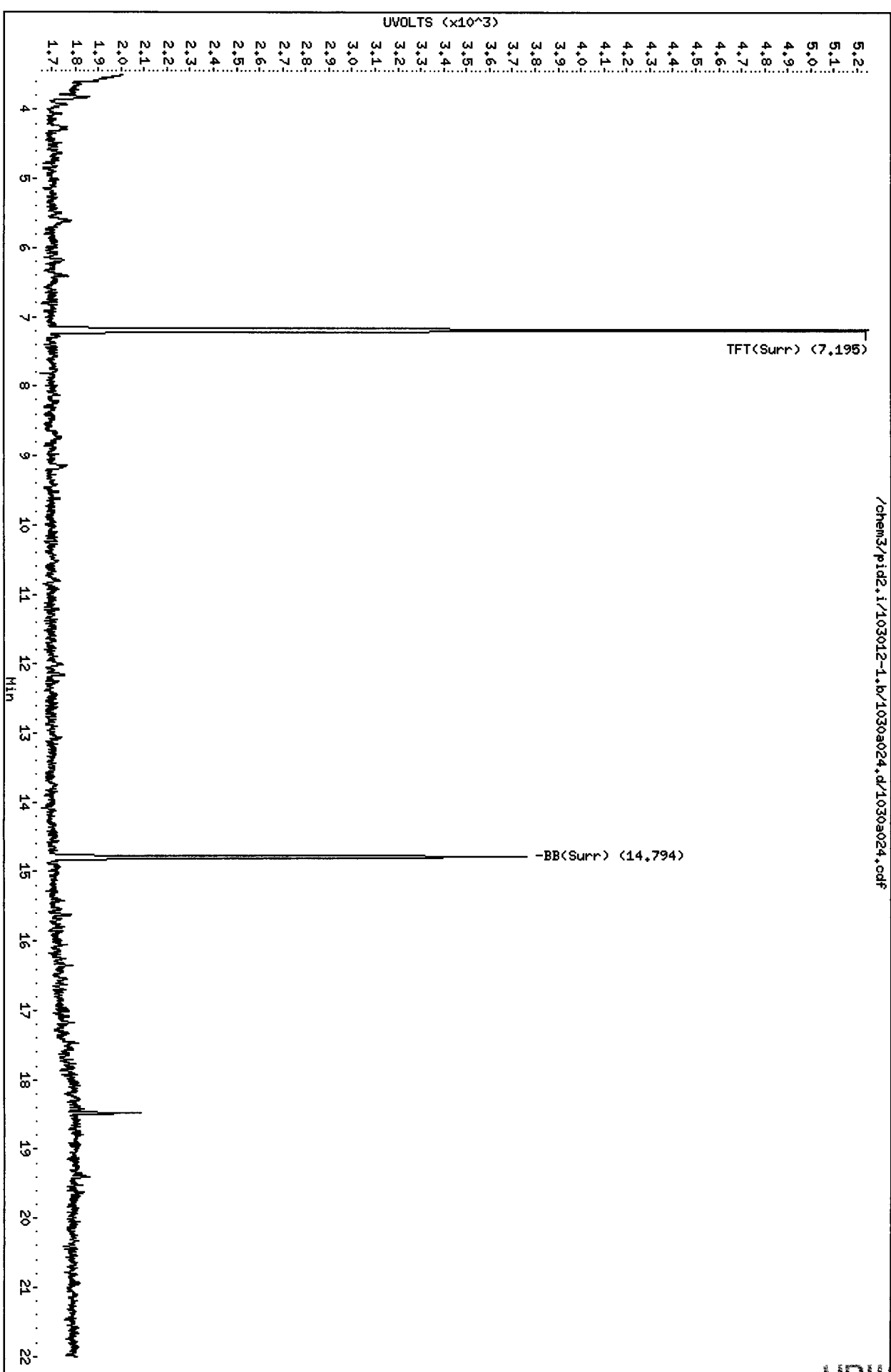
Sample Info: VP41C

Column phase: RTX 502-2 FID

Instrument: pid2.i

Operator: JM

Column diameter: 0.18



/chem3/pid2.i/103012-1.b/1030a024.d/1030a024.cdf

Analytical Resources Inc.
 BETX/Gas Quantitation Report

Data file 1: /chem3/pid2.i/103012-1.b/1030a025.d ARI ID: VP41D
 Data file 2: /chem3/pid2.i/103012-2.b/1030a025.d Client ID: CWS1-01-3-5
 Method: /chem3/pid2.i/103012-2.b/PIDB.m Injection Date: 30-OCT-2012 21:04
 Instrument: pid2.i Matrix: SOIL
 Gas Ical Date: 20-OCT-2012 Dilution Factor: 1.000
 BETX Ical Date: 20-OCT-2012

FID Surrogates

RT	Shift	Height	Area	%Rec	Compound
7.193	0.001	3466	43494	93.5	TFT(Surr)
14.793	0.001	1999	21220	96.2	BB(Surr) ✓

PETROLEUM HYDROCARBONS (FID)

Method	Range	RF	Total Area*	Amount
WATPHG	Tol-C12 (9.05 to 17.57)	391690	1	0.000
8015C	2MP-TMB (3.73 to 15.73)	825102	1	0.000
AK101	nC6-nC10 (4.18 to 14.45)	660003	1	0.000
NWTPHG	Tol-Nap (9.05 to 18.58)	406475	1	0.000 ✓

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area
 Range marker RT's are set by daily RT standard

JW
11/3/12

PID Surrogates

RT	Shift	Response	%Rec	Compound
7.217	-0.012	11931	83.6	TFT(Surr)
14.811	-0.012	17736	88.0	BB(Surr)

SW8021B (PID)

RT	Shift	Response	Amount	Compound
ND	---	---	---	Benzene
ND	---	---	---	Toluene
ND	---	---	---	Ethylbenzene
ND	---	---	---	M/P-Xylene
ND	---	---	---	O-Xylene
ND	---	---	---	MTBE

N2

A Indicates Peak Area was used for quantitation instead of Height
 N Indicates peak was manually integrated

Data File: /chem3/pid2.i/103012-1.b/1030a025.d

Date: 30-OCT-2012 21:04

Client ID: OMS1-01-3-5

Sample Info: VP41D

Page 1

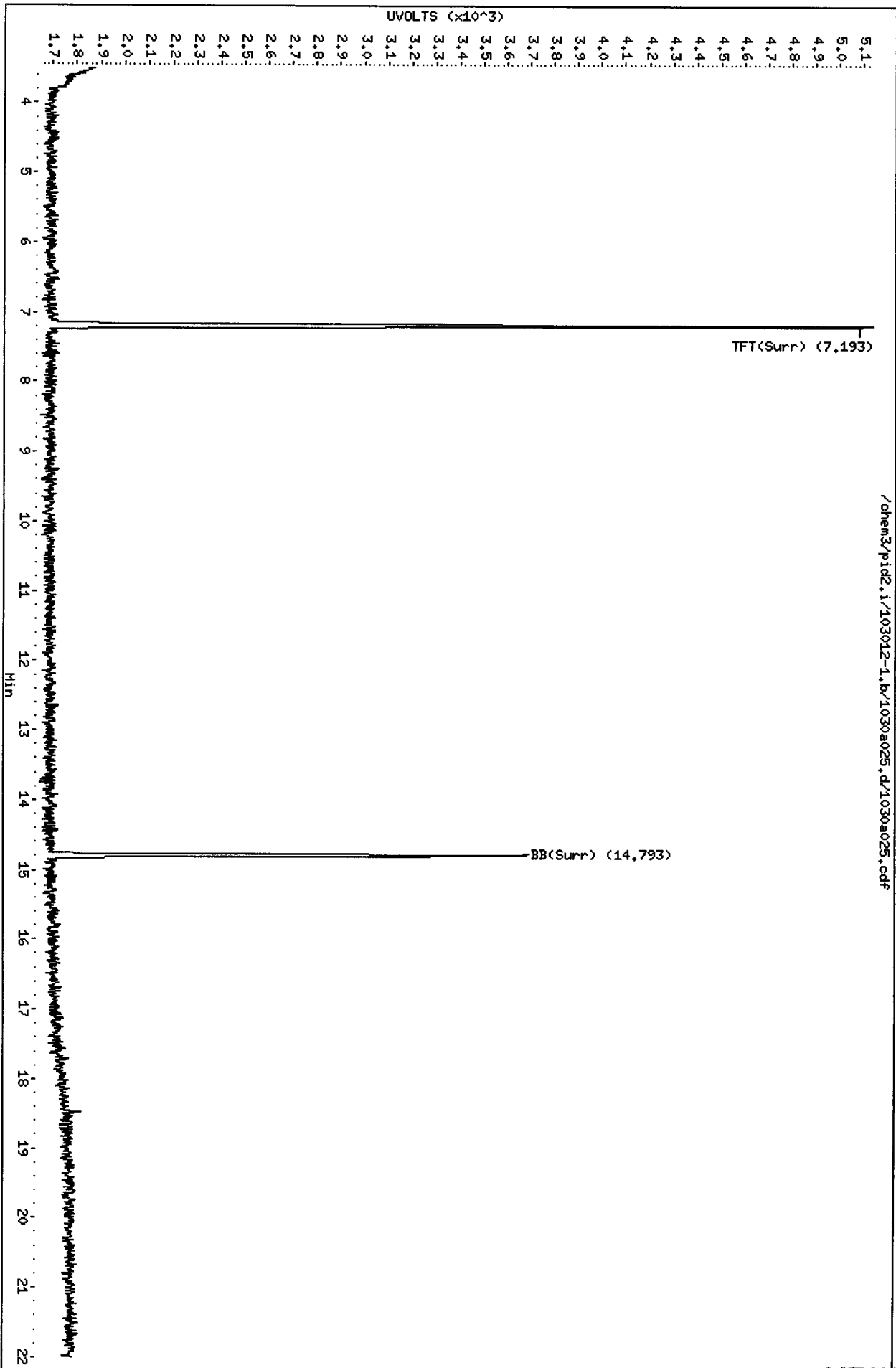
Instrument: pid2.i

Operator: JM

Column diameter: 0.18

Column phase: RTX 502-2 FID

/chem3/pid2.i/103012-1.b/1030a025.d/1030a025.cdf



Analytical Resources Inc.
 BETX/Gas Quantitation Report

Data file 1: /chem3/pid2.i/103012-1.b/1030a026.d
 Data file 2: /chem3/pid2.i/103012-2.b/1030a026.d
 Method: /chem3/pid2.i/103012-2.b/PIDB.m
 Instrument: pid2.i
 Gas Ical Date: 20-OCT-2012
 BETX Ical Date: 20-OCT-2012

ARI ID: VP41E
 Client ID: CWS1-01-11-13
 Injection Date: 30-OCT-2012 21:32
 Matrix: SQIL
 Dilution Factor: 1.000

FID Surrogates

RT	Shift	Height	Area	%Rec	Compound
--	-----	-----	----	----	-----
7.192	-0.001	3429	43644	92.5	TFT(Surr)
14.793	0.001	1975	19602	95.1	BB(Surr)

PETROLEUM HYDROCARBONS (FID)

Method	Range	RF	Total Area*	Amount
WATPHG	Tol-C12 (9.05 to 17.57)	391690	0	0.000
8015C	2MP-TMB (3.73 to 15.73)	825102	1	0.000
AK101	nC6-nC10 (4.18 to 14.45)	660003	1	0.000
NWTPHG	Tol-Nap (9.05 to 18.58)	406475	0	0.000

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area
 Range marker RT's are set by daily RT standard

JW
11/3/12

PID Surrogates

RT	Shift	Response	%Rec	Compound
--	-----	-----	----	-----
7.216	-0.013	11743	82.3	TFT(Surr)
14.811	-0.012	17571	87.2	BB(Surr)

SW8021B (PID)

RT	Shift	Response	Amount	Compound
--	-----	-----	----	-----
ND	---	---	---	Benzene
ND	---	---	---	Toluene
ND	---	---	---	Ethylbenzene
ND	---	---	---	M/P-Xylene
ND	---	---	---	O-Xylene
ND	---	---	---	MTBE

NR

A Indicates Peak Area was used for quantitation instead of Height
 N Indicates peak was manually integrated

Data File: /chem3/pid2.i/103012-1.b/1030a026.d

Date: 30-OCT-2012 21:32

Client ID: CMS1-01-11-13

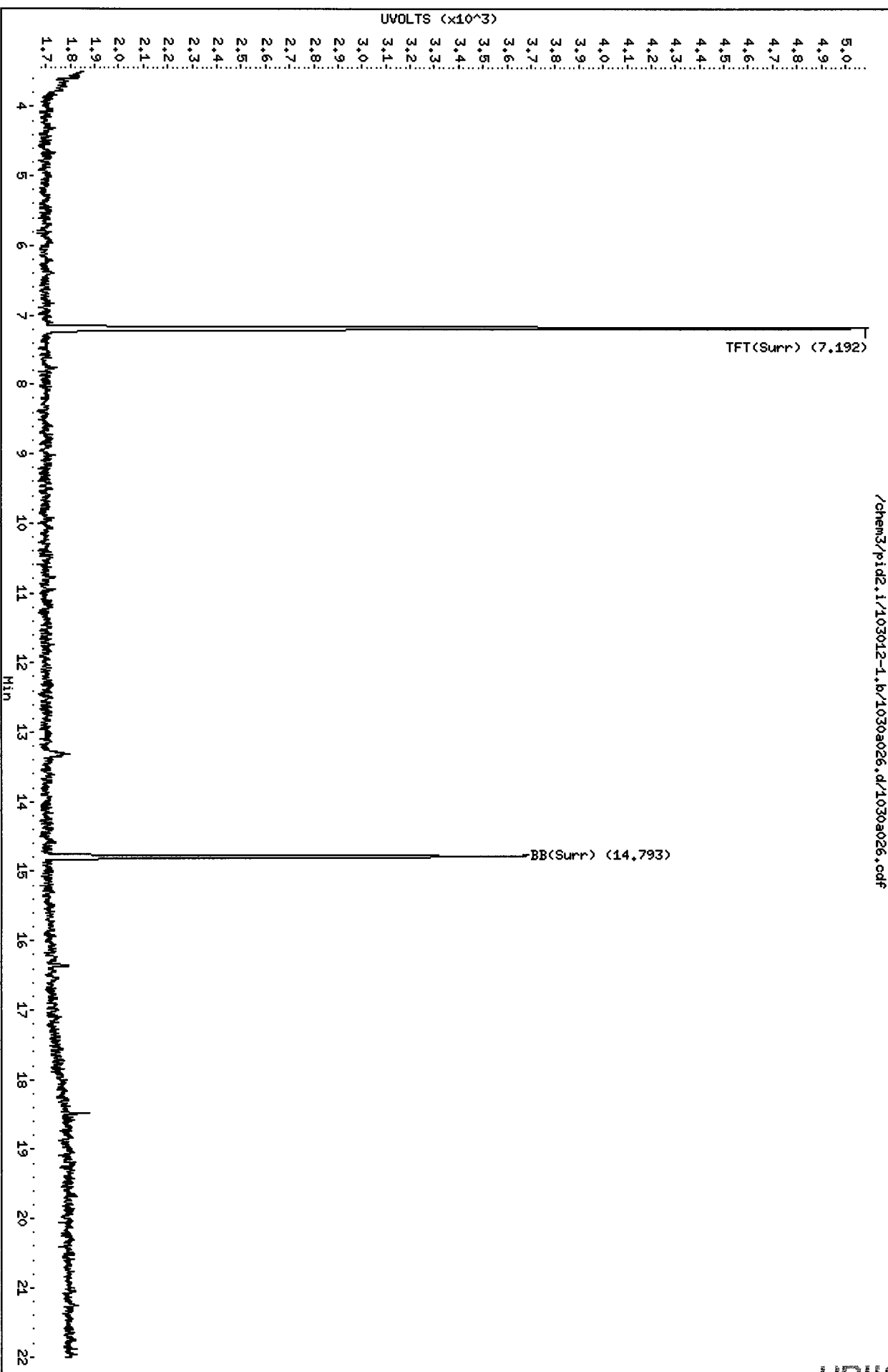
Sample Info: VP4LE

Column phase: RTX 502-2 FID

Instrument: pid2.i

Operator: JM

Column diameter: 0.18



/chem3/pid2.i/103012-1.b/1030a026.d/1030a026.cdf

2012 OCT 30 21:32

Analytical Resources Inc.
 BETX/Gas Quantitation Report

Data file 1: /chem3/pid2.i/103012-1.b/1030a027.d
 Data file 2: /chem3/pid2.i/103012-2.b/1030a027.d
 Method: /chem3/pid2.i/103012-2.b/PIDB.m
 Instrument: pid2.i
 Gas Ical Date: 20-OCT-2012
 BETX Ical Date: 20-OCT-2012

ARI ID: VP41G
 Client ID: CWS1-03-2-4
 Injection Date: 30-OCT-2012 22:00
 Matrix: SOIL
 Dilution Factor: 1.000

FID Surrogates

RT	Shift	Height	Area	%Rec	Compound
--	----	-----	----	----	-----
7.191	-0.001	3475	43555	93.8	TFT (Surr)
14.793	0.000	2034	21041	97.9	BB (Surr) ✓

PETROLEUM HYDROCARBONS (FID)

Method	Range	RF	Total Area*	Amount
WATPHG	Tol-C12 (9.05 to 17.57)	391690	0	0.000
8015C	2MP-TMB (3.73 to 15.73)	825102	1	0.000
AK101	nC6-nC10 (4.18 to 14.45)	660003	0	0.000
NWTPHG	Tol-Nap (9.05 to 18.58)	406475	0	0.000 ✓

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area
 Range marker RT's are set by daily RT standard

JW
11/3/12

PID Surrogates

RT	Shift	Response	%Rec	Compound
--	----	-----	----	-----
7.215	-0.013	11952	83.7	TFT (Surr)
14.810	-0.012	17849	88.6	BB (Surr)

SW8021B (PID)

RT	Shift	Response	Amount	Compound
--	----	-----	-----	-----
ND	---	---	---	Benzene
ND	---	---	---	Toluene
ND	---	---	---	Ethylbenzene
ND	---	---	---	M/P-Xylene
ND	---	---	---	O-Xylene
ND	---	---	---	MTBE

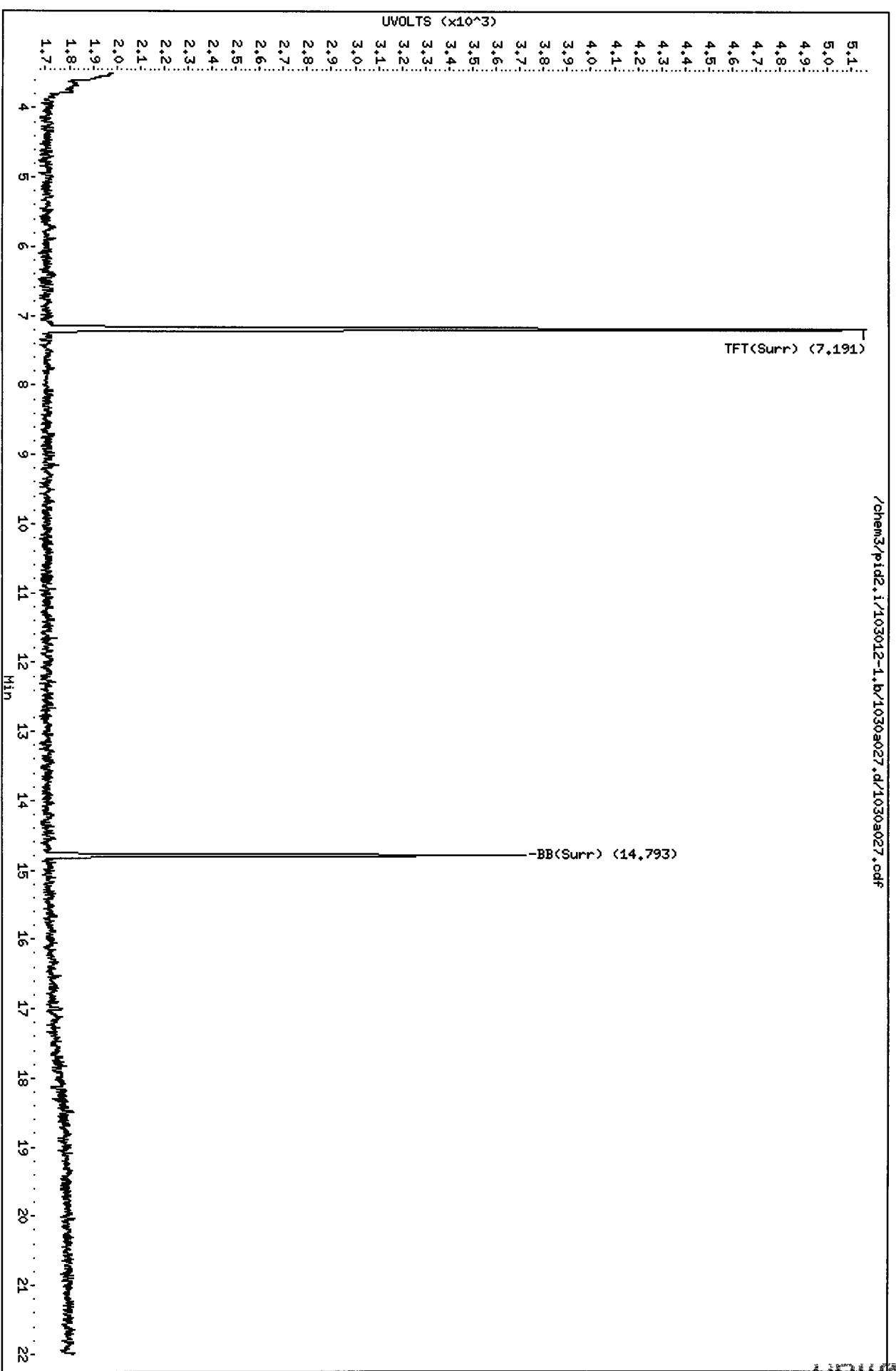
NR

A Indicates Peak Area was used for quantitation instead of Height
 N Indicates peak was manually integrated

Data File: /chem3/pid2.i/103012-1.b/1030s027.d
Date: 30-OCT-2012 22:00
Client ID: CMS1-03-2-4
Sample Info: VP41G

Column phase: RTX 502-2 FID

Instrument: pid2.i
Operator: JM
Column diameter: 0.18



Analytical Resources Inc.
 BETX/Gas Quantitation Report

Data file 1: /chem3/pid2.i/103012-1.b/1030a028.d
 Data file 2: /chem3/pid2.i/103012-2.b/1030a028.d
 Method: /chem3/pid2.i/103012-2.b/PIDB.m
 Instrument: pid2.i
 Gas Ical Date: 20-OCT-2012
 BETX Ical Date: 20-OCT-2012

ARI ID: VP41H
 Client ID: CWS1-03-7-9
 Injection Date: 30-OCT-2012 22:29
 Matrix: SOIL
 Dilution Factor: 1.000

FID Surrogates

RT	Shift	Height	Area	%Rec	Compound
--	----	-----	----	----	-----
7.193	0.001	3418	42994	92.2	TFT(Surr)
14.793	0.001	2000	20021	96.3	BB(Surr)

PETROLEUM HYDROCARBONS (FID)

Method	Range	RF	Total Area*	Amount
WATPHG	Tol-C12 (9.05 to 17.57)	391690	0	0.000
8015C	2MP-TMB (3.73 to 15.73)	825102	1	0.000
AK101	nC6-nC10 (4.18 to 14.45)	660003	1	0.000
NWTPHG	Tol-Nap (9.05 to 18.58)	406475	0	0.000

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area
 Range marker RT's are set by daily RT standard

JW
11/3/12

PID Surrogates

RT	Shift	Response	%Rec	Compound
--	----	-----	----	-----
7.217	-0.012	11844	83.0	TFT(Surr)
14.811	-0.012	17827	88.5	BB(Surr)

SW8021B (PID)

RT	Shift	Response	Amount	Compound
--	----	-----	----	-----
ND	---	---	---	Benzene
ND	---	---	---	Toluene
ND	---	---	---	Ethylbenzene
ND	---	---	---	M/P-Xylene
ND	---	---	---	O-Xylene
ND	---	---	---	MTBE

NR

A Indicates Peak Area was used for quantitation instead of Height
 N Indicates peak was manually integrated

Data File: /chem3/pid2.i/103012-1.b/1030a028.d

Date : 30-OCT-2012 22:29

Client ID: QMS1-03-7-9

Sample Info: VP41H

Page 1

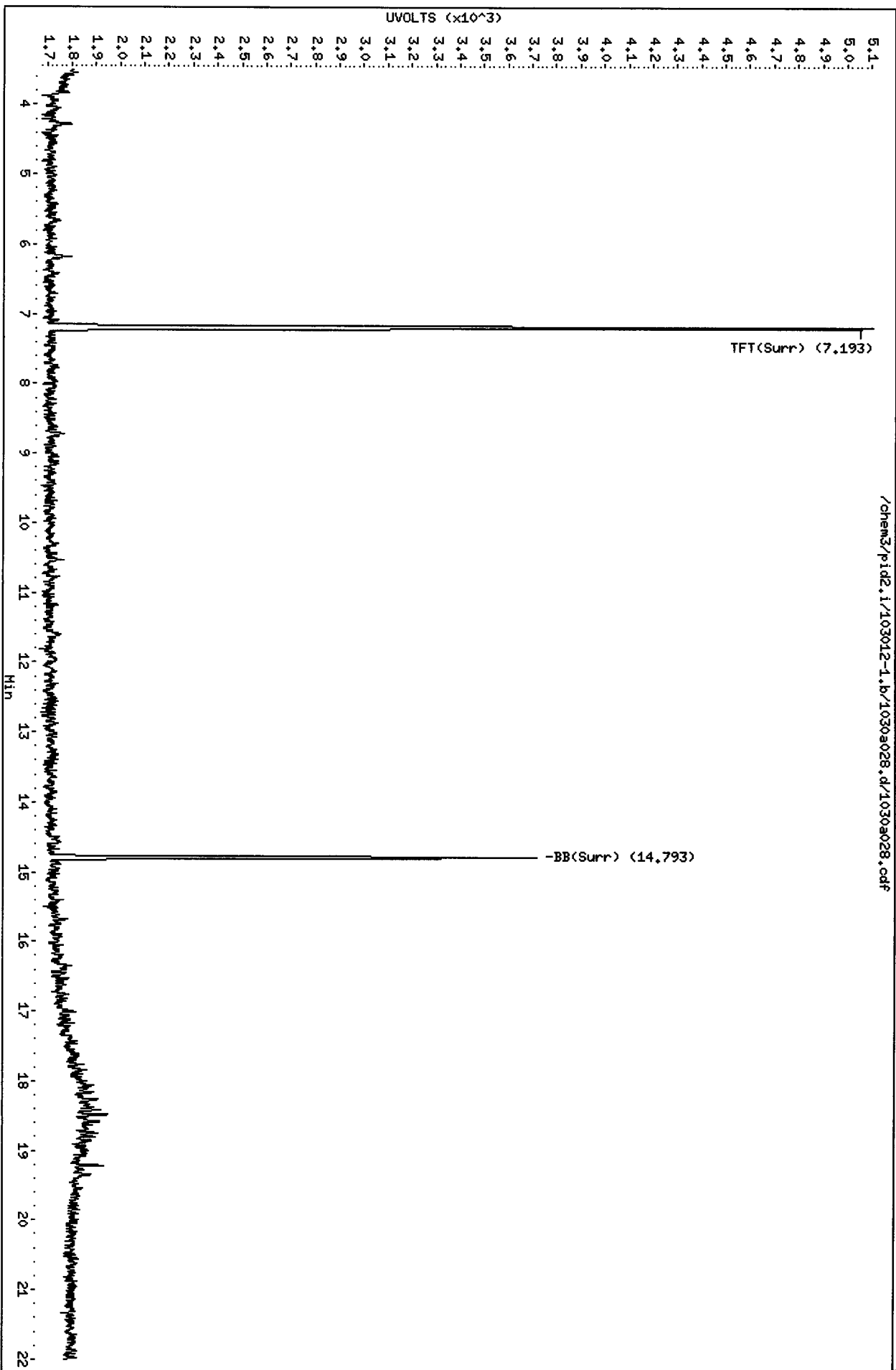
Instrument: pid2.i

Operator: JM

Column diameter: 0.18

Column phase: RTX 502-2 FID

/chem3/pid2.i/103012-1.b/1030a028.d/1030a028.cdf



ORGANICS ANALYSIS DATA SHEET

TPHG by Method NWTPHG

Matrix: Water

QC Report No: VP41-Anchor QEA LLC

Project: Central Waterfront Shoreline Inves.

Event: NA

Date Sampled: 10/25/12

Date Received: 10/26/12

Data Release Authorized: *TW*

Reported: 11/05/12

ARI ID	Client ID	Analysis Date	DL	Range	Result
VP41J 12-21288	CWS1-TB-01	10/30/12 PID2	1.0	Gasoline HC ID Trifluorotoluene Bromobenzene	< 0.25 U --- 98.7% 95.9%

Gasoline values reported in mg/L (ppm)

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

GAS: Indicates the presence of gasoline or weathered gasoline.

GRO: Positive result that does not match an identifiable gasoline pattern.

Analytical Resources Inc.
 BETX/Gas Quantitation Report

Data file 1: /chem3/pid2.i/103012-1.b/1030a014.d
 Data file 2: /chem3/pid2.i/103012-2.b/1030a014.d
 Method: /chem3/pid2.i/103012-2.b/PIDB.m
 Instrument: pid2.i
 Gas Ical Date: 20-OCT-2012
 BETX Ical Date: 20-OCT-2012

ARI ID: VP41J
 Client ID: CWS1-TB-01
 Injection Date: 30-OCT-2012 15:55
 Matrix: WATER
 Dilution Factor: 1.000

FID Surrogates

RT	Shift	Height	Area	%Rec	Compound
--	-----	-----	----	----	-----
7.203	0.011	3658	47291	98.7	TFT(Surr) ✓
14.803	0.011	1993	20313	95.9	BB(Surr)

PETROLEUM HYDROCARBONS (FID)

Method	Range	RF	Total Area*	Amount
WATPHG	Tol-C12 (9.05 to 17.57)	391690	0	0.000
8015C	2MP-TMB (3.73 to 15.73)	825102	0	0.000
AK101	nC6-nC10 (4.18 to 14.45)	660003	0	0.000
NWTPHG	Tol-Nap (9.05 to 18.58)	406475	0	0.000 ✓

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area
 Range marker RT's are set by daily RT standard

JW
11/3/12

PID Surrogates

RT	Shift	Response	%Rec	Compound
--	-----	-----	----	-----
7.228	-0.001	13787	96.6	TFT(Surr)
14.821	-0.002	18362	91.1	BB(Surr)

SW8021B (PID)

RT	Shift	Response	Amount	Compound
--	-----	-----	----	-----
ND	---	---	---	Benzene
ND	---	---	---	Toluene
ND	---	---	---	Ethylbenzene
ND	---	---	---	M/P-Xylene
ND	---	---	---	O-Xylene
ND	---	---	---	MTBE

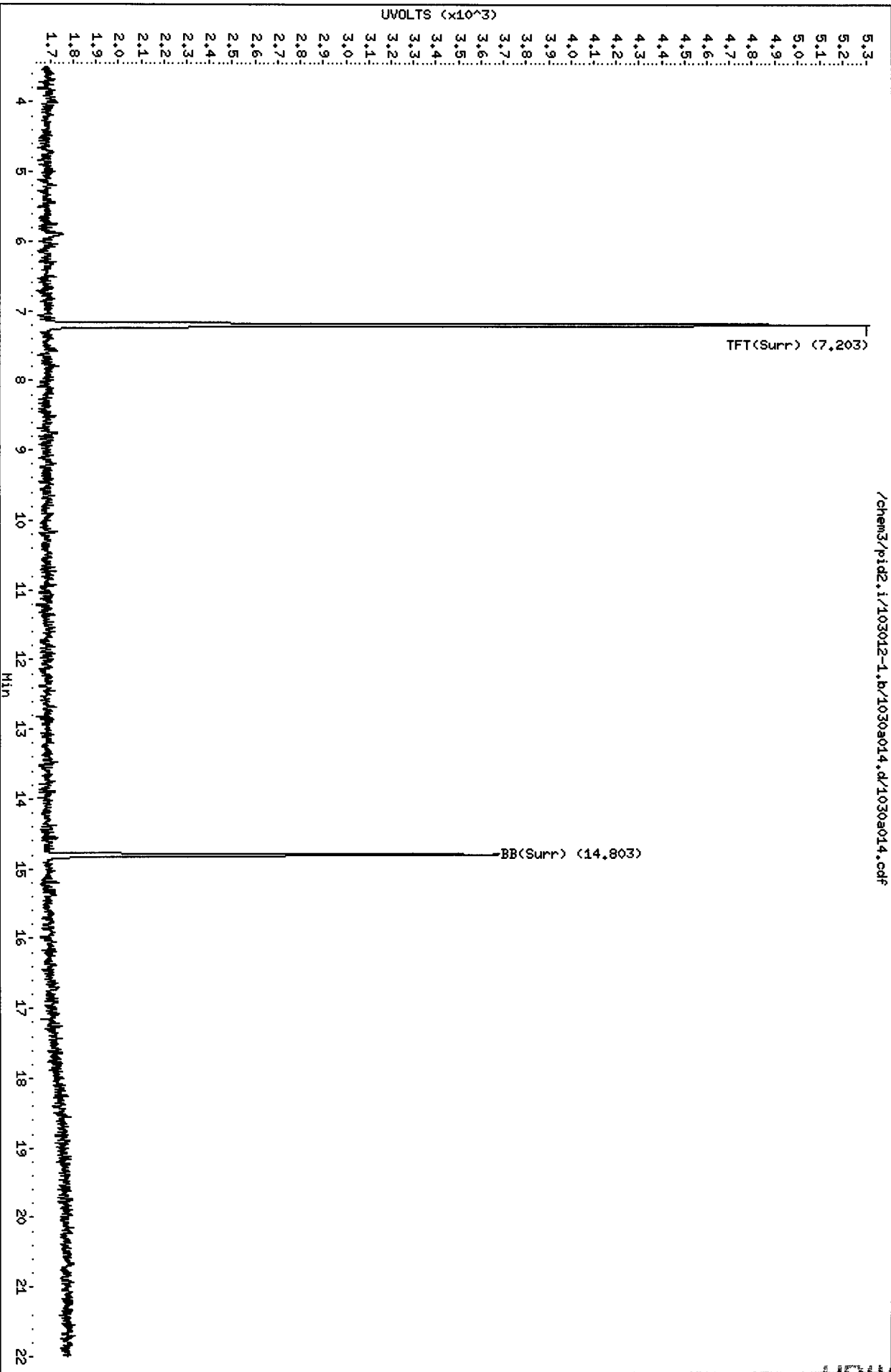
NR

A Indicates Peak Area was used for quantitation instead of Height
 N Indicates peak was manually integrated

Data File: /chem3/pid2.i/103012-1.b/1030a014.d
Date: 30-OCT-2012 15:55
Client ID: GMS1-TB-01
Sample Info: VP41J

Column phase: RTX 502-2 FID

Instrument: pid2.i
Operator: JM
Column diameter: 0.18



/chem3/pid2.i/103012-1.b/1030a014.d/1030a014.cdf

TPHG SOIL SURROGATE RECOVERY SUMMARY

ARI Job: VP41
Matrix: Soil

QC Report No: VP41-Anchor QEA LLC
Project: Central Waterfront Shoreline Inves.
Event: NA

Client ID	BFB	TFT	BBZ	TOT OUT
MB-103012	NA	97.7%	97.8%	0
LCS-103012	NA	100%	98.2%	0
LCSD-103012	NA	101%	98.2%	0
CWS1-02-1-3	NA	92.4%	94.4%	0
CWS1-02-7-8	NA	94.1%	97.4%	0
CWS1-02-12-13	NA	96.3%	99.6%	0
CWS1-01-3-5	NA	93.5%	96.2%	0
CWS1-01-11-13	NA	92.5%	95.1%	0
CWS1-03-2-4	NA	93.8%	97.9%	0
CWS1-03-7-9	NA	92.2%	96.3%	0

	LCS/MB LIMITS	QC LIMITS
(TFT) = Trifluorotoluene	(80-120)	(65-128)
(BBZ) = Bromobenzene	(80-120)	(52-149)

Log Number Range: 12-21279 to 12-21286

TPHG WATER SURROGATE RECOVERY SUMMARY

ARI Job: VP41
Matrix: Water

QC Report No: VP41-Anchor QEA LLC
Project: Central Waterfront Shoreline Inves.
Event: NA

<u>Client ID</u>	<u>TFT</u>	<u>BBZ</u>	<u>TOT OUT</u>
CWS1-TB-01	98.7%	95.9%	0

	LCS/MB LIMITS	QC LIMITS
(TFT) = Trifluorotoluene	(80-120)	(80-120)
(BBZ) = Bromobenzene	(80-120)	(80-120)

Log Number Range: 12-21288 to 12-21288

ORGANICS ANALYSIS DATA SHEET

TPHG by Method NWTPHG

Page 1 of 1

Sample ID: LCS-103012

LAB CONTROL SAMPLE

Lab Sample ID: LCS-103012

QC Report No: VP40-Anchor QEA LLC

LIMS ID: 12-21289

Project: Central Waterfront Shoreline Inves.

Matrix: Soil

Event: NA

Data Release Authorized: *mm*

Date Sampled: NA

Reported: 11/05/12

Date Received: NA

Date Analyzed LCS: 10/30/12 10:48

Purge Volume: 5.0 mL

LCSD: 10/30/12 11:16

Instrument/Analyst LCS: PID2/JLW

Sample Amount LCS: 100 mg-dry-wt

LCSD: PID2/JLW

LCSD: 100 mg-dry-wt

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Gasoline Range Hydrocarbons	54.8	50.0	110%	53.4	50.0	107%	2.6%

Reported in mg/kg (ppm)

RPD calculated using sample concentrations per SW846.

TPHG Surrogate Recovery

	LCS	LCSD
Trifluorotoluene	100%	101%
Bromobenzene	98.2%	98.2%

Analytical Resources Inc.
 BETX/Gas Quantitation Report

Data file 1: /chem3/pid2.i/103012-1.b/1030a004.d
 Data file 2: /chem3/pid2.i/103012-2.b/1030a004.d
 Method: /chem3/pid2.i/103012-2.b/PIDB.m
 Instrument: pid2.i
 Gas Ical Date: 20-OCT-2012
 BETX Ical Date: 20-OCT-2012

ARI ID: LCS1030
 Client ID:
 Injection Date: 30-OCT-2012 10:48
 Matrix: WATER
 Dilution Factor: 1.000

FID Surrogates

RT	Shift	Height	Area	%Rec	Compound
7.203	-0.002	3714	53565	100.2	TFT(Surr)
14.803	-0.003	2039	21759	98.2	BB(Surr)

PETROLEUM HYDROCARBONS (FID)

Method	Range	RF	Total Area*	Amount
WATPHG	Tol-C12 (9.07 to 17.57)	391690	425889	1.087 M
8015C	2MP-TMB (3.73 to 15.74)	825102	868170	1.052 M
AK101	nC6-nC10 (4.19 to 14.47)	660003	702472	1.064 M
NWTPHG	Tol-Nap (9.07 to 18.58)	406475	445240	1.095 M

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area
 Range marker RT's are set by daily RT standard

JW
10/31/12

PID Surrogates

RT	Shift	Response	%Rec	Compound
7.227	-0.002	14128	99.0	TFT(Surr)
14.821	-0.002	19330	95.9	BB(Surr)

SW8021B (PID)

RT	Shift	Response	Amount	Compound
6.432	-0.002	3515	3.47	Benzene
9.187	-0.001	24834	39.60	Toluene
12.025	-0.004	5161	9.47	Ethylbenzene
12.186	0.000	20903	38.59	M/P-Xylene
13.088	-0.003	7867	17.62	O-Xylene
ND	---	---	---	MTBE

A Indicates Peak Area was used for quantitation instead of Height

N Indicates peak was manually integrated

Data File: /chem3/pid2.i/103012-1.b/1030a004.d
Date : 30-OCT-2012 10:48

Client ID:

Sample Info: LCS1030

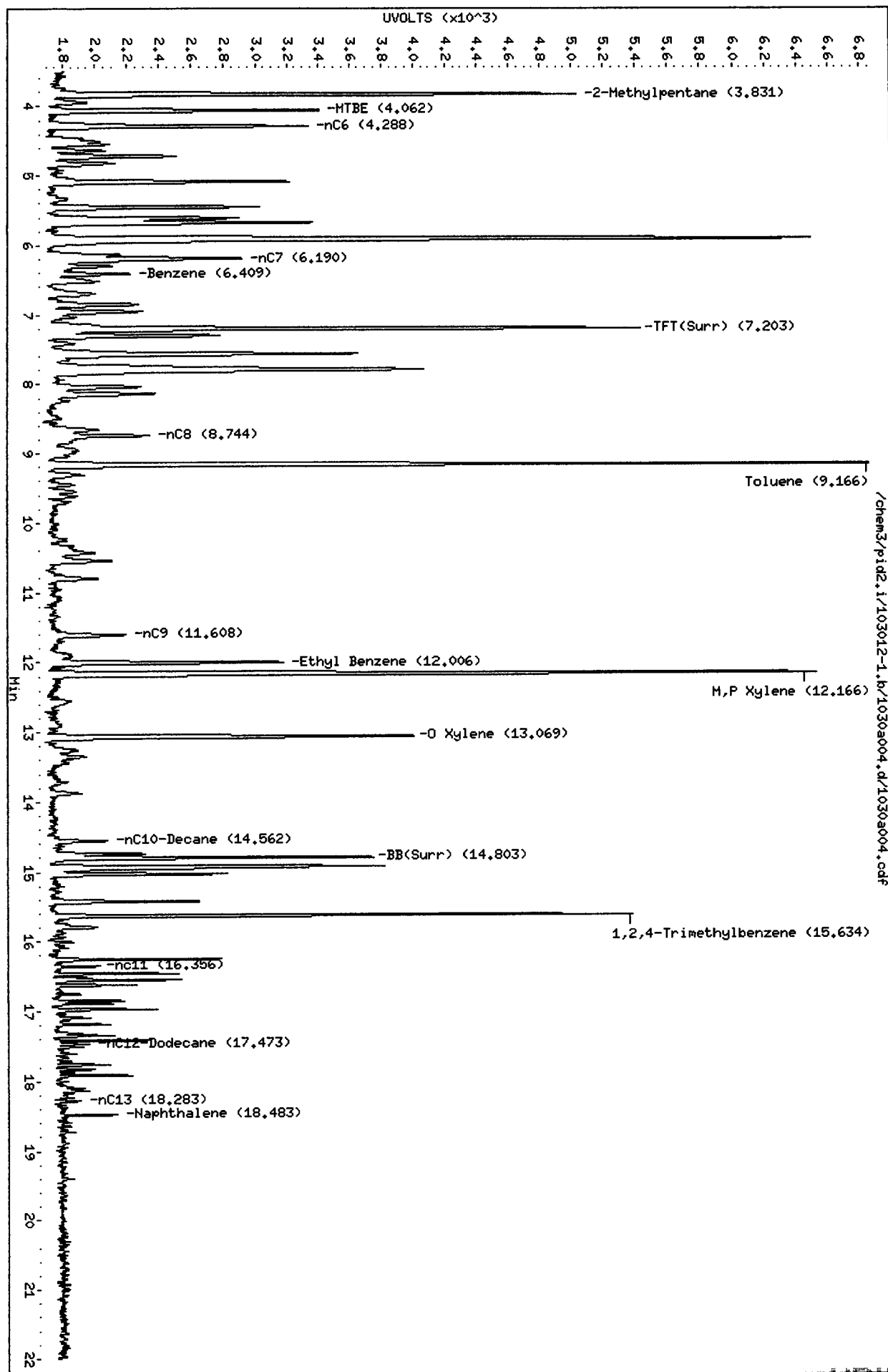
Column phase: RTX 502-2 FID

Instrument: pid2.i

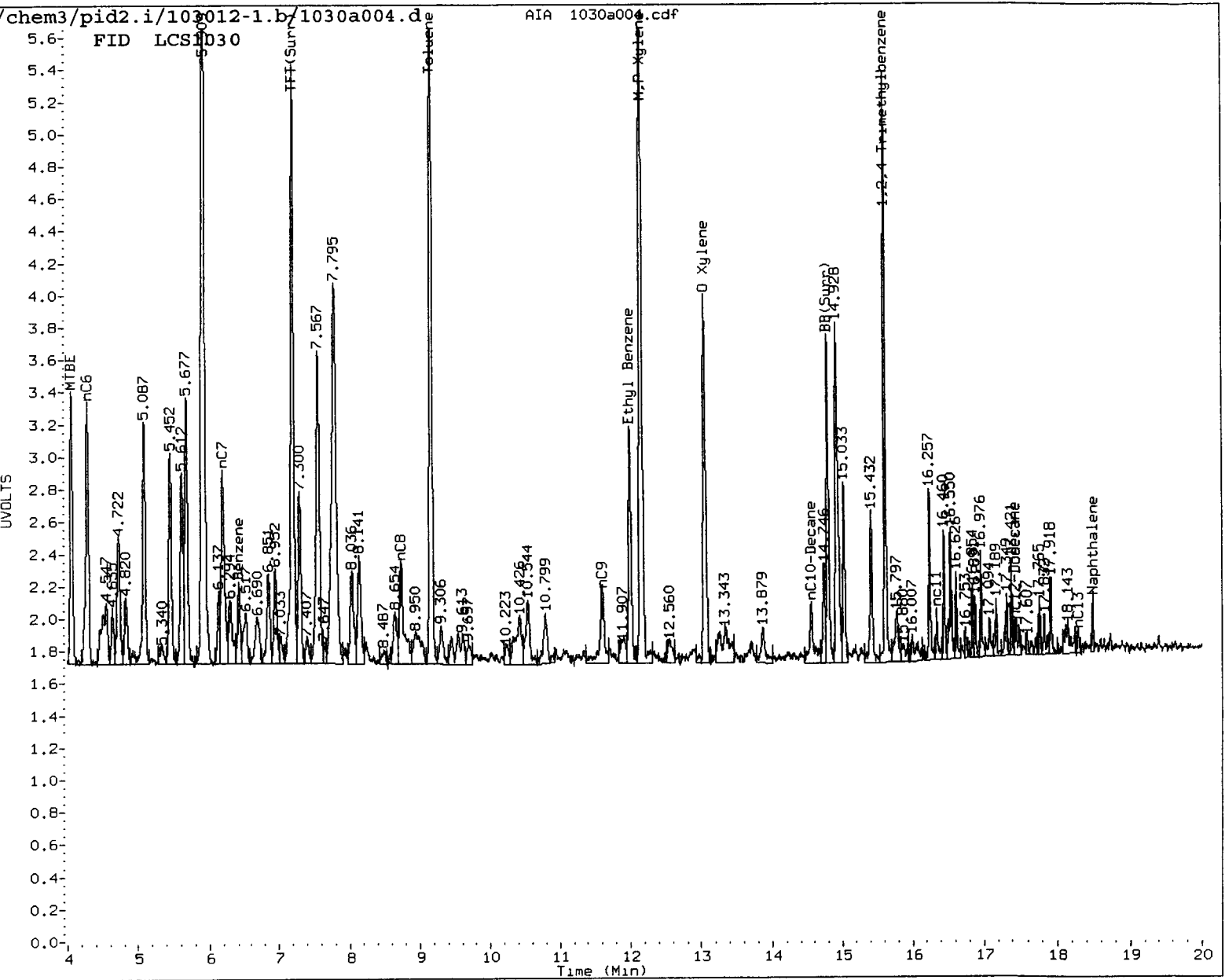
Operator: JM

Column diameter: 0.18

Page 1



0010 0017



MANUAL INTEGRATION

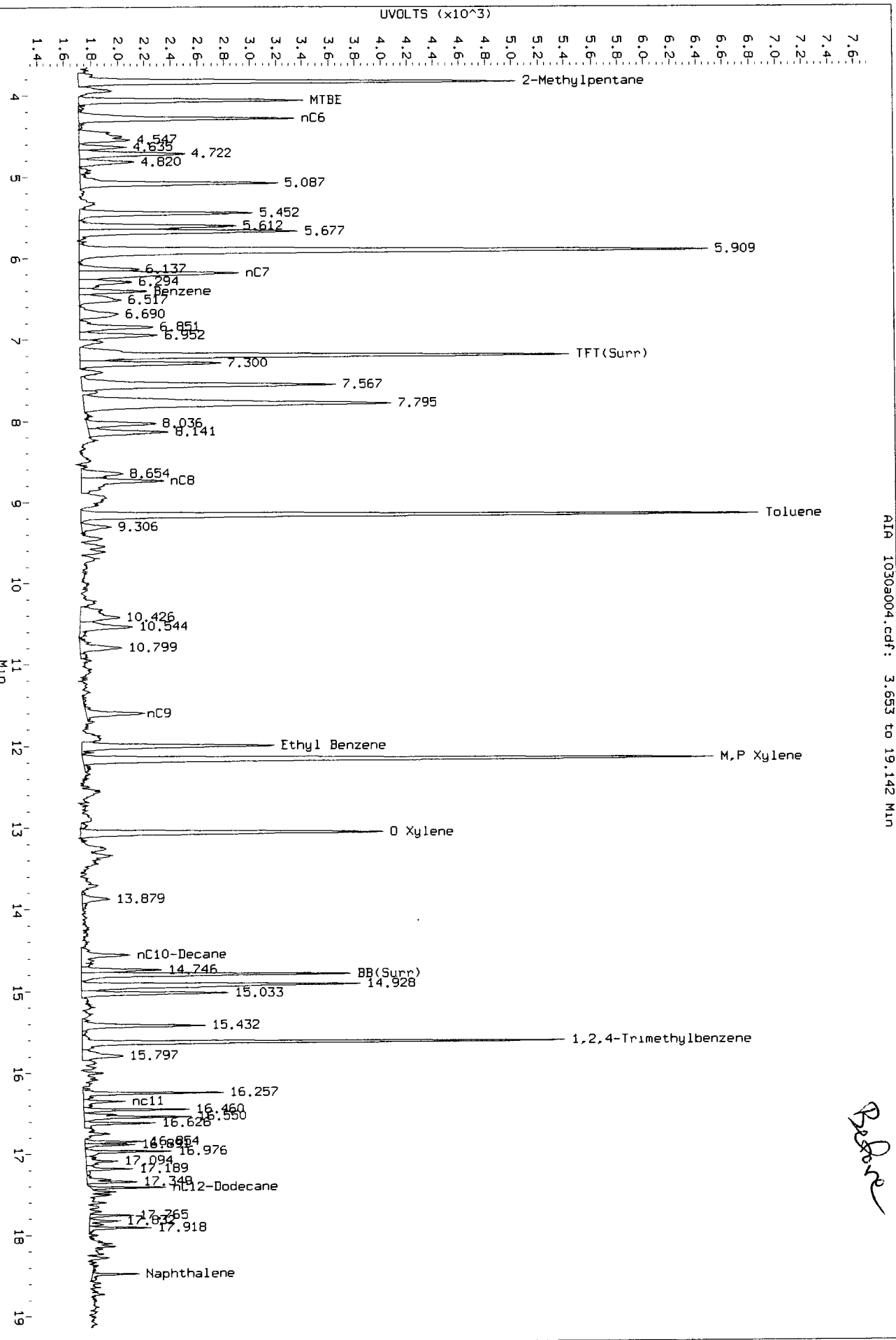
- ① Baseline correction
- ② Poor chromatography
- ③ Peak not found
4. Totals calculation
5. Other _____

Analyst: JW Date: 10/31/12

Data File: /chem3/pid2.1/103012-1.b/1030a004.d/1030a004.cdf
Injection Date: 30-OCT-2012 10:48
Instrument: pid2.1
Client Sample ID:

AIA 1030a004.cdf: 3.653 to 19.142 Min

Reference



Analytical Resources Inc.
 BETX/Gas Quantitation Report

Data file 1: /chem3/pid2.i/103012-1.b/1030a005.d ARI ID: LCSD1030
 Data file 2: /chem3/pid2.i/103012-2.b/1030a005.d Client ID:
 Method: /chem3/pid2.i/103012-2.b/PIDB.m Injection Date: 30-OCT-2012 11:16
 Instrument: pid2.i Matrix: WATER
 Gas Ical Date: 20-OCT-2012 Dilution Factor: 1.000
 BETX Ical Date: 20-OCT-2012

FID Surrogates

RT	Shift	Height	Area	%Rec	Compound
7.200	-0.004	3759	54304	101.4	TFT(Surr)
14.802	-0.003	2040	21523	98.2	BB(Surr)

PETROLEUM HYDROCARBONS (FID)

Method	Range	RF	Total Area*	Amount
WATPHG	Tol-C12 (9.07 to 17.57)	391690	409922	1.047 M
8015C	2MP-TMB (3.73 to 15.74)	825102	873462	1.059 M
AK101	nC6-nC10 (4.19 to 14.47)	660003	709038	1.074 M
NWTPHG	Tol-Nap (9.07 to 18.58)	406475	433904	1.067 M

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area
 Range marker RT's are set by daily RT standard

PID Surrogates

RT	Shift	Response	%Rec	Compound
7.223	-0.005	14315	100.3	TFT(Surr)
14.820	-0.003	19540	97.0	BB(Surr)

SW8021B (PID)

RT	Shift	Response	Amount	Compound
6.429	-0.004	3604	3.56	Benzene
9.185	-0.003	25208	40.20	Toluene
12.023	-0.005	5328	9.78	Ethylbenzene
12.185	-0.001	21339	39.39	M/P-Xylene
13.087	-0.004	8056	18.05	O-Xylene
ND	---	---	---	MTBE

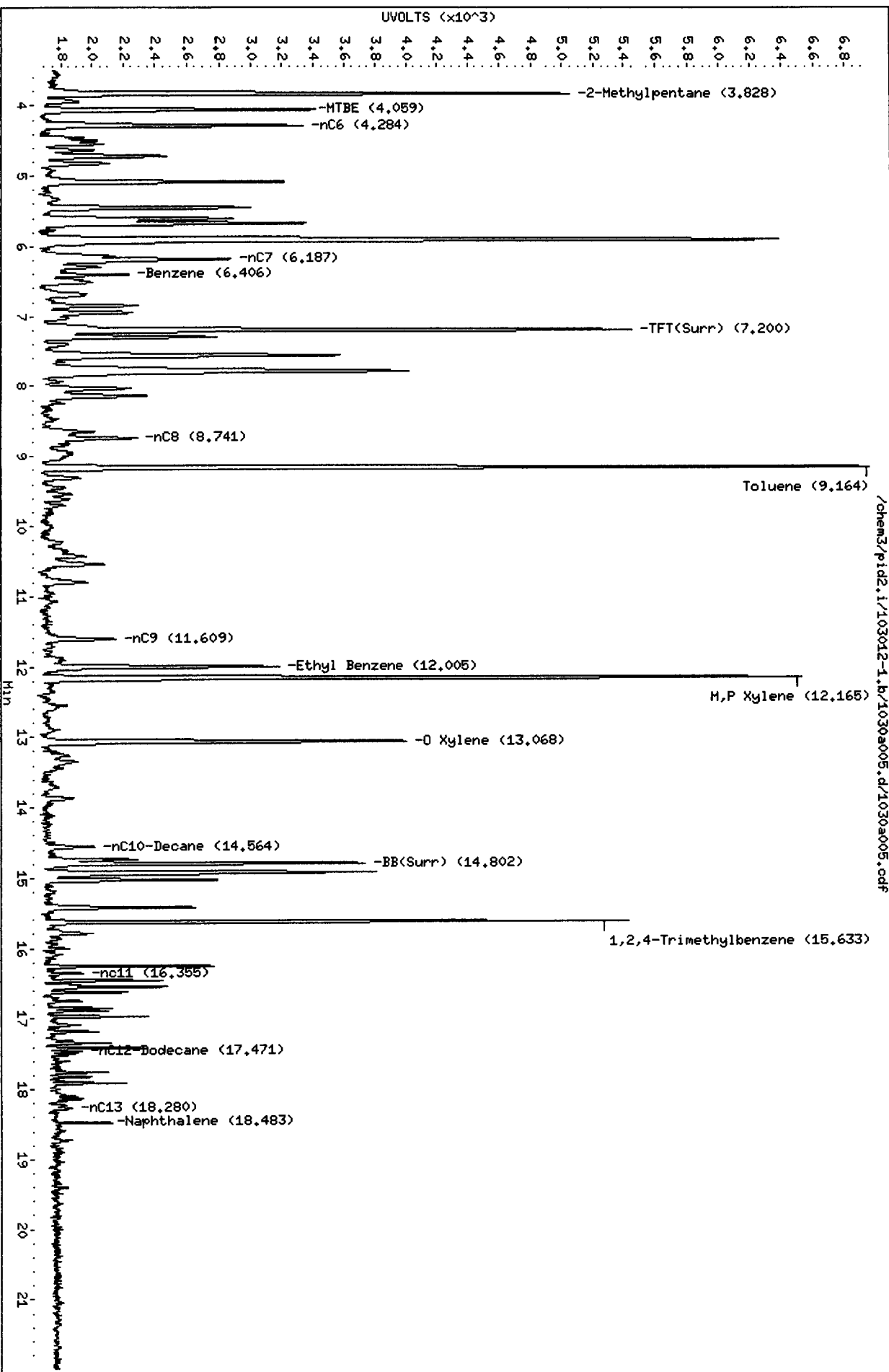
JW
10/31/12

A Indicates Peak Area was used for quantitation instead of Height
 N Indicates peak was manually integrated

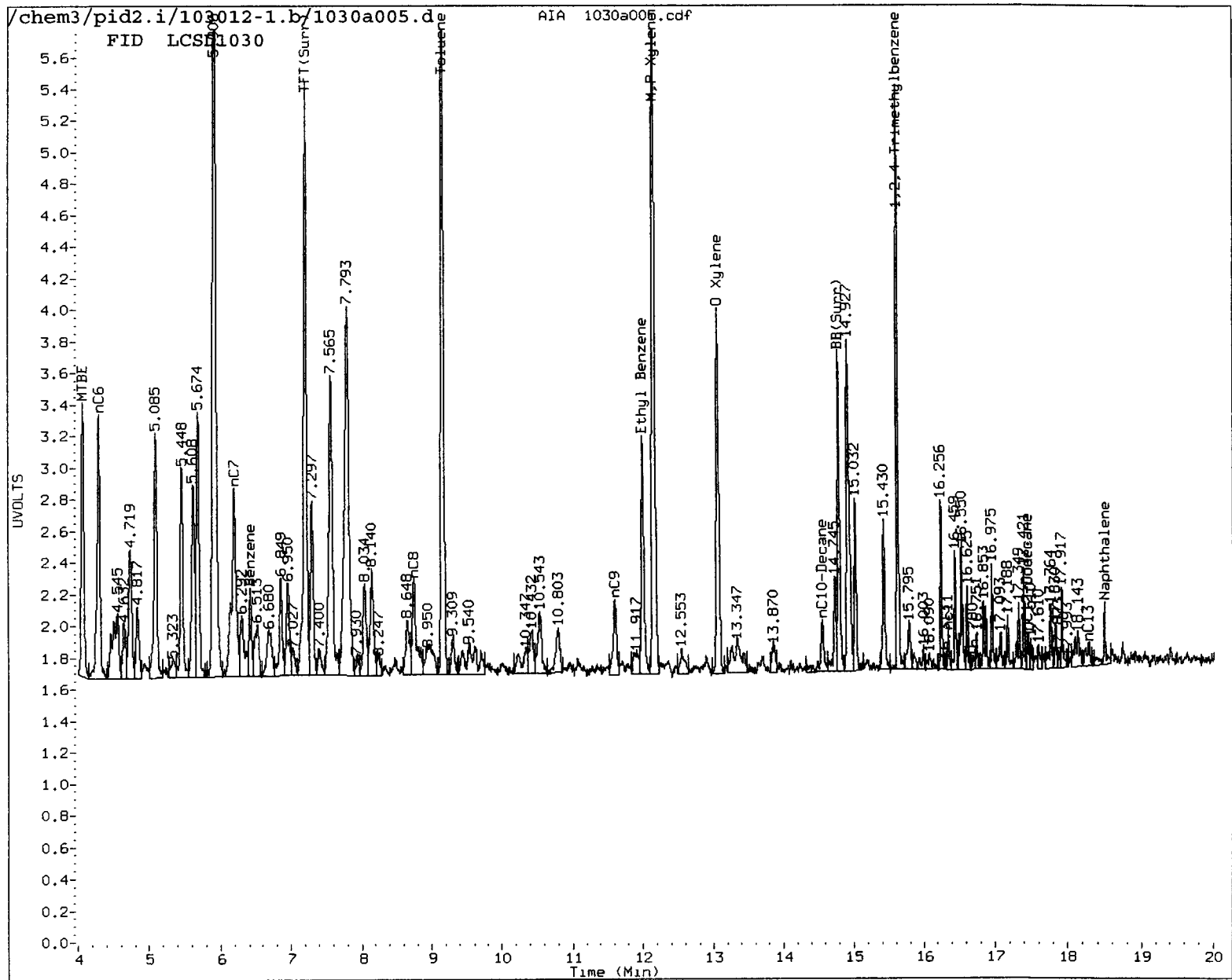
Data File: /chem3/pid2.i/103012-1.b/1030a005.d
Date : 30-OCT-2012 11:16
Client ID:
Sample Info: LCSID1030

Column phase: RTX 502-2 FID

Instrument: pid2.i
Operator: JM
Column diameter: 0.18



00170



MANUAL INTEGRATION

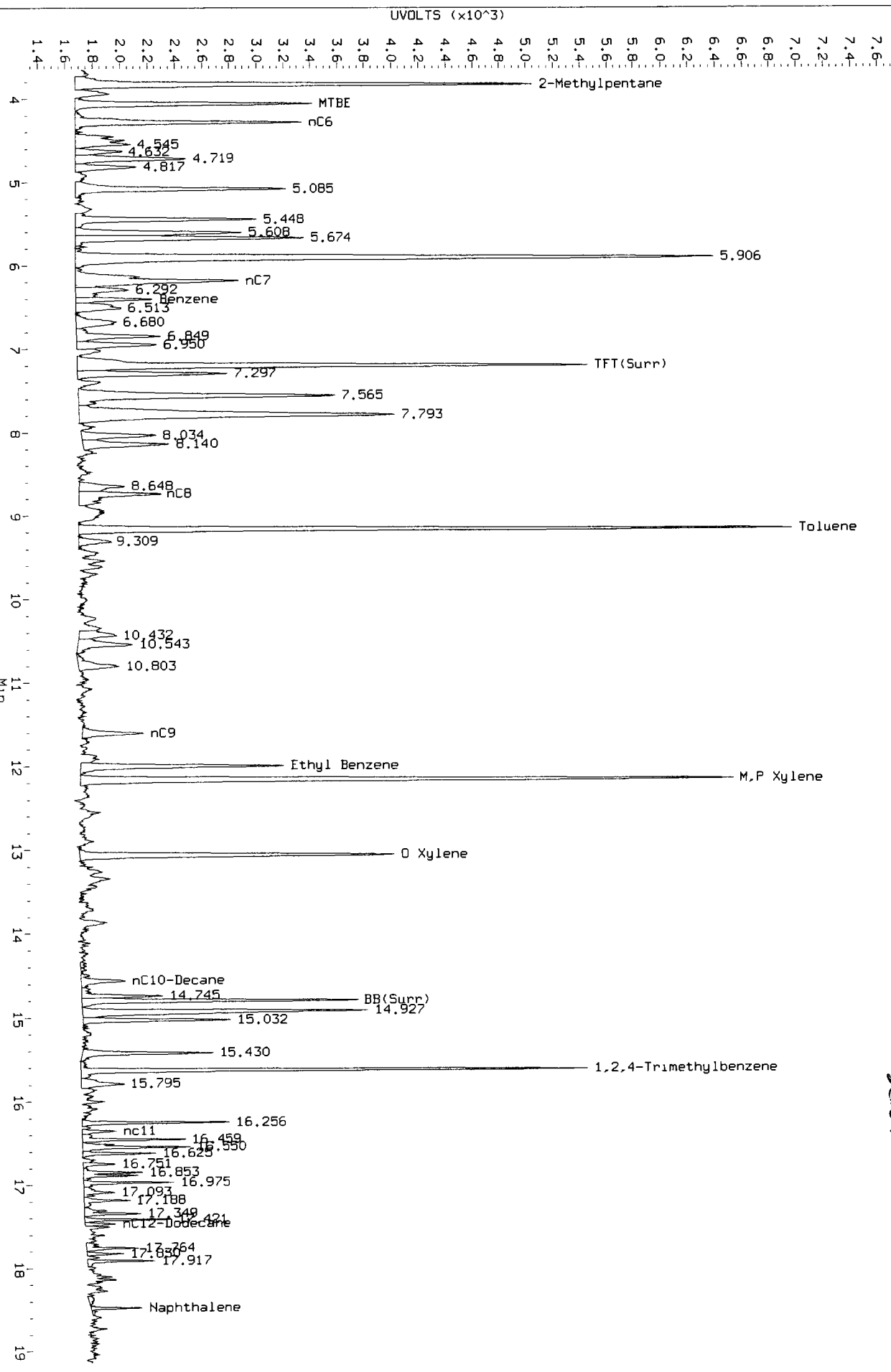
- ① Baseline correction
2. Poor chromatography
- ③ Peak not found
4. Totals calculation
5. Other _____

Analyst: JU Date: 10/31/12

Data File: /chem3/plu2.1/103012-1.b/1030a005.d/1030a005.cdf
Injection Date: 30-OCT-2012 11:16
Instrument: plu2.1
Client Sample ID:

AIA 1030a005.cdf: 3.653 to 19.142 Min

Before



BETX/GAS METHOD BLANK SUMMARY

BLANK NO.

MB1030

Lab Name: ANALYTICAL RESOURCES INC

Client: ANCHOR QEA LLC

SDG No.: VP40

Project No.: CENTRAL WATERFRONT

Date Analyzed : 10/30/12

Matrix: WATER

Time Analyzed : 1144

Instrument ID : PID2

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED
	=====	=====	=====
01	RT1030+BCAL1	RT1030+BCAL1	10/30/12
02	LCS1030	LCS1030	10/30/12
03	LCSD1030	LCSD1030	10/30/12
04	CWS1-TB-01	VP40E	10/30/12
05	CWS1-TB-01	VP41J	10/30/12
06	CWS1-04-2-4	VP40A	10/30/12
07	CWS1-04-6-8	VP40B	10/30/12
08	CWS1-04-13.5	VP40C	10/30/12
09	CWS1-02-1-3	VP41A	10/30/12
10	CWS1-02-7-8	VP41B	10/30/12
11	CWS1-02-12-1	VP41C	10/30/12
12	CWS1-01-3-5	VP41D	10/30/12
13	CWS1-01-11-1	VP41E	10/30/12
14	CWS1-03-2-4	VP41G	10/30/12
15	CWS1-03-7-9	VP41H	10/30/12
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			

6a
GAS INITIAL CALIBRATION

Lab Name: ANALYTICAL RESOURCES, INC.

Client: Anchor QEA LLC

Instrument/Det: PID2.I/RTX 502-2 FID

Project: Central Waterfront

Calibration Date: 20-OCT-2012

SDG No.: VP40,VP41

Gas Range	RF1 0.1	RF2 0.25	RF3 1.0	RF4 2.5	RF5 5.0	RF6 10	Ave RF	%RSD
WA Gas	349235	358515	408820	403377	414816	415379	391690	7.6
AK Gas	609435	644896	690302	653702	669673	692009	660003	4.7
NW Gas	358280	371107	424618	420179	431916	432748	406475	8.1
Cal Gas	759665	795129	850708	808208	826726	847830	814711	4.2
8015Gas	773895	816547	860460	816381	831400	851929	825102	3.7

Surrogates Rel. Rec.	RF1	RF2	RF3	RF4	RF5	RF6	Ave RF	%RSD
TFT(Surr)	40.27273 34.24000	39.13636	37.61194	36.49000	36.42105	35.21348	37.05508	5.728
BB(Surr)	21.59091 19.50000	22.04545	21.55224	20.44000	20.32331	19.96067	20.77323	4.604

<- Indicates %RSD outside limits
Surrogate areas are not included in RF calculation

Quant Ranges : WA Gas Toluene - nC12
 AK Gas nC6 - nC10
 NW Gas Toluene - Naphthalene
 Cal Gas nC6 - nC12
 8015 Gas 2-Methylpentane - 1,2,4-Trimethylbenzene

Calibration Files	Analysis Time
1020a011.d	20-OCT-2012 15:02
1020a012.d	20-OCT-2012 15:30
1020a013.d	20-OCT-2012 15:58
1020a014.d	20-OCT-2012 16:26
1020a015.d	20-OCT-2012 16:54
1020a016.d	20-OCT-2012 17:22

Surr Calibration Files	Analysis Time
1020a003.d	20-OCT-2012 11:17
1020a004.d	20-OCT-2012 11:45
1020a005.d	20-OCT-2012 12:13
1020a006.d	20-OCT-2012 12:42
1020a007.d	20-OCT-2012 13:09
1020a008.d	20-OCT-2012 13:38
1020a009.d	20-OCT-2012 14:06

p1 of 1

FORM VI-GAS

7a
GAS CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC.

Client: Anchor QEA LLC

ICal Date: 20-OCT-2012

Project: Central Waterfront

CCal Date: 30-OCT-2012

SDG No.: VP40

Lab File Name: 1030a003.d

Inst/Det: PID2.I/RTX 502-2 FID

Gas Range	Area*	CalcAmt	NomAmt	%D
WAGas (Tol-C12)	1008326	2.57	2.50	3.0
AKGas (C6-C10)	1692520	2.56	2.50	2.6
NWGas (Tol-Nap)	1058628	2.60	2.50	4.2
8015C (2MP-TMB)	2088505	2.53	2.50	1.2

* Surrogate areas are subtracted from Total Area
<- Indicates an RPD outside QC limits

7b
FID SURROGATE CONTINUING CALIBRATION

Lab Name: ANALYTICAL RESOURCES, INC.

Client: Anchor QEA LLC

ICal Date: 20-OCT-2012

Project: Central Waterfront

CCal Date: 30-OCT-2012

SDG No.: VP40

Lab File Name: 1030a003.d

Inst/Det: PID2.I/RTX 502-2 FID

Surrogate	Area	CalcAmt	NomAmt	RPD
Trifluorotol	64824	106.2	100.0	6.2
Bromoflrbenz	21921	98.0	100.0	-2.0

7a
GAS CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC.

Client: Anchor QEA LLC

ICal Date: 20-OCT-2012

Project: Central Waterfront

CCal Date: 30-OCT-2012

SDG No.: VP40

Lab File Name: 1030a012.d

Inst/Det: PID2.I/RTX 502-2 FID

Gas Range	Area*	CalcAmt	NomAmt	%D
WAGas (Tol-C12)	957742	2.45	2.50	-2.2
AKGas (C6-C10)	1641550	2.49	2.50	-0.5
NWGas (Tol-Nap)	997373	2.45	2.50	-1.9
8015C (2MP-TMB)	2024515	2.45	2.50	-1.9

* Surrogate areas are subtracted from Total Area
<- Indicates an RPD outside QC limits

7b
FID SURROGATE CONTINUING CALIBRATION

Lab Name: ANALYTICAL RESOURCES, INC.

Client: Anchor QEA LLC

ICal Date: 20-OCT-2012

Project: Central Waterfront

CCal Date: 30-OCT-2012

SDG No.: VP40

Lab File Name: 1030a012.d

Inst/Det: PID2.I/RTX 502-2 FID

Surrogate	Area	CalcAmt	NomAmt	RPD
Trifluorotol	64129	104.1	100.0	4.1
Bromoflrbenz	22177	101.1	100.0	1.1

7a
GAS CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC.

Client: Anchor QEA LLC

ICal Date: 20-OCT-2012

Project: Central Waterfront

CCal Date: 30-OCT-2012

SDG No.: VP40

Lab File Name: 1030a021.d

Inst/Det: PID2.I/RTX 502-2 FID

Gas Range	Area*	CalcAmt	NomAmt	%D
WAGas (Tol-C12)	931491	2.38	2.50	-4.9
AKGas (C6-C10)	1558791	2.36	2.50	-5.5
NWGas (Tol-Nap)	970256	2.39	2.50	-4.5
8015C (2MP-TMB)	1931728	2.34	2.50	-6.4

* Surrogate areas are subtracted from Total Area
<- Indicates an RPD outside QC limits

7b
FID SURROGATE CONTINUING CALIBRATION

Lab Name: ANALYTICAL RESOURCES, INC.

Client: Anchor QEA LLC

ICal Date: 20-OCT-2012

Project: Central Waterfront

CCal Date: 30-OCT-2012

SDG No.: VP40

Lab File Name: 1030a021.d

Inst/Det: PID2.I/RTX 502-2 FID

Surrogate	Area	CalcAmt	NomAmt	RPD
Trifluorotol	61545	101.9	100.0	1.9
Bromoflrbenz	20854	96.5	100.0	-3.5

7a
GAS CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC.

Client: Anchor QEA LLC

ICal Date: 20-OCT-2012

Project: Central Waterfront

CCal Date: 30-OCT-2012

SDG No.: VP40

Lab File Name: 1030a029.d

Inst/Det: PID2.I/RTX 502-2 FID

Gas Range	Area*	CalcAmt	NomAmt	%D
WAGas (Tol-C12)	862772	2.20	2.50	-11.9
AKGas (C6-C10)	1383186	2.10	2.50	-16.2
NWGas (Tol-Nap)	897231	2.21	2.50	-11.7
8015C (2MP-TMB)	1734810	2.10	2.50	-15.9 <-

* Surrogate areas are subtracted from Total Area
 <- Indicates an RPD outside QC limits

7b
FID SURROGATE CONTINUING CALIBRATION

Lab Name: ANALYTICAL RESOURCES, INC.

Client: Anchor QEA LLC

ICal Date: 20-OCT-2012

Project: Central Waterfront

CCal Date: 30-OCT-2012

SDG No.: VP40

Lab File Name: 1030a029.d

Inst/Det: PID2.I/RTX 502-2 FID

Surrogate	Area	CalcAmt	NomAmt	RPD
Trifluorotol	58627	99.4	100.0	-0.6
Bromoflrbenz	21107	96.2	100.0	-3.8

BETX/GAS ANALYTICAL SEQUENCE

Lab Name: ANALYTICAL RESOURCES INC

Client: ANCHOR QEA LLC

SDG No.: VP40

Project: CENTRAL WATERFRONT

Instrument ID: PID2

GC Detector: RTX 502-2 FID

Run Date: 10/30/12

THE ANALYTICAL SEQUENCE OF BLANKS, SAMPLES, AND STANDARDS,
IS GIVEN BELOW:

METHOD SURROGATE RT				S1	S2
S1 : 7.20		S2 : 14.79			
CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	S1 RT #	S2 RT #
01	ZZZZZ	10/30/12	0924		
02	RT1030+BCAL1	10/30/12	0952	7.20	14.81
03	CENTRAL WATE	10/30/12	1020	7.20	14.80
04	LCS1030	10/30/12	1048	7.20	14.80
05	LCSD1030	10/30/12	1116	7.20	14.80
06	MB1030	10/30/12	1144	7.20	14.80
07	ZZZZZ	10/30/12	1229	7.20	14.80
08	ZZZZZ	10/30/12	1257	7.20	14.80
09	ZZZZZ	10/30/12	1325	7.20	14.80
10	ZZZZZ	10/30/12	1353	7.20	14.80
11	ZZZZZ	10/30/12	1422	7.20	14.80
12	CENTRAL WATE	10/30/12	1459	7.20	14.80
13	CWS1-TB-01	10/30/12	1527	7.20	14.80
14	CWS1-TB-01	10/30/12	1555	7.20	14.80
15	ZZZZZ	10/30/12	1623	7.20	14.80
16	ZZZZZ	10/30/12	1651	7.20	14.80
17	ZZZZZ	10/30/12	1719	7.20	14.80
18	CWS1-04-2-4	10/30/12	1747	7.20	14.80
19	CWS1-04-6-8	10/30/12	1815	7.20	14.80
20	CWS1-04-13.5	10/30/12	1843	7.20	14.80
21	CENTRAL WATE	10/30/12	1911	7.20	14.79
22	CWS1-02-1-3	10/30/12	1939	7.19	14.79
23	CWS1-02-7-8	10/30/12	2007	7.19	14.79
24	CWS1-02-12-1	10/30/12	2036	7.19	14.79
25	CWS1-01-3-5	10/30/12	2104	7.19	14.79
26	CWS1-01-11-1	10/30/12	2132	7.19	14.79
27	CWS1-03-2-4	10/30/12	2200	7.19	14.79
28	CWS1-03-7-9	10/30/12	2229	7.19	14.79
29	CENTRAL WATE	10/30/12	2257	7.20	14.79
30	ZZZZZ	10/30/12	2325	7.19	14.79
31	ZZZZZ	10/30/12	2354	7.19	14.79
32	ZZZZZ	10/31/12	0022	7.19	14.79

S1 = TFT(Surr)

(+/- 0.07 MINUTES)

S2 = BB(Surr)

(+/- 0.07 MINUTES)

* Values outside of QC limits.

BETX/GAS ANALYTICAL SEQUENCE

Lab Name: ANALYTICAL RESOURCES INC

Client: ANCHOR QEA LLC

SDG No.: VP40

Project: CENTRAL WATERFRONT

Instrument ID: PID2

GC Detector: RTX 502-2 FID

Run Date: 10/31/12

THE ANALYTICAL SEQUENCE OF BLANKS, SAMPLES, AND STANDARDS,
IS GIVEN BELOW:

METHOD SURROGATE RT					
S1 : 7.20		S2 : 14.79			
CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	S1 RT #	S2 RT #
01 ===== ZZZZZ	===== ZZZZZ	===== 10/31/12	===== 0050	===== 7.19	===== 14.79

QC LIMITS

S1 = TFT(Surr) (+/- 0.07 MINUTES)
S2 = BB(Surr) (+/- 0.07 MINUTES)

* Values outside of QC limits.

8
BETX/GAS ANALYTICAL SEQUENCE

Lab Name: ANALYTICAL RESOURCES INC Client: Anchor QEA LLC
 SDG No.: VP40, VP41 Project: Central Waterfront
 Instrument ID: PID2 GC Detector: RTX 502-2 FID
 Run Date: 10/20/12

THE ANALYTICAL SEQUENCE OF BLANKS, SAMPLES, AND STANDARDS,
 IS GIVEN BELOW:

METHOD SURROGATE RT					
S1 : 7.20		S2 : 14.80			
CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	S1 RT #	S2 RT #
=====	=====	=====	=====	=====	=====
01	RINSE	10/20/12	1021		
02	RT1020+BCAL1	10/20/12	1049	7.20	14.80
03	BTEX 0.25	10/20/12	1117	7.20	14.80
04	BTEX 0.50	10/20/12	1145	7.20	14.80
05	BTEX 5.0	10/20/12	1213	7.20	14.80
06	BTEX 25	10/20/12	1242	7.19	14.80
07	BTEX 50	10/20/12	1309	7.20	14.80
08	BTEX 100	10/20/12	1338	7.20	14.80
09	BTEX 200	10/20/12	1406	7.20	14.80
10	BTEX ICV	10/20/12	1434	7.20	14.80
11	GAS 0.10	10/20/12	1502	7.20	14.80
12	GAS 0.25	10/20/12	1530	7.20	14.80
13	GAS 1.0	10/20/12	1558	7.20	14.80
14	GAS 2.5	10/20/12	1626	7.20	14.80
15	GAS 5.0	10/20/12	1654	7.20	14.80
16	GAS 10	10/20/12	1722	7.20	14.80
17	GAS ICV	10/20/12	1750	7.20	14.80

S1 = TFT(Surr) (+/- 0.07 MINUTES)
 S2 = BB(Surr) (+/- 0.07 MINUTES)

* Values outside of QC limits.

**Metals Analysis
Report and Summary QC Forms**

ARI Job ID: VP40, VP41

Cover Page

INORGANIC ANALYSIS DATA PACKAGE



CLIENT: Anchor QEA LLC

PROJECT: Central Waterfront S

SDG: VP40

CLIENT ID	ARI ID	ARI LIMS ID	REPREP
CWS1-02-1-3	VP41A	12-21279	
CWS1-02-7-8	VP41B	12-21280	
CWS1-02-12-13	VP41C	12-21281	
CWS1-01-3-5	VP41D	12-21282	
CWS1-01-11-13	VP41E	12-21283	
CWS1-04-2-4	VP40A	12-21289	
CWS1-04-2-4D	VP40ADUP	12-21289	
CWS1-04-2-4S	VP40ASPK	12-21289	
CWS1-04-6-8	VP40B	12-21290	
PBS	VP40MB1	12-21290	
LCSS	VP40MB1SPK	12-21290	
CWS1-04-13.5-15	VP40C	12-21291	

Were ICP interelement corrections applied ? Yes/No YES
Were ICP background corrections applied ? Yes/No YES
If yes - were raw data generated before
application of background corrections ? Yes/No NO

Comments: _____

THIS DATA PACKAGE HAS BEEN REVIEWED AND AUTHORIZED FOR RELEASE BY:

Signature: 

Name: Jay Kuhn

Date: 11/16/12

Title: Inorganics Director

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS

Page 1 of 1

Sample ID: CWS1-04-2-4
SAMPLE

Lab Sample ID: VP40A

QC Report No: VP40-Anchor QEA LLC

LIMS ID: 12-21289

Project: Central Waterfront Shoreline Inves.

Matrix: Soil

Data Release Authorized: *[Signature]*

Date Sampled: 10/25/12

Reported: 11/06/12

Date Received: 10/26/12

Percent Total Solids: 82.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	10/29/12	6010C	11/01/12	7440-36-0	Antimony	6	6	U
3050B	10/29/12	6010C	11/01/12	7440-38-2	Arsenic	6	6	U
3050B	10/29/12	6010C	11/01/12	7440-41-7	Beryllium	0.1	0.2	
3050B	10/29/12	6010C	11/01/12	7440-43-9	Cadmium	0.2	0.7	
3050B	10/29/12	6010C	11/01/12	7440-47-3	Chromium	0.6	35.9	
3050B	10/29/12	6010C	11/01/12	7440-50-8	Copper	0.2	40.9	
3050B	10/29/12	6010C	11/01/12	7439-92-1	Lead	2	30	
CLP	10/29/12	7471A	10/30/12	7439-97-6	Mercury	0.02	0.16	
3050B	10/29/12	6010C	11/01/12	7440-02-0	Nickel	1	40	
3050B	10/29/12	6010C	11/01/12	7782-49-2	Selenium	6	6	U
3050B	10/29/12	6010C	11/01/12	7440-22-4	Silver	0.3	0.3	U
3050B	10/29/12	6010C	11/01/12	7440-28-0	Thallium	6	6	U
3050B	10/29/12	6010C	11/01/12	7440-66-6	Zinc	1	84	

U-Analyte undetected at given LOQ

LOQ-Limit of Quantitation

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS

Page 1 of 1

Sample ID: CWS1-04-6-8

SAMPLE

Lab Sample ID: VP40B

LIMS ID: 12-21290

Matrix: Soil

Data Release Authorized:

Reported: 11/06/12

QC Report No: VP40-Anchor QEA LLC

Project: Central Waterfront Shoreline Inves.

Date Sampled: 10/25/12

Date Received: 10/26/12

Percent Total Solids: 75.9%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	10/29/12	6010C	11/02/12	7440-36-0	Antimony	6	6	U
3050B	10/29/12	6010C	11/02/12	7440-38-2	Arsenic	6	6	U
3050B	10/29/12	6010C	11/02/12	7440-41-7	Beryllium	0.1	0.1	
3050B	10/29/12	6010C	11/02/12	7440-43-9	Cadmium	0.3	0.3	U
3050B	10/29/12	6010C	11/02/12	7440-47-3	Chromium	0.6	37.8	
3050B	10/29/12	6010C	11/02/12	7440-50-8	Copper	0.3	34.5	
3050B	10/29/12	6010C	11/02/12	7439-92-1	Lead	3	22	
CLP	10/29/12	7471A	10/30/12	7439-97-6	Mercury	0.02	0.08	
3050B	10/29/12	6010C	11/02/12	7440-02-0	Nickel	1	23	
3050B	10/29/12	6010C	11/02/12	7782-49-2	Selenium	6	6	U
3050B	10/29/12	6010C	11/02/12	7440-22-4	Silver	0.4	0.4	U
3050B	10/29/12	6010C	11/02/12	7440-28-0	Thallium	6	6	U
3050B	10/29/12	6010C	11/02/12	7440-66-6	Zinc	1	48	

U-Analyte undetected at given LOQ

LOQ-Limit of Quantitation

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS

Page 1 of 1

Sample ID: CWS1-04-13.5-15
SAMPLE

Lab Sample ID: VP40C

LIMS ID: 12-21291

Matrix: Soil

Data Release Authorized: 

Reported: 11/06/12

QC Report No: VP40-Anchor QEA LLC

Project: Central Waterfront Shoreline Inves.

Date Sampled: 10/25/12

Date Received: 10/26/12

Percent Total Solids: 80.6%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	10/29/12	6010C	11/02/12	7440-36-0	Antimony	10	10	U
3050B	10/29/12	6010C	11/02/12	7440-38-2	Arsenic	10	10	U
3050B	10/29/12	6010C	11/02/12	7440-41-7	Beryllium	0.3	0.3	U
3050B	10/29/12	6010C	11/02/12	7440-43-9	Cadmium	0.6	11.7	
3050B	10/29/12	6010C	11/02/12	7440-47-3	Chromium	1	22	
3050B	10/29/12	6010C	11/02/12	7440-50-8	Copper	0.6	30.3	
3050B	10/29/12	6010C	11/02/12	7439-92-1	Lead	6	452	
CLP	10/29/12	7471A	10/30/12	7439-97-6	Mercury	0.03	0.20	
3050B	10/29/12	6010C	11/02/12	7440-02-0	Nickel	3	17	
3050B	10/29/12	6010C	11/02/12	7782-49-2	Selenium	10	10	U
3050B	10/29/12	6010C	11/02/12	7440-22-4	Silver	0.9	0.9	U
3050B	10/29/12	6010C	11/02/12	7440-28-0	Thallium	10	10	U
3050B	10/29/12	6010C	11/02/12	7440-66-6	Zinc	3	5,050	

U-Analyte undetected at given LOQ

LOQ-Limit of Quantitation

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS

Page 1 of 1

Sample ID: CWS1-02-1-3
SAMPLE


Lab Sample ID: VP41A

QC Report No: VP41-Anchor QEA LLC

LIMS ID: 12-21279

Project: Central Waterfront Shoreline Inves.

Matrix: Soil

Data Release Authorized: 

Date Sampled: 10/25/12

Reported: 11/06/12

Date Received: 10/26/12

Percent Total Solids: 92.6%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	10/29/12	6010C	11/02/12	7440-36-0	Antimony	5	5	
3050B	10/29/12	6010C	11/02/12	7440-38-2	Arsenic	5	25	
3050B	10/29/12	6010C	11/02/12	7440-41-7	Beryllium	0.1	0.1	
3050B	10/29/12	6010C	11/02/12	7440-43-9	Cadmium	0.2	0.2	U
3050B	10/29/12	6010C	11/02/12	7440-47-3	Chromium	0.5	14.2	
3050B	10/29/12	6010C	11/02/12	7440-50-8	Copper	0.2	41.4	
3050B	10/29/12	6010C	11/02/12	7439-92-1	Lead	2	16	
CLP	10/29/12	7471A	10/30/12	7439-97-6	Mercury	0.03	0.03	U
3050B	10/29/12	6010C	11/02/12	7440-02-0	Nickel	1	19	
3050B	10/29/12	6010C	11/02/12	7782-49-2	Selenium	5	5	U
3050B	10/29/12	6010C	11/02/12	7440-22-4	Silver	0.3	0.3	U
3050B	10/29/12	6010C	11/02/12	7440-28-0	Thallium	5	5	U
3050B	10/29/12	6010C	11/02/12	7440-66-6	Zinc	1	52	

U-Analyte undetected at given LOQ

LOQ-Limit of Quantitation

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS


Page 1 of 1

Sample ID: CWS1-02-7-8
SAMPLE

Lab Sample ID: VP41B

LIMS ID: 12-21280

Matrix: Soil

Data Release Authorized: 

Reported: 11/06/12

QC Report No: VP41-Anchor QEA LLC

Project: Central Waterfront Shoreline Inves.

Date Sampled: 10/25/12

Date Received: 10/26/12

Percent Total Solids: 81.6%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	10/29/12	6010C	11/02/12	7440-36-0	Antimony	60	60	U
3050B	10/29/12	6010C	11/02/12	7440-38-2	Arsenic	60	60	U
3050B	10/29/12	6010C	11/02/12	7440-41-7	Beryllium	1	1	U
3050B	10/29/12	6010C	11/02/12	7440-43-9	Cadmium	2	2	U
3050B	10/29/12	6010C	11/02/12	7440-47-3	Chromium	6	128	
3050B	10/29/12	6010C	11/02/12	7440-50-8	Copper	2	403	
3050B	10/29/12	6010C	11/02/12	7439-92-1	Lead	20	1,260	
CLP	10/29/12	7471A	10/30/12	7439-97-6	Mercury	0.03	0.05	
3050B	10/29/12	6010C	11/02/12	7440-02-0	Nickel	10	160	
3050B	10/29/12	6010C	11/02/12	7782-49-2	Selenium	60	60	U
3050B	10/29/12	6010C	11/02/12	7440-22-4	Silver	4	4	U
3050B	10/29/12	6010C	11/02/12	7440-28-0	Thallium	60	60	U
3050B	10/29/12	6010C	11/02/12	7440-66-6	Zinc	10	250	

U-Analyte undetected at given LOQ

LOQ-Limit of Quantitation

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS

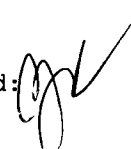
Page 1 of 1

Sample ID: CWS1-02-12-13
SAMPLE

Lab Sample ID: VP41C

LIMS ID: 12-21281

Matrix: Soil

Data Release Authorized: 

Reported: 11/06/12

QC Report No: VP41-Anchor QEA LLC

Project: Central Waterfront Shoreline Inves.

Date Sampled: 10/25/12

Date Received: 10/26/12

Percent Total Solids: 80.3%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	10/29/12	6010C	11/02/12	7440-36-0	Antimony	30	30	U
3050B	10/29/12	6010C	11/02/12	7440-38-2	Arsenic	30	30	U
3050B	10/29/12	6010C	11/02/12	7440-41-7	Beryllium	0.6	0.6	U
3050B	10/29/12	6010C	11/02/12	7440-43-9	Cadmium	1	1	
3050B	10/29/12	6010C	11/02/12	7440-47-3	Chromium	3	30	
3050B	10/29/12	6010C	11/02/12	7440-50-8	Copper	1	209	
3050B	10/29/12	6010C	11/02/12	7439-92-1	Lead	10	40	
CLP	10/29/12	7471A	10/30/12	7439-97-6	Mercury	0.02	0.02	U
3050B	10/29/12	6010C	11/02/12	7440-02-0	Nickel	6	39	
3050B	10/29/12	6010C	11/02/12	7782-49-2	Selenium	30	30	U
3050B	10/29/12	6010C	11/02/12	7440-22-4	Silver	2	2	U
3050B	10/29/12	6010C	11/02/12	7440-28-0	Thallium	30	30	U
3050B	10/29/12	6010C	11/02/12	7440-66-6	Zinc	6	162	

U-Analyte undetected at given LOQ

LOQ-Limit of Quantitation

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS


Page 1 of 1

Sample ID: CWS1-01-3-5
SAMPLE

Lab Sample ID: VP41D

LIMS ID: 12-21282

Matrix: Soil

Data Release Authorized: 

Reported: 11/06/12

QC Report No: VP41-Anchor QEA LLC

Project: Central Waterfront Shoreline Inves.

Date Sampled: 10/25/12

Date Received: 10/26/12

Percent Total Solids: 79.3%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	10/29/12	6010C	11/02/12	7440-36-0	Antimony	20	20	U
3050B	10/29/12	6010C	11/02/12	7440-38-2	Arsenic	20	20	U
3050B	10/29/12	6010C	11/02/12	7440-41-7	Beryllium	0.3	0.3	U
3050B	10/29/12	6010C	11/02/12	7440-43-9	Cadmium	0.6	1.4	
3050B	10/29/12	6010C	11/02/12	7440-47-3	Chromium	2	38	
3050B	10/29/12	6010C	11/02/12	7440-50-8	Copper	0.6	148	
3050B	10/29/12	6010C	11/02/12	7439-92-1	Lead	6	166	
CLP	10/29/12	7471A	10/30/12	7439-97-6	Mercury	0.02	0.06	
3050B	10/29/12	6010C	11/02/12	7440-02-0	Nickel	3	39	
3050B	10/29/12	6010C	11/02/12	7782-49-2	Selenium	20	20	U
3050B	10/29/12	6010C	11/02/12	7440-22-4	Silver	0.9	0.9	U
3050B	10/29/12	6010C	11/02/12	7440-28-0	Thallium	20	20	U
3050B	10/29/12	6010C	11/02/12	7440-66-6	Zinc	3	347	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS

Page 1 of 1

Sample ID: CWS1-01-11-13
SAMPLE

Lab Sample ID: VP41E

LIMS ID: 12-21283

Matrix: Soil

Data Release Authorized:

Reported: 11/06/12

QC Report No: VP41-Anchor QEA LLC

Project: Central Waterfront Shoreline Inves.

Date Sampled: 10/25/12

Date Received: 10/26/12

Percent Total Solids: 77.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	10/29/12	6010C	11/02/12	7440-36-0	Antimony	30	30	U
3050B	10/29/12	6010C	11/02/12	7440-38-2	Arsenic	30	30	U
3050B	10/29/12	6010C	11/02/12	7440-41-7	Beryllium	0.6	0.6	U
3050B	10/29/12	6010C	11/02/12	7440-43-9	Cadmium	1	1	U
3050B	10/29/12	6010C	11/02/12	7440-47-3	Chromium	3	57	
3050B	10/29/12	6010C	11/02/12	7440-50-8	Copper	1	359	
3050B	10/29/12	6010C	11/02/12	7439-92-1	Lead	10	110	
CLP	10/29/12	7471A	10/30/12	7439-97-6	Mercury	0.02	0.22	
3050B	10/29/12	6010C	11/02/12	7440-02-0	Nickel	6	109	
3050B	10/29/12	6010C	11/02/12	7782-49-2	Selenium	30	30	U
3050B	10/29/12	6010C	11/02/12	7440-22-4	Silver	2	2	U
3050B	10/29/12	6010C	11/02/12	7440-28-0	Thallium	30	30	U
3050B	10/29/12	6010C	11/02/12	7440-66-6	Zinc	6	273	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS

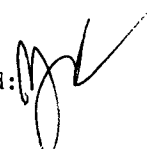
Page 1 of 1

**Sample ID: CWS1-04-2-4
MATRIX SPIKE**

Lab Sample ID: VP40A

LIMS ID: 12-21289

Matrix: Soil

Data Release Authorized: 

Reported: 11/06/12

QC Report No: VP40-Anchor QEA LLC

Project: Central Waterfront Shoreline Inves.

Date Sampled: 10/25/12

Date Received: 10/26/12

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Antimony	6010C	6 U	52	232	22.4%	N
Arsenic	6010C	6 U	239	232	103%	
Beryllium	6010C	0.2	58.7	57.9	101%	
Cadmium	6010C	0.7	57.9	57.9	98.8%	
Chromium	6010C	35.9	99.4	57.9	110%	
Copper	6010C	40.9	98.1	57.9	98.8%	
Lead	6010C	30	248	232	94.0%	
Mercury	7471A	0.16	0.47	0.249	124%	
Nickel	6010C	40	89	57.9	84.6%	
Selenium	6010C	6 U	226	232	97.4%	
Silver	6010C	0.3 U	58.5	57.9	101%	
Thallium	6010C	6 U	215	232	92.7%	
Zinc	6010C	84	133	57.9	84.6%	

Reported in mg/kg-dry

N-Control Limit Not Met

H-% Recovery Not Applicable, Sample Concentration Too High

NA-Not Applicable, Analyte Not Spiked

Percent Recovery Limits: 75-125%

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS

Page 1 of 1

Sample ID: CWS1-04-2-4
DUPLICATE


Lab Sample ID: VP40A

QC Report No: VP40-Anchor QEA LLC

LIMS ID: 12-21289

Project: Central Waterfront Shoreline Inves.

Matrix: Soil

Data Release Authorized: 

Date Sampled: 10/25/12

Reported: 11/06/12

Date Received: 10/26/12

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Antimony	6010C	6 U	6 U	0.0%	+/- 6	L
Arsenic	6010C	6 U	6 U	0.0%	+/- 6	L
Beryllium	6010C	0.2	0.2	0.0%	+/- 0.1	L
Cadmium	6010C	0.7	0.6	15.4%	+/- 0.2	L
Chromium	6010C	35.9	35.4	1.4%	+/- 20%	
Copper	6010C	40.9	38.5	6.0%	+/- 20%	
Lead	6010C	30	30	0.0%	+/- 20%	
Mercury	7471A	0.16	0.16	0.0%	+/- 20%	
Nickel	6010C	40	34	16.2%	+/- 20%	
Selenium	6010C	6 U	6 U	0.0%	+/- 6	L
Silver	6010C	0.3 U	0.3 U	0.0%	+/- 0.3	L
Thallium	6010C	6 U	6 U	0.0%	+/- 6	L
Zinc	6010C	84	83	1.2%	+/- 20%	

Reported in mg/kg-dry

*-Control Limit Not Met

L-RPD Invalid, Limit = Detection Limit

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS

Page 1 of 1

Sample ID: LAB CONTROL


Lab Sample ID: VP40LCS

QC Report No: VP40-Anchor QEA LLC

LIMS ID: 12-21290

Project: Central Waterfront Shoreline Inves.

Matrix: Soil

Data Release Authorized: 

Date Sampled: NA

Reported: 11/06/12

Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Antimony	6010C	203	200	102%	
Arsenic	6010C	204	200	102%	
Beryllium	6010C	52.0	50.0	104%	
Cadmium	6010C	50.3	50.0	101%	
Chromium	6010C	52.0	50.0	104%	
Copper	6010C	51.2	50.0	102%	
Lead	6010C	202	200	101%	
Mercury	7471A	0.50	0.50	100%	
Nickel	6010C	50	50	100%	
Selenium	6010C	202	200	101%	
Silver	6010C	51.0	50.0	102%	
Thallium	6010C	198	200	99.0%	
Zinc	6010C	49	50	98.0%	

Reported in mg/kg-dry

N-Control limit not met

NA-Not Applicable, Analyte Not Spiked

Control Limits: 80-120%

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS

Page 1 of 1

Sample ID: METHOD BLANK

Lab Sample ID: VP40MB

QC Report No: VP40-Anchor QEA LLC

LIMS ID: 12-21290

Project: Central Waterfront Shoreline Inves.

Matrix: Soil

Data Release Authorized:

Date Sampled: NA

Reported: 11/06/12

Date Received: NA

Percent Total Solids: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	10/29/12	6010C	11/02/12	7440-36-0	Antimony	5	5	U
3050B	10/29/12	6010C	11/02/12	7440-38-2	Arsenic	5	5	U
3050B	10/29/12	6010C	11/02/12	7440-41-7	Beryllium	0.1	0.1	U
3050B	10/29/12	6010C	11/02/12	7440-43-9	Cadmium	0.2	0.2	U
3050B	10/29/12	6010C	11/02/12	7440-47-3	Chromium	0.5	0.5	U
3050B	10/29/12	6010C	11/02/12	7440-50-8	Copper	0.2	0.4	
3050B	10/29/12	6010C	11/02/12	7439-92-1	Lead	2	2	U
CLP	10/29/12	7471A	10/30/12	7439-97-6	Mercury	0.02	0.02	U
3050B	10/29/12	6010C	11/02/12	7440-02-0	Nickel	1	1	U
3050B	10/29/12	6010C	11/02/12	7782-49-2	Selenium	5	5	U
3050B	10/29/12	6010C	11/02/12	7440-22-4	Silver	0.3	0.3	U
3050B	10/29/12	6010C	11/02/12	7440-28-0	Thallium	5	5	U
3050B	10/29/12	6010C	11/02/12	7440-66-6	Zinc	1	1	U

U-Analyte undetected at given LOQ

LOQ-Limit of Quantitation

Calibration Verification



CLIENT: Anchor QEA LLC

PROJECT: Central Waterfront S

UNITS: ug/L

SDG: VP40

ANALYTE	EL	M	RUN	ICVTV	ICV	%R	CCVTV	CCV1	%R	CCV2	%R	CCV3	%R	CCV4	%R	CCV5	%R
Antimony	SB	ICP	IP110121	2000.0	2117.98	105.9	2000.0	2074.40	103.7	2104.21	105.2	2092.96	104.6	2089.40	104.5	2086.05	104.3
Arsenic	AS	ICP	IP110121	2000.0	2079.62	104.0	2000.0	2045.55	102.3	2082.01	104.1	2064.50	103.2	2081.01	104.1	2094.79	104.7
Beryllium	BE	ICP	IP110121	1000.0	1023.32	102.3	1000.0	1000.44	100.0	1024.97	102.5	1026.95	102.7	1026.30	102.6	995.93	99.6
Cadmium	CD	ICP	IP110121	1000.0	1023.16	102.3	1000.0	1003.36	100.3	1009.59	101.0	1012.94	101.3	1009.99	101.0	1024.17	102.4
Chromium	CR	ICP	IP110121	1000.0	990.21	99.0	1000.0	971.24	97.1	993.49	99.3	999.70	100.0	1008.32	100.8	1009.16	100.9
Copper	CU	ICP	IP110121	1000.0	1060.80	106.1	1000.0	1038.58	103.9	1054.85	105.5	1061.69	106.2	1049.16	104.9	1062.91	106.3
Lead	PB	ICP	IP110121	2000.0	2055.16	102.8	2000.0	2016.87	100.8	2054.11	102.7	2042.35	102.1	2081.28	104.1	2025.04	101.3
Mercury	HG	CVA	HG103001	8.0	8.09	101.1	4.0	4.11	102.8	4.08	102.0	4.04	101.0				
Nickel	NI	ICP	IP110121	1000.0	1013.93	101.4	1000.0	990.75	99.1	1014.38	101.4	1017.08	101.7	1033.84	103.4	996.56	99.7
Selenium	SE	ICP	IP110121	2000.0	2020.01	101.0	2000.0	1979.39	99.0	2016.19	100.8	1997.13	99.9	2007.83	100.4	2027.82	101.4
Silver	AG	ICP	IP110121	1000.0	1007.56	100.8	1000.0	982.82	98.3	994.25	99.4	991.46	99.1	989.51	99.0	1019.26	101.9
Thallium	TL	ICP	IP110121	2000.0	2003.89	100.2	2000.0	1969.61	98.5	2000.75	100.0	1990.00	99.5	2000.75	100.0	2017.00	100.9
Zinc	ZN	ICP	IP110121	1000.0	1069.21	106.9	1000.0	1048.58	104.9	1081.20	108.1	1081.96	108.2	1137.71	113.8	1046.52	104.7

Control Limits: Mercury 80-120; Other Metals 90-110

60200 6140

Calibration Verification

CLIENT: Anchor QEA LLC

PROJECT: Central Waterfront S

SDG: VP40



UNITS: ug/L

ANALYTE	EL	M	RUN	CCVTV	CCV6	%R	CCV7	%R	CCV8	%R	CCV9	%R	CCV10	%R	CCV11	%R
Antimony	SB	ICP	IP110121	2000.0	2090.10	104.5	2001.21	100.1								
Arsenic	AS	ICP	IP110121	2000.0	2098.74	104.9	2014.92	100.7								
Beryllium	BE	ICP	IP110121	1000.0	980.07	98.0	966.86	96.7								
Cadmium	CD	ICP	IP110121	1000.0	1014.11	101.4	983.62	98.4								
Chromium	CR	ICP	IP110121	1000.0	999.89	100.0	997.68	99.8								
Copper	CU	ICP	IP110121	1000.0	1067.28	106.7	1044.62	104.5								
Lead	PB	ICP	IP110121	2000.0	2041.46	102.1	1975.47	98.8								
Mercury	HG	CVA	HG103001		4.0											
Nickel	NI	ICP	IP110121	1000.0	988.06	98.8	981.77	98.2								
Selenium	SE	ICP	IP110121	2000.0	2021.22	101.1	1932.78	96.6								
Silver	AG	ICP	IP110121	1000.0	1017.02	101.7	991.30	99.1								
Thallium	TL	ICP	IP110121	2000.0	2027.24	101.4	1948.03	97.4								
Zinc	ZN	ICP	IP110121	1000.0	1031.03	103.1	1031.68	103.2								

Control Limits: Mercury 80-120; Other Metals 90-110

012000:010101

Calibration Verification



CLIENT: Anchor QEA LLC

PROJECT: Central Waterfront S

UNITS: ug/L

SDG: VP40

ANALYTE	EL	M	RUN	ICVTV	ICV	%R	CCVTV	CCV1	%R	CCV2	%R	CCV3	%R	CCV4	%R	CCV5	%R
Antimony	SB	ICP	IP110221	2000.0	2159.75	108.0	2000.0	2127.12	106.4	2108.83	105.4	2088.38	104.4	2042.18	102.1	2046.13	102.3
Arsenic	AS	ICP	IP110221	2000.0	2063.24	103.2	2000.0	2031.05	101.6	2018.12	100.9	1995.36	99.8	1958.81	97.9	1968.94	98.4
Beryllium	BE	ICP	IP110221	1000.0	998.30	99.8	1000.0	986.84	98.7	990.31	99.0	1012.95	101.3	965.47	96.5	982.01	98.2
Cadmium	CD	ICP	IP110221	1000.0	1039.89	104.0	1000.0	1017.61	101.8	1020.03	102.0	1017.33	101.7	1005.66	100.6	1008.08	100.8
Chromium	CR	ICP	IP110221	1000.0	1001.07	100.1	1000.0	995.42	99.5	997.93	99.8	1018.96	101.9	966.96	96.7	1003.80	100.4
Copper	CU	ICP	IP110221	1000.0	1088.60	108.9	1000.0	1064.16	106.4	1072.48	107.2	1066.50	106.7	1048.02	104.8	1058.54	105.9
Lead	PB	ICP	IP110221	2000.0	2000.91	100.0	2000.0	1973.59	98.7	1962.96	98.1	1943.06	97.2	1910.75	95.5	1929.10	96.5
Nickel	NI	ICP	IP110221	1000.0	986.14	98.6	1000.0	984.90	98.5	984.50	98.5	1015.22	101.5	961.48	96.1	1003.05	100.3
Selenium	SE	ICP	IP110221	2000.0	2002.16	100.1	2000.0	1969.78	98.5	1959.13	98.0	1936.40	96.8	1907.35	95.4	1905.89	95.3
Silver	AG	ICP	IP110221	1000.0	1004.54	100.5	1000.0	980.27	98.0	979.18	97.9	985.56	98.6	973.84	97.4	975.35	97.5
Thallium	TL	ICP	IP110221	2000.0	2003.77	100.2	2000.0	1970.25	98.5	1958.36	97.9	1939.65	97.0	1898.19	94.9	1905.29	95.3
Zinc	ZN	ICP	IP110221	1000.0	1033.47	103.3	1000.0	1038.52	103.9	1039.21	103.9	1088.69	108.9	1022.11	102.2	1072.14	107.2

Control Limits: Mercury 80-120; Other Metals 90-110

11/2000/01/01

Calibration Verification

CLIENT: Anchor QEA LLC

PROJECT: Central Waterfront S

SDG: VP40



UNITS: ug/L

ANALYTE	EL	M	RUN	CCVTV	CCV6	%R	CCV7	%R	CCV8	%R	CCV9	%R	CCV10	%R	CCV11	%R
Antimony	SB	ICP	IP110221	2000.0	2024.86	101.2	1994.40	99.7								
Arsenic	AS	ICP	IP110221	2000.0	1947.66	97.4	1919.60	96.0								
Beryllium	BE	ICP	IP110221	1000.0	970.41	97.0	965.77	96.6								
Cadmium	CD	ICP	IP110221	1000.0	1011.22	101.1	991.46	99.1								
Chromium	CR	ICP	IP110221	1000.0	992.69	99.3	985.11	98.5								
Copper	CU	ICP	IP110221	1000.0	1071.38	107.1	1050.71	105.1								
Lead	PB	ICP	IP110221	2000.0	1912.26	95.6	1885.58	94.3								
Nickel	NI	ICP	IP110221	1000.0	988.76	98.9	990.16	99.0								
Selenium	SE	ICP	IP110221	2000.0	1876.33	93.8	1860.89	93.0								
Silver	AG	ICP	IP110221	1000.0	988.04	98.8	966.52	96.7								
Thallium	TL	ICP	IP110221	2000.0	1888.34	94.4	1861.56	93.1								
Zinc	ZN	ICP	IP110221	1000.0	1048.37	104.8	1054.47	105.4								

Control Limits: Mercury 80-120; Other Metals 90-110

2025.08.12

CRDL Standard

CLIENT: Anchor QEA LLC

PROJECT: Central Waterfront S

SDG: VP40



UNITS: ug/L

ANALYTE	EL	M	RUN	CRA/I TV	CR-1	%R	CR-2	%R	CR-3	%R	CR-4	%R	CR-5	%R	CR-6	%R
Antimony	SB	ICP	IP110121	50.0	50.51	101.0										
Arsenic	AS	ICP	IP110121	50.0	52.15	104.3										
Beryllium	BE	ICP	IP110121	1.0	1.06	106.0										
Cadmium	CD	ICP	IP110121	2.0	1.89	94.5										
Chromium	CR	ICP	IP110121	5.0	6.26	125.2										
Copper	CU	ICP	IP110121	2.0	1.41	70.5										
Lead	PB	ICP	IP110121	20.0	20.28	101.4										
Mercury	HG	CVA	HG103001	0.1	0.11	110.0										
Nickel	NI	ICP	IP110121	10.0	11.68	116.8										
Selenium	SE	ICP	IP110121	50.0	49.32	98.6										
Silver	AG	ICP	IP110121	3.0	2.99	99.7										
Thallium	TL	ICP	IP110121	50.0	47.17	94.3										
Zinc	ZN	ICP	IP110121	10.0	9.86	98.6										

Control Limits: no control limits have been established by the EPA at this time.

00243

CRDL Standard

CLIENT: Anchor QEA LLC

PROJECT: Central Waterfront S

SDG: VP40



UNITS: ug/L

ANALYTE	EL	M	RUN	CRA/I TV	CR-1	%R	CR-2	%R	CR-3	%R	CR-4	%R	CR-5	%R	CR-6	%R
Antimony	SB	ICP	IP110221	50.0	50.31	100.6	51.08	102.2								
Arsenic	AS	ICP	IP110221	50.0	49.71	99.4	50.48	101.0								
Beryllium	BE	ICP	IP110221	1.0	1.00	100.0	1.08	108.0								
Cadmium	CD	ICP	IP110221	2.0	1.91	95.5	1.97	98.5								
Chromium	CR	ICP	IP110221	5.0	4.60	92.0	5.51	110.2								
Copper	CU	ICP	IP110221	2.0	1.64	82.0	3.15	157.5								
Lead	PB	ICP	IP110221	20.0	18.17	90.9	19.31	96.6								
Nickel	NI	ICP	IP110221	10.0	9.16	91.6	11.05	110.5								
Selenium	SE	ICP	IP110221	50.0	53.75	107.5	51.58	103.2								
Silver	AG	ICP	IP110221	3.0	2.80	93.3	3.00	100.0								
Thallium	TL	ICP	IP110221	50.0	49.65	99.3	51.66	103.3								
Zinc	ZN	ICP	IP110221	10.0	10.16	101.6	10.63	106.3								

Control Limits: no control limits have been established by the EPA at this time.

0419:0021

Calibration Blanks



CLIENT: Anchor QEA LLC

PROJECT: Central Waterfront S

UNITS: ug/L

SDG: VP40

ANALYTE	EL	METH	RUN	CRDL	IDL	ICB	C	CCB1	C	CCB2	C	CCB3	C	CCB4	C	CCB5	C
Antimony	SB	ICP	IP110121	60.0	50.0	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U
Arsenic	AS	ICP	IP110121	10.0	50.0	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U
Beryllium	BE	ICP	IP110121	5.0	1.0	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Cadmium	CD	ICP	IP110121	5.0	2.0	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Chromium	CR	ICP	IP110121	10.0	5.0	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Copper	CU	ICP	IP110121	25.0	2.0	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Lead	PB	ICP	IP110121	3.0	20.0	20.0	U	20.0	U	20.0	U	20.0	U	20.0	U	20.0	U
Mercury	HG	CVA	HG103001	0.2	0.1	0.1	U	0.1	U	0.1	U	0.1	U				
Nickel	NI	ICP	IP110121	40.0	10.0	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U
Selenium	SE	ICP	IP110121	5.0	50.0	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U
Silver	AG	ICP	IP110121	10.0	3.0	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U
Thallium	TL	ICP	IP110121	10.0	50.0	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U
Zinc	ZN	ICP	IP110121	20.0	10.0	10.0	U	10.0	U	10.0	U	10.0	U	16.3	B	10.0	U

01200 01015

Calibration Blanks



CLIENT: Anchor QEA LLC

PROJECT: Central Waterfront S

UNITS: ug/L

SDG: VP40

ANALYTE	EL	METH	RUN	CRDL	IDL	CCB6	C	CCB7	C	CCB8	C	CCB9	C	CCB10	C	CCB11	C
Antimony	SB	ICP	IP110121	60.0	50.0	50.0	U	50.0	U								
Arsenic	AS	ICP	IP110121	10.0	50.0	50.0	U	50.0	U								
Beryllium	BE	ICP	IP110121	5.0	1.0	1.0	U	1.0	U								
Cadmium	CD	ICP	IP110121	5.0	2.0	2.0	U	2.0	U								
Chromium	CR	ICP	IP110121	10.0	5.0	5.0	U	5.0	U								
Copper	CU	ICP	IP110121	25.0	2.0	2.0	U	2.0	U								
Lead	PB	ICP	IP110121	3.0	20.0	20.0	U	20.0	U								
Mercury	HG	CVA	HG103001	0.2	0.1												
Nickel	NI	ICP	IP110121	40.0	10.0	10.0	U	10.0	U								
Selenium	SE	ICP	IP110121	5.0	50.0	50.0	U	50.0	U								
Silver	AG	ICP	IP110121	10.0	3.0	3.0	U	3.0	U								
Thallium	TL	ICP	IP110121	10.0	50.0	50.0	U	50.0	U								
Zinc	ZN	ICP	IP110121	20.0	10.0	10.0	U	10.0	U								

UP19:00215

Calibration Blanks



CLIENT: Anchor QEA LLC

PROJECT: Central Waterfront S

UNITS: ug/L

SDG: VP40

ANALYTE	EL	METH	RUN	CRDL	IDL	ICB	C	CCB1	C	CCB2	C	CCB3	C	CCB4	C	CCB5	C
Antimony	SB	ICP	IP110221	60.0	50.0	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U
Arsenic	AS	ICP	IP110221	10.0	50.0	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U
Beryllium	BE	ICP	IP110221	5.0	1.0	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Cadmium	CD	ICP	IP110221	5.0	2.0	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Chromium	CR	ICP	IP110221	10.0	5.0	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Copper	CU	ICP	IP110221	25.0	2.0	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	B
Lead	PB	ICP	IP110221	3.0	20.0	20.0	U	20.0	U	20.0	U	20.0	U	20.0	U	20.0	U
Nickel	NI	ICP	IP110221	40.0	10.0	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U
Selenium	SE	ICP	IP110221	5.0	50.0	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U
Silver	AG	ICP	IP110221	10.0	3.0	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U
Thallium	TL	ICP	IP110221	10.0	50.0	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U
Zinc	ZN	ICP	IP110221	20.0	10.0	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U

Anchor QEA LLC

Calibration Blanks



CLIENT: Anchor QEA LLC

PROJECT: Central Waterfront S

UNITS: ug/L

SDG: VP40

ANALYTE	EL	METH	RUN	CRDL	IDL	CCB6	C	CCB7	C	CCB8	C	CCB9	C	CCB10	C	CCB11	C
Antimony	SB	ICP	IP110221	60.0	50.0	50.0	U	50.0	U								
Arsenic	AS	ICP	IP110221	10.0	50.0	50.0	U	50.0	U								
Beryllium	BE	ICP	IP110221	5.0	1.0	1.0	U	1.0	U								
Cadmium	CD	ICP	IP110221	5.0	2.0	2.0	U	2.0	U								
Chromium	CR	ICP	IP110221	10.0	5.0	5.0	U	5.0	U								
Copper	CU	ICP	IP110221	25.0	2.0	2.0	U	2.0	U								
Lead	PB	ICP	IP110221	3.0	20.0	20.0	U	20.0	U								
Nickel	NI	ICP	IP110221	40.0	10.0	10.0	U	10.0	U								
Selenium	SE	ICP	IP110221	5.0	50.0	50.0	U	50.0	U								
Silver	AG	ICP	IP110221	10.0	3.0	3.0	U	3.0	U								
Thallium	TL	ICP	IP110221	10.0	50.0	50.0	U	50.0	U								
Zinc	ZN	ICP	IP110221	20.0	10.0	10.0	U	10.0	U								

UP10 00218

ICP Interference Check Sample



CLIENT: Anchor QEA LLC

ICS SOURCE: I.V.

PROJECT: Central Waterfront S

RUNID: IP110121

SDG: VP40

INSTRUMENT ID: OPTIMA ICP 1

UNITS: ug/L

ANALYTE	ICSA TV	ICSAB TV	ICSA1	ICSAB1	%R	ICSA2	ICSAB2	%R	ICSA3	ICSAB3	%R
Aluminum	200000	200000	190393.7	192398.2	96.2						
Antimony		1000	23.0	1021.2	102.1						
Arsenic		1000	-2.8	993.5	99.4						
Barium		1000	-1.1	933.2	93.3						
Beryllium		1000	-0.1	994.3	99.4						
Boron			0.2	4.3							
Cadmium		1000	0.9	970.5	97.1						
Calcium	100000	100000	93882.9	94902.2	94.9						
Chromium		1000	3.9	935.6	93.6						
Cobalt		1000	-0.5	901.2	90.1						
Copper		1000	0.1	1002.8	100.3						
Iron	200000	200000	191186.9	193030.8	96.5						
Lead		1000	6.3	948.6	94.9						
Magnesium	100000	100000	98320.3	99698.5	99.7						
Manganese		1000	-0.6	939.3	93.9						
Molybdenum			-6.4	-6.7							
Nickel		1000	3.8	929.3	92.9						
Potassium			-10.2	-19.4							
Selenium		1000	-63.6	926.1	92.6						
Silicon			10.2	51.9							
Silver		1000	-0.9	1000.3	100.0						
Sodium			25.0	80.5							
Strontium			4.0	4.4							
Thallium		1000	-11.3	902.0	90.2						
Tin			15.2	14.5							
Titanium			2.1	2.3							
Vanadium		1000	0.2	952.6	95.3						
Zinc		1000	-6.3	896.2	89.6						

0919 09213

ICP Interference Check Sample



CLIENT: Anchor QEA LLC

ICS SOURCE: I.V.

PROJECT: Central Waterfront S

RUNID: IP110221

SDG: VP40

INSTRUMENT ID: OPTIMA ICP 1

UNITS: ug/L

ANALYTE	ICSA TV	ICSAB TV	ICSA1	ICSAB1	%R	ICSA2	ICSAB2	%R	ICSA3	ICSAB3	%R
Aluminum	200000	200000	202957.2	201938.1	101.0	194219.6	197107.9	98.6			
Antimony		1000	24.4	1053.1	105.3	20.6	1009.4	100.9			
Arsenic		1000	-5.1	991.7	99.2	-2.1	954.1	95.4			
Barium		1000	-1.5	982.6	98.3	-1.5	972.1	97.2			
Beryllium		1000	0.0	986.2	98.6	-0.1	952.3	95.2			
Boron			-9.8	-3.2		-7.7	-5.9				
Cadmium		1000	1.1	996.9	99.7	1.0	975.2	97.5			
Calcium	100000	100000	97419.9	97438.3	97.4	91977.9	94172.6	94.2			
Chromium		1000	3.4	977.5	97.8	3.0	955.6	95.6			
Cobalt		1000	-0.4	929.3	92.9	-0.6	905.2	90.5			
Copper		1000	0.3	1033.1	103.3	0.1	1031.3	103.1			
Iron	200000	200000	199398.4	198073.4	99.0	189974.1	193400.4	96.7			
Lead		1000	6.4	938.2	93.8	6.6	911.4	91.1			
Magnesium	100000	100000	103039.1	103591.4	103.6	97883.0	100960.6	101.0			
Manganese		1000	-0.8	968.5	96.9	-1.0	947.7	94.8			
Molybdenum			-6.4	-6.8		-5.3	-6.6				
Nickel		1000	4.6	934.6	93.5	4.2	922.9	92.3			
Potassium			7.3	6.2		47.8	42.1				
Selenium		1000	-58.4	931.4	93.1	-50.2	885.7	88.6			
Silicon			9.3	51.0		6.1	45.1				
Silver		1000	-0.2	1005.0	100.5	-0.5	999.6	100.0			
Sodium			35.0	82.3		31.6	88.5				
Strontium			4.2	4.6		4.0	4.4				
Thallium		1000	-9.8	914.4	91.4	-8.8	880.8	88.1			
Tin			14.9	12.5		12.0	12.7				
Titanium			2.4	2.1		2.0	2.8				
Vanadium		1000	-1.7	990.0	99.0	-1.6	983.2	98.3			
Zinc		1000	-5.7	903.2	90.3	-5.7	898.3	89.8			

02200 : 0100

Post Digest Spike Sample Recovery



CLIENT: Anchor QEA LLC

PROJECT: Central Waterfront S

ANALYSIS METHOD: ICP

SDG: VP40

UNITS: ug/L

ANALYTE	CLIENT ID	ARI ID	RUNID	SPIKED SAMPLE RESULT C	SAMPLE RESULT C	SPIKE ADDED	MATRIX	%R
Zinc	CWS1-04-2-4A	VP40APOST	IP110121	2425.47	1444.38	1000	Soil	98.1
Antimony	CWS1-04-2-4A	VP40APOST	IP110121	4115.56	100.00U	4000	Soil	102.9

IDLs and ICP Linear Ranges



CLIENT: Anchor QEA LLC

PROJECT: Central Waterfront S

SDG: VP40

UNITS: ug/L

ANALYTE	EL	METH	INSTRUMENT	WAVELENGTH (nm)	GFA BACK- GROUND	CLP CRDL	RL	RL DATE	ICP LINEAR RANGE (ug/L)	ICP LR DATE
Antimony	SB	ICP	OPTIMA ICP 1	206.84		60	50.0	4/1/2012	30000.0	8/2/2012
Arsenic	AS	ICP	OPTIMA ICP 1	188.98		10	50.0	4/1/2012	30000.0	8/2/2012
Beryllium	BE	ICP	OPTIMA ICP 1	313.04		5	1.0	4/1/2012	5000.0	8/2/2012
Cadmium	CD	ICP	OPTIMA ICP 1	228.80		5	2.0	4/1/2012	20000.0	8/2/2012
Chromium	CR	ICP	OPTIMA ICP 1	267.72		10	5.0	4/1/2012	100000.0	8/2/2012
Copper	CU	ICP	OPTIMA ICP 1	324.75		25	2.0	4/1/2012	40000.0	8/2/2012
Lead	PB	ICP	OPTIMA ICP 1	220.35		3	20.0	4/1/2012	300000.0	8/2/2012
Mercury	HG	CVA	CETAC MERCURY	253.70		0.2	0.1	4/1/2012		
Nickel	NI	ICP	OPTIMA ICP 1	231.60		40	10.0	4/1/2012	100000.0	8/2/2012
Selenium	SE	ICP	OPTIMA ICP 1	196.03		5	50.0	4/1/2012	20000.0	8/2/2012
Silver	AG	ICP	OPTIMA ICP 1	328.07		10	3.0	4/1/2012	5000.0	8/2/2012
Thallium	TL	ICP	OPTIMA ICP 1	190.80		10	50.0	4/1/2012	30000.0	8/2/2012
Zinc	ZN	ICP	OPTIMA ICP 1	206.20		20	10.0	4/1/2012	100000.0	8/2/2012

ICP Interement Correction Factors



CLIENT: Anchor QEA LLC

PROJECT: Central Waterfront S

SDG: VP40

IEC DATE: 8/1/2012

INSTRUMENT ID: OPTIMA ICP 1

ANALYTE	WAVELENGTH	AL	AS	BA	BE	CA	CD	CO	CR	CU	FE
Aluminum	308.22	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Antimony	206.84	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	15.1857000	0.0000000	0.1040430
Arsenic	188.98	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	-1.1822900	1.0591800	0.0000000	0.0000000
Barium	233.53	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	-0.1688060	0.0000000	0.0000000	0.0462923
Beryllium	313.04	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium	228.80	0.0000000	2.3634000	0.0000000	0.0000000	0.0000000	0.0000000	0.1134410	0.0000000	0.0000000	0.0000000
Calcium	317.93	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Chromium	267.72	0.0000000	0.0000000	0.0277924	0.0000000	0.0000000	0.0000000	-0.1702670	0.0000000	0.0000000	0.0000000
Cobalt	228.62	0.0000000	0.0000000	0.3341190	0.0000000	0.0000000	0.0000000	0.0000000	-0.0341026	0.0000000	0.0115541
Copper	324.75	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	-0.3361900	-0.0466820	0.0000000	-0.0964768
Iron	273.96	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.7651920	0.0000000	0.0000000
Lead	220.35	-0.3512640	0.0000000	0.0000000	0.0000000	-0.0256242	0.0000000	0.1563080	-2.3759900	0.8342190	0.0726674
Magnesium	279.08	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	-1.1866700	-1.0216800	0.0000000	0.7040250
Manganese	257.61	0.0068205	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0051237
Molybdenum	202.03	-0.0208471	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0933245	0.0000000	0.0000000
Nickel	231.60	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Potassium	766.49	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Selenium	196.03	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.4183610	0.0000000	0.0000000	0.0000000
Silicon	288.16	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	-3.4540100	0.0000000	-1.0020900	0.0000000	0.0000000
Silver	328.07	0.0000000	0.0000000	0.0000000	0.0000000	0.0223663	0.0000000	0.0000000	0.0000000	0.0000000	-0.0330154
Sodium	589.59	0.0000000	0.0000000	0.0000000	0.0000000	4.4431000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Thallium	190.80	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	6.8157000	0.3674950	0.0000000	0.0000000
Tin	189.93	0.0000000	0.0000000	0.0000000	0.0000000	-0.3571400	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Titanium	334.90	0.0000000	0.0000000	0.0000000	0.0000000	0.0490253	0.0000000	0.0000000	0.2444290	0.0000000	0.0000000
Vanadium	292.40	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	-7.0524000	0.0000000	0.1165860
Zinc	206.20	0.0000000	0.0000000	0.0000000	0.0000000	-0.0214985	0.0000000	0.0000000	0.7289660	0.0000000	0.0000000

ICP Interelement Correction Factors



CLIENT: Anchor QEA LLC
 PROJECT: Central Waterfront S
 SDG: VP40

IEC DATE: 8/1/2012
 INSTRUMENT ID: OPTIMA ICP 1

ANALYTE	WAVELENGTH	MG	MN	MO	NI	PB	SB	TI	TL	V	ZN
Aluminum	308.22	0.000000	0.000000	25.3743000	0.000000	0.000000	0.000000	2.2001400	0.000000	15.3248000	0.000000
Antimony	206.84	0.000000	0.000000	1.3316900	-0.3291700	0.000000	0.000000	-1.5094000	0.000000	-3.7687600	0.9674010
Arsenic	188.98	0.000000	0.000000	3.2754400	0.000000	0.000000	0.000000	-2.1487000	0.000000	0.2373010	0.0000000
Barium	233.53	0.000000	0.000000	-0.0676563	0.1487540	0.000000	0.000000	0.000000	0.000000	0.4251790	0.0000000
Beryllium	313.04	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.0161120	0.000000	2.5849600	0.0000000
Cadmium	228.80	0.000000	0.000000	0.000000	-0.2763290	0.000000	0.000000	0.000000	0.000000	0.0435241	0.0000000
Calcium	317.93	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.0000000
Chromium	267.72	-0.0282409	0.2350890	0.1566040	0.000000	0.000000	0.000000	0.0287539	0.000000	0.1196170	0.0000000
Cobalt	228.62	0.000000	0.000000	-0.1973550	0.1098840	0.000000	0.000000	1.7517700	0.000000	0.000000	0.0000000
Copper	324.75	0.000000	0.000000	0.2757360	0.000000	0.000000	0.000000	0.2149870	0.000000	0.000000	0.0000000
Iron	273.96	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.0000000
Lead	220.35	0.000000	0.000000	-0.2855620	0.1706620	0.000000	0.000000	0.000000	0.000000	0.000000	0.0000000
Magnesium	279.08	0.000000	0.000000	-2.0298600	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.0000000
Manganese	257.61	0.000000	0.000000	0.000000	0.000000	-0.2307900	0.000000	0.000000	0.000000	-0.0231031	0.0000000
Molybdenum	202.03	0.0074768	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.1048000
Nickel	231.60	0.000000	0.000000	0.000000	0.000000	0.000000	-0.6505180	0.000000	0.5517490	0.000000	0.0000000
Potassium	766.49	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.0000000
Selenium	196.03	0.000000	0.000000	0.000000	1.3045900	0.000000	0.000000	0.000000	0.000000	0.000000	0.0000000
Silicon	288.16	-0.1271090	0.000000	-1.7127900	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.0000000
Silver	328.07	0.000000	0.1914050	0.1812780	0.000000	0.000000	0.000000	-0.0355721	0.000000	-0.2667920	0.0000000
Sodium	589.59	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.0000000
Thallium	190.80	0.000000	1.9622100	-2.1053700	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.0000000
Tin	189.93	-0.0404347	0.000000	0.000000	0.000000	0.000000	-0.4036970	1.4997300	0.000000	5.6218000	0.0000000
Titanium	334.90	0.000000	0.000000	0.9908490	0.000000	0.000000	0.000000	-0.4257350	0.000000	0.000000	0.0000000
Vanadium	292.40	0.000000	-0.1434250	-6.5129600	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.0000000
Zinc	206.20	0.000000	0.000000	0.2750230	0.000000	-0.0830846	0.000000	0.000000	0.000000	0.000000	0.0000000

Preparation Log



CLIENT: Anchor QEA LLC

ANALYSIS METHOD: ICP

PROJECT: Central Waterfront S

ARI PREP CODE: SWC

SDG: VP40

PREPDATE: 10/29/2012

CLIENT ID	ARI ID	MASS (g)	INITIAL VOLUME (mL)	FINAL VOLUME (mL)
CWS1-04-2-4	VP40A	1.047	0.0	50.0
CWS1-04-2-4D	VP40ADUP	1.044	0.0	50.0
CWS1-04-2-4S	VP40ASPK	1.050	0.0	50.0
CWS1-04-6-8	VP40B	1.025	0.0	50.0
CWS1-04-13.5-15	VP40C	1.069	0.0	50.0
PBS	VP40MB1	1.000	0.0	50.0
LCSS	VP40MB1SPK	1.000	0.0	50.0
CWS1-02-1-3	VP41A	1.018	0.0	50.0
CWS1-02-7-8	VP41B	1.047	0.0	50.0
CWS1-02-12-13	VP41C	1.043	0.0	50.0
CWS1-01-3-5	VP41D	1.013	0.0	50.0
CWS1-01-11-13	VP41E	1.030	0.0	50.0

Preparation Log



CLIENT: Anchor QEA LLC

ANALYSIS METHOD: CVA

PROJECT: Central Waterfront S

ARI PREP CODE: SMM

SDG: VP40

PREPDATE: 10/29/2012

CLIENT ID	ARI ID	MASS (g)	INITIAL VOLUME (mL)	FINAL VOLUME (mL)
CWS1-04-2-4	VP40A	0.246	0.0	50.0
CWS1-04-2-4D	VP40ADUP	0.247	0.0	50.0
CWS1-04-2-4S	VP40ASPK	0.244	0.0	50.0
CWS1-04-6-8	VP40B	0.272	0.0	50.0
CWS1-04-13.5-15	VP40C	0.233	0.0	50.0
FBS	VP40MB1	0.200	0.0	50.0
LCSW	VP40MB1SPK	0.200	0.0	50.0
CWS1-02-1-3	VP41A	0.204	0.0	50.0
CWS1-02-7-8	VP41B	0.244	0.0	50.0
CWS1-02-12-13	VP41C	0.276	0.0	50.0
CWS1-01-3-5	VP41D	0.266	0.0	50.0
CWS1-01-11-13	VP41E	0.295	0.0	50.0

Analysis Run Log



CLIENT: Anchor QEA LLC

PROJECT: Central Waterfront S

INSTRUMENT ID: OPTIMA ICP 1

START DATE: 11/1/2012

SDG: VP40

RUNID: IP110121 METHOD: ICP

END DATE: 11/1/2012

CLIENT ID	ARI ID	DIL.	TIME	%R	AG	AL	AS	B	BA	BE	CA	CD	CO	CR	CU	FE	HG	K	MG	MN	MO	NA	NI	PB	SB	SE	SI	SN	TI	TL	U	V	ZN			
S0	S0	1.00	11081		X		X			X		X		X	X									X	X	X	X				X			X		
S2	S2	1.00	11140									X		X	X																					
S3	S3	1.00	11180		X		X			X													X	X		X					X				X	
S4	S4	1.00	11224																							X										
S5	S5	1.00	11265																																	
ZZZZZZ	ZZZZZZ	1.00	11302																																	
ZZZZZZ	ZZZZZZ	1.00	11362																																	
ZZZZZZ	ZZZZZZ	1.00	11422																																	
ZZZZZZ	ZZZZZZ	1.00	11482																																	
ZZZZZZ	ZZZZZZ	1.00	11542																																	
ZZZZZZ	ZZZZZZ	1.00	12012																																	
ZZZZZZ	ZZZZZZ	1.00	12073																																	
S0	S0	1.00	12134		X		X			X		X		X	X								X	X	X	X				X					X	
ICV	ICV	1.00	12185		X		X			X		X		X	X								X	X	X	X				X					X	
ICB	ICB	1.00	12245		X		X			X		X		X	X								X	X	X	X				X					X	
CRI	CRII	1.00	12305		X		X			X		X		X	X								X	X	X	X				X					X	
ICSA	ICSAI	1.00	12365		X		X			X		X		X	X								X	X	X	X				X					X	
ICSAB	ICSABI	1.00	12425		X		X			X		X		X	X								X	X	X	X				X					X	
CCV	CCV1	1.00	12495		X		X			X		X		X	X								X	X	X	X				X					X	
CCB	CCB1	1.00	12555		X		X			X		X		X	X								X	X	X	X				X					X	
ZZZZZZ	VP23MB2	1.00	13030																																	
ZZZZZZ	VO93MB	2.00	13090																																	
ZZZZZZ	VO93H	2.00	13150																																	
ZZZZZZ	VP23I	1.00	13202																																	
ZZZZZZ	VP23J	1.00	13264																																	
ZZZZZZ	VP23K	1.00	13324																																	
ZZZZZZ	VP23L	1.00	13384																																	
ZZZZZZ	VP23HDUP	1.00	13444																																	
ZZZZZZ	VP23H	1.00	13510																																	
ZZZZZZ	VP23HSPK	1.00	13572																																	
CCV	CCV2	1.00	14032		X		X			X		X		X	X								X	X	X	X				X					X	
CCB	CCB2	1.00	14092		X		X			X		X		X	X								X	X	X	X				X					X	
ZZZZZZ	VQ16MB2	1.00	14152																																	
ZZZZZZ	VQ25MB	1.00	14212																																	
ZZZZZZ	VQ16L	1.00	14272																																	

up 11/1/2012 10:00:00

Analysis Run Log



CLIENT: Anchor QEA LLC

PROJECT: Central Waterfront S

INSTRUMENT ID: OPTIMA ICP 1

START DATE: 11/1/2012

SDG: VP40

RUNID: IP110121 METHOD: ICP

END DATE: 11/1/2012

CLIENT ID	ARI ID	DIL.	TIME	%R	AG	AL	AS	B	BA	BE	CA	CD	CO	CR	CU	FE	HG	K	MG	MN	MO	NA	NI	PB	SB	SE	SI	SN	TI	TL	U	V	ZN
ZZZZZZ	VQ16KDUP	1.00	14332																														
ZZZZZZ	VQ16K	1.00	14392																														
ZZZZZZ	VQ16KSPK	1.00	14452																														
ZZZZZZ	VQ25ADUP	1.00	14512																														
ZZZZZZ	VQ25A	1.00	14572																														
ZZZZZZ	VQ25ASPK	1.00	15032																														
ZZZZZZ	VP23MB2SPK	1.00	15093																														
CCV	CCV3	1.00	15153		X		X			X		X		X	X								X	X	X	X			X			X	
CCB	CCB3	1.00	15214		X		X			X		X		X	X								X	X	X	X			X			X	
PBS	VP40MB1	2.00	15273																														
CWS1-02-1-3	VP41A	2.00	15333																														
CWS1-02-7-8	VP41B	2.00	15392																														
CWS1-02-12-13	VP41C	2.00	15435																														
CWS1-01-3-5	VP41D	2.00	15494																														
CWS1-01-11-13	VP41E	2.00	15553																														
CWS1-04-6-8	VP40B	2.00	16013																														
CWS1-04-13.5-15	VP40C	2.00	16072																														
ZZZZZZ	VQ16MB2SPK	1.00	16131																														
ZZZZZZ	VQ25MBSPK	1.00	16191																														
CCV	CCV4	1.00	16241		X		X			X		X		X	X								X	X	X	X			X			X	
CCB	CCB4	1.00	16301		X		X			X		X		X	X								X	X	X	X			X			X	
S0	S0	1.00	16374		X		X			X		X		X	X								X	X	X	X			X			X	
S3	S3	1.00	16441		X		X			X		X		X	X								X	X	X	X			X			X	
CCV	CCV5	1.00	16521		X		X			X		X		X	X								X	X	X	X			X			X	
CCB	CCB5	1.00	16581		X		X			X		X		X	X								X	X	X	X			X			X	
ZZZZZZ	VP44MB	5.00	17041																														
ZZZZZZ	VP51MB1	2.00	17103																														
ZZZZZZ	VP51B	2.00	17163																														
CWS1-04-2-4D	VP40ADUP	2.00	17222		X		X			X		X		X	X								X	X	X	X			X			X	
CWS1-04-2-4	VP40A	2.00	17281		X		X			X		X		X	X								X	X	X	X			X			X	
CWS1-04-2-4S	VP40ASPK	2.00	17340		X		X			X		X		X	X								X	X	X	X			X			X	
ZZZZZZ	VP44ADUP	5.00	17391																														
ZZZZZZ	VP44A	5.00	17453																														
ZZZZZZ	VP44ASPK	5.00	17515																														
LCSS	VP40MB1SPK	2.00	17581		X		X			X		X		X	X								X	X	X	X			X			X	

11/1/2012 10:00:00

Analysis Run Log



CLIENT: Anchor QEA LLC

PROJECT: Central Waterfront S

SDG: VP40

INSTRUMENT ID: OPTIMA ICP 1

RUNID: IP110121 METHOD: ICP

START DATE: 11/1/2012

END DATE: 11/1/2012

CLIENT ID	ARI ID	DIL.	TIME	%R	AG	AL	AS	B	BA	BE	CA	CD	CO	CR	CU	FE	HG	K	MG	MN	MO	NA	NI	PB	SB	SE	SI	SN	TI	TL	U	V	ZN	
CCV	CCV6	1.00	18041		X		X			X		X		X	X									X	X	X	X				X			X
CCB	CCB6	1.00	18102		X		X			X		X		X	X									X	X	X	X				X			X
ZZZZZZ	VP51C	2.00	18162																															
ZZZZZZ	VP51D	2.00	18220																															
ZZZZZZ	VP51E	2.00	18280																															
ZZZZZZ	VP51F	2.00	18334																															
ZZZZZZ	VP51ADUP	2.00	18393																															
ZZZZZZ	VP51A	2.00	18454																															
ZZZZZZ	VP51ASPK	2.00	18514																															
ZZZZZZ	VP51MB1SPK	2.00	18570																															
ZZZZZZ	VP29N	1.00	19030																															
CWS1-04-2-4A	VP40APOST	2.00	19093																							X								X
CCV	CCV7	1.00	19144		X		X			X		X		X	X									X	X	X	X				X			X
CCB	CCB7	1.00	19204		X		X			X		X		X	X									X	X	X	X				X			X

VP40: 00229

Analysis Run Log



CLIENT: Anchor QEA LLC

PROJECT: Central Waterfront S

INSTRUMENT ID: OPTIMA ICP 1

START DATE: 11/2/2012

SDG: VP40

RUNID: IP110221 METHOD: ICP

END DATE: 11/2/2012

CLIENT ID	ARI ID	DIL.	TIME	%R	AG	AL	AS	B	BA	BE	CA	CD	CO	CR	CU	FE	HG	K	MG	MN	MO	NA	NI	PB	SB	SE	SI	SN	TI	TL	U	V	ZN		
S0	S0	1.00	09223		X		X			X		X		X	X									X	X	X	X				X			X	
S2	S2	1.00	09283									X		X	X																				
S3	S3	1.00	09322		X		X			X													X	X		X					X			X	
S4	S4	1.00	09370																						X										
S5	S5	1.00	09411																							X									
ZZZZZZ	ZZZZZZ	1.00	09470																																
ZZZZZZ	ZZZZZZ	1.00	09530																																
ZZZZZZ	ZZZZZZ	1.00	09590																																
ZZZZZZ	ZZZZZZ	1.00	10050																																
ZZZZZZ	ZZZZZZ	1.00	10110																																
S0	S0	1.00	10280		X		X			X		X		X	X								X	X	X	X				X				X	
ICV	ICV	1.00	10390		X		X			X		X		X	X								X	X	X	X				X				X	
ICB	ICB	1.00	10451		X		X			X		X		X	X								X	X	X	X				X				X	
CRI	CRII	1.00	10511		X		X			X		X		X	X								X	X	X	X				X				X	
ICSA	ICSAI	1.00	10571		X		X			X		X		X	X								X	X	X	X				X				X	
ICSAB	ICSABI	1.00	11031		X		X			X		X		X	X								X	X	X	X				X				X	
CCV	CCV1	1.00	11101		X		X			X		X		X	X								X	X	X	X				X				X	
CCB	CCB1	1.00	11161		X		X			X		X		X	X								X	X	X	X				X				X	
ZZZZZZ	VP83MB	1.00	11344																																
ZZZZZZ	VP83B	10.00	11404																																
ZZZZZZ	VP83C	10.00	11471																																
ZZZZZZ	VP83D	10.00	11532																																
ZZZZZZ	VP83E	10.00	11595																																
ZZZZZZ	VP83B	10.00	12060																																
ZZZZZZ	VP83ADUP	10.00	12122																																
ZZZZZZ	VP83A	10.00	12184																																
ZZZZZZ	VP83ASPK	10.00	12250																																
ZZZZZZ	VP83MBSPK	1.00	12312																																
CCV	CCV2	1.00	12372		X		X			X		X		X	X								X	X	X	X				X				X	
CCB	CCB2	1.00	12433		X		X			X		X		X	X								X	X	X	X				X				X	
PBS	VP40MB1	2.00	12580																																
ZZZZZZ	VQ42MB2	1.00	13040																																
CWS1-02-1-3	VP41A	2.00	13100		X		X			X		X		X	X								X	X	X	X				X				X	
CWS1-02-7-8	VP41B	20.00	13155		X		X			X		X		X	X								X	X	X	X				X				X	
CWS1-02-12-13	VP41C	10.00	13215		X		X			X		X		X	X								X	X	X	X				X				X	

00200 0101

Analysis Run Log



CLIENT: Anchor QEA LLC

PROJECT: Central Waterfront S

INSTRUMENT ID: OPTIMA ICP 1

START DATE: 11/2/2012

SDG: VP40

RUNID: IP110221 METHOD: ICP

END DATE: 11/2/2012

CLIENT ID	ARI ID	DIL.	TIME	%R	AG	AL	AS	B	BA	BE	CA	CD	CO	CR	CU	FE	HG	K	MG	MN	MO	NA	NI	PB	SB	SE	SI	SN	TI	TL	U	V	ZN	
CWS1-01-3-5	VP41D	5.00	13275		X		X			X		X		X	X									X	X	X	X				X			X
CWS1-01-11-13	VP41E	10.00	13335		X		X			X		X		X	X									X	X	X	X				X			X
CWS1-04-6-8	VP40B	2.00	13395		X		X			X		X		X	X									X	X	X	X				X			X
CWS1-04-13.5-15	VP40C	5.00	13454		X		X			X		X		X	X									X	X	X	X				X			X
ZZZZZZ	VQ16MB2SPK	1.00	13514																															
CCV	CCV3	1.00	13574		X		X			X		X		X	X									X	X	X	X				X			X
CCB	CCB3	1.00	14034		X		X			X		X		X	X									X	X	X	X				X			X
ZZZZZZ	VO66MB1	2.00	14094																															
ZZZZZZ	VP83E	1.00	14154																															
ZZZZZZ	VQ42BDUP	1.00	14214																															
ZZZZZZ	VQ42B	1.00	14274																															
ZZZZZZ	VQ42BSPK	1.00	14334																															
ZZZZZZ	VQ42MB2SPK	1.00	14395																															
ZZZZZZ	VO66B	2.00	14455																															
ZZZZZZ	VO66C	2.00	14514																															
ZZZZZZ	VO66D	2.00	14573																															
ZZZZZZ	VO66E	2.00	15032																															
CCV	CCV4	1.00	15091		X		X			X		X		X	X									X	X	X	X				X			X
CCB	CCB4	1.00	15152		X		X			X		X		X	X									X	X	X	X				X			X
ZZZZZZ	VO66F	2.00	15211																															
ZZZZZZ	VO66G	2.00	15270																															
ZZZZZZ	VO66H	2.00	15325																															
ZZZZZZ	VO66I	2.00	15384																															
ZZZZZZ	VO66J	2.00	15443																															
ZZZZZZ	VO66K	2.00	15502																															
ZZZZZZ	VO66L	2.00	15561																															
ZZZZZZ	VO66M	2.00	16020																															
ZZZZZZ	VO66N	2.00	16075																															
ZZZZZZ	VO66REF1	2.00	16135																															
CCV	CCV5	1.00	16185		X		X			X		X		X	X									X	X	X	X				X			X
CCB	CCB5	1.00	16245		X		X			X		X		X	X									X	X	X	X				X			X
ZZZZZZ	ZZZZZZ	10.00	16305																															
ZZZZZZ	VO66A	2.00	16365																															
ZZZZZZ	VO66ADUP	2.00	16424																															
ZZZZZZ	VO66ASPK	2.00	16483																															

IP110221

Analysis Run Log



CLIENT: Anchor QEA LLC

PROJECT: Central Waterfront S

INSTRUMENT ID: OPTIMA ICP 1

START DATE: 11/2/2012

SDG: VP40

RUNID: IP110221 METHOD: ICP

END DATE: 11/2/2012

CLIENT ID	ARI ID	DIL.	TIME	%R	AG	AL	AS	B	BA	BE	CA	CD	CO	CR	CU	FE	HG	K	MG	MN	MO	NA	NI	PB	SB	SE	SI	SN	TI	TL	U	V	ZN	
ZZZZZZ	ZZZZZZ	2.00	16543																															
ZZZZZZ	VO66MB1SPK	2.00	17003																															
ZZZZZZ	VO66F	2.00	17063																															
CRI	CRIF	1.00	17122		X		X			X		X		X	X									X	X	X	X			X			X	
ICSA	ICSAF	1.00	17223		X		X			X		X		X	X									X	X	X	X			X			X	
ICSAB	ICSABF	1.00	17283		X		X			X		X		X	X									X	X	X	X			X			X	
CCV	CCV6	1.00	17342		X		X			X		X		X	X									X	X	X	X			X			X	
CCB	CCB6	1.00	17403		X		X			X		X		X	X									X	X	X	X			X			X	
ZZZZZZ	VP23MB2	1.00	17462																															
PBS	VP40MB1	2.00	17523		X		X			X		X		X	X									X	X	X	X			X			X	
ZZZZZZ	VP23I	1.00	17583																															
ZZZZZZ	VP23J	1.00	18045																															
ZZZZZZ	VP23K	1.00	18105																															
ZZZZZZ	VP23L	1.00	18165																															
ZZZZZZ	VP23HDUP	1.00	18225																															
ZZZZZZ	VP23H	1.00	18291																															
ZZZZZZ	VP23HSPK	1.00	18353																															
ZZZZZZ	VP23MB2SPK	1.00	18412																															
CCV	CCV7	1.00	18473		X		X			X		X		X	X									X	X	X	X			X			X	
CCB	CCB7	1.00	18533		X		X			X		X		X	X									X	X	X	X			X			X	

26700:0101

Analysis Run Log



CLIENT: Anchor QEA LLC

PROJECT: Central Waterfront S

INSTRUMENT ID: CETAC MERCURY

START DATE: 10/30/2012

SDG: VP40

RUNID: HG103001 METHOD: CVA

END DATE: 10/30/2012

CLIENT ID	ARI ID	DIL.	TIME	%R	AG	AL	AS	B	BA	BE	CA	CD	CO	CR	CU	FE	HG	K	MG	MN	MO	NA	NI	PB	SB	SE	SI	SN	TI	TL	U	V	ZN
S0	S0	1.00	10382														X																
S0.1	S0.1	1.00	10400														X																
S0.5	S0.5	1.00	10413														X																
S1	S1	1.00	10431														X																
S2	S2	1.00	10445														X																
S5	S5	1.00	10462														X																
S10	S10	1.00	10480														X																
ICV	AICV	1.00	10520														X																
ICB	ICB	1.00	10533														X																
CCV	ACCV1	1.00	10551														X																
CCB	CCB1	1.00	10565														X																
CRA	CRA	1.00	10583														X																
PBW	VP40MB1	1.00	11000														X																
LCSW	VP40MB1SPK	1.00	11014														X																
CWS1-04-2-4	VP40A	1.00	11031														X																
CWS1-04-2-4D	VP40ADUP	1.00	11045														X																
CWS1-04-2-4S	VP40ASPK	1.00	11063														X																
CWS1-04-6-8	VP40B	1.00	11080														X																
CWS1-04-13.5-15	VP40C	1.00	11094														X																
CWS1-02-1-3	VP41A	1.00	11112														X																
CWS1-02-7-8	VP41B	1.00	11130														X																
CCV	ACCV2	1.00	11144														X																
CCB	CCB2	1.00	11162														X																
CWS1-02-12-13	VP41C	1.00	11175														X																
CWS1-01-3-5	VP41D	1.00	11193														X																
CWS1-01-11-13	VP41E	1.00	11210														X																
ZZZZZZ	VO89MB1	1.00	11224																														
ZZZZZZ	VO89MB1SPK	1.00	11242																														
ZZZZZZ	VO89A	1.00	11255																														
ZZZZZZ	VO89ADUP	1.00	11273																														
ZZZZZZ	VO89ASPK	1.00	11291																														
ZZZZZZ	VO89B	1.00	11304																														
ZZZZZZ	VO89C	1.00	11322																														
CCV	ACCV3	1.00	11340														X																
CCB	CCB3	1.00	11354														X																

0000000000

Total Solids

ARI Job ID: VP40, VP41

Volatiles Total Solids-voats
Data By: Pat Basilio
Created: 10/31/12

Worklist: 9412
Analyst: PAB
Comments:

Oven ID: _____

Balance ID: _____

Samples In: Date: _____ Time: _____ Temp: _____ Analyst: _____

Samples Out: Date: _____ Time: _____ Temp: _____ Analyst: _____

ARI ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids
1. VP40A 12-21289	_____	_____	_____	% 82.23
2. VP40B 12-21290	_____	_____	_____	% 75.91
3. VP40C 12-21291	_____	_____	_____	% 80.56

Volatiles Total Solids-voats
Data By: Pat Basilio
Created: 10/31/12

Worklist: 9413
Analyst: PAB
Comments:

Oven ID: _____

Balance ID: _____

Samples In: Date: _____ Time: _____ Temp: _____ Analyst: _____

Samples Out: Date: _____ Time: _____ Temp: _____ Analyst: _____

ARI ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids
1. VP41A 12-21279	_____	_____	_____	% 92.58
2. VP41B 12-21280	_____	_____	_____	% 81.58
3. VP41C 12-21281	_____	_____	_____	% 80.31
4. VP41D 12-21282	_____	_____	_____	% 79.32
5. VP41E 12-21283	_____	_____	_____	% 77.23
6. VP41G 12-21285	_____	_____	_____	\$ 88.10
7. VP41H 12-21286	_____	_____	_____	\$ 71.60

Extractions Total Solids-exttts
Data By: Tarry Hawk
Created: 10/30/12

Worklist: 9013
Analyst: RVR
Comments:

Anchor

Oven ID: _____

Balance ID: _____

Samples In: Date: _____ Time: _____ Temp: _____ Analyst: _____

Samples Out: Date: _____ Time: _____ Temp: _____ Analyst: _____

ARI ID CLIENT ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids	pH
1. VP41A 12-21279 CWS1-02-1-3	1.18	10.87	10.10	92.1	NR
2. VP41B 12-21280 CWS1-02-7-8	1.16	11.40	9.77	84.1	NR
3. VP41C 12-21281 CWS1-02-12-13	1.13	11.03	9.47	84.2	NR
4. VP41D 12-21282 CWS1-01-3-5	1.15	11.36	9.43	81.1	NR
5. VP41E 12-21283 CWS1-01-11-13	1.16	10.84	8.79	78.8	NR
6. VP41G 12-21285 CWS1-03-2-4	1.15	10.59	9.47	88.1	NR
7. VP41H 12-21286 CWS1-03-7-9	1.13	10.18	7.61	71.6	NR

Extractions Total Solids-exttts
Data By: Tarry Hawk
Created: 10/30/12

Worklist: 9013
Analyst: TH
Comments:

Oven ID: 015

Balance ID: B139298002

Samples In: Date: 10/30/12 Time: 15:43 Temp: 104 Analyst: TH

Samples Out: Date: 10/31/12 Time: 10:15 Temp: 107° Analyst: RR

ARI ID CLIENT ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids	pH
1. VP41A 12-21279 CWS1-02-1-3	<u>1.18</u>	<u>10.87</u>	<u>10.10</u>		NR
2. VP41B 12-21280 CWS1-02-7-8	<u>1.16</u>	<u>11.40</u>	<u>9.77</u>		NR
3. VP41C 12-21281 CWS1-02-12-13	<u>1.13</u>	<u>11.03</u>	<u>9.47</u>		NR
4. VP41D 12-21282 CWS1-01-3-5	<u>1.15</u>	<u>11.36</u>	<u>9.43</u>		NR
5. VP41E 12-21283 CWS1-01-11-13	<u>1.16</u>	<u>10.84</u>	<u>8.79</u>		NR
6. VP41G 12-21285 CWS1-03-2-4	<u>1.15</u>	<u>10.59</u>	<u>9.47</u>		NR
7. VP41H 12-21286 CWS1-03-7-9	<u>1.13</u>	<u>10.18</u>	<u>7.61</u>		NR

1110

Extractions Total Solids-exttts
Data By: Tarry Hawk
Created: 10/30/12

Worklist: 9012
Analyst: RVR
Comments:

Anchor

Oven ID: _____

Balance ID: _____

Samples In: Date: _____ Time: _____ Temp: _____ Analyst: _____

Samples Out: Date: _____ Time: _____ Temp: _____ Analyst: _____

	ARI ID CLIENT ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids	pH
1.	VP40A 12-21289 CWS1-04-2-4	1.14	11.81	9.65	79.8	NR
2.	VP40B 12-21290 CWS1-04-6-8	1.16	11.35	8.90	76.0	NR
3.	VP40C 12-21291 CWS1-04-13.5-15	1.17	12.20	9.84	78.6	NR

Extractions Total Solids-exttts
Data By: Tarry Hawk
Created: 10/30/12

Worklist: 9012
Analyst: TH
Comments:

Oven ID: 015

Balance ID: B139298002

Samples In: Date: 10/30/12 Time: 15:43 Temp: 104 Analyst: TH

Samples Out: Date: 10/31/12 Time: 06:15 Temp: 107° Analyst: RR

ARI ID CLIENT ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids	pH
1. VP40A 12-21289 CWS1-04-2-4	1.14	11.81	9.65		NR
2. VP40B 12-21290 CWS1-04-6-8	1.16	11.35	8.90		NR
3. VP40C 12-21291 CWS1-04-13.5-15	1.17	12.20	9.84		NR

BETX/TPHG Total Solids-betxts
Data By: Jonathon L. Walter
Created: 10/30/12

Worklist: 8897
Analyst: JLW
Comments:

Oven ID: _____

Balance ID: _____

Samples In: Date: _____ Time: _____ Temp: _____ Analyst: _____

Samples Out: Date: _____ Time: _____ Temp: _____ Analyst: _____

ARI ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids
1. VP40A 12-21289	_____	_____	_____	* 82.2
2. VP40B 12-21290	_____	_____	_____	* 75.9
3. VP40C 12-21291	_____	_____	_____	* 80.6

BETX/TPHG Total Solids-betxts
Data By: Jonathon L. Walter
Created: 10/30/12

Worklist: 8898
Analyst: JLW
Comments:

Oven ID: _____

Balance ID: _____

Samples In: Date: _____ Time: _____ Temp: _____ Analyst: _____

Samples Out: Date: _____ Time: _____ Temp: _____ Analyst: _____

ARI ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids
1. VP41A 12-21279	_____	_____	_____	* 92.6
2. VP41B 12-21280	_____	_____	_____	* 81.6
3. VP41C 12-21281	_____	_____	_____	* 80.3
4. VP41D 12-21282	_____	_____	_____	* 79.3
5. VP41E 12-21283	_____	_____	_____	* 77.2
6. VP41G 12-21285	_____	_____	_____	* 88.1
7. VP41H 12-21286	_____	_____	_____	* 71.6

Solids Data Entry Report
Date: 10/30/12

Checked by: NB Date: 10/30/12
Data Analyst: CB

Solids Determination performed on 10/29/12 by NB

JOB	SAMPLE	CLIENTID	TAREWEIGHT	SAMPDISH	DRYWEIGHT	SOLIDS
VP40	A	CWS1-04-2-4	0.977	10.421	8.743	82.23
VP40	B	CWS1-04-6-8	1.001	10.554	8.253	75.91
VP40	C	CWS1-04-13.5-15	0.968	10.556	8.692	80.56



Total Solids Bench Sheet

Laboratory Section METALS

Oven Identification: 014

Balance ID: B116132369

Samples in Oven: Date: 10-29-12 Time: 1250 Temp: 107°C Analyst: NB

Removed from Oven: Date: 10-30-12 Time: 0745 Temp: 104°C Analyst: CB

ARI Sample ID	Tare Weight (g)	Tare + Sample Wet (g)	Tare + Sample Dry (g)	Date & Time Last Weight	Final Weighting >12 hrs ¹
VP40 A	0.977	10.421	8.743	-	✓
" B	1.001	10.554	8.253	-	✓
" C	0.968	10.556	8.692	-	✓
VP41 A	1.007	10.645	9.930	-	✓
" B	0.969	10.043	8.372	-	✓
" C	0.994	10.532	8.654	-	✓
" D	0.997	10.969	8.907	-	✓
" E	0.993	10.068	8.802	-	✓
NB 10-29-12					

1) Place a check mark in this column if samples have dried > 12 but < 24 hours. When samples have been at 104°C < 12 hours, constant weight must be verified as described in SOP 10023S. Use a 2nd bench sheet for additional weightings.

VP40: 00244

Solids Data Entry Report
Date: 10/30/12

Checked by: NB Date: 10/30/12
Data Analyst: CB

Solids Determination performed on 10/29/12 by NB

JOB	SAMPLE	CLIENTID	TAREWEIGHT	SAMPDISH	DRYWEIGHT	SOLIDS
VP41	A	CWS1-02-1-3	1.007	10.645	9.930	92.58
VP41	B	CWS1-02-7-8	0.969	10.043	8.372	81.58
VP41	C	CWS1-02-12-13	0.994	10.532	8.654	80.31
VP41	D	CWS1-01-3-5	0.997	10.969	8.907	79.32
VP41	E	CWS1-01-11-13	0.993	10.068	8.002	77.23



Total Solids Bench Sheet

Laboratory Section METALS

Oven Identification: 014

Balance ID: B116132369

Samples in Oven: Date: 10-29-12 Time: 1250 Temp: 107°C Analyst: NB

Removed from Oven: Date: 10-30-12 Time: 6745 Temp: 104°C Analyst: CB

ARI Sample ID	Tare Weight (g)	Tare + Sample Wet (g)	Tare + Sample Dry (g)	Date & Time Last Weight	Final Weighting >12 hrs ¹
VP40 A	0.977	10.421	8.743	-	✓
" B	1.001	10.554	8.253	-	✓
" C	0.968	10.556	8.692	-	✓
VP41 A	1.007	10.645	9.930	-	✓
" B	0.969	10.043	8.372	-	✓
" C	0.994	10.532	8.654	-	✓
" D	0.997	10.969	8.907	-	✓
" E	0.993	10.068	8.802	-	✓
NB 10-29-12					

1) Place a check mark in this column if samples have dried > 12 but < 24 hours. When samples have been at 104°C < 12 hours, constant weight must be verified as described in SOP 10023S. Use a 2nd bench sheet for additional weightings.

**Metals Raw Data
Run Logs, Calibrations, and Raw Data**

ARI Job ID: VP40, VP41



IEC Date: 8-1-12

Analysis Date: 11-1-12

Analyst: H-12

LR Date: 8-2-12

Page: 1 of 5

All corrections made by analyst unless otherwise noted.

Edit Label	Delete Data	ARI Sample ID	Prep. Code	Dilution	Comments
		STD-0			2986-5
		↓ -2			2987-13
		↓ -3			↓ -14
		↓ -4			↓ -15
		↓ -5			↓ -16
		222222 ICV			2986-1
		222222 ICB			Cu high
		222222 CRI			Cu high
		222222 ICBA			Cu high
		222222 ICSAB			
		222222 CCV1			
		222222 CCB1			
		STD-0			
		ICV			
		ICB			
		CRI			
		ICSA			
		ICSAB			
		CCV1			Six/aw
		CCB1			
✓		VP23 MB2	WMM		CCB out - 2R
✓		VO93 MB	S.L.C.	2	PE. sample
✓		↓ H	↓	↓	" "
✓		VP23 I	WMM		CCB out - 2R



IEC Date: _____ Analysis Date: 11-1-12 Analyst: SL

LR Date: _____ Page: 2 of 5

All corrections made by analyst unless otherwise noted.

Edit Label	Delete Data	ARI Sample ID	Prep. Code	Dilution	Comments
	✓	VP23 J	WMN		CCB out-RR
	✓	↓ K	↓		↓
	✓	↓ L	↓		↓
	✓	↓ HDup	↓	✓	↓
	✓	↓ H	↓		↓
	✓	↓ HSPK	↓	✓	Ca, Mn STD ✓ 0.050 ml ICP spk
		CCV2			
		CCB2			Mn high
		VA16 MBZ	DMN		
	✓	VA25 MB	↓		CCB out RR
		VA16 L	↓		
		↓ K Dup	↓	✓	
		↓ K	↓		
		↓ KSPK	↓	✓	0.050 ml ICP spk
	✓	VA25 ADup	WMN	✓	CCB - RR
	✓	↓ A	↓		↓
	✓	↓ ASPK	↓		0.050 ml ICP spk
	✓	VP23 MBZSPK	↓		0.050 ml ICP spk ↓
		CCV3			
		CCB3			
	✓	VP40 MB1	EXC 2	2	CCV out RR
	✓	VP41 A	↓	↓	↓
	✓	↓ B	↓	↓	↓
	✓	↓ C	↓	↓	↓



REC Date: _____

Analysis Date: 11-1-02

Analyst: CZ

LR Date: _____

Page: 13 of 5

All corrections made by analyst unless otherwise noted. IL 11/1/02

Edit Label	Delete Data	ARI Sample ID	Prep. Code	Dilution	Comments
	✓	VP41 D	SUC	2	CCU out RR
	✓	↓ E	↓	↓	↓
	✓	VP40 B	↓	↓	↓
	✓	↓ C	↓	↓	↓
	✓	VP16 MB2 SPK KDMA			VP16 out IEP SPK ✓
		VP25 MB SPK	WAIN		VP25 out IEP SPK
		CCU4			Zn high
		CCB4			Zn high
		VP44 MB	LEN	5	} STD-C } STD-3 } CCU5 } CCB5
		VP51 MB1	SUC	2	
		↓ B	↓	↓	
		VP40 ADup			
		↓ A	↓	↓	CAF
		↓ ASPK	↓	↓	SPK
		VP44 ADup	LEN	5	
		↓ A	↓	↓	
		↓ ASPK	↓	↓	
		VP40 MB1 SPK	SUC	2	
		CCU56			
		CCU56			
		VP51 C	SUC	2	
		↓ D	↓	↓	
		↓ E	↓	↓	
		↓ F	↓	↓	



IEC Date: _____

Analysis Date: 11-1-12

Analyst: SL

LR Date: _____

Page: 4 of 5

All corrections made by analyst unless otherwise noted. SL 11-1-12

Edit Label	Delete Data	ARI Sample ID	Prep. Code	Dilution	Comments
		VP51 A Dup	SUC	2	Zn high & RPD
		↓ H	↓	↓	CAF
		↓ A50K	↓	↓	Cu, Zn high Re.
		↓ MB150K	↓	↓	
		VP29 N	TWC		
		VP40 APOST	SUC	2	normal Temp, a-oxid Sin
		CC167			30 low
		CC367			End Pkg
	✓	VP83 MB	TWC		Cu high RR CABout
		VP92 MB			
		↓ B		2	
	✓	VP03 B			RR SID CABout (20)
	✓	↓ C			↓
	✓	↓ D			↓
		VP92 A Dup		2	Cu high & RPD
		↓ H		↓	CAF
		↓ A50K		↓	
		↓ MB150K	↓	↓	
		CC075			Mo, Sn low
		CC3A8			As E.O.
		VP81 MB	TWC		
		↓ A	↓	↓	
		↓ B	↓	↓	
	✓	VP83 E	↓	↓	27

SL 11-2-12

Nebulizer Parameters: Hg ReAlign

Analyte Back Pressure Flow
All 231.0 kPa 0.55 L/min

11/1/2012 10:08:55 AM Hg ReAlign... Actual peak offset (nm): 0.001
Drift (nm): -0.001 Slit adjustment: -4

Analysis Begun

Start Time: 11/1/2012 10:12:11 AM Plasma On Time: 11/1/2012 9:01:02 AM
Logged In Analyst: metals Technique: ICP Continuous
Spectrometer Model: Optima 4300 DV, S/N 077N0060101 Autosampler Model: S10

Sample Information File: C:\pe\Administrator\Sample Information\CRISSET.sif

Batch ID:

Results Data Set: PE121101

Results Library: C:\pe\metals\Results\Results.mdb

Method Loaded

Method Name: ARIIEC6AN.552AS

Method Last Saved: 8/1/2012 1:18:45 PM

IEC File: IEC48.iec

MSF File:

Method Description: 12Axial Elements

Table with 6 columns: Analyte, Calibration Equation, Processing, View, Internal Standard, IEC. Lists various elements like Ag, Al, As, B, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, K, Mg, Mn, Mo, Na, Ni, Pb, Sb, Se, Si, Sn, Sr, Ti, Tl, V, Zn and their corresponding calibration and processing details.

Sequence No.: 1

Autosampler Location: 1

Sample ID: Calib Blank 1

Date Collected: 11/1/2012 10:12:18 AM

Data Type: Original

Nebulizer Parameters: Calib Blank 1

Analyte Back Pressure Flow
All 231.0 kPa 0.55 L/min

6.5 15.0 532.1
 7.0 15.0 708.1

11/1/2012 10:41:16 AM aligned for analyte Mn 257.610
 X viewing position set to 0.0 mm having Peak intensity 479258.8 for Radial viewing

=====
Analysis Begun

Start Time: 11/1/2012 11:08:11 AM Plasma On Time: 11/1/2012 9:01:02 AM
 Logged In Analyst: metals Technique: ICP Continuous
 Spectrometer Model: Optima 4300 DV, S/N 077N0060101 Autosampler Model: S10

Sample Information File: C:\pe\Administrator\Sample Information\CRISSET.sif
 Batch ID:
 Results Data Set: PE121101
 Results Library: C:\pe\metals\Results\Results.mdb

=====
 Sequence No.: 1 Autosampler Location: 1
 Sample ID: Calib Blank 1 Date Collected: 11/1/2012 11:08:11 AM
 Data Type: Original

=====
 Nebulizer Parameters: Calib Blank 1
 Analyte Back Pressure Flow
 All 232.0 kPa 0.55 L/min

=====
Mean Data: Calib Blank 1

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Calib Conc. Units
ScA 357.253	2648230.8	6274.23	0.24%	100.0 %
ScR 361.383	211749.5	928.21	0.44%	100.00 %
Ag 328.068†	578.9	10.34	1.79%	[0.00] mg/L
Al 308.215†	22.8	9.13	40.00%	[0.00] mg/L
As 188.979†	-2.0	2.87	145.68%	[0.00] mg/L
B 249.677†	-115.0	3.87	3.37%	[0.00] mg/L
Ba 233.527†	58.7	1.96	3.33%	[0.00] mg/L
Be 313.042†	541.1	4.77	0.88%	[0.00] mg/L
Ca 317.933†	9.2	14.79	161.48%	[0.00] mg/L
Cd 228.802†	286.2	3.93	1.37%	[0.00] mg/L
Co 228.616†	296.3	4.56	1.54%	[0.00] mg/L
Cr 267.716†	10.4	3.20	30.71%	[0.00] mg/L
Cu 324.752†	1318.2	26.24	1.99%	[0.00] mg/L
Fe 273.955†	-32.5	0.53	1.63%	[0.00] mg/L
K 766.490†	1971.9	52.60	2.67%	[0.00] mg/L
Mg 279.077†	-152.7	6.27	4.10%	[0.00] mg/L
Mn 257.610†	-53.6	1.41	2.62%	[0.00] mg/L
Mo 202.031†	-128.7	5.60	4.35%	[0.00] mg/L
Na 589.592†	96.4	64.26	66.68%	[0.00] mg/L
Na 330.237†	33.7	15.41	45.71%	[0.00] mg/L
Ni 231.604†	30.2	2.18	7.21%	[0.00] mg/L
Pb 220.353†	252.9	5.72	2.26%	[0.00] mg/L
Sb 206.836†	123.1	2.23	1.81%	[0.00] mg/L
Se 196.026†	-100.0	3.30	3.30%	[0.00] mg/L
Si 288.158†	2.7	4.25	157.51%	[0.00] mg/L
Sn 189.927†	-11.0	1.61	14.63%	[0.00] mg/L
Sr 421.552†	670.9	38.89	5.80%	[0.00] mg/L
Ti 334.903†	-55.8	12.01	21.53%	[0.00] mg/L
Tl 190.801†	16.8	2.98	17.73%	[0.00] mg/L
V 292.402†	-37.7	49.87	132.39%	[0.00] mg/L
Zn 206.200†	-26.4	0.55	2.10%	[0.00] mg/L

Sequence No.: 2
Sample ID: STD2

Autosampler Location: 2
Date Collected: 11/1/2012 11:14:09 AM
Data Type: Original

Nebulizer Parameters: STD2

Analyte	Back Pressure	Flow
All	232.0 kPa	0.55 L/min

Mean Data: STD2

Analyte	Mean Corrected			Calib	
	Intensity	Std.Dev.	RSD	Conc.	Units
ScA 357.253	2664563.2	17175.40	0.64%	100.6	%
ScR 361.383	211917.5	2122.58	1.00%	100.1	%
Ba 233.527†	102780.4	809.43	0.79%	[10]	mg/L
Cd 228.802†	835797.2	8999.04	1.08%	[10]	mg/L
Co 228.616†	843238.6	8292.48	0.98%	[10]	mg/L
Cr 267.716†	45779.8	388.50	0.85%	[10]	mg/L
Cu 324.752†	3131076.1	29662.68	0.95%	[10]	mg/L
Mn 257.610†	404704.2	2919.50	0.72%	[10]	mg/L
V 292.402†	2040014.1	23064.42	1.13%	[10]	mg/L

Sequence No.: 3
Sample ID: STD3

Autosampler Location: 3
Date Collected: 11/1/2012 11:18:05 AM
Data Type: Original

Nebulizer Parameters: STD3

Analyte	Back Pressure	Flow
All	231.0 kPa	0.55 L/min

Mean Data: STD3

Analyte	Mean Corrected			Calib	
	Intensity	Std.Dev.	RSD	Conc.	Units
ScA 357.253	2642226.9	34270.45	1.30%	99.77	%
ScR 361.383	214112.8	1551.20	0.72%	101.1	%
Ag 328.068†	298057.6	1029.31	0.35%	[1.0]	mg/L
As 188.979†	23822.1	130.24	0.55%	[10]	mg/L
B 249.677†	21691.1	170.32	0.79%	[10]	mg/L
Be 313.042†	1331298.9	24940.43	1.87%	[5.0]	mg/L
Na 589.592†	406685.7	6334.13	1.56%	[50]	mg/L
Ni 231.604†	22096.5	114.83	0.52%	[10]	mg/L
Pb 220.353†	129252.2	729.20	0.56%	[10]	mg/L
Se 196.026†	19212.4	103.05	0.54%	[10]	mg/L
Sr 421.552†	2892450.2	34499.13	1.19%	[5]	mg/L
Tl 190.801†	36588.5	211.86	0.58%	[10]	mg/L
Zn 206.200†	24347.7	121.56	0.50%	[10]	mg/L

Sequence No.: 4
Sample ID: STD4

Autosampler Location: 4
Date Collected: 11/1/2012 11:22:41 AM
Data Type: Original

Nebulizer Parameters: STD4

Analyte	Back Pressure	Flow
All	231.0 kPa	0.55 L/min

Mean Data: STD4

Analyte	Mean Corrected			Calib	
	Intensity	Std.Dev.	RSD	Conc.	Units
ScA 357.253	2698318.1	23463.76	0.87%	101.9	%
ScR 361.383	211100.1	2142.43	1.01%	99.69	%
Mo 202.031†	185038.9	902.37	0.49%	[10]	mg/L
Sb 206.836†	36568.0	172.70	0.47%	[10]	mg/L
Si 288.158†	13524.9	76.03	0.56%	[10]	mg/L
Sn 189.927†	65582.6	269.95	0.41%	[10]	mg/L
Ti 334.903†	257016.6	4894.02	1.90%	[10]	mg/L

Sequence No.: 5
 Sample ID: STD5

Autosampler Location: 5
 Date Collected: 11/1/2012 11:26:54 AM
 Data Type: Original

Nebulizer Parameters: STD5

Analyte	Back Pressure	Flow
All	232.0 kPa	0.55 L/min

Mean Data: STD5

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
ScA 357.253	2577494.3	10704.19	0.42%	97.33	%
ScR 361.383	209084.7	1663.91	0.80%	98.74	%
Al 308.215†	45103.6	522.97	1.16%	[30]	mg/L
Ca 317.933†	317571.9	1287.82	0.41%	[30]	mg/L
Fe 273.955†	122581.6	370.66	0.30%	[100]	mg/L
K 766.490†	360299.6	1303.17	0.36%	[100]	mg/L
Mg 279.077†	34942.7	378.72	1.08%	[30]	mg/L
Na 330.237†	2743.4	24.42	0.89%	[100]	mg/L

Calibration Summary

Analyte	Stds.	Equation	Intercept	Slope	Curvature	Corr. Coef.	Reslope
Ag 328.068	1	Lin Thru 0	0.0	298100	0.00000	1.000000	
Al 308.215	1	Lin Thru 0	0.0	1503	0.00000	1.000000	
As 188.979	1	Lin Thru 0	0.0	2382	0.00000	1.000000	
B 249.677	1	Lin Thru 0	0.0	2169	0.00000	1.000000	
Ba 233.527	1	Lin Thru 0	0.0	10280	0.00000	1.000000	
Be 313.042	1	Lin Thru 0	0.0	266300	0.00000	1.000000	
Ca 317.933	1	Lin Thru 0	0.0	10590	0.00000	1.000000	
Cd 228.802	1	Lin Thru 0	0.0	83580	0.00000	1.000000	
Co 228.616	1	Lin Thru 0	0.0	84320	0.00000	1.000000	
Cr 267.716	1	Lin Thru 0	0.0	4578	0.00000	1.000000	
Cu 324.752	1	Lin Thru 0	0.0	313100	0.00000	1.000000	
Fe 273.955	1	Lin Thru 0	0.0	1226	0.00000	1.000000	
K 766.490	1	Lin Thru 0	0.0	3603	0.00000	1.000000	
Mg 279.077	1	Lin Thru 0	0.0	1165	0.00000	1.000000	
Mn 257.610	1	Lin Thru 0	0.0	40470	0.00000	1.000000	
Mo 202.031	1	Lin Thru 0	0.0	18500	0.00000	1.000000	
Na 589.592	1	Lin Thru 0	0.0	8134	0.00000	1.000000	
Na 330.237	1	Lin Thru 0	0.0	27.43	0.00000	1.000000	
Ni 231.604	1	Lin Thru 0	0.0	2210	0.00000	1.000000	
Pb 220.353	1	Lin Thru 0	0.0	12930	0.00000	1.000000	
Sb 206.836	1	Lin Thru 0	0.0	3657	0.00000	1.000000	
Se 196.026	1	Lin Thru 0	0.0	1921	0.00000	1.000000	
Si 288.158	1	Lin Thru 0	0.0	1352	0.00000	1.000000	
Sn 189.927	1	Lin Thru 0	0.0	6558	0.00000	1.000000	
Sr 421.552	1	Lin Thru 0	0.0	578500	0.00000	1.000000	
Ti 334.903	1	Lin Thru 0	0.0	25700	0.00000	1.000000	
Tl 190.801	1	Lin Thru 0	0.0	3659	0.00000	1.000000	
V 292.402	1	Lin Thru 0	0.0	204000	0.00000	1.000000	
Zn 206.200	1	Lin Thru 0	0.0	2435	0.00000	1.000000	

=====
Analysis Begun

Start Time: 11/1/2012 11:30:21 AM

Plasma On Time: 11/1/2012 9:01:02 AM

Logged In Analyst: metals

Technique: ICP Continuous

Spectrometer Model: Optima 4300 DV, S/N 077N0060101Autosampler Model: S10

Sample Information File: C:\pe\metals\Sample Information\CRISSET.sif

Batch ID:

Results Data Set: PE121101

Results Library: C:\pe\metals\Results\Results.mdb
=====

Sequence No.: 1

Autosampler Location: 7

Sample ID: ~~ICV~~

Date Collected: 11/1/2012 11:30:23 AM

Analyst: EL *222222*
EL 11-1-12

Data Type: Original

Dilution: 1X

Nebulizer Parameters: CV

Analyte	Back Pressure	Flow
All	231.0 kPa	0.55 L/min

Mean Data: CV

Analyte	Mean Corrected Intensity	Conc. Units	Calib. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2650410.4	100.1	%	0.25			0.25%
ScR 361.383	215502.0	101.8	%	0.75			0.74%
Ag 328.068†	302649.5	1.015	mg/L	0.0022	1.015 mg/L	0.0022	0.22%
Al 308.215†	3073.7	2.002	mg/L	0.0105	2.002 mg/L	0.0105	0.53%
As 188.979†	4999.6	2.098	mg/L	0.0019	2.098 mg/L	0.0019	0.09%
B 249.677†	2155.8	0.9922	mg/L	0.00066	0.9922 mg/L	0.00066	0.07%
Ba 233.527†	10176.7	0.9897	mg/L	0.00421	0.9897 mg/L	0.00421	0.43%
Be 313.042†	271995.0	1.019	mg/L	0.0061	1.019 mg/L	0.0061	0.60%
Ca 317.933†	21224.9	2.005	mg/L	0.0105	2.005 mg/L	0.0105	0.53%
Cd 228.802†	86019.0	1.024	mg/L	0.0049	1.024 mg/L	0.0049	0.48%
Co 228.616†	82972.4	0.9820	mg/L	0.00332	0.9820 mg/L	0.00332	0.34%
Cr 267.716†	4508.0	0.9844	mg/L	0.00291	0.9844 mg/L	0.00291	0.30%
Cu 324.752†	333358.8	1.065	mg/L	0.0009	1.065 mg/L	0.0009	0.09%
Fe 273.955†	2552.8	2.082	mg/L	0.0050	2.082 mg/L	0.0050	0.24%
K 766.490†	73185.1	20.31	mg/L	0.071	20.31 mg/L	0.071	0.35%
Mg 279.077†	2424.4	2.085	mg/L	0.0047	2.085 mg/L	0.0047	0.23%
Mn 257.610†	40350.8	0.9975	mg/L	0.00747	0.9975 mg/L	0.00747	0.75%
Mo 202.031†	18036.3	0.9746	mg/L	0.00100	0.9746 mg/L	0.00100	0.10%
Na 589.592†	417836.7	51.37	mg/L	0.297	51.37 mg/L	0.297	0.58%
Na 330.237†	1418.7	51.50	mg/L	0.561	51.50 mg/L	0.561	1.09%
Ni 231.604†	2227.5	1.009	mg/L	0.0037	1.009 mg/L	0.0037	0.37%
Pb 220.353†	26608.9	2.060	mg/L	0.0001	2.060 mg/L	0.0001	0.00%
Sb 206.836†	7799.4	2.130	mg/L	0.0026	2.130 mg/L	0.0026	0.12%
Se 196.026†	3912.0	2.033	mg/L	0.0016	2.033 mg/L	0.0016	0.08%
Si 288.158†	2861.0	2.122	mg/L	0.0174	2.122 mg/L	0.0174	0.82%
Sn 189.927†	6013.0	0.9177	mg/L	0.00194	0.9177 mg/L	0.00194	0.21%
Sr 421.552†	589990.9	1.020	mg/L	0.0024	1.020 mg/L	0.0024	0.24%
Ti 334.903†	25679.1	0.9979	mg/L	0.00688	0.9979 mg/L	0.00688	0.69%
Tl 190.801†	7396.8	2.009	mg/L	0.0020	2.009 mg/L	0.0020	0.10%
V 292.402†	204689.7	1.014	mg/L	0.0006	1.014 mg/L	0.0006	0.06%
Zn 206.200†	2586.8	1.061	mg/L	0.0025	1.061 mg/L	0.0025	0.24%

Sequence No.: 2
Sample ID: ~~CB~~ 252822
Analyst: EL
Dilution: 1X

Autosampler Location: 1
Date Collected: 11/1/2012 11:36:26 AM
Data Type: Original

Nebulizer Parameters: CB

Analyte Back Pressure Flow
All 231.0 kPa 0.55 L/min

Mean Data: CB

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2710641.2	102.4	%	1.69				1.66%
ScR 361.383	218148.6	103.0	%	1.61				1.56%
Ag 328.068†	-6.1	-0.00002	mg/L	0.000175	-0.00002	mg/L	0.000175	857.12%
Al 308.215†	-13.7	-0.00912	mg/L	0.005536	-0.00912	mg/L	0.005536	60.70%
As 188.979†	4.9	0.00206	mg/L	0.001108	0.00206	mg/L	0.001108	53.76%
B 249.677†	14.8	0.00681	mg/L	0.001633	0.00681	mg/L	0.001633	23.98%
Ba 233.527†	4.2	0.00041	mg/L	0.000392	0.00041	mg/L	0.000392	95.68%
Be 313.042†	49.7	0.00019	mg/L	0.000033	0.00019	mg/L	0.000033	17.80%
Ca 317.933†	11.3	0.00107	mg/L	0.001476	0.00107	mg/L	0.001476	138.30%
Cd 228.802†	8.1	0.00009	mg/L	0.000060	0.00009	mg/L	0.000060	65.40%
Co 228.616†	5.5	0.00006	mg/L	0.000044	0.00006	mg/L	0.000044	67.81%
Cr 267.716†	-0.1	-0.00002	mg/L	0.000803	-0.00002	mg/L	0.000803	>999.9%
Cu 324.752†	910.0	0.00291	mg/L	0.000104	0.00291	mg/L	0.000104	3.59%
Fe 273.955†	0.8	0.00064	mg/L	0.000752	0.00064	mg/L	0.000752	117.89%
K 766.490†	126.0	0.03498	mg/L	0.019597	0.03498	mg/L	0.019597	56.02%
Mg 279.077†	-1.7	-0.00146	mg/L	0.000690	-0.00146	mg/L	0.000690	47.33%
Mn 257.610†	-1.5	-0.00004	mg/L	0.000132	-0.00004	mg/L	0.000132	361.93%
Mo 202.031†	4.2	0.00023	mg/L	0.000234	0.00023	mg/L	0.000234	102.83%
Na 589.592†	289.6	0.03561	mg/L	0.007460	0.03561	mg/L	0.007460	20.95%
Na 330.237†	-2.5	-0.09162	mg/L	0.274824	-0.09162	mg/L	0.274824	299.95%
Ni 231.604†	-0.2	-0.00008	mg/L	0.001741	-0.00008	mg/L	0.001741	>999.9%
Pb 220.353†	1.6	0.00012	mg/L	0.000631	0.00012	mg/L	0.000631	538.85%
Sb 206.836†	7.9	0.00217	mg/L	0.000450	0.00217	mg/L	0.000450	20.70%
Se 196.026†	6.5	0.00340	mg/L	0.000913	0.00340	mg/L	0.000913	26.88%
Si 288.158†	10.2	0.00751	mg/L	0.002455	0.00751	mg/L	0.002455	32.69%
Sn 189.927†	6.2	0.00094	mg/L	0.000644	0.00094	mg/L	0.000644	68.16%
Sr 421.552†	-18.7	-0.00003	mg/L	0.000080	-0.00003	mg/L	0.000080	248.19%
Ti 334.903†	13.0	0.00050	mg/L	0.000929	0.00050	mg/L	0.000929	184.06%
Tl 190.801†	5.2	0.00141	mg/L	0.000872	0.00141	mg/L	0.000872	61.98%
V 292.402†	0.2	0.00000	mg/L	0.000038	0.00000	mg/L	0.000038	>999.9%
Zn 206.200†	-0.5	-0.00021	mg/L	0.001050	-0.00021	mg/L	0.001050	499.32%

Sequence No.: 3

Autosampler Location: 21

Sample ID: CRI

Date Collected: 11/1/2012 11:42:25 AM

Analyst: EL

Data Type: Original

Dilution: 1X

Nebulizer Parameters: CRI

Analyte	Back Pressure	Flow
All	232.0 kPa	0.55 L/min

Mean Data: CRI

Analyte	Mean Corrected		Calib. Units	Std.Dev.	Sample		RSD
	Intensity	Conc.			Conc.	Units	
ScA 357.253	2713526.3	102.5	%	0.96			0.94%
ScR 361.383	218772.9	103.3	%	1.76			1.71%
Ag 328.068†	828.7	0.00278	mg/L	0.000093	0.00278	mg/L	0.000093 3.35%
Al 308.215†	76.6	0.05080	mg/L	0.009787	0.05080	mg/L	0.009787 19.27%
As 188.979†	127.1	0.05333	mg/L	0.002022	0.05333	mg/L	0.002022 3.79%
B 249.677†	43.0	0.01981	mg/L	0.001746	0.01981	mg/L	0.001746 8.81%
Ba 233.527†	35.1	0.00341	mg/L	0.000286	0.00341	mg/L	0.000286 8.39%
Be 313.042†	333.4	0.00124	mg/L	0.000072	0.00124	mg/L	0.000072 5.79%
Ca 317.933†	522.3	0.04934	mg/L	0.000729	0.04934	mg/L	0.000729 1.48%
Cd 228.802†	180.8	0.00204	mg/L	0.000060	0.00204	mg/L	0.000060 2.96%
Co 228.616†	281.6	0.00333	mg/L	0.000053	0.00333	mg/L	0.000053 1.60%
Cr 267.716†	20.9	0.00456	mg/L	0.000326	0.00456	mg/L	0.000326 7.15%
Cu 324.752†	1289.7	0.00412	mg/L	0.000115	0.00412	mg/L	0.000115 2.78%
Fe 273.955†	63.1	0.05146	mg/L	0.000634	0.05146	mg/L	0.000634 1.23%
K 766.490†	1881.1	0.5221	mg/L	0.01473	0.5221	mg/L	0.01473 2.82%
Mg 279.077†	60.6	0.05203	mg/L	0.005052	0.05203	mg/L	0.005052 9.71%
Mn 257.610†	41.6	0.00103	mg/L	0.000197	0.00103	mg/L	0.000197 19.08%
Mo 202.031†	93.3	0.00504	mg/L	0.000157	0.00504	mg/L	0.000157 3.12%
Na 589.592†	4284.3	0.5267	mg/L	0.00880	0.5267	mg/L	0.00880 1.67%
Na 330.237†	20.2	0.7346	mg/L	0.18760	0.7346	mg/L	0.18760 25.54%
Ni 231.604†	21.7	0.00981	mg/L	0.000742	0.00981	mg/L	0.000742 7.56%
Pb 220.353†	256.5	0.01987	mg/L	0.000785	0.01987	mg/L	0.000785 3.95%
Sb 206.836†	195.0	0.05337	mg/L	0.000989	0.05337	mg/L	0.000989 1.85%
Se 196.026†	98.6	0.05129	mg/L	0.002876	0.05129	mg/L	0.002876 5.61%
Si 288.158†	121.6	0.08996	mg/L	0.002453	0.08996	mg/L	0.002453 2.73%
Sn 189.927†	64.9	0.00992	mg/L	0.000200	0.00992	mg/L	0.000200 2.02%
Sr 421.552†	574.1	0.00099	mg/L	0.000089	0.00099	mg/L	0.000089 9.01%
Ti 334.903†	130.7	0.00508	mg/L	0.000447	0.00508	mg/L	0.000447 8.81%
Tl 190.801†	178.1	0.04863	mg/L	0.001153	0.04863	mg/L	0.001153 2.37%
V 292.402†	601.3	0.00300	mg/L	0.000160	0.00300	mg/L	0.000160 5.36%
Zn 206.200†	24.3	0.00997	mg/L	0.000919	0.00997	mg/L	0.000919 9.21%

Sequence No.: 4

Autosampler Location: 22

Sample ID: ICSA

Date Collected: 11/1/2012 11:48:25 AM

Analyst: EL

Data Type: Original

Dilution: 1X

Nebulizer Parameters: ICSA

Analyte	Back Pressure	Flow
All	231.0 kPa	0.55 L/min

Mean Data: ICSA

Analyte	Mean Corrected Intensity	Conc. Units	Calib. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2598827.9	98.13	%	0.404			0.41%
ScR 361.383	214108.8	101.1	%	0.50			0.50%
Ag 328.068†	-1906.2	-0.00113	mg/L	0.000369	-0.00113 mg/L	0.000369	32.49%
Al 308.215†	290694.1	193.4	mg/L	0.34	193.4 mg/L	0.34	0.18%
As 188.979†	1.9	0.00083	mg/L	0.001011	0.00083 mg/L	0.001011	121.78%
B 249.677†	-3.2	-0.00150	mg/L	0.005242	-0.00150 mg/L	0.005242	349.14%
Ba 233.527†	85.0	-0.00061	mg/L	0.000475	-0.00061 mg/L	0.000475	78.23%
Be 313.042†	44.2	0.00012	mg/L	0.000006	0.00012 mg/L	0.000006	5.15%
Ca 317.933†	996683.5	94.15	mg/L	0.148	94.15 mg/L	0.148	0.16%
Cd 228.802†	93.4	0.00112	mg/L	0.000050	0.00112 mg/L	0.000050	4.52%
Co 228.616†	159.0	-0.00034	mg/L	0.000160	-0.00034 mg/L	0.000160	46.53%
Cr 267.716†	16.5	0.00360	mg/L	0.000272	0.00360 mg/L	0.000272	7.57%
Cu 324.752†	-4278.4	0.00235	mg/L	0.000081	0.00235 mg/L	0.000081	3.42%
Fe 273.955†	234803.7	191.5	mg/L	0.36	191.5 mg/L	0.36	0.19%
K 766.490†	44.5	0.01236	mg/L	0.008620	0.01236 mg/L	0.008620	69.76%
Mg 279.077†	113893.0	97.67	mg/L	0.615	97.67 mg/L	0.615	0.63%
Mn 257.610†	25.5	-0.00070	mg/L	0.000351	-0.00070 mg/L	0.000351	50.10%
Mo 202.031†	-180.1	-0.00690	mg/L	0.000337	-0.00690 mg/L	0.000337	4.89%
Na 589.592†	128.3	0.01578	mg/L	0.004234	0.01578 mg/L	0.004234	26.83%
Na 330.237†	32.3	0.7653	mg/L	0.48184	0.7653 mg/L	0.48184	62.96%
Ni 231.604†	9.6	0.00438	mg/L	0.001851	0.00438 mg/L	0.001851	42.23%
Pb 220.353†	-693.5	0.00736	mg/L	0.000717	0.00736 mg/L	0.000717	9.75%
Sb 206.836†	171.7	0.02892	mg/L	0.000657	0.02892 mg/L	0.000657	2.27%
Se 196.026†	-120.6	-0.06277	mg/L	0.002931	-0.06277 mg/L	0.002931	4.67%
Si 288.158†	-0.6	0.01131	mg/L	0.005210	0.01131 mg/L	0.005210	46.07%
Sn 189.927†	-44.3	0.01563	mg/L	0.001515	0.01563 mg/L	0.001515	9.70%
Sr 421.552†	2273.0	0.00393	mg/L <i>est.</i>	0.000037	0.00393 mg/L	0.000037	0.94%
Ti 334.903†	166.1	0.00185	mg/L	0.000235	0.00185 mg/L	0.000235	12.68%
Tl 190.801†	-40.8	-0.01128	mg/L	0.001292	-0.01128 mg/L	0.001292	11.46%
V 292.402†	3921.1	0.00098	mg/L	0.000408	0.00098 mg/L	0.000408	41.67%
Zn 206.200†	-21.3	-0.00673	mg/L	0.000947	-0.00673 mg/L	0.000947	14.06%

Sequence No.: 5

Autosampler Location: 23

Sample ID: ICSAB

Date Collected: 11/1/2012 11:54:28 AM

Analyst: EL *Handwritten signature*

Data Type: Original

Dilution: 1X *Handwritten note*

Nebulizer Parameters: ICSAB

Analyte	Back Pressure	Flow
All	231.0 kPa	0.55 L/min

Mean Data: ICSAB

Analyte	Mean Corrected		Calib. Units	Std.Dev.	Sample		RSD
	Intensity	Conc.			Conc.	Units	
ScA 357.253	2619354.8	98.91	%	0.543			0.55%
ScR 361.383	215966.6	102.0	%	0.71			0.70%
Ag 328.068†	298306.4	1.006	mg/L	0.0037	1.006	mg/L	0.0037 0.37%
Al 308.215†	290392.1	193.1	mg/L	0.67	193.1	mg/L	0.67 0.35%
As 188.979†	2370.7	0.9950	mg/L	0.00515	0.9950	mg/L	0.00515 0.52%
B 249.677†	18.2	0.00536	mg/L	0.002743	0.00536	mg/L	0.002743 51.21%
Ba 233.527†	9886.3	0.9525	mg/L	0.00896	0.9525	mg/L	0.00896 0.94%
Be 313.042†	266043.1	0.9967	mg/L	0.00485	0.9967	mg/L	0.00485 0.49%
Ca 317.933†	1005184.8	94.96	mg/L	0.436	94.96	mg/L	0.436 0.46%
Cd 228.802†	81798.0	0.9764	mg/L	0.00467	0.9764	mg/L	0.00467 0.48%
Co 228.616†	76142.4	0.9003	mg/L	0.00303	0.9003	mg/L	0.00303 0.34%
Cr 267.716†	4358.8	0.9520	mg/L	0.01008	0.9520	mg/L	0.01008 1.06%
Cu 324.752†	309647.5	1.005	mg/L	0.0064	1.005	mg/L	0.0064 0.64%
Fe 273.955†	236743.6	193.1	mg/L	0.50	193.1	mg/L	0.50 0.26%
K 766.490†	62.9	0.01746	mg/L	0.016770	0.01746	mg/L	0.016770 96.03%
Mg 279.077†	116487.6	99.90	mg/L	0.326	99.90	mg/L	0.326 0.33%
Mn 257.610†	38171.5	0.9421	mg/L	0.00307	0.9421	mg/L	0.00307 0.33%
Mo 202.031†	-171.6	-0.00665	mg/L	0.000665	-0.00665	mg/L	0.000665 10.00%
Na 589.592†	636.1	0.07820	mg/L	0.002857	0.07820	mg/L	0.002857 3.65%
Na 330.237†	37.5	0.6012	mg/L	0.09047	0.6012	mg/L	0.09047 15.05%
Ni 231.604†	2093.8	0.9479	mg/L	0.00916	0.9479	mg/L	0.00916 0.97%
Pb 220.353†	11516.0	0.9528	mg/L	0.00504	0.9528	mg/L	0.00504 0.53%
Sb 206.836†	3880.3	1.029	mg/L	0.0037	1.029	mg/L	0.0037 0.36%
Se 196.026†	1798.2	0.9333	mg/L	0.00755	0.9333	mg/L	0.00755 0.81%
Si 288.158†	41.7	0.04709	mg/L	0.004939	0.04709	mg/L	0.004939 10.49%
Sn 189.927†	-50.7	0.01487	mg/L	0.000493	0.01487	mg/L	0.000493 3.31%
Sr 421.552†	2547.8	0.00440	mg/L <i>out</i>	0.000025	0.00440	mg/L	0.000025 0.57%
Ti 334.903†	166.1	0.00159	mg/L	0.000377	0.00159	mg/L	0.000377 23.66%
Tl 190.801†	3350.5	0.9038	mg/L	0.00729	0.9038	mg/L	0.00729 0.81%
V 292.402†	197290.2	0.9556	mg/L	0.00478	0.9556	mg/L	0.00478 0.50%
Zn 206.200†	2221.5	0.9136	mg/L	0.01191	0.9136	mg/L	0.01191 1.30%

Sequence No.: 6

Autosampler Location: 7

Sample ID: CV
Analyst: EL
Dilution: 1XDate Collected: 11/1/2012 12:01:28 PM
Data Type: Original

Nebulizer Parameters: CV

Analyte	Back Pressure	Flow
All	232.0 kPa	0.55 L/min

Mean Data: CV

Analyte	Mean Corrected		Calib.	Std.Dev.	Sample		RSD
	Intensity	Conc. Units			Conc. Units	Std.Dev.	
ScA 357.253	2656598.2	100.3 %		0.40			0.40%
ScR 361.383	216442.6	102.2 %		0.82			0.80%
Ag 328.068†	300504.0	1.008 mg/L		0.0020	1.008 mg/L	0.0020	0.20%
Al 308.215†	3057.4	1.991 mg/L		0.0189	1.991 mg/L	0.0189	0.95%
As 188.979†	4985.3	2.092 mg/L		0.0022	2.092 mg/L	0.0022	0.10%
B 249.677†	2119.8	0.9756 mg/L		0.01082	0.9756 mg/L	0.01082	1.11%
Ba 233.527†	10148.2	0.9869 mg/L		0.00890	0.9869 mg/L	0.00890	0.90%
Be 313.042†	271227.1	1.016 mg/L		0.0011	1.016 mg/L	0.0011	0.11%
Ca 317.933†	21205.4	2.003 mg/L		0.0192	2.003 mg/L	0.0192	0.96%
Cd 228.802†	85753.8	1.021 mg/L		0.0029	1.021 mg/L	0.0029	0.29%
Co 228.616†	83058.7	0.9830 mg/L		0.00120	0.9830 mg/L	0.00120	0.12%
Cr 267.716†	4500.0	0.9826 mg/L		0.01150	0.9826 mg/L	0.01150	1.17%
Cu 324.752†	331138.3	1.058 mg/L		0.0021	1.058 mg/L	0.0021	0.20%
Fe 273.955†	2560.7	2.088 mg/L		0.0192	2.088 mg/L	0.0192	0.92%
K 766.490†	72337.4	20.08 mg/L		0.090	20.08 mg/L	0.090	0.45%
Mg 279.077†	2427.8	2.088 mg/L		0.0185	2.088 mg/L	0.0185	0.89%
Mn 257.610†	40233.7	0.9946 mg/L		0.00053	0.9946 mg/L	0.00053	0.05%
Mo 202.031†	17992.8	0.9722 mg/L		0.00146	0.9722 mg/L	0.00146	0.15%
Na 589.592†	413052.2	50.78 mg/L		0.233	50.78 mg/L	0.233	0.46%
Na 330.237†	1406.2	51.04 mg/L		0.428	51.04 mg/L	0.428	0.84%
Ni 231.604†	2221.8	1.006 mg/L		0.0111	1.006 mg/L	0.0111	1.11%
Pb 220.353†	26633.0	2.062 mg/L		0.0046	2.062 mg/L	0.0046	0.22%
Sb 206.836†	7767.8	2.122 mg/L		0.0048	2.122 mg/L	0.0048	0.23%
Se 196.026†	3901.5	2.028 mg/L		0.0046	2.028 mg/L	0.0046	0.23%
Si 288.158†	2849.8	2.114 mg/L		0.0163	2.114 mg/L	0.0163	0.77%
Sn 189.927†	6008.5	0.9170 mg/L		0.00114	0.9170 mg/L	0.00114	0.12%
Sr 421.552†	586064.5	1.013 mg/L		0.0041	1.013 mg/L	0.0041	0.41%
Ti 334.903†	25474.1	0.9899 mg/L		0.00107	0.9899 mg/L	0.00107	0.11%
Tl 190.801†	7382.1	2.005 mg/L		0.0059	2.005 mg/L	0.0059	0.29%
V 292.402†	203645.0	1.009 mg/L		0.0079	1.009 mg/L	0.0079	0.78%
Zn 206.200†	2601.2	1.067 mg/L		0.0067	1.067 mg/L	0.0067	0.63%

Sequence No.: 7

Autosampler Location: 1

Sample ID: CB

Date Collected: 11/1/2012 12:07:31 PM

Analyst: EL

Data Type: Original

Dilution: 1X

Nebulizer Parameters: CB

Analyte	Back Pressure	Flow
All	232.0 kPa	0.55 L/min

Mean Data: CB

Analyte	Mean Corrected Intensity	Conc. Units	Calib.	Std.Dev.	Conc. Units	Sample	Std.Dev.	RSD
ScA 357.253	2694565.4	101.7	%	0.18				0.18%
ScR 361.383	215850.0	101.9	%	1.82				1.78%
Ag 328.068†	39.8	0.00013	mg/L	0.000096	0.00013	mg/L	0.000096	71.60%
Al 308.215†	-3.7	-0.00248	mg/L	0.013676	-0.00248	mg/L	0.013676	552.19%
As 188.979†	2.2	0.00093	mg/L	0.000661	0.00093	mg/L	0.000661	70.95%
B 249.677†	2.1	0.00099	mg/L	0.002246	0.00099	mg/L	0.002246	227.07%
Ba 233.527†	9.2	0.00089	mg/L	0.000438	0.00089	mg/L	0.000438	49.10%
Be 313.042†	65.6	0.00025	mg/L	0.000105	0.00025	mg/L	0.000105	42.67%
Ca 317.933†	-21.1	-0.00200	mg/L	0.001141	-0.00200	mg/L	0.001141	57.21%
Cd 228.802†	27.9	0.00033	mg/L	0.000048	0.00033	mg/L	0.000048	14.40%
Co 228.616†	18.7	0.00022	mg/L	0.000086	0.00022	mg/L	0.000086	38.59%
Cr 267.716†	2.2	0.00048	mg/L	0.000628	0.00048	mg/L	0.000628	130.11%
Cu 324.752†	631.1	0.00202	mg/L	0.000062	0.00202	mg/L	0.000062	3.09%
Fe 273.955†	2.6	0.00211	mg/L	0.000969	0.00211	mg/L	0.000969	45.91%
K 766.490†	157.0	0.04356	mg/L	0.005952	0.04356	mg/L	0.005952	13.66%
Mg 279.077†	-2.5	-0.00214	mg/L	0.005591	-0.00214	mg/L	0.005591	261.87%
Mn 257.610†	-3.0	-0.00007	mg/L	0.000061	-0.00007	mg/L	0.000061	84.13%
Mo 202.031†	2.0	0.00011	mg/L	0.000114	0.00011	mg/L	0.000114	106.42%
Na 589.592†	233.7	0.02873	mg/L	0.005703	0.02873	mg/L	0.005703	19.85%
Na 330.237†	1.0	0.03659	mg/L	0.229724	0.03659	mg/L	0.229724	627.90%
Ni 231.604†	2.0	0.00092	mg/L	0.002309	0.00092	mg/L	0.002309	251.58%
Pb 220.353†	12.1	0.00093	mg/L	0.000297	0.00093	mg/L	0.000297	31.88%
Sb 206.836†	10.1	0.00276	mg/L	0.001332	0.00276	mg/L	0.001332	48.20%
Se 196.026†	8.9	0.00462	mg/L	0.001553	0.00462	mg/L	0.001553	33.64%
Si 288.158†	8.2	0.00609	mg/L	0.002276	0.00609	mg/L	0.002276	37.36%
Sn 189.927†	6.7	0.00102	mg/L	0.000144	0.00102	mg/L	0.000144	14.09%
Sr 421.552†	-18.8	-0.00003	mg/L	0.000076	-0.00003	mg/L	0.000076	233.18%
Ti 334.903†	-1.3	-0.00005	mg/L	0.000612	-0.00005	mg/L	0.000612	>999.9%
Tl 190.801†	9.4	0.00256	mg/L	0.002534	0.00256	mg/L	0.002534	98.89%
V 292.402†	-29.6	-0.00014	mg/L	0.000063	-0.00014	mg/L	0.000063	44.72%
Zn 206.200†	2.6	0.00107	mg/L	0.000400	0.00107	mg/L	0.000400	37.51%

=====
Analysis Begun

Start Time: 11/1/2012 12:13:39 PM

Plasma On Time: 11/1/2012 9:01:02 AM

Logged In Analyst: metals

Technique: ICP Continuous

Spectrometer Model: Optima 4300 DV, S/N 077N0060101Autosampler Model: S10

Sample Information File: C:\pe\metals\Sample Information\CRISSET.sif

Batch ID:

Results Data Set: PE121101

Results Library: C:\pe\metals\Results\Results.mdb
=====

Sequence No.: 1

Sample ID: Calib Blank 1

Date Collected: 11/1/2012 12:13:42 PM

Data Type: Original

Nebulizer Parameters: Calib Blank 1

Analyte	Back Pressure	Flow
All	232.0 kPa	0.55 L/min

Mean Data: Calib Blank 1

Analyte	Mean Corrected		RSD	Conc.	Calib Units
	Intensity	Std.Dev.			
ScA 357.253	2710131.8	20389.97	0.75%	102.3	%
ScR 361.383	216445.5	1416.51	0.65%	102.2	%
Ag 328.068†	580.4	11.89	2.05%	[0.00]	mg/L
Al 308.215†	28.0	9.82	35.04%	[0.00]	mg/L
As 188.979†	1.3	2.05	154.00%	[0.00]	mg/L
B 249.677†	-122.2	2.15	1.76%	[0.00]	mg/L
Ba 233.527†	64.0	1.53	2.40%	[0.00]	mg/L
Be 313.042†	612.7	25.08	4.09%	[0.00]	mg/L
Ca 317.933†	-10.2	13.51	132.96%	[0.00]	mg/L
Cd 228.802†	301.2	5.36	1.78%	[0.00]	mg/L
Co 228.616†	310.7	4.38	1.41%	[0.00]	mg/L
Cr 267.716†	4.2	3.23	76.27%	[0.00]	mg/L
Cu 324.752†	1762.9	27.67	1.57%	[0.00]	mg/L
Fe 273.955†	-31.3	1.94	6.19%	[0.00]	mg/L
K 766.490†	2075.2	51.81	2.50%	[0.00]	mg/L
Mg 279.077†	-154.7	0.52	0.34%	[0.00]	mg/L
Mn 257.610†	-63.9	6.51	10.19%	[0.00]	mg/L
Mo 202.031†	-128.2	3.52	2.75%	[0.00]	mg/L
Na 589.592†	129.0	25.26	19.58%	[0.00]	mg/L
Na 330.237†	47.0	13.68	29.12%	[0.00]	mg/L
Ni 231.604†	29.0	2.93	10.12%	[0.00]	mg/L
Pb 220.353†	259.1	5.92	2.29%	[0.00]	mg/L
Sb 206.836†	128.9	3.48	2.70%	[0.00]	mg/L
Se 196.026†	-94.7	2.87	3.03%	[0.00]	mg/L
Si 288.158†	2.1	3.94	192.21%	[0.00]	mg/L
Sn 189.927†	-8.2	2.93	35.52%	[0.00]	mg/L
Sr 421.552†	630.8	12.46	1.97%	[0.00]	mg/L
Ti 334.903†	-75.1	32.85	43.71%	[0.00]	mg/L
Tl 190.801†	21.9	5.73	26.18%	[0.00]	mg/L
V 292.402†	-43.2	34.92	80.77%	[0.00]	mg/L
Zn 206.200†	-27.2	1.05	3.86%	[0.00]	mg/L

=====
Analysis Begun

Start Time: 11/1/2012 12:18:49 PM

Plasma On Time: 11/1/2012 9:01:02 AM

Logged In Analyst: metals

Technique: ICP Continuous

Spectrometer Model: Optima 4300 DV, S/N 077N0060101Autosampler Model: S10

Sample Information File: C:\pe\metals\Sample Information\CRISSET.sif

Batch ID:

Results Data Set: PE121101

Results Library: C:\pe\metals\Results\Results.mdb

=====
Sequence No.: 1

Autosampler Location: 7

Sample ID: CV

Date Collected: 11/1/2012 12:18:52 PM

Data Type: Original

Dilution: 1X

Nebulizer Parameters: CV

Analyte	Back Pressure	Flow
All	232.0 kPa	0.55 L/min

Mean Data: CV

Analyte	Mean Corrected Intensity	Conc. Units	Calib. Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2633249.0	99.43 %	0.349			0.35%
ScR 361.383	217033.1	102.5 %	0.89			0.86%
Ag 328.068†	300317.2	1.008 mg/L	0.0038	1.008 mg/L	0.0038	0.38%
Al 308.215†	3058.1	1.992 mg/L	0.0211	1.992 mg/L	0.0211	1.06%
As 188.979†	4956.8	2.080 mg/L	0.0139	2.080 mg/L	0.0139	0.67%
B 249.677†	2142.8	0.9862 mg/L	0.00445	0.9862 mg/L	0.00445	0.45%
Ba 233.527†	10177.1	0.9898 mg/L	0.00944	0.9898 mg/L	0.00944	0.95%
Be 313.042†	273164.2	1.023 mg/L	0.0015	1.023 mg/L	0.0015	0.14%
Ca 317.933†	21369.6	2.019 mg/L	0.0173	2.019 mg/L	0.0173	0.85%
Cd 228.802†	85915.7	1.023 mg/L	0.0016	1.023 mg/L	0.0016	0.16%
Co 228.616†	83218.6	0.9849 mg/L	0.00072	0.9849 mg/L	0.00072	0.07%
Cr 267.716†	4534.8	0.9902 mg/L	0.00729	0.9902 mg/L	0.00729	0.74%
Cu 324.752†	332156.8	1.061 mg/L	0.0019	1.061 mg/L	0.0019	0.18%
Fe 273.955†	2571.2	2.097 mg/L	0.0207	2.097 mg/L	0.0207	0.99%
K 766.490†	72078.9	20.01 mg/L	0.063	20.01 mg/L	0.063	0.31%
Mg 279.077†	2437.8	2.096 mg/L	0.0223	2.096 mg/L	0.0223	1.07%
Mn 257.610†	40347.9	0.9975 mg/L	0.00050	0.9975 mg/L	0.00050	0.05%
Mo 202.031†	17932.6	0.9689 mg/L	0.00600	0.9689 mg/L	0.00600	0.62%
Na 589.592†	413480.9	50.84 mg/L	0.087	50.84 mg/L	0.087	0.17%
Na 330.237†	1396.9	50.70 mg/L	0.327	50.70 mg/L	0.327	0.65%
Ni 231.604†	2239.3	1.014 mg/L	0.0082	1.014 mg/L	0.0082	0.81%
Pb 220.353†	26542.9	2.055 mg/L	0.0121	2.055 mg/L	0.0121	0.59%
Sb 206.836†	7754.7	2.118 mg/L	0.0145	2.118 mg/L	0.0145	0.68%
Se 196.026†	3886.4	2.020 mg/L	0.0150	2.020 mg/L	0.0150	0.74%
Si 288.158†	2855.2	2.118 mg/L	0.0250	2.118 mg/L	0.0250	1.18%
Sn 189.927†	5985.3	0.9135 mg/L	0.00549	0.9135 mg/L	0.00549	0.60%
Sr 421.552†	588852.4	1.018 mg/L	0.0059	1.018 mg/L	0.0059	0.58%
Ti 334.903†	25617.3	0.9955 mg/L	0.00354	0.9955 mg/L	0.00354	0.36%
Tl 190.801†	7377.6	2.004 mg/L	0.0163	2.004 mg/L	0.0163	0.81%
V 292.402†	204495.3	1.013 mg/L	0.0015	1.013 mg/L	0.0015	0.14%
Zn 206.200†	2606.4	1.069 mg/L	0.0120	1.069 mg/L	0.0120	1.12%

Sequence No.: 2
Sample ID: CB

Autosampler Location: 1
Date Collected: 11/1/2012 12:24:55 PM
Data Type: Original

Dilution: 1X

Nebulizer Parameters: CB

Analyte Back Pressure Flow
All 232.0 kPa 0.55 L/min

Mean Data: CB

Analyte	Mean Corrected		Calib. Conc. Units	Std.Dev.	Sample		RSD
	Intensity	Conc.			Conc.	Units	
ScA 357.253	2710476.7	102.4	%	1.50			1.46%
ScR 361.383	213769.7	101.0	%	1.02			1.01%
Ag 328.068†	-5.2	-0.00002	mg/L	0.000054	-0.00002	mg/L	0.000054 307.41%
Al 308.215†	2.7	0.00178	mg/L	0.004150	0.00178	mg/L	0.004150 233.57%
As 188.979†	-0.1	-0.00006	mg/L	0.001428	-0.00006	mg/L	0.001428 >999.9%
B 249.677†	7.8	0.00359	mg/L	0.002171	0.00359	mg/L	0.002171 60.52%
Ba 233.527†	-3.7	-0.00036	mg/L	0.000185	-0.00036	mg/L	0.000185 51.10%
Be 313.042†	9.3	0.00004	mg/L	0.000039	0.00004	mg/L	0.000039 109.87%
Ca 317.933†	27.9	0.00263	mg/L	0.000219	0.00263	mg/L	0.000219 8.30%
Cd 228.802†	-2.2	-0.00003	mg/L	0.000109	-0.00003	mg/L	0.000109 418.91%
Co 228.616†	-1.9	-0.00002	mg/L	0.000146	-0.00002	mg/L	0.000146 615.62%
Cr 267.716†	5.9	0.00129	mg/L	0.000264	0.00129	mg/L	0.000264 20.42%
Cu 324.752†	-18.2	-0.00006	mg/L	0.000094	-0.00006	mg/L	0.000094 161.72%
Fe 273.955†	-0.3	-0.00024	mg/L	0.000892	-0.00024	mg/L	0.000892 365.82%
K 766.490†	75.1	0.02085	mg/L	0.016415	0.02085	mg/L	0.016415 78.73%
Mg 279.077†	-1.5	-0.00126	mg/L	0.003255	-0.00126	mg/L	0.003255 258.72%
Mn 257.610†	3.9	0.00010	mg/L	0.000047	0.00010	mg/L	0.000047 48.63%
Mo 202.031†	-2.2	-0.00012	mg/L	0.000190	-0.00012	mg/L	0.000190 157.32%
Na 589.592†	190.1	0.02338	mg/L	0.004610	0.02338	mg/L	0.004610 19.72%
Na 330.237†	-2.1	-0.07805	mg/L	0.366111	-0.07805	mg/L	0.366111 469.10%
Ni 231.604†	0.7	0.00031	mg/L	0.000943	0.00031	mg/L	0.000943 301.15%
Pb 220.353†	1.4	0.00011	mg/L	0.001022	0.00011	mg/L	0.001022 942.77%
Sb 206.836†	-0.2	-0.00006	mg/L	0.001422	-0.00006	mg/L	0.001422 >999.9%
Se 196.026†	-1.8	-0.00093	mg/L	0.001506	-0.00093	mg/L	0.001506 161.60%
Si 288.158†	8.2	0.00607	mg/L	0.004564	0.00607	mg/L	0.004564 75.23%
Sn 189.927†	9.4	0.00143	mg/L	0.000152	0.00143	mg/L	0.000152 10.59%
Sr 421.552†	32.5	0.00006	mg/L	0.000107	0.00006	mg/L	0.000107 191.39%
Ti 334.903†	18.4	0.00071	mg/L	0.000746	0.00071	mg/L	0.000746 104.46%
Tl 190.801†	1.5	0.00040	mg/L	0.001247	0.00040	mg/L	0.001247 308.30%
V 292.402†	-25.3	-0.00012	mg/L	0.000101	-0.00012	mg/L	0.000101 87.12%
Zn 206.200†	0.7	0.00028	mg/L	0.000324	0.00028	mg/L	0.000324 117.54%

Sequence No.: 3
 Sample ID: CRI

Autosampler Location: 21
 Date Collected: 11/1/2012 12:30:53 PM
 Data Type: Original

Dilution: 1X

Nebulizer Parameters: CRI

Analyte Back Pressure Flow
 All 232.0 kPa 0.55 L/min

Mean Data: CRI

Analyte	Mean Corrected Intensity	Calib. Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2725519.0	102.9 %	0.76			0.74%
ScR 361.383	217319.7	102.6 %	1.29			1.26%
Ag 328.068†	890.0	0.00299 mg/L	0.000084	0.00299 mg/L	0.000084	2.82%
Al 308.215†	79.9	0.05294 mg/L	0.007970	0.05294 mg/L	0.007970	15.05%
As 188.979†	124.2	0.05215 mg/L	0.000501	0.05215 mg/L	0.000501	0.96%
B 249.677†	47.8	0.02202 mg/L	0.000503	0.02202 mg/L	0.000503	2.28%
Ba 233.527†	30.4	0.00295 mg/L	0.000201	0.00295 mg/L	0.000201	6.83%
Be 313.042†	285.3	0.00106 mg/L	0.000020	0.00106 mg/L	0.000020	1.90%
Ca 317.933†	557.6	0.05267 mg/L	0.002177	0.05267 mg/L	0.002177	4.13%
Cd 228.802†	168.3	0.00189 mg/L	0.000034	0.00189 mg/L	0.000034	1.78%
Co 228.616†	267.8	0.00316 mg/L	0.000027	0.00316 mg/L	0.000027	0.86%
Cr 267.716†	28.7	0.00626 mg/L	0.000279	0.00626 mg/L	0.000279	4.46%
Cu 324.752†	440.1	0.00141 mg/L	0.000015	0.00141 mg/L	0.000015	1.09%
Fe 273.955†	65.9	0.05379 mg/L	0.000359	0.05379 mg/L	0.000359	0.67%
K 766.490†	1844.9	0.5120 mg/L	0.00390	0.5120 mg/L	0.00390	0.76%
Mg 279.077†	62.5	0.05363 mg/L	0.004148	0.05363 mg/L	0.004148	7.73%
Mn 257.610†	44.4	0.00110 mg/L	0.000078	0.00110 mg/L	0.000078	7.08%
Mo 202.031†	89.8	0.00485 mg/L	0.000366	0.00485 mg/L	0.000366	7.55%
Na 589.592†	4234.0	0.5205 mg/L	0.00758	0.5205 mg/L	0.00758	1.46%
Na 330.237†	15.2	0.5507 mg/L	0.72771	0.5507 mg/L	0.72771	132.13%
Ni 231.604†	25.8	0.01168 mg/L	0.002131	0.01168 mg/L	0.002131	18.25%
Pb 220.353†	261.8	0.02028 mg/L	0.000880	0.02028 mg/L	0.000880	4.34%
Sb 206.836†	184.7	0.05051 mg/L	0.000839	0.05051 mg/L	0.000839	1.66%
Se 196.026†	94.8	0.04932 mg/L	0.000055	0.04932 mg/L	0.000055	0.11%
Si 288.158†	118.8	0.08790 mg/L	0.000496	0.08790 mg/L	0.000496	0.56%
Sn 189.927†	60.1	0.00917 mg/L	0.000205	0.00917 mg/L	0.000205	2.24%
Sr 421.552†	625.8	0.00108 mg/L	0.000056	0.00108 mg/L	0.000056	5.19%
Ti 334.903†	137.5	0.00534 mg/L	0.000386	0.00534 mg/L	0.000386	7.22%
Tl 190.801†	172.7	0.04717 mg/L	0.001569	0.04717 mg/L	0.001569	3.33%
V 292.402†	635.8	0.00318 mg/L	0.000085	0.00318 mg/L	0.000085	2.66%
Zn 206.200†	24.0	0.00986 mg/L	0.000699	0.00986 mg/L	0.000699	7.09%

Sequence No.: 4
Sample ID: ICSA

Autosampler Location: 22
Date Collected: 11/1/2012 12:36:53 PM
Data Type: Original

Dilution: 1X

Nebulizer Parameters: ICSA

Analyte	Back Pressure	Flow
All	232.0 kPa	0.55 L/min

Mean Data: ICSA

Analyte	Mean Corrected		Calib. Units	Std.Dev.	Sample		Std.Dev.	RSD
	Intensity	Conc.			Conc.	Units		
ScA 357.253	2657159.0	100.3	%	1.66				1.65%
ScR 361.383	220195.9	104.0	%	1.21				1.16%
Ag 328.068†	-1831.9	-0.00089	mg/L	0.000127	-0.00089	mg/L	0.000127	14.19%
Al 308.215†	286248.3	190.4	mg/L	2.56	190.4	mg/L	2.56	1.35%
As 188.979†	-6.9	-0.00284	mg/L	0.002083	-0.00284	mg/L	0.002083	73.24%
B 249.677†	0.4	0.00016	mg/L	0.003970	0.00016	mg/L	0.003970	>999.9%
Ba 233.527†	79.3	-0.00115	mg/L	0.000112	-0.00115	mg/L	0.000112	9.75%
Be 313.042†	-22.9	-0.00013	mg/L	0.000016	-0.00013	mg/L	0.000016	11.89%
Ca 317.933†	993818.7	93.88	mg/L	1.189	93.88	mg/L	1.189	1.27%
Cd 228.802†	76.5	0.00092	mg/L	0.000094	0.00092	mg/L	0.000094	10.15%
Co 228.616†	143.3	-0.00053	mg/L	0.000029	-0.00053	mg/L	0.000029	5.59%
Cr 267.716†	17.7	0.00386	mg/L	0.000585	0.00386	mg/L	0.000585	15.15%
Cu 324.752†	-4977.9	0.00009	mg/L	0.000397	0.00009	mg/L	0.000397	442.99%
Fe 273.955†	234359.9	191.2	mg/L	3.38	191.2	mg/L	3.38	1.77%
K 766.490†	-36.8	-0.01022	mg/L	0.026871	-0.01022	mg/L	0.026871	262.90%
Mg 279.077†	114646.6	98.32	mg/L	1.301	98.32	mg/L	1.301	1.32%
Mn 257.610†	30.6	-0.00055	mg/L	0.000109	-0.00055	mg/L	0.000109	19.67%
Mo 202.031†	-170.2	-0.00643	mg/L	0.000759	-0.00643	mg/L	0.000759	11.80%
Na 589.592†	203.6	0.02503	mg/L	0.008479	0.02503	mg/L	0.008479	33.87%
Na 330.237†	5.6	-0.2091	mg/L	0.49364	-0.2091	mg/L	0.49364	236.04%
Ni 231.604†	8.2	0.00375	mg/L	0.002062	0.00375	mg/L	0.002062	54.93%
Pb 220.353†	-693.9	0.00630	mg/L	0.001606	0.00630	mg/L	0.001606	25.49%
Sb 206.836†	150.0	0.02301	mg/L	0.002754	0.02301	mg/L	0.002754	11.97%
Se 196.026†	-122.2	-0.06362	mg/L	0.004118	-0.06362	mg/L	0.004118	6.47%
Si 288.158†	-2.1	0.01022	mg/L	0.007194	0.01022	mg/L	0.007194	70.38%
Sn 189.927†	-47.0	0.01518	mg/L	0.000403	0.01518	mg/L	0.000403	2.65%
Sr 421.552†	2286.6	0.00395	mg/L	0.000068	0.00395	mg/L	0.000068	1.72%
Ti 334.903†	171.8	0.00209	mg/L	0.000240	0.00209	mg/L	0.000240	11.47%
Tl 190.801†	-41.1	-0.01134	mg/L	0.001447	-0.01134	mg/L	0.001447	12.76%
V 292.402†	3752.7	0.00019	mg/L	0.000375	0.00019	mg/L	0.000375	194.51%
Zn 206.200†	-20.3	-0.00635	mg/L	0.001039	-0.00635	mg/L	0.001039	16.38%

Sequence No.: 5
Sample ID: ICSAB

Autosampler Location: 23
Date Collected: 11/1/2012 12:42:56 PM
Data Type: Original

Dilution: 1X

Nebulizer Parameters: ICSAB

Analyte Back Pressure Flow
All 232.0 kPa 0.55 L/min

Mean Data: ICSAB

Analyte	Mean Corrected		Calib. Conc. Units	Std.Dev.	Sample		RSD
	Intensity				Conc. Units	Std.Dev.	
ScA 357.253	2618195.3		98.87 %	0.287			0.29%
ScR 361.383	217326.8		102.6 %	0.56			0.55%
Ag 328.068†	296557.3		1.000 mg/L	0.0016	1.000 mg/L	0.0016	0.16%
Al 308.215†	289283.6		192.4 mg/L	0.12	192.4 mg/L	0.12	0.06%
As 188.979†	2367.1		0.9935 mg/L	0.00367	0.9935 mg/L	0.00367	0.37%
B 249.677†	15.9		0.00432 mg/L	0.003038	0.00432 mg/L	0.003038	70.37%
Ba 233.527†	9687.5		0.9332 mg/L	0.00057	0.9332 mg/L	0.00057	0.06%
Be 313.042†	265418.8		0.9943 mg/L	0.00242	0.9943 mg/L	0.00242	0.24%
Ca 317.933†	1004608.9		94.90 mg/L	0.097	94.90 mg/L	0.097	0.10%
Cd 228.802†	81303.6		0.9705 mg/L	0.00073	0.9705 mg/L	0.00073	0.08%
Co 228.616†	76215.7		0.9012 mg/L	0.00146	0.9012 mg/L	0.00146	0.16%
Cr 267.716†	4283.7		0.9356 mg/L	0.00194	0.9356 mg/L	0.00194	0.21%
Cu 324.752†	308817.9		1.003 mg/L	0.0022	1.003 mg/L	0.0022	0.22%
Fe 273.955†	236621.3		193.0 mg/L	0.70	193.0 mg/L	0.70	0.36%
K 766.490†	-69.7		-0.01936 mg/L	0.011128	-0.01936 mg/L	0.011128	57.49%
Mg 279.077†	116250.7		99.70 mg/L	0.030	99.70 mg/L	0.030	0.03%
Mn 257.610†	38058.1		0.9393 mg/L	0.00053	0.9393 mg/L	0.00053	0.06%
Mo 202.031†	-173.1		-0.00674 mg/L	0.000336	-0.00674 mg/L	0.000336	4.98%
Na 589.592†	654.9		0.08051 mg/L	0.007693	0.08051 mg/L	0.007693	9.55%
Na 330.237†	18.8		-0.07506 mg/L	0.238557	-0.07506 mg/L	0.238557	317.80%
Ni 231.604†	2052.8		0.9293 mg/L	0.00135	0.9293 mg/L	0.00135	0.15%
Pb 220.353†	11466.1		0.9486 mg/L	0.00376	0.9486 mg/L	0.00376	0.40%
Sb 206.836†	3850.0		1.021 mg/L	0.0018	1.021 mg/L	0.0018	0.17%
Se 196.026†	1784.3		0.9261 mg/L	0.01374	0.9261 mg/L	0.01374	1.48%
Si 288.158†	48.3		0.05188 mg/L	0.008149	0.05188 mg/L	0.008149	15.71%
Sn 189.927†	-52.8		0.01454 mg/L	0.000536	0.01454 mg/L	0.000536	3.69%
Sr 421.552†	2562.9		0.00443 mg/L	0.000047	0.00443 mg/L	0.000047	1.06%
Ti 334.903†	185.0		0.00233 mg/L	0.000505	0.00233 mg/L	0.000505	21.64%
Tl 190.801†	3344.0		0.9020 mg/L	0.00290	0.9020 mg/L	0.00290	0.32%
V 292.402†	196687.8		0.9526 mg/L	0.00356	0.9526 mg/L	0.00356	0.37%
Zn 206.200†	2179.3		0.8962 mg/L	0.00109	0.8962 mg/L	0.00109	0.12%

Sequence No.: 6
Sample ID: CV1

Autosampler Location: 7
Date Collected: 11/1/2012 12:49:56 PM
Data Type: Original

Dilution: 1X

Nebulizer Parameters: CV

Analyte	Back Pressure	Flow
All	233.0 kPa	0.55 L/min

Mean Data: CV

Analyte	Mean Corrected Intensity	Calib. Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2708409.2	102.3 %	1.70			1.66%
ScR 361.383	220178.2	104.0 %	0.91			0.87%
Ag 328.068†	292942.4	0.9828 mg/L	0.00982	0.9828 mg/L	0.00982	1.00%
Al 308.215†	3005.0	1.957 mg/L	0.0330	1.957 mg/L	0.0330	1.69%
As 188.979†	4875.6	2.046 mg/L	0.0392	2.046 mg/L	0.0392	1.92%
B 249.677†	2098.6	0.9658 mg/L	0.01170	0.9658 mg/L	0.01170	1.21%
Ba 233.527†	9952.8	0.9679 mg/L	0.01482	0.9679 mg/L	0.01482	1.53%
Be 313.042†	267057.5	1.000 mg/L	0.0049	1.000 mg/L	0.0049	0.49%
Ca 317.933†	20920.5	1.976 mg/L	0.0332	1.976 mg/L	0.0332	1.68%
Cd 228.802†	84254.7	1.003 mg/L	0.0131	1.003 mg/L	0.0131	1.30%
Co 228.616†	81756.6	0.9676 mg/L	0.00961	0.9676 mg/L	0.00961	0.99%
Cr 267.716†	4448.0	0.9712 mg/L	0.01511	0.9712 mg/L	0.01511	1.56%
Cu 324.752†	325197.8	1.039 mg/L	0.0101	1.039 mg/L	0.0101	0.97%
Fe 273.955†	2531.3	2.064 mg/L	0.0369	2.064 mg/L	0.0369	1.79%
K 766.490†	71255.1	19.78 mg/L	0.093	19.78 mg/L	0.093	0.47%
Mg 279.077†	2391.9	2.057 mg/L	0.0318	2.057 mg/L	0.0318	1.55%
Mn 257.610†	39489.9	0.9763 mg/L	0.00438	0.9763 mg/L	0.00438	0.45%
Mo 202.031†	17564.7	0.9491 mg/L	0.01948	0.9491 mg/L	0.01948	2.05%
Na 589.592†	405073.1	49.80 mg/L	0.287	49.80 mg/L	0.287	0.58%
Na 330.237†	1365.5	49.56 mg/L	1.034	49.56 mg/L	1.034	2.09%
Ni 231.604†	2188.1	0.9907 mg/L	0.01499	0.9907 mg/L	0.01499	1.51%
Pb 220.353†	26048.2	2.017 mg/L	0.0387	2.017 mg/L	0.0387	1.92%
Sb 206.836†	7595.3	2.074 mg/L	0.0432	2.074 mg/L	0.0432	2.08%
Se 196.026†	3808.3	1.979 mg/L	0.0389	1.979 mg/L	0.0389	1.97%
Si 288.158†	2809.2	2.084 mg/L	0.0258	2.084 mg/L	0.0258	1.24%
Sn 189.927†	5859.4	0.8943 mg/L	0.01827	0.8943 mg/L	0.01827	2.04%
Sr 421.552†	579908.0	1.002 mg/L	0.0084	1.002 mg/L	0.0084	0.84%
Ti 334.903†	25069.9	0.9742 mg/L	0.00551	0.9742 mg/L	0.00551	0.57%
Tl 190.801†	7251.3	1.970 mg/L	0.0357	1.970 mg/L	0.0357	1.81%
V 292.402†	200645.3	0.9943 mg/L	0.00972	0.9943 mg/L	0.00972	0.98%
Zn 206.200†	2556.1	1.049 mg/L	0.0177	1.049 mg/L	0.0177	1.69%

Sequence No.: 7
 Sample ID: CB

Autosampler Location: 1
 Date Collected: 11/1/2012 12:55:59 PM
 Data Type: Original

Dilution: 1X

Nebulizer Parameters: CB

Analyte	Back Pressure	Flow
All	233.0 kPa	0.55 L/min

Mean Data: CB

Analyte	Mean Corrected		Calib.		Sample		Std.Dev.	RSD
	Intensity	Conc.	Units	Std.Dev.	Conc.	Units		
ScA 357.253	2709170.9	102.3	%	0.31				0.31%
ScR 361.383	212994.3	100.6	%	0.98				0.98%
Ag 328.068†	13.4	0.00005	mg/L	0.000037	0.00005	mg/L	0.000037	82.70%
Al 308.215†	5.1	0.00338	mg/L	0.014044	0.00338	mg/L	0.014044	415.57%
As 188.979†	0.8	0.00035	mg/L	0.000428	0.00035	mg/L	0.000428	122.88%
B 249.677†	8.6	0.00395	mg/L	0.001308	0.00395	mg/L	0.001308	33.13%
Ba 233.527†	-1.5	-0.00015	mg/L	0.000656	-0.00015	mg/L	0.000656	443.22%
Be 313.042†	7.4	0.00003	mg/L	0.000023	0.00003	mg/L	0.000023	84.23%
Ca 317.933†	-2.2	-0.00021	mg/L	0.000908	-0.00021	mg/L	0.000908	431.73%
Cd 228.802†	17.3	0.00021	mg/L	0.000034	0.00021	mg/L	0.000034	16.35%
Co 228.616†	-1.4	-0.00002	mg/L	0.000115	-0.00002	mg/L	0.000115	644.11%
Cr 267.716†	6.5	0.00142	mg/L	0.001127	0.00142	mg/L	0.001127	79.40%
Cu 324.752†	54.2	0.00017	mg/L	0.000272	0.00017	mg/L	0.000272	157.17%
Fe 273.955†	5.6	0.00459	mg/L	0.001521	0.00459	mg/L	0.001521	33.16%
K 766.490†	185.6	0.05152	mg/L	0.015556	0.05152	mg/L	0.015556	30.20%
Mg 279.077†	-6.0	-0.00519	mg/L	0.001857	-0.00519	mg/L	0.001857	35.78%
Mn 257.610†	3.1	0.00008	mg/L	0.000041	0.00008	mg/L	0.000041	53.85%
Mo 202.031†	0.7	0.00004	mg/L	0.000121	0.00004	mg/L	0.000121	310.92%
Na 589.592†	217.2	0.02670	mg/L	0.005712	0.02670	mg/L	0.005712	21.39%
Na 330.237†	9.1	0.3317	mg/L	0.16164	0.3317	mg/L	0.16164	48.73%
Ni 231.604†	2.2	0.00099	mg/L	0.000294	0.00099	mg/L	0.000294	29.65%
Pb 220.353†	6.7	0.00052	mg/L	0.000389	0.00052	mg/L	0.000389	74.22%
Sb 206.836†	0.5	0.00013	mg/L	0.000671	0.00013	mg/L	0.000671	519.96%
Se 196.026†	2.3	0.00119	mg/L	0.003186	0.00119	mg/L	0.003186	266.70%
Si 288.158†	3.3	0.00245	mg/L	0.002866	0.00245	mg/L	0.002866	116.74%
Sn 189.927†	9.5	0.00144	mg/L	0.000349	0.00144	mg/L	0.000349	24.18%
Sr 421.552†	99.2	0.00017	mg/L	0.000070	0.00017	mg/L	0.000070	40.98%
Ti 334.903†	14.5	0.00056	mg/L	0.000930	0.00056	mg/L	0.000930	165.45%
Tl 190.801†	5.0	0.00137	mg/L	0.000484	0.00137	mg/L	0.000484	35.18%
V 292.402†	34.9	0.00018	mg/L	0.000174	0.00018	mg/L	0.000174	96.61%
Zn 206.200†	2.3	0.00094	mg/L	0.000837	0.00094	mg/L	0.000837	88.76%

=====
Analysis Begun

Start Time: 11/1/2012 1:03:05 PM
Logged In Analyst: metals
Spectrometer Model: Optima 4300 DV, S/N 077N0060101

Plasma On Time: 11/1/2012 9:01:02 AM
Technique: ICP Continuous
Autosampler Model: S10

Sample Information File: C:\pe\metals\Sample Information\1101.sif
Batch ID:
Results Data Set: PE121101
Results Library: C:\pe\metals\Results\Results.mdb

Sequence No.: 1

Autosampler Location: 24

Sample ID: VP23 MB2 WMN
Analyst: EL
Dilution: 1X

Date Collected: 11/1/2012 1:03:07 PM
Data Type: Original

Nebulizer Parameters: VP23 MB2 WMN

Analyte Back Pressure Flow
All 232.0 kPa 0.55 L/min

Mean Data: VP23 MB2 WMN

Analyte	Mean Corrected		Calib. Units	Std.Dev.	Sample		Std.Dev.	RSD
	Intensity	Conc.			Conc.	Units		
ScA 357.253	2770538.4	104.6	%	0.85				0.81%
ScR 361.383	222018.1	104.8	%	1.28				1.22%
Ag 328.068†	-31.4	-0.00011	mg/L	0.000162	-0.00011	mg/L	0.000162	153.14%
Al 308.215†	-3.8	-0.00256	mg/L	0.009660	-0.00256	mg/L	0.009660	378.06%
As 188.979†	0.1	0.00003	mg/L	0.001240	0.00003	mg/L	0.001240	>999.9%
B 249.677†	2.2	0.00103	mg/L	0.000611	0.00103	mg/L	0.000611	59.19%
Ba 233.527†	-1.3	-0.00012	mg/L	0.000415	-0.00012	mg/L	0.000415	338.65%
Be 313.042†	-12.8	-0.00005	mg/L	0.000068	-0.00005	mg/L	0.000068	140.82%
Ca 317.933†	31.9	0.00301	mg/L	0.002809	0.00301	mg/L	0.002809	93.24%
Cd 228.802†	-5.1	-0.00006	mg/L	0.000064	-0.00006	mg/L	0.000064	104.09%
Co 228.616†	-13.1	-0.00016	mg/L	0.000053	-0.00016	mg/L	0.000053	33.95%
Cr 267.716†	2.2	0.00049	mg/L	0.000718	0.00049	mg/L	0.000718	147.27%
Cu 324.752†	-620.9	-0.00198	mg/L	0.000018	-0.00198	mg/L	0.000018	0.93%
Fe 273.955†	-2.5	-0.00206	mg/L	0.001831	-0.00206	mg/L	0.001831	88.70%
K 766.490†	-59.8	-0.01661	mg/L	0.027527	-0.01661	mg/L	0.027527	165.78%
Mg 279.077†	1.6	0.00141	mg/L	0.003382	0.00141	mg/L	0.003382	239.50%
Mn 257.610†	-4.9	-0.00012	mg/L	0.000063	-0.00012	mg/L	0.000063	51.74%
Mo 202.031†	2.6	0.00014	mg/L	0.000046	0.00014	mg/L	0.000046	32.76%
Na 589.592†	-42.6	-0.00524	mg/L	0.004269	-0.00524	mg/L	0.004269	81.51%
Na 330.237†	5.1	0.1863	mg/L	0.79704	0.1863	mg/L	0.79704	427.76%
Ni 231.604†	-3.8	-0.00170	mg/L	0.001926	-0.00170	mg/L	0.001926	113.15%
Pb 220.353†	-6.1	-0.00047	mg/L	0.000317	-0.00047	mg/L	0.000317	67.12%
Sb 206.836†	-9.8	-0.00268	mg/L	0.000339	-0.00268	mg/L	0.000339	12.67%
Se 196.026†	9.7	0.00506	mg/L	0.003410	0.00506	mg/L	0.003410	67.35%
Si 288.158†	1.6	0.00116	mg/L	0.001951	0.00116	mg/L	0.001951	168.06%
Sn 189.927†	5.4	0.00082	mg/L	0.000525	0.00082	mg/L	0.000525	64.17%
Sr 421.552†	68.7	0.00012	mg/L	0.000070	0.00012	mg/L	0.000070	58.60%
Ti 334.903†	5.6	0.00022	mg/L	0.000666	0.00022	mg/L	0.000666	304.54%
Tl 190.801†	-5.1	-0.00139	mg/L	0.000819	-0.00139	mg/L	0.000819	58.82%
V 292.402†	33.4	0.00017	mg/L	0.000124	0.00017	mg/L	0.000124	73.93%
Zn 206.200†	0.7	0.00029	mg/L	0.000388	0.00029	mg/L	0.000388	131.59%

Sequence No.: 2
 Sample ID: VO93 MB SWC
 Analyst: EL
 Dilution: 2X

Autosampler Location: 25
 Date Collected: 11/1/2012 1:09:07 PM
 Data Type: Original

Nebulizer Parameters: VO93 MB SWC

Analyte Back Pressure Flow
 All 232.0 kPa 0.55 L/min

Mean Data: VO93 MB SWC

Analyte	Mean Corrected		Calib. Units	Std.Dev.	Sample		Std.Dev.	RSD
	Intensity	Conc.			Conc.	Units		
ScA 357.253	2700243.4	102.0	%	0.65				0.64%
ScR 361.383	214834.4	101.5	%	1.26				1.24%
Ag 328.068†	-11.0	-0.00004	mg/L	0.000298	-0.00007	mg/L	0.000596	805.30%
Al 308.215†	4.7	0.00309	mg/L	0.012153	0.00618	mg/L	0.024305	392.98%
As 188.979†	-0.2	-0.00007	mg/L	0.001269	-0.00014	mg/L	0.002537	>999.9%
B 249.677†	2.3	0.00106	mg/L	0.001329	0.00213	mg/L	0.002657	124.83%
Ba 233.527†	-2.8	-0.00028	mg/L	0.000083	-0.00055	mg/L	0.000165	30.05%
Be 313.042†	0.0	0.00000	mg/L	0.000074	0.00000	mg/L	0.000147	>999.9%
Ca 317.933†	168.2	0.01589	mg/L	0.000971	0.03178	mg/L	0.001942	6.11%
Cd 228.802†	0.4	0.00001	mg/L	0.000097	0.00001	mg/L	0.000193	>999.9%
Co 228.616†	2.7	0.00003	mg/L	0.000109	0.00006	mg/L	0.000218	372.99%
Cr 267.716†	6.0	0.00132	mg/L	0.000465	0.00264	mg/L	0.000930	35.17%
Cu 324.752†	-182.1	-0.00058	mg/L	0.000206	-0.00116	mg/L	0.000412	35.45%
Fe 273.955†	5.1	0.00420	mg/L	0.001272	0.00840	mg/L	0.002544	30.30%
K 766.490†	15.7	0.00434	mg/L	0.018420	0.00869	mg/L	0.036840	424.03%
Mg 279.077†	1.7	0.00145	mg/L	0.001517	0.00290	mg/L	0.003033	104.55%
Mn 257.610†	-2.9	-0.00007	mg/L	0.000038	-0.00014	mg/L	0.000076	52.98%
Mo 202.031†	-1.5	-0.00008	mg/L	0.000263	-0.00016	mg/L	0.000526	322.65%
Na 589.592†	70.2	0.00863	mg/L	0.003335	0.01727	mg/L	0.006669	38.62%
Na 330.237†	-1.4	-0.05001	mg/L	0.188603	-0.1000	mg/L	0.37721	377.12%
Ni 231.604†	2.5	0.00112	mg/L	0.002581	0.00224	mg/L	0.005161	230.67%
Pb 220.353†	8.8	0.00069	mg/L	0.000895	0.00137	mg/L	0.001790	130.30%
Sb 206.836†	2.5	0.00067	mg/L	0.000390	0.00133	mg/L	0.000779	58.47%
Se 196.026†	-1.2	-0.00065	mg/L	0.002293	-0.00130	mg/L	0.004586	353.56%
Si 288.158†	15.6	0.01150	mg/L	0.001618	0.02301	mg/L	0.003236	14.07%
Sn 189.927†	1.2	0.00019	mg/L	0.000521	0.00038	mg/L	0.001041	275.50%
Sr 421.552†	75.1	0.00013	mg/L	0.000079	0.00026	mg/L	0.000158	60.69%
Ti 334.903†	32.9	0.00128	mg/L	0.000267	0.00256	mg/L	0.000535	20.91%
Tl 190.801†	-7.4	-0.00201	mg/L	0.000062	-0.00403	mg/L	0.000123	3.06%
V 292.402†	12.5	0.00007	mg/L	0.000118	0.00014	mg/L	0.000237	172.23%
Zn 206.200†	4.1	0.00168	mg/L	0.000537	0.00335	mg/L	0.001074	32.07%

Sequence No.: 3
 Sample ID: V093 H SWC
 Analyst: EL
 Dilution: 2X

Autosampler Location: 26
 Date Collected: 11/1/2012 1:15:07 PM
 Data Type: Original

Nebulizer Parameters: V093 H SWC

Analyte Back Pressure Flow
 All 232.0 kPa 0.55 L/min

Mean Data: V093 H SWC

Analyte	Mean Corrected		Calib.		Sample		Std.Dev.	RSD
	Intensity	Conc.	Units	Std.Dev.	Conc.	Units		
ScA 357.253	2635107.2	99.50	%	0.120				0.12%
ScR 361.383	216212.0	102.1	%	1.86				1.82%
Ag 328.068†	104093.8	0.3501	mg/L	0.00014	0.7001	mg/L	0.00027	0.04%
Al 308.215†	239495.3	159.2	mg/L	2.10	318.4	mg/L	4.21	1.32%
As 188.979†	1210.3	0.5066	mg/L	0.00019	1.013	mg/L	0.0004	0.04%
B 249.677†	2743.7	1.260	mg/L	0.0235	2.519	mg/L	0.0470	1.87%
Ba 233.527†	59805.7	5.815	mg/L	0.0937	11.63	mg/L	0.187	1.61%
Be 313.042†	452628.3	1.694	mg/L	0.0221	3.388	mg/L	0.0441	1.30%
Ca 317.933†	364621.2	34.44	mg/L	0.425	68.89	mg/L	0.850	1.23%
Cd 228.802†	178185.6	2.131	mg/L	0.0065	4.262	mg/L	0.0129	0.30%
Co 228.616†	215110.8	2.547	mg/L	0.0037	5.093	mg/L	0.0074	0.15%
Cr 267.716†	5374.0	1.173	mg/L	0.0213	2.345	mg/L	0.0427	1.82%
Cu 324.752†	452081.6	1.449	mg/L	0.0016	2.897	mg/L	0.0032	0.11%
Fe 273.955†	67954.6	55.44	mg/L	0.733	110.9	mg/L	1.47	1.32%
K 766.490†	93693.5	26.00	mg/L	0.343	52.01	mg/L	0.686	1.32%
Mg 279.077†	53907.3	46.26	mg/L	0.764	92.52	mg/L	1.528	1.65%
Mn 257.610†	203274.9	5.023	mg/L	0.0639	10.05	mg/L	0.128	1.27%
Mo 202.031†	27928.6	1.512	mg/L	0.0015	3.023	mg/L	0.0031	0.10%
Na 589.592†	23576.0	2.899	mg/L	0.0419	5.797	mg/L	0.0839	1.45%
Na 330.237†	103.3	2.246	mg/L	0.4867	4.492	mg/L	0.9734	21.67%
Ni 231.604†	7246.2	3.279	mg/L	0.0492	6.558	mg/L	0.0985	1.50%
Pb 220.353†	41536.5	3.268	mg/L	0.0035	6.536	mg/L	0.0070	0.11%
Sb 206.836†	1281.9	0.3443	mg/L	0.00173	0.6886	mg/L	0.00345	0.50%
Se 196.026†	2837.0	1.468	mg/L	0.0119	2.935	mg/L	0.0238	0.81%
Si 288.158†	6512.2	4.832	mg/L	0.0498	9.664	mg/L	0.0995	1.03%
Sn 189.927†	4758.8	0.7344	mg/L	0.00122	1.469	mg/L	0.0024	0.17%
Sr 421.552†	1277222.7	2.208	mg/L	0.0276	4.416	mg/L	0.0551	1.25%
Ti 334.903†	26093.1	1.012	mg/L	0.0131	2.024	mg/L	0.0263	1.30%
Tl 190.801†	7300.1	1.962	mg/L	0.0014	3.925	mg/L	0.0027	0.07%
V 292.402†	453615.9	2.234	mg/L	0.0080	4.468	mg/L	0.0161	0.36%
Zn 206.200†	10035.0	4.121	mg/L	0.0580	8.242	mg/L	0.1160	1.41%

Sequence No.: 4
 Sample ID: VP23 I WMN
 Analyst: EL
 Dilution: 1X

Autosampler Location: 27
 Date Collected: 11/1/2012 1:20:28 PM
 Data Type: Original

Nebulizer Parameters: VP23 I WMN

Analyte Back Pressure Flow
 All 232.0 kPa 0.55 L/min

Mean Data: VP23 I WMN

Analyte	Mean Corrected		Calib. Units	Std.Dev.	Sample		RSD
	Intensity	Conc.			Conc.	Units	
ScA 357.253	2727351.4	103.0	%	1.43			1.39%
ScR 361.383	222034.4	104.9	%	2.06			1.96%
Ag 328.068†	111.3	-0.00057	mg/L	0.000199	-0.00057	mg/L	0.000199 34.73%
Al 308.215†	8.6	0.00558	mg/L	0.004007	0.00558	mg/L	0.004007 71.86%
As 188.979†	4.4	0.00182	mg/L	0.000775	0.00182	mg/L	0.000775 42.46%
B 249.677†	73.0	0.03366	mg/L	0.001580	0.03366	mg/L	0.001580 4.69%
Ba 233.527†	356.8	0.03471	mg/L	0.001092	0.03471	mg/L	0.001092 3.15%
Be 313.042†	-9.6	-0.00004	mg/L	0.000030	-0.00004	mg/L	0.000030 72.54%
Ca 317.933†	867513.6	81.95	mg/L	1.569	81.95	mg/L	1.569 1.91%
Cd 228.802†	-3.8	-0.00005	mg/L	0.000008	-0.00005	mg/L	0.000008 16.98%
Co 228.616†	-7.2	-0.00011	mg/L	0.000067	-0.00011	mg/L	0.000067 61.42%
Cr 267.716†	20.9	0.00455	mg/L	0.000433	0.00455	mg/L	0.000433 9.53%
Cu 324.752†	-93.1	-0.00030	mg/L	0.000140	-0.00030	mg/L	0.000140 47.25%
Fe 273.955†	61.2	0.04991	mg/L	0.002541	0.04991	mg/L	0.002541 5.09%
K 766.490†	13229.1	3.672	mg/L	0.1049	3.672	mg/L	0.1049 2.86%
Mg 279.077†	57019.6	48.95	mg/L	1.242	48.95	mg/L	1.242 2.54%
Mn 257.610†	3357.1	0.08295	mg/L	0.001565	0.08295	mg/L	0.001565 1.89%
Mo 202.031†	72.2	0.00331	mg/L	0.000094	0.00331	mg/L	0.000094 2.84%
Na 589.592†	154811.8	19.03	mg/L	0.366	19.03	mg/L	0.366 1.92%
Na 330.237†	545.4	19.52	mg/L	0.839	19.52	mg/L	0.839 4.30%
Ni 231.604†	18.7	0.00846	mg/L	0.001707	0.00846	mg/L	0.001707 20.16%
Pb 220.353†	-32.5	-0.00040	mg/L	0.000367	-0.00040	mg/L	0.000367 90.82%
Sb 206.836†	-10.1	-0.00289	mg/L	0.001517	-0.00289	mg/L	0.001517 52.59%
Se 196.026†	20.3	0.01052	mg/L	0.002963	0.01052	mg/L	0.002963 28.17%
Si 288.158†	23588.1	17.45	mg/L	0.367	17.45	mg/L	0.367 2.10%
Sn 189.927†	-29.9	0.01406	mg/L	0.000966	0.01406	mg/L	0.000966 6.87%
Sr 421.552†	275600.3	0.4764	mg/L	0.00966	0.4764	mg/L	0.00966 2.03%
Ti 334.903†	162.3	0.00229	mg/L	0.000330	0.00229	mg/L	0.000330 14.39%
Tl 190.801†	-15.0	-0.00421	mg/L	0.001190	-0.00421	mg/L	0.001190 28.30%
V 292.402†	386.5	0.00195	mg/L	0.000144	0.00195	mg/L	0.000144 7.38%
Zn 206.200†	-1.9	0.00098	mg/L	0.000875	0.00098	mg/L	0.000875 88.82%

Sequence No.: 5
 Sample ID: VP23 J WMN
 Analyst: EL
 Dilution: 1X

Autosampler Location: 28
 Date Collected: 11/1/2012 1:26:45 PM
 Data Type: Original

Nebulizer Parameters: VP23 J WMN

Analyte Back Pressure Flow
 All 233.0 kPa 0.55 L/min

Mean Data: VP23 J WMN

Analyte	Mean Corrected		Calib. Units	Std.Dev.	Sample		Std.Dev.	RSD
	Intensity	Conc.			Conc.	Units		
ScA 357.253	2710038.9	102.3	%	0.16				0.16%
ScR 361.383	216247.8	102.1	%	0.89				0.87%
Ag 328.068†	42.1	-0.00007	mg/L	0.000027	-0.00007	mg/L	0.000027	36.18%
Al 308.215†	21.0	0.01392	mg/L	0.007200	0.01392	mg/L	0.007200	51.72%
As 188.979†	1.5	0.00063	mg/L	0.000897	0.00063	mg/L	0.000897	142.82%
B 249.677†	63.1	0.02908	mg/L	0.002565	0.02908	mg/L	0.002565	8.82%
Ba 233.527†	108.7	0.01057	mg/L	0.000395	0.01057	mg/L	0.000395	3.74%
Be 313.042†	-9.9	-0.00004	mg/L	0.000073	-0.00004	mg/L	0.000073	188.44%
Ca 317.933†	197983.1	18.70	mg/L	0.119	18.70	mg/L	0.119	0.63%
Cd 228.802†	1.8	0.00002	mg/L	0.000058	0.00002	mg/L	0.000058	286.26%
Co 228.616†	-13.6	-0.00017	mg/L	0.000061	-0.00017	mg/L	0.000061	36.04%
Cr 267.716†	13.4	0.00292	mg/L	0.000492	0.00292	mg/L	0.000492	16.84%
Cu 324.752†	132.9	0.00043	mg/L	0.000133	0.00043	mg/L	0.000133	30.73%
Fe 273.955†	129.7	0.1058	mg/L	0.00175	0.1058	mg/L	0.00175	1.65%
K 766.490†	13691.6	3.800	mg/L	0.0112	3.800	mg/L	0.0112	0.29%
Mg 279.077†	11954.0	10.26	mg/L	0.054	10.26	mg/L	0.054	0.53%
Mn 257.610†	1143.6	0.02826	mg/L	0.000292	0.02826	mg/L	0.000292	1.03%
Mo 202.031†	25.7	0.00126	mg/L	0.000097	0.00126	mg/L	0.000097	7.69%
Na 589.592†	65928.6	8.106	mg/L	0.0182	8.106	mg/L	0.0182	0.22%
Na 330.237†	229.3	8.274	mg/L	0.3330	8.274	mg/L	0.3330	4.03%
Ni 231.604†	4.0	0.00182	mg/L	0.001039	0.00182	mg/L	0.001039	57.16%
Pb 220.353†	-2.9	0.00026	mg/L	0.000449	0.00026	mg/L	0.000449	170.51%
Sb 206.836†	-2.0	-0.00062	mg/L	0.000769	-0.00062	mg/L	0.000769	124.87%
Se 196.026†	0.3	0.00018	mg/L	0.002850	0.00018	mg/L	0.002850	>999.9%
Si 288.158†	11803.4	8.728	mg/L	0.0467	8.728	mg/L	0.0467	0.54%
Sn 189.927†	-7.3	0.00312	mg/L	0.000492	0.00312	mg/L	0.000492	15.79%
Sr 421.552†	64819.5	0.1120	mg/L	0.00035	0.1120	mg/L	0.00035	0.31%
Ti 334.903†	46.6	0.00089	mg/L	0.000997	0.00089	mg/L	0.000997	111.49%
Tl 190.801†	-8.7	-0.00241	mg/L	0.000779	-0.00241	mg/L	0.000779	32.25%
V 292.402†	134.9	0.00068	mg/L	0.000043	0.00068	mg/L	0.000043	6.27%
Zn 206.200†	2.3	0.00135	mg/L	0.001122	0.00135	mg/L	0.001122	83.33%

Sequence No.: 6

Autosampler Location: 29

Sample ID: VP23 K WMN

Date Collected: 11/1/2012 1:32:46 PM

Analyst: EL

Data Type: Original

Dilution: 1X

Nebulizer Parameters: VP23 K WMN

Analyte	Back Pressure	Flow
All	233.0 kPa	0.55 L/min

Mean Data: VP23 K WMN

Analyte	Mean Corrected		Calib. Conc. Units	Std.Dev.	Sample		RSD
	Intensity				Conc. Units	Std.Dev.	
ScA 357.253	2772180.8	104.7 %		0.24			0.23%
ScR 361.383	222752.7	105.2 %		0.40			0.38%
Ag 328.068†	3.3	-0.00020 mg/L	0.000169	-0.00020 mg/L	0.000169	85.00%	
Al 308.215†	31.7	0.02103 mg/L	0.004518	0.02103 mg/L	0.004518	21.49%	
As 188.979†	2.8	0.00116 mg/L	0.001433	0.00116 mg/L	0.001433	123.56%	
B 249.677†	62.2	0.02866 mg/L	0.000958	0.02866 mg/L	0.000958	3.34%	
Ba 233.527†	108.3	0.01052 mg/L	0.000262	0.01052 mg/L	0.000262	2.49%	
Be 313.042†	-39.4	-0.00015 mg/L	0.000021	-0.00015 mg/L	0.000021	13.84%	
Ca 317.933†	193450.0	18.27 mg/L	0.055	18.27 mg/L	0.055	0.30%	
Cd 228.802†	0.6	0.00000 mg/L	0.000100	0.00000 mg/L	0.000100	>999.9%	
Co 228.616†	-19.9	-0.00025 mg/L	0.000052	-0.00025 mg/L	0.000052	20.75%	
Cr 267.716†	7.7	0.00167 mg/L	0.000762	0.00167 mg/L	0.000762	45.67%	
Cu 324.752†	119.3	0.00040 mg/L	0.000115	0.00040 mg/L	0.000115	28.76%	
Fe 273.955†	285.7	0.2331 mg/L	0.00392	0.2331 mg/L	0.00392	1.68%	
K 766.490†	13058.7	3.624 mg/L	0.0207	3.624 mg/L	0.0207	0.57%	
Mg 279.077†	11649.4	10.00 mg/L	0.035	10.00 mg/L	0.035	0.35%	
Mn 257.610†	1981.1	0.04895 mg/L	0.000086	0.04895 mg/L	0.000086	0.17%	
Mo 202.031†	29.2	0.00146 mg/L	0.000116	0.00146 mg/L	0.000116	7.99%	
Na 589.592†	65356.6	8.035 mg/L	0.0322	8.035 mg/L	0.0322	0.40%	
Na 330.237†	209.8	7.568 mg/L	0.5029	7.568 mg/L	0.5029	6.64%	
Ni 231.604†	1.8	0.00082 mg/L	0.002427	0.00082 mg/L	0.002427	297.38%	
Pb 220.353†	-13.2	-0.00055 mg/L	0.000052	-0.00055 mg/L	0.000052	9.46%	
Sb 206.836†	-9.4	-0.00263 mg/L	0.000748	-0.00263 mg/L	0.000748	28.48%	
Se 196.026†	8.6	0.00448 mg/L	0.002978	0.00448 mg/L	0.002978	66.46%	
Si 288.158†	11467.1	8.480 mg/L	0.0216	8.480 mg/L	0.0216	0.26%	
Sn 189.927†	-10.9	0.00246 mg/L	0.000214	0.00246 mg/L	0.000214	8.67%	
Sr 421.552†	63893.7	0.1104 mg/L	0.00079	0.1104 mg/L	0.00079	0.72%	
Ti 334.903†	100.8	0.00302 mg/L	0.000877	0.00302 mg/L	0.000877	28.99%	
Tl 190.801†	-5.4	-0.00155 mg/L	0.000543	-0.00155 mg/L	0.000543	35.00%	
V 292.402†	152.6	0.00075 mg/L	0.000138	0.00075 mg/L	0.000138	18.38%	
Zn 206.200†	0.9	0.00078 mg/L	0.001089	0.00078 mg/L	0.001089	140.30%	

Sequence No.: 7
 Sample ID: VP23 L WMN
 Analyst: EL
 Dilution: 1X

Autosampler Location: 30
 Date Collected: 11/1/2012 1:38:46 PM
 Data Type: Original

Nebulizer Parameters: VP23 L WMN
 Analyte Back Pressure Flow
 All 233.0 kPa 0.55 L/min

Mean Data: VP23 L WMN

Analyte	Mean Corrected		Calib. Units	Std.Dev.	Sample		Std.Dev.	RSD
	Intensity	Conc.			Conc.	Units		
ScA 357.253	2806852.2	106.0	%	1.06				1.00%
ScR 361.383	230013.5	108.6	%	0.02				0.02%
Ag 328.068†	92.0	-0.00051	mg/L	0.000054	-0.00051	mg/L	0.000054	10.63%
Al 308.215†	-2.2	-0.00157	mg/L	0.004435	-0.00157	mg/L	0.004435	282.64%
As 188.979†	0.9	0.00039	mg/L	0.001288	0.00039	mg/L	0.001288	327.99%
B 249.677†	56.7	0.02612	mg/L	0.003342	0.02612	mg/L	0.003342	12.80%
Ba 233.527†	153.0	0.01488	mg/L	0.000128	0.01488	mg/L	0.000128	0.86%
Be 313.042†	-71.4	-0.00027	mg/L	0.000007	-0.00027	mg/L	0.000007	2.49%
Ca 317.933†	605894.5	57.24	mg/L	0.247	57.24	mg/L	0.247	0.43%
Cd 228.802†	-16.0	-0.00019	mg/L	0.000058	-0.00019	mg/L	0.000058	30.49%
Co 228.616†	-0.1	-0.00001	mg/L	0.000057	-0.00001	mg/L	0.000057	416.75%
Cr 267.716†	19.9	0.00414	mg/L	0.000705	0.00414	mg/L	0.000705	17.01%
Cu 324.752†	-599.3	-0.00192	mg/L	0.000232	-0.00192	mg/L	0.000232	12.11%
Fe 273.955†	7.9	0.00643	mg/L	0.001001	0.00643	mg/L	0.001001	15.56%
K 766.490†	11312.7	3.140	mg/L	0.0190	3.140	mg/L	0.0190	0.60%
Mg 279.077†	45886.3	39.40	mg/L	0.157	39.40	mg/L	0.157	0.40%
Mn 257.610†	35911.7	0.8874	mg/L	0.00294	0.8874	mg/L	0.00294	0.33%
Mo 202.031†	45.0	0.00195	mg/L	0.000153	0.00195	mg/L	0.000153	7.85%
Na 589.592†	93637.8	11.51	mg/L	0.028	11.51	mg/L	0.028	0.24%
Na 330.237†	312.9	11.05	mg/L	0.200	11.05	mg/L	0.200	1.81%
Ni 231.604†	20.4	0.00923	mg/L	0.001505	0.00923	mg/L	0.001505	16.31%
Pb 220.353†	-29.0	-0.00077	mg/L	0.000955	-0.00077	mg/L	0.000955	124.18%
Sb 206.836†	-20.5	-0.00574	mg/L	0.000108	-0.00574	mg/L	0.000108	1.87%
Se 196.026†	16.7	0.00867	mg/L	0.003385	0.00867	mg/L	0.003385	39.06%
Si 288.158†	27594.0	20.41	mg/L	0.047	20.41	mg/L	0.047	0.23%
Sn 189.927†	-30.2	0.00853	mg/L	0.000310	0.00853	mg/L	0.000310	3.63%
Sr 421.552†	149777.3	0.2589	mg/L	0.00016	0.2589	mg/L	0.00016	0.06%
Ti 334.903†	109.2	0.00144	mg/L	0.000437	0.00144	mg/L	0.000437	30.34%
Tl 190.801†	-13.7	-0.00485	mg/L	0.001300	-0.00485	mg/L	0.001300	26.83%
V 292.402†	63.9	0.00048	mg/L	0.000152	0.00048	mg/L	0.000152	31.54%
Zn 206.200†	672.5	0.2774	mg/L	0.00298	0.2774	mg/L	0.00298	1.07%

Sequence No.: 8

Autosampler Location: 31

Sample ID: VP23 HDUP WMN

Date Collected: 11/1/2012 1:44:48 PM

Analyst: EL

Data Type: Original

Dilution: 1X

Nebulizer Parameters: VP23 HDUP WMN

Analyte	Back Pressure	Flow
All	233.0 kPa	0.55 L/min

Mean Data: VP23 HDUP WMN

Analyte	Mean Corrected		Calib. Units	Std.Dev.	Sample		Std.Dev.	RSD
	Intensity	Conc.			Conc.	Units		
ScA 357.253	2750343.3	103.9	%	0.44				0.42%
ScR 361.383	225642.1	106.6	%	0.73				0.69%
Ag 328.068†	324.0	-0.00057	mg/L	0.000050	-0.00057	mg/L	0.000050	8.84%
Al 308.215†	8.5	0.00557	mg/L	0.012554	0.00557	mg/L	0.012554	225.23%
As 188.979†	3.6	0.00149	mg/L	0.000588	0.00149	mg/L	0.000588	39.35%
B 249.677†	134.2	0.06186	mg/L	0.001632	0.06186	mg/L	0.001632	2.64%
Ba 233.527†	412.8	0.04016	mg/L	0.000951	0.04016	mg/L	0.000951	2.37%
Be 313.042†	-43.5	-0.00017	mg/L	0.000085	-0.00017	mg/L	0.000085	51.01%
Ca 317.933†	683694.8	64.59	mg/L	0.273	64.59	mg/L	0.273	0.42%
Cd 228.802†	366.1	0.00438	mg/L	0.001371	0.00438	mg/L	0.001371	31.31%
Co 228.616†	328.2	0.00387	mg/L	0.001721	0.00387	mg/L	0.001721	44.49%
Cr 267.716†	19.9	0.00327	mg/L	0.000305	0.00327	mg/L	0.000305	9.31%
Cu 324.752†	2.1	0.00001	mg/L	0.000025	0.00001	mg/L	0.000025	220.81%
Fe 273.955†	81.7	0.06668	mg/L	0.002371	0.06668	mg/L	0.002371	3.56%
K 766.490†	12111.7	3.362	mg/L	0.0444	3.362	mg/L	0.0444	1.32%
Mg 279.077†	24146.4	20.73	mg/L	0.345	20.73	mg/L	0.345	1.66%
Mn 257.610†	195582.1	4.833	mg/L	0.0249	4.833	mg/L	0.0249	0.52%
Mo 202.031†	53.9	0.00266	mg/L	0.000798	0.00266	mg/L	0.000798	30.01%
Na 589.592†	100823.3	12.40	mg/L	0.097	12.40	mg/L	0.097	0.78%
Na 330.237†	344.3	12.27	mg/L	0.299	12.27	mg/L	0.299	2.44%
Ni 231.604†	18.6	0.00840	mg/L	0.001975	0.00840	mg/L	0.001975	23.51%
Pb 220.353†	-46.2	-0.00191	mg/L	0.001602	-0.00191	mg/L	0.001602	83.83%
Sb 206.836†	-12.9	-0.00365	mg/L	0.004398	-0.00365	mg/L	0.004398	120.57%
Se 196.026†	23.0	0.01197	mg/L	0.003010	0.01197	mg/L	0.003010	25.15%
Si 288.158†	12743.7	9.425	mg/L	0.1357	9.425	mg/L	0.1357	1.44%
Sn 189.927†	-30.6	0.00957	mg/L	0.002199	0.00957	mg/L	0.002199	22.97%
Sr 421.552†	266731.5	0.4611	mg/L	0.00314	0.4611	mg/L	0.00314	0.68%
Ti 334.903†	139.8	0.00227	mg/L	0.000945	0.00227	mg/L	0.000945	41.66%
Tl 190.801†	4.0	-0.00486	mg/L	0.001906	-0.00486	mg/L	0.001906	39.24%
V 292.402†	260.8	0.00202	mg/L	0.000160	0.00202	mg/L	0.000160	7.94%
Zn 206.200†	-5.7	-0.00097	mg/L	0.000660	-0.00097	mg/L	0.000660	68.19%

Sequence No.: 9
 Sample ID: VP23 H WMN
 Analyst: EL
 Dilution: 1X

Autosampler Location: 32
 Date Collected: 11/1/2012 1:51:07 PM
 Data Type: Original

Nebulizer Parameters: VP23 H WMN
 Analyte Back Pressure Flow
 All 233.0 kPa 0.55 L/min

Mean Data: VP23 H WMN

Analyte	Mean Corrected		Calib. Units	Std.Dev.	Sample		Std.Dev.	RSD
	Intensity	Conc.			Conc.	Units		
ScA 357.253	2774664.4	104.8	%	0.27				0.26%
ScR 361.383	224541.3	106.0	%	0.50				0.47%
Ag 328.068†	322.9	-0.00056	mg/L	0.000218	-0.00056	mg/L	0.000218	38.91%
Al 308.215†	0.3	0.00011	mg/L	0.005769	0.00011	mg/L	0.005769	>999.9%
As 188.979†	5.0	0.00210	mg/L	0.000090	0.00210	mg/L	0.000090	4.27%
B 249.677†	137.5	0.06338	mg/L	0.002929	0.06338	mg/L	0.002929	4.62%
Ba 233.527†	406.5	0.03954	mg/L	0.000472	0.03954	mg/L	0.000472	1.19%
Be 313.042†	-27.1	-0.00011	mg/L	0.000029	-0.00011	mg/L	0.000029	27.51%
Ca 317.933†	678687.7	64.11	mg/L	0.191	64.11	mg/L	0.191	0.30%
Cd 228.802†	396.4	0.00474	mg/L	0.000847	0.00474	mg/L	0.000847	17.87%
Co 228.616†	361.2	0.00426	mg/L	0.000848	0.00426	mg/L	0.000848	19.91%
Cr 267.716†	15.3	0.00228	mg/L	0.000410	0.00228	mg/L	0.000410	17.95%
Cu 324.752†	-16.6	-0.00005	mg/L	0.000098	-0.00005	mg/L	0.000098	203.87%
Fe 273.955†	82.5	0.06733	mg/L	0.001399	0.06733	mg/L	0.001399	2.08%
K 766.490†	12129.6	3.367	mg/L	0.0131	3.367	mg/L	0.0131	0.39%
Mg 279.077†	23914.5	20.53	mg/L	0.169	20.53	mg/L	0.169	0.82%
Mn 257.610†	193727.3	4.787	mg/L	0.0082	4.787	mg/L	0.0082	0.17%
Mo 202.031†	55.0	0.00272	mg/L	0.000362	0.00272	mg/L	0.000362	13.29%
Na 589.592†	100590.5	12.37	mg/L	0.011	12.37	mg/L	0.011	0.09%
Na 330.237†	340.1	12.11	mg/L	0.345	12.11	mg/L	0.345	2.85%
Ni 231.604†	17.1	0.00772	mg/L	0.001913	0.00772	mg/L	0.001913	24.78%
Pb 220.353†	-34.6	-0.00103	mg/L	0.002080	-0.00103	mg/L	0.002080	201.92%
Sb 206.836†	-12.1	-0.00343	mg/L	0.002675	-0.00343	mg/L	0.002675	78.04%
Se 196.026†	17.1	0.00888	mg/L	0.005607	0.00888	mg/L	0.005607	63.17%
Si 288.158†	12667.9	9.369	mg/L	0.0622	9.369	mg/L	0.0622	0.66%
Sn 189.927†	-31.4	0.00936	mg/L	0.000734	0.00936	mg/L	0.000734	7.85%
Sr 421.552†	265878.2	0.4596	mg/L	0.00182	0.4596	mg/L	0.00182	0.40%
Ti 334.903†	128.5	0.00185	mg/L	0.000528	0.00185	mg/L	0.000528	28.52%
Tl 190.801†	5.5	-0.00440	mg/L	0.001968	-0.00440	mg/L	0.001968	44.74%
V 292.402†	266.7	0.00203	mg/L	0.000137	0.00203	mg/L	0.000137	6.75%
Zn 206.200†	-7.7	-0.00180	mg/L	0.000780	-0.00180	mg/L	0.000780	43.30%

Sequence No.: 10

Autosampler Location: 33

Sample ID: VP23 HSPK WMN

Date Collected: 11/1/2012 1:57:26 PM

Analyst: EL

Data Type: Original

Dilution: 1X *del*

Nebulizer Parameters: VP23 HSPK WMN

Analyte	Back Pressure	Flow
All	232.0 kPa	0.55 L/min

Mean Data: VP23 HSPK WMN

Analyte	Mean Corrected		Calib. Units	Std.Dev.	Sample		Std.Dev.	RSD
	Intensity	Conc.			Conc.	Units		
ScA 357.253	2635164.5	99.51	%	0.345				0.35%
ScR 361.383	217338.5	102.6	%	0.36				0.36%
Ag 328.068†	153375.1	0.5129	mg/L	0.00830	0.5129	mg/L	0.00830	1.62%
Al 308.215†	3531.7	2.340	mg/L	0.0058	2.340	mg/L	0.0058	0.25%
As 188.979†	6105.6	2.563	mg/L	0.0056	2.563	mg/L	0.0056	0.22%
B 249.677†	143.6	0.06436	mg/L	0.003024	0.06436	mg/L	0.003024	4.70%
Ba 233.527†	23474.6	2.284	mg/L	0.0127	2.284	mg/L	0.0127	0.56%
Be 313.042†	163922.0	0.6141	mg/L	0.00438	0.6141	mg/L	0.00438	0.71%
Ca 317.933†	820259.3	77.49	mg/L	0.584	77.49	mg/L	0.584	0.75%
Cd 228.802†	50725.2	0.6009	mg/L	0.00415	0.6009	mg/L	0.00415	0.69%
Co 228.616†	47000.4	0.5565	mg/L	0.00293	0.5565	mg/L	0.00293	0.53%
Cr 267.716†	2708.9	0.5905	mg/L	0.00175	0.5905	mg/L	0.00175	0.30%
Cu 324.752†	170199.1	0.5440	mg/L	0.00212	0.5440	mg/L	0.00212	0.39%
Fe 273.955†	3062.2	2.498	mg/L	0.0108	2.498	mg/L	0.0108	0.43%
K 766.490†	55379.8	15.37	mg/L	0.111	15.37	mg/L	0.111	0.73%
Mg 279.077†	38274.1	32.86	mg/L	0.196	32.86	mg/L	0.196	0.60%
Mn 257.610†	220595.2	5.451	mg/L	0.0320	5.451	mg/L	0.0320	0.59%
Mo 202.031†	52.5	0.00237	mg/L	0.000293	0.00237	mg/L	0.000293	12.37%
Na 589.592†	198325.1	24.38	mg/L	0.117	24.38	mg/L	0.117	0.48%
Na 330.237†	677.9	24.15	mg/L	0.151	24.15	mg/L	0.151	0.63%
Ni 231.604†	1261.5	0.5701	mg/L	0.00511	0.5701	mg/L	0.00511	0.90%
Pb 220.353†	30272.3	2.345	mg/L	0.0172	2.345	mg/L	0.0172	0.73%
Sb 206.836†	25.9	-0.00181	mg/L	0.001502	-0.00181	mg/L	0.001502	82.86%
Se 196.026†	5412.3	2.815	mg/L	0.0066	2.815	mg/L	0.0066	0.24%
Si 288.158†	12987.3	9.609	mg/L	0.0488	9.609	mg/L	0.0488	0.51%
Sn 189.927†	-38.3	0.01145	mg/L	0.000623	0.01145	mg/L	0.000623	5.44%
Sr 421.552†	617771.3	1.068	mg/L	0.0065	1.068	mg/L	0.0065	0.61%
Ti 334.903†	153.1	0.00201	mg/L	0.000475	0.00201	mg/L	0.000475	23.57%
Tl 190.801†	8700.2	2.365	mg/L	0.0043	2.365	mg/L	0.0043	0.18%
V 292.402†	120465.7	0.5953	mg/L	0.00337	0.5953	mg/L	0.00337	0.57%
Zn 206.200†	1397.0	0.5752	mg/L	0.00458	0.5752	mg/L	0.00458	0.80%

Sequence No.: 11
 Sample ID: CV 2
 Analyst: EL
 Dilution: 1X

Autosampler Location: 7
 Date Collected: 11/1/2012 2:03:23 PM
 Data Type: Original

Nebulizer Parameters: CV

Analyte	Back Pressure	Flow
All	232.0 kPa	0.55 L/min

Mean Data: CV

Analyte	Mean Corrected		Calib. Units	Std.Dev.	Sample		RSD
	Intensity	Conc.			Conc.	Units	
ScA 357.253	2650925.8	100.1	%	1.28			1.28%
ScR 361.383	216601.7	102.3	%	0.21			0.21%
Ag 328.068†	296350.4	0.9943	mg/L	0.00305	0.9943	mg/L	0.31%
Al 308.215†	3065.1	1.997	mg/L	0.0102	1.997	mg/L	0.51%
As 188.979†	4962.5	2.082	mg/L	0.0227	2.082	mg/L	1.09%
B 249.677†	2144.1	0.9868	mg/L	0.00569	0.9868	mg/L	0.58%
Ba 233.527†	10165.4	0.9886	mg/L	0.00415	0.9886	mg/L	0.42%
Be 313.042†	273597.1	1.025	mg/L	0.0016	1.025	mg/L	0.16%
Ca 317.933†	21479.3	2.029	mg/L	0.0090	2.029	mg/L	0.44%
Cd 228.802†	84782.2	1.010	mg/L	0.0008	1.010	mg/L	0.08%
Co 228.616†	82995.8	0.9823	mg/L	0.00130	0.9823	mg/L	0.13%
Cr 267.716†	4549.8	0.9935	mg/L	0.00325	0.9935	mg/L	0.33%
Cu 324.752†	330292.4	1.055	mg/L	0.0005	1.055	mg/L	0.05%
Fe 273.955†	2602.2	2.122	mg/L	0.0089	2.122	mg/L	0.42%
K 766.490†	73030.5	20.27	mg/L	0.082	20.27	mg/L	0.40%
Mg 279.077†	2450.2	2.107	mg/L	0.0120	2.107	mg/L	0.57%
Mn 257.610†	40359.2	0.9977	mg/L	0.00220	0.9977	mg/L	0.22%
Mo 202.031†	17818.7	0.9628	mg/L	0.01057	0.9628	mg/L	1.10%
Na 589.592†	411626.7	50.61	mg/L	0.129	50.61	mg/L	0.25%
Na 330.237†	1388.3	50.38	mg/L	0.327	50.38	mg/L	0.65%
Ni 231.604†	2240.3	1.014	mg/L	0.0051	1.014	mg/L	0.50%
Pb 220.353†	26529.0	2.054	mg/L	0.0193	2.054	mg/L	0.94%
Sb 206.836†	7704.7	2.104	mg/L	0.0215	2.104	mg/L	1.02%
Se 196.026†	3879.1	2.016	mg/L	0.0236	2.016	mg/L	1.17%
Si 288.158†	2898.6	2.150	mg/L	0.0133	2.150	mg/L	0.62%
Sn 189.927†	5991.8	0.9145	mg/L	0.00968	0.9145	mg/L	1.06%
Sr 421.552†	596077.9	1.030	mg/L	0.0019	1.030	mg/L	0.19%
Ti 334.903†	25623.9	0.9957	mg/L	0.00096	0.9957	mg/L	0.10%
Tl 190.801†	7365.9	2.001	mg/L	0.0229	2.001	mg/L	1.14%
V 292.402†	203012.7	1.006	mg/L	0.0008	1.006	mg/L	0.08%
Zn 206.200†	2635.6	1.081	mg/L	0.0048	1.081	mg/L	0.45%

Sequence No.: 12
 Sample ID: CB-2
 Analyst: EL
 Dilution: 1X

Autosampler Location: 1
 Date Collected: 11/1/2012 2:09:25 PM
 Data Type: Original

Nebulizer Parameters: CB

Analyte	Back Pressure	Flow
All	232.0 kPa	0.55 L/min

Mean Data: CB

Analyte	Mean Corrected		Calib.		Sample		RSD
	Intensity	Conc.	Units	Std.Dev.	Conc.	Units	
ScA 357.253	2689324.6	101.6	%	0.87			0.86%
ScR 361.383	212401.5	100.3	%	1.43			1.43%
Ag 328.068†	33.0	0.00011	mg/L	0.000037	0.00011	mg/L	0.000037 33.58%
Al 308.215†	12.0	0.00795	mg/L	0.009365	0.00795	mg/L	0.009365 117.76%
As 188.979†	2.2	0.00092	mg/L	0.000625	0.00092	mg/L	0.000625 67.61%
B 249.677†	9.8	0.00451	mg/L	0.002343	0.00451	mg/L	0.002343 51.92%
Ba 233.527†	0.1	0.00001	mg/L	0.000264	0.00001	mg/L	0.000264 >999.9%
Be 313.042†	-21.7	-0.00008	mg/L	0.000045	-0.00008	mg/L	0.000045 55.61%
Ca 317.933†	8.9	0.00084	mg/L	0.000415	0.00084	mg/L	0.000415 49.55%
Cd 228.802†	18.4	0.00022	mg/L	0.000096	0.00022	mg/L	0.000096 43.95%
Co 228.616†	-0.7	-0.00001	mg/L	0.000089	-0.00001	mg/L	0.000089 987.38%
Cr 267.716†	3.0	0.00065	mg/L	0.001065	0.00065	mg/L	0.001065 163.51%
Cu 324.752†	205.4	0.00066	mg/L	0.000257	0.00066	mg/L	0.000257 39.16%
Fe 273.955†	7.8	0.00635	mg/L	0.003360	0.00635	mg/L	0.003360 52.90%
K 766.490†	127.9	0.03550	mg/L	0.013027	0.03550	mg/L	0.013027 36.70%
Mg 279.077†	-6.9	-0.00596	mg/L	0.005053	-0.00596	mg/L	0.005053 84.74%
Mn 257.610†	44.5	0.00110	mg/L	0.000092	0.00110	mg/L	0.000092 8.36%
Mo 202.031†	0.8	0.00005	mg/L	0.000301	0.00005	mg/L	0.000301 660.29%
Na 589.592†	328.0	0.04033	mg/L	0.005586	0.04033	mg/L	0.005586 13.85%
Na 330.237†	5.9	0.2154	mg/L	0.44131	0.2154	mg/L	0.44131 204.89%
Ni 231.604†	1.7	0.00077	mg/L	0.001226	0.00077	mg/L	0.001226 159.06%
Pb 220.353†	8.2	0.00064	mg/L	0.000380	0.00064	mg/L	0.000380 59.49%
Sb 206.836†	2.6	0.00071	mg/L	0.001209	0.00071	mg/L	0.001209 170.70%
Se 196.026†	1.5	0.00080	mg/L	0.004432	0.00080	mg/L	0.004432 556.20%
Si 288.158†	10.3	0.00763	mg/L	0.002751	0.00763	mg/L	0.002751 36.06%
Sn 189.927†	8.8	0.00134	mg/L	0.000355	0.00134	mg/L	0.000355 26.56%
Sr 421.552†	71.6	0.00012	mg/L	0.000073	0.00012	mg/L	0.000073 58.80%
Ti 334.903†	14.3	0.00056	mg/L	0.000994	0.00056	mg/L	0.000994 178.36%
Tl 190.801†	1.3	0.00036	mg/L	0.001438	0.00036	mg/L	0.001438 399.05%
V 292.402†	7.7	0.00004	mg/L	0.000141	0.00004	mg/L	0.000141 338.03%
Zn 206.200†	3.5	0.00142	mg/L	0.001396	0.00142	mg/L	0.001396 98.58%

Sequence No.: 13
 Sample ID: VQ16 MB2 DMN
 Analyst: EL
 Dilution: 1X

Autosampler Location: 34
 Date Collected: 11/1/2012 2:15:23 PM
 Data Type: Original

Nebulizer Parameters: VQ16 MB2 DMN

Analyte Back Pressure Flow
 All 233.0 kPa 0.55 L/min

Mean Data: VQ16 MB2 DMN

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc. Units	Sample Std.Dev.	RSD
ScA 357.253	2760897.2	104.3	%	0.18			0.17%
ScR 361.383	217469.8	102.7	%	1.03			1.00%
Ag 328.068†	-39.2	-0.00013	mg/L	0.000072	-0.00013 mg/L	0.000072	54.55%
Al 308.215†	2.2	0.00147	mg/L	0.002001	0.00147 mg/L	0.002001	136.24%
As 188.979†	1.2	0.00052	mg/L	0.002686	0.00052 mg/L	0.002686	518.12%
B 249.677†	4.5	0.00209	mg/L	0.001348	0.00209 mg/L	0.001348	64.41%
Ba 233.527†	1.8	0.00017	mg/L	0.000332	0.00017 mg/L	0.000332	190.01%
Be 313.042†	-0.4	0.00000	mg/L	0.000082	0.00000 mg/L	0.000082	>999.9%
Ca 317.933†	43.2	0.00408	mg/L	0.001575	0.00408 mg/L	0.001575	38.60%
Cd 228.802†	-1.7	-0.00002	mg/L	0.000041	-0.00002 mg/L	0.000041	191.96%
Co 228.616†	-16.1	-0.00019	mg/L	0.000015	-0.00019 mg/L	0.000015	7.63%
Cr 267.716†	7.0	0.00153	mg/L	0.000842	0.00153 mg/L	0.000842	55.07%
Cu 324.752†	-562.4	-0.00180	mg/L	0.000103	-0.00180 mg/L	0.000103	5.71%
Fe 273.955†	-4.2	-0.00340	mg/L	0.000956	-0.00340 mg/L	0.000956	28.14%
K 766.490†	14.7	0.00409	mg/L	0.010904	0.00409 mg/L	0.010904	266.86%
Mg 279.077†	4.8	0.00408	mg/L	0.005385	0.00408 mg/L	0.005385	131.92%
Mn 257.610†	4.2	0.00010	mg/L	0.000048	0.00010 mg/L	0.000048	45.68%
Mo 202.031†	3.8	0.00020	mg/L	0.000329	0.00020 mg/L	0.000329	161.79%
Na 589.592†	17.5	0.00215	mg/L	0.006770	0.00215 mg/L	0.006770	314.97%
Na 330.237†	6.0	0.2169	mg/L	0.42708	0.2169 mg/L	0.42708	196.93%
Ni 231.604†	0.8	0.00038	mg/L	0.001895	0.00038 mg/L	0.001895	497.39%
Pb 220.353†	-8.2	-0.00063	mg/L	0.000161	-0.00063 mg/L	0.000161	25.69%
Sb 206.836†	-8.4	-0.00233	mg/L	0.001919	-0.00233 mg/L	0.001919	82.36%
Se 196.026†	6.3	0.00327	mg/L	0.002898	0.00327 mg/L	0.002898	88.73%
Si 288.158†	1.9	0.00143	mg/L	0.003804	0.00143 mg/L	0.003804	265.11%
Sn 189.927†	-1.7	-0.00026	mg/L	0.000342	-0.00026 mg/L	0.000342	129.64%
Sr 421.552†	63.5	0.00011	mg/L	0.000071	0.00011 mg/L	0.000071	64.32%
Ti 334.903†	6.6	0.00026	mg/L	0.000700	0.00026 mg/L	0.000700	273.81%
Tl 190.801†	-4.6	-0.00126	mg/L	0.000939	-0.00126 mg/L	0.000939	74.38%
V 292.402†	25.4	0.00014	mg/L	0.000241	0.00014 mg/L	0.000241	176.46%
Zn 206.200†	1.3	0.00055	mg/L	0.000674	0.00055 mg/L	0.000674	122.97%

Sequence No.: 14

Sample ID: VQ25 MB ^{WMM} ~~DMN~~ _{EL 11-2-12}

Analyst: EL

Dilution: 1X _{Del}

Autosampler Location: 35

Date Collected: 11/1/2012 2:21:25 PM

Data Type: Original

Nebulizer Parameters: VQ25 MB DMN

Analyte	Back Pressure	Flow
All	232.0 kPa	0.55 L/min

Mean Data: VQ25 MB DMN

Analyte	Mean Corrected		Calib. Units	Std.Dev.	Sample		RSD
	Intensity	Conc.			Conc.	Units	
ScA 357.253	2756433.2	104.1	%	1.07			1.03%
ScR 361.383	221786.7	104.7	%	1.15			1.09%
Ag 328.068†	-31.5	-0.00011	mg/L	0.000012	-0.00011	mg/L	0.000012 11.42%
Al 308.215†	-11.5	-0.00768	mg/L	0.002358	-0.00768	mg/L	0.002358 30.72%
As 188.979†	2.6	0.00110	mg/L	0.001476	0.00110	mg/L	0.001476 133.77%
B 249.677†	3.4	0.00156	mg/L	0.000780	0.00156	mg/L	0.000780 49.88%
Ba 233.527†	-0.8	-0.00008	mg/L	0.000420	-0.00008	mg/L	0.000420 532.78%
Be 313.042†	-27.7	-0.00010	mg/L	0.000007	-0.00010	mg/L	0.000007 6.62%
Ca 317.933†	26.7	0.00252	mg/L	0.001379	0.00252	mg/L	0.001379 54.72%
Cd 228.802†	2.8	0.00003	mg/L	0.000060	0.00003	mg/L	0.000060 188.96%
Co 228.616†	-12.5	-0.00015	mg/L	0.000056	-0.00015	mg/L	0.000056 37.59%
Cr 267.716†	6.3	0.00137	mg/L	0.001081	0.00137	mg/L	0.001081 78.84%
Cu 324.752†	-711.3	-0.00227	mg/L	0.000161	-0.00227	mg/L	0.000161 7.08%
Fe 273.955†	-3.5	-0.00288	mg/L	0.002869	-0.00288	mg/L	0.002869 99.64%
K 766.490†	0.6	0.00016	mg/L	0.012221	0.00016	mg/L	0.012221 >999.9%
Mg 279.077†	-0.2	-0.00017	mg/L	0.003513	-0.00017	mg/L	0.003513 >999.9%
Mn 257.610†	0.4	0.00001	mg/L	0.000051	0.00001	mg/L	0.000051 582.56%
Mo 202.031†	0.7	0.00004	mg/L	0.000118	0.00004	mg/L	0.000118 331.50%
Na 589.592†	2.6	0.00032	mg/L	0.001819	0.00032	mg/L	0.001819 572.33%
Na 330.237†	-8.1	-0.2945	mg/L	0.09545	-0.2945	mg/L	0.09545 32.42%
Ni 231.604†	1.4	0.00065	mg/L	0.002468	0.00065	mg/L	0.002468 378.22%
Pb 220.353†	-3.9	-0.00030	mg/L	0.000609	-0.00030	mg/L	0.000609 202.49%
Sb 206.836†	-11.9	-0.00329	mg/L	0.000544	-0.00329	mg/L	0.000544 16.52%
Se 196.026†	1.5	0.00081	mg/L	0.001997	0.00081	mg/L	0.001997 248.06%
Si 288.158†	0.3	0.00026	mg/L	0.001067	0.00026	mg/L	0.001067 418.49%
Sn 189.927†	-4.1	-0.00062	mg/L	0.000334	-0.00062	mg/L	0.000334 53.86%
Sr 421.552†	81.0	0.00014	mg/L	0.000092	0.00014	mg/L	0.000092 65.79%
Ti 334.903†	31.3	0.00122	mg/L	0.000954	0.00122	mg/L	0.000954 78.34%
Tl 190.801†	-6.3	-0.00172	mg/L	0.000224	-0.00172	mg/L	0.000224 13.04%
V 292.402†	9.9	0.00006	mg/L	0.000051	0.00006	mg/L	0.000051 87.70%
Zn 206.200†	1.3	0.00052	mg/L	0.000771	0.00052	mg/L	0.000771 147.55%

Sequence No.: 15
 Sample ID: VQ16 L DMN
 Analyst: EL
 Dilution: 1X

Autosampler Location: 36
 Date Collected: 11/1/2012 2:27:27 PM
 Data Type: Original

Nebulizer Parameters: VQ16 L DMN

Analyte	Back Pressure	Flow
All	232.0 kPa	0.55 L/min

Mean Data: VQ16 L DMN

Analyte	Mean Corrected		Calib. Units	Std.Dev.	Sample		RSD
	Intensity	Conc.			Conc.	Units	
ScA 357.253	2750494.9	103.9	%	0.59			0.57%
ScR 361.383	222597.2	105.1	%	0.70			0.66%
Ag 328.068†	-54.8	-0.00030	mg/L	0.000071	-0.00030	mg/L	0.000071 24.10%
Al 308.215†	173.9	0.1155	mg/L	0.00518	0.1155	mg/L	0.00518 4.49%
As 188.979†	5.6	0.00233	mg/L	0.000246	0.00233	mg/L	0.000246 10.59%
B 249.677†	90.7	0.04184	mg/L	0.001204	0.04184	mg/L	0.001204 2.88%
Ba 233.527†	61.9	0.00603	mg/L	0.000069	0.00603	mg/L	0.000069 1.14%
Be 313.042†	-14.2	-0.00006	mg/L	0.000060	-0.00006	mg/L	0.000060 104.27%
Ca 317.933†	102052.4	9.641	mg/L	0.0517	9.641	mg/L	0.0517 0.54%
Cd 228.802†	-0.8	-0.00002	mg/L	0.000062	-0.00002	mg/L	0.000062 408.03%
Co 228.616†	-7.0	-0.00009	mg/L	0.000025	-0.00009	mg/L	0.000025 28.79%
Cr 267.716†	11.8	0.00258	mg/L	0.000713	0.00258	mg/L	0.000713 27.63%
Cu 324.752†	1180.8	0.00377	mg/L	0.000147	0.00377	mg/L	0.000147 3.90%
Fe 273.955†	47.7	0.03895	mg/L	0.002319	0.03895	mg/L	0.002319 5.95%
K 766.490†	5155.5	1.431	mg/L	0.0079	1.431	mg/L	0.0079 0.55%
Mg 279.077†	1450.7	1.245	mg/L	0.0115	1.245	mg/L	0.0115 0.93%
Mn 257.610†	574.6	0.01420	mg/L	0.000174	0.01420	mg/L	0.000174 1.23%
Mo 202.031†	74.8	0.00403	mg/L	0.000049	0.00403	mg/L	0.000049 1.22%
Na 589.592†	67066.9	8.246	mg/L	0.0216	8.246	mg/L	0.0216 0.26%
Na 330.237†	226.2	8.199	mg/L	0.5477	8.199	mg/L	0.5477 6.68%
Ni 231.604†	-1.0	-0.00045	mg/L	0.000963	-0.00045	mg/L	0.000963 214.96%
Pb 220.353†	-10.9	-0.00056	mg/L	0.000249	-0.00056	mg/L	0.000249 44.66%
Sb 206.836†	-5.1	-0.00145	mg/L	0.000449	-0.00145	mg/L	0.000449 31.00%
Se 196.026†	1.8	0.00094	mg/L	0.000985	0.00094	mg/L	0.000985 104.92%
Si 288.158†	1888.9	1.397	mg/L	0.0103	1.397	mg/L	0.0103 0.74%
Sn 189.927†	-7.7	0.00091	mg/L	0.000820	0.00091	mg/L	0.000820 90.44%
Sr 421.552†	24699.1	0.04270	mg/L	0.000086	0.04270	mg/L	0.000086 0.20%
Ti 334.903†	62.8	0.00197	mg/L	0.000366	0.00197	mg/L	0.000366 18.61%
Tl 190.801†	-8.9	-0.00245	mg/L	0.000664	-0.00245	mg/L	0.000664 27.05%
V 292.402†	306.4	0.00154	mg/L	0.000080	0.00154	mg/L	0.000080 5.18%
Zn 206.200†	24.5	0.01026	mg/L	0.000410	0.01026	mg/L	0.000410 4.00%

Sequence No.: 16
 Sample ID: VQ16 KDUP DMN
 Analyst: EL
 Dilution: 1X

Autosampler Location: 37
 Date Collected: 11/1/2012 2:33:27 PM
 Data Type: Original

Nebulizer Parameters: VQ16 KDUP DMN

Analyte	Back Pressure	Flow
All	233.0 kPa	0.55 L/min

Mean Data: VQ16 KDUP DMN

Analyte	Mean Corrected		Calib. Units	Std.Dev.	Sample		RSD
	Intensity	Conc.			Conc.	Units	
ScA 357.253	2771757.6	104.7	%	0.50			0.48%
ScR 361.383	219340.3	103.6	%	1.36			1.31%
Ag 328.068†	-31.4	-0.00022	mg/L	0.000100	-0.00022	mg/L	0.000100 45.04%
Al 308.215†	129.5	0.08610	mg/L	0.005275	0.08610	mg/L	0.005275 6.13%
As 188.979†	3.1	0.00129	mg/L	0.000832	0.00129	mg/L	0.000832 64.35%
B 249.677†	273.6	0.1261	mg/L	0.00431	0.1261	mg/L	0.00431 3.42%
Ba 233.527†	57.2	0.00557	mg/L	0.000552	0.00557	mg/L	0.000552 9.92%
Be 313.042†	-30.5	-0.00012	mg/L	0.000033	-0.00012	mg/L	0.000033 28.61%
Ca 317.933†	106904.9	10.10	mg/L	0.021	10.10	mg/L	0.021 0.21%
Cd 228.802†	-2.3	-0.00003	mg/L	0.000028	-0.00003	mg/L	0.000028 91.81%
Co 228.616†	-13.7	-0.00017	mg/L	0.000053	-0.00017	mg/L	0.000053 31.63%
Cr 267.716†	12.0	0.00262	mg/L	0.000721	0.00262	mg/L	0.000721 27.48%
Cu 324.752†	343.0	0.00110	mg/L	0.000011	0.00110	mg/L	0.000011 0.99%
Fe 273.955†	39.5	0.03225	mg/L	0.000855	0.03225	mg/L	0.000855 2.65%
K 766.490†	3216.8	0.8928	mg/L	0.00953	0.8928	mg/L	0.00953 1.07%
Mg 279.077†	925.7	0.7947	mg/L	0.00533	0.7947	mg/L	0.00533 0.67%
Mn 257.610†	582.5	0.01439	mg/L	0.000255	0.01439	mg/L	0.000255 1.77%
Mo 202.031†	29.1	0.00156	mg/L	0.000072	0.00156	mg/L	0.000072 4.63%
Na 589.592†	35183.0	4.326	mg/L	0.0201	4.326	mg/L	0.0201 0.47%
Na 330.237†	116.3	4.195	mg/L	0.0378	4.195	mg/L	0.0378 0.90%
Ni 231.604†	3.8	0.00173	mg/L	0.001148	0.00173	mg/L	0.001148 66.27%
Pb 220.353†	-13.6	-0.00076	mg/L	0.000295	-0.00076	mg/L	0.000295 38.60%
Sb 206.836†	-7.5	-0.00212	mg/L	0.001301	-0.00212	mg/L	0.001301 61.29%
Se 196.026†	3.9	0.00201	mg/L	0.001810	0.00201	mg/L	0.001810 90.25%
Si 288.158†	1190.4	0.8802	mg/L	0.00808	0.8802	mg/L	0.00808 0.92%
Sn 189.927†	-9.8	0.00067	mg/L	0.000836	0.00067	mg/L	0.000836 124.13%
Sr 421.552†	21618.3	0.03737	mg/L	0.000239	0.03737	mg/L	0.000239 0.64%
Ti 334.903†	61.2	0.00189	mg/L	0.000189	0.00189	mg/L	0.000189 10.05%
Tl 190.801†	-8.9	-0.00246	mg/L	0.001222	-0.00246	mg/L	0.001222 49.70%
V 292.402†	123.7	0.00063	mg/L	0.000116	0.00063	mg/L	0.000116 18.43%
Zn 206.200†	10.8	0.00467	mg/L	0.000445	0.00467	mg/L	0.000445 9.54%

Sequence No.: 17
 Sample ID: VQ16 K DMN
 Analyst: EL
 Dilution: 1X

Autosampler Location: 38
 Date Collected: 11/1/2012 2:39:27 PM
 Data Type: Original

Nebulizer Parameters: VQ16 K DMN

Analyte Back Pressure Flow
 All 233.0 kPa 0.55 L/min

Mean Data: VQ16 K DMN

Analyte	Mean Corrected		Calib. Conc. Units	Std.Dev.	Sample		RSD
	Intensity				Conc. Units	Std.Dev.	
ScA 357.253	2767994.0		104.5 %	0.22			0.21%
ScR 361.383	218541.0		103.2 %	0.79			0.77%
Ag 328.068†	-17.4	-0.00018	mg/L	0.000308	-0.00018	mg/L	0.000308 175.25%
Al 308.215†	120.4	0.08005	mg/L	0.011998	0.08005	mg/L	0.011998 14.99%
As 188.979†	0.0	0.00001	mg/L	0.002183	0.00001	mg/L	0.002183 >999.9%
B 249.677†	280.8	0.1295	mg/L	0.00109	0.1295	mg/L	0.00109 0.84%
Ba 233.527†	54.6	0.00531	mg/L	0.000214	0.00531	mg/L	0.000214 4.03%
Be 313.042†	-3.9	-0.00002	mg/L	0.000028	-0.00002	mg/L	0.000028 168.47%
Ca 317.933†	107773.3	10.18	mg/L	0.023	10.18	mg/L	0.023 0.22%
Cd 228.802†	1.4	0.00002	mg/L	0.000053	0.00002	mg/L	0.000053 309.32%
Co 228.616†	-14.9	-0.00018	mg/L	0.000096	-0.00018	mg/L	0.000096 52.51%
Cr 267.716†	9.3	0.00204	mg/L	0.000826	0.00204	mg/L	0.000826 40.56%
Cu 324.752†	364.0	0.00116	mg/L	0.000090	0.00116	mg/L	0.000090 7.69%
Fe 273.955†	40.0	0.03260	mg/L	0.001116	0.03260	mg/L	0.001116 3.42%
K 766.490†	3210.2	0.8910	mg/L	0.01864	0.8910	mg/L	0.01864 2.09%
Mg 279.077†	933.1	0.8011	mg/L	0.00775	0.8011	mg/L	0.00775 0.97%
Mn 257.610†	582.6	0.01440	mg/L	0.000144	0.01440	mg/L	0.000144 1.00%
Mo 202.031†	27.8	0.00150	mg/L	0.000229	0.00150	mg/L	0.000229 15.33%
Na 589.592†	35476.9	4.362	mg/L	0.0138	4.362	mg/L	0.0138 0.32%
Na 330.237†	106.4	3.832	mg/L	0.4855	3.832	mg/L	0.4855 12.67%
Ni 231.604†	1.9	0.00085	mg/L	0.001162	0.00085	mg/L	0.001162 136.12%
Pb 220.353†	-17.7	-0.00108	mg/L	0.000155	-0.00108	mg/L	0.000155 14.42%
Sb 206.836†	-11.4	-0.00316	mg/L	0.000816	-0.00316	mg/L	0.000816 25.82%
Se 196.026†	5.1	0.00264	mg/L	0.000933	0.00264	mg/L	0.000933 35.39%
Si 288.158†	1197.7	0.8856	mg/L	0.00717	0.8856	mg/L	0.00717 0.81%
Sn 189.927†	-10.2	0.00064	mg/L	0.000139	0.00064	mg/L	0.000139 21.79%
Sr 421.552†	21664.7	0.03745	mg/L	0.000089	0.03745	mg/L	0.000089 0.24%
Ti 334.903†	56.3	0.00169	mg/L	0.000924	0.00169	mg/L	0.000924 54.73%
Tl 190.801†	-8.3	-0.00229	mg/L	0.001667	-0.00229	mg/L	0.001667 72.81%
V 292.402†	131.8	0.00067	mg/L	0.000134	0.00067	mg/L	0.000134 20.20%
Zn 206.200†	12.9	0.00552	mg/L	0.001063	0.00552	mg/L	0.001063 19.26%

Sequence No.: 18

Autosampler Location: 39

Sample ID: VQ16 KSPK DMN

Date Collected: 11/1/2012 2:45:27 PM

Analyst: EL

Data Type: Original

Dilution: 1X

Nebulizer Parameters: VQ16 KSPK DMN

Analyte	Back Pressure	Flow
All	233.0 kPa	0.55 L/min

Mean Data: VQ16 KSPK DMN

Analyte	Mean Corrected		Calib.		Sample		RSD
	Intensity	Conc.	Units	Std.Dev.	Conc.	Units	
ScA 357.253	2707834.1	102.3	%	0.25			0.25%
ScR 361.383	220594.4	104.2	%	0.17			0.16%
Ag 328.068†	135395.0	0.4541	mg/L	0.00671	0.4541	mg/L	0.00671 1.48%
Al 308.215†	3516.8	2.330	mg/L	0.0098	2.330	mg/L	0.0098 0.42%
As 188.979†	5615.2	2.357	mg/L	0.0056	2.357	mg/L	0.0056 0.24%
B 249.677†	269.6	0.1224	mg/L	0.00142	0.1224	mg/L	0.00142 1.16%
Ba 233.527†	22447.0	2.184	mg/L	0.0156	2.184	mg/L	0.0156 0.71%
Be 313.042†	158314.3	0.5931	mg/L	0.00168	0.5931	mg/L	0.00168 0.28%
Ca 317.933†	226549.0	21.40	mg/L	0.059	21.40	mg/L	0.059 0.27%
Cd 228.802†	49243.8	0.5837	mg/L	0.00311	0.5837	mg/L	0.00311 0.53%
Co 228.616†	46876.2	0.5551	mg/L	0.00197	0.5551	mg/L	0.00197 0.36%
Cr 267.716†	2617.3	0.5716	mg/L	0.00466	0.5716	mg/L	0.00466 0.82%
Cu 324.752†	171162.2	0.5471	mg/L	0.00118	0.5471	mg/L	0.00118 0.22%
Fe 273.955†	2922.1	2.383	mg/L	0.0157	2.383	mg/L	0.0157 0.66%
K 766.490†	45304.0	12.57	mg/L	0.044	12.57	mg/L	0.044 0.35%
Mg 279.077†	14396.0	12.36	mg/L	0.100	12.36	mg/L	0.100 0.81%
Mn 257.610†	22835.9	0.5648	mg/L	0.00378	0.5648	mg/L	0.00378 0.67%
Mo 202.031†	38.6	0.00187	mg/L	0.000110	0.00187	mg/L	0.000110 5.86%
Na 589.592†	128278.8	15.77	mg/L	0.013	15.77	mg/L	0.013 0.08%
Na 330.237†	428.4	15.30	mg/L	0.121	15.30	mg/L	0.121 0.79%
Ni 231.604†	1250.0	0.5649	mg/L	0.00542	0.5649	mg/L	0.00542 0.96%
Pb 220.353†	30267.7	2.344	mg/L	0.0100	2.344	mg/L	0.0100 0.43%
Sb 206.836†	22.0	-0.00257	mg/L	0.000722	-0.00257	mg/L	0.000722 28.05%
Se 196.026†	4805.9	2.500	mg/L	0.0088	2.500	mg/L	0.0088 0.35%
Si 288.158†	1193.3	0.8864	mg/L	0.00360	0.8864	mg/L	0.00360 0.41%
Sn 189.927†	-17.6	0.00218	mg/L	0.000298	0.00218	mg/L	0.000298 13.70%
Sr 421.552†	358948.9	0.6205	mg/L	0.00292	0.6205	mg/L	0.00292 0.47%
Ti 334.903†	79.5	0.00191	mg/L	0.000482	0.00191	mg/L	0.000482 25.27%
Tl 190.801†	8612.5	2.347	mg/L	0.0087	2.347	mg/L	0.0087 0.37%
V 292.402†	115442.3	0.5698	mg/L	0.00235	0.5698	mg/L	0.00235 0.41%
Zn 206.200†	1428.0	0.5867	mg/L	0.00660	0.5867	mg/L	0.00660 1.13%

Sequence No.: 19
 Sample ID: VQ25 ADUP WMN
 Analyst: EL
 Dilution: 1X

Autosampler Location: 40
 Date Collected: 11/1/2012 2:51:29 PM
 Data Type: Original

Nebulizer Parameters: VQ25 ADUP WMN

Analyte Back Pressure Flow
 All 233.0 kPa 0.55 L/min

Mean Data: VQ25 ADUP WMN

Analyte	Mean Corrected		Calib. Units	Std.Dev.	Sample		Std.Dev.	RSD
	Intensity	Conc.			Conc.	Units		
ScA 357.253	2712569.6	102.4	%	0.51				0.50%
ScR 361.383	219916.7	103.9	%	0.86				0.83%
Ag 328.068†	11.3	-0.00025	mg/L	0.000133	-0.00025	mg/L	0.000133	53.72%
Al 308.215†	12.5	0.00807	mg/L	0.005340	0.00807	mg/L	0.005340	66.13%
As 188.979†	1.5	0.00062	mg/L	0.001041	0.00062	mg/L	0.001041	167.77%
B 249.677†	20.2	0.00932	mg/L	0.001143	0.00932	mg/L	0.001143	12.26%
Ba 233.527†	156.7	0.01524	mg/L	0.000255	0.01524	mg/L	0.000255	1.67%
Be 313.042†	-13.9	-0.00008	mg/L	0.000039	-0.00008	mg/L	0.000039	49.50%
Ca 317.933†	268479.4	25.36	mg/L	0.055	25.36	mg/L	0.055	0.22%
Cd 228.802†	-9.4	-0.00011	mg/L	0.000039	-0.00011	mg/L	0.000039	33.76%
Co 228.616†	-21.3	-0.00026	mg/L	0.000025	-0.00026	mg/L	0.000025	9.76%
Cr 267.716†	2.7	0.00060	mg/L	0.000355	0.00060	mg/L	0.000355	59.48%
Cu 324.752†	10.0	0.00003	mg/L	0.000189	0.00003	mg/L	0.000189	553.25%
Fe 273.955†	48.1	0.03920	mg/L	0.000774	0.03920	mg/L	0.000774	1.98%
K 766.490†	10618.6	2.947	mg/L	0.0098	2.947	mg/L	0.0098	0.33%
Mg 279.077†	7793.7	6.691	mg/L	0.0134	6.691	mg/L	0.0134	0.20%
Mn 257.610†	204.5	0.00505	mg/L	0.000132	0.00505	mg/L	0.000132	2.61%
Mo 202.031†	33.8	0.00175	mg/L	0.000046	0.00175	mg/L	0.000046	2.61%
Na 589.592†	32180.0	3.956	mg/L	0.0129	3.956	mg/L	0.0129	0.33%
Na 330.237†	103.5	3.656	mg/L	0.1842	3.656	mg/L	0.1842	5.04%
Ni 231.604†	0.6	0.00027	mg/L	0.001420	0.00027	mg/L	0.001420	516.69%
Pb 220.353†	-15.7	-0.00056	mg/L	0.000763	-0.00056	mg/L	0.000763	135.37%
Sb 206.836†	-1.9	-0.00050	mg/L	0.002160	-0.00050	mg/L	0.002160	433.06%
Se 196.026†	4.2	0.00219	mg/L	0.001777	0.00219	mg/L	0.001777	81.11%
Si 288.158†	36245.3	26.80	mg/L	0.061	26.80	mg/L	0.061	0.23%
Sn 189.927†	-17.7	0.00286	mg/L	0.000723	0.00286	mg/L	0.000723	25.30%
Sr 421.552†	52182.3	0.09020	mg/L	0.000092	0.09020	mg/L	0.000092	0.10%
Ti 334.903†	45.0	0.00051	mg/L	0.000351	0.00051	mg/L	0.000351	69.18%
Tl 190.801†	-14.2	-0.00393	mg/L	0.001154	-0.00393	mg/L	0.001154	29.38%
V 292.402†	2102.7	0.01032	mg/L	0.000266	0.01032	mg/L	0.000266	2.57%
Zn 206.200†	39.7	0.01685	mg/L	0.000844	0.01685	mg/L	0.000844	5.01%

Sequence No.: 20
 Sample ID: VQ25 A WMN
 Analyst: EL
 Dilution: 1X *del*

Autosampler Location: 41
 Date Collected: 11/1/2012 2:57:29 PM
 Data Type: Original

Nebulizer Parameters: VQ25 A WMN

Analyte Back Pressure Flow
 All 233.0 kPa 0.55 L/min

Mean Data: VQ25 A WMN

Analyte	Mean Corrected		Calib. Units	Std.Dev.	Sample		Std.Dev.	RSD
	Intensity	Conc.			Conc.	Units		
ScA 357.253	2762488.3	104.3	%	0.82				0.78%
ScR 361.383	219338.5	103.6	%	1.39				1.34%
Ag 328.068†	-28.2	-0.00038	mg/L	0.000191	-0.00038	mg/L	0.000191	50.43%
Al 308.215†	-5.9	-0.00410	mg/L	0.009052	-0.00410	mg/L	0.009052	220.62%
As 188.979†	0.0	0.00000	mg/L	0.002468	0.00000	mg/L	0.002468	>999.9%
B 249.677†	22.6	0.01044	mg/L	0.001974	0.01044	mg/L	0.001974	18.91%
Ba 233.527†	159.4	0.01550	mg/L	0.000214	0.01550	mg/L	0.000214	1.38%
Be 313.042†	-19.8	-0.00010	mg/L	0.000105	-0.00010	mg/L	0.000105	104.28%
Ca 317.933†	267511.1	25.27	mg/L	0.062	25.27	mg/L	0.062	0.25%
Cd 228.802†	-12.9	-0.00015	mg/L	0.000044	-0.00015	mg/L	0.000044	28.87%
Co 228.616†	-27.7	-0.00034	mg/L	0.000069	-0.00034	mg/L	0.000069	20.55%
Cr 267.716†	4.5	0.00098	mg/L	0.000462	0.00098	mg/L	0.000462	47.16%
Cu 324.752†	-175.2	-0.00056	mg/L	0.000053	-0.00056	mg/L	0.000053	9.51%
Fe 273.955†	47.8	0.03901	mg/L	0.000641	0.03901	mg/L	0.000641	1.64%
K 766.490†	10553.7	2.929	mg/L	0.0297	2.929	mg/L	0.0297	1.01%
Mg 279.077†	7757.7	6.660	mg/L	0.0239	6.660	mg/L	0.0239	0.36%
Mn 257.610†	201.7	0.00498	mg/L	0.000093	0.00498	mg/L	0.000093	1.86%
Mo 202.031†	32.6	0.00168	mg/L	0.000363	0.00168	mg/L	0.000363	21.62%
Na 589.592†	32005.6	3.935	mg/L	0.0032	3.935	mg/L	0.0032	0.08%
Na 330.237†	106.0	3.744	mg/L	0.3277	3.744	mg/L	0.3277	8.75%
Ni 231.604†	6.9	0.00313	mg/L	0.000762	0.00313	mg/L	0.000762	24.31%
Pb 220.353†	-9.0	-0.00005	mg/L	0.000204	-0.00005	mg/L	0.000204	394.52%
Sb 206.836†	-11.1	-0.00303	mg/L	0.000999	-0.00303	mg/L	0.000999	32.94%
Se 196.026†	5.1	0.00266	mg/L	0.003286	0.00266	mg/L	0.003286	123.38%
Si 288.158†	36130.3	26.71	mg/L	0.089	26.71	mg/L	0.089	0.33%
Sn 189.927†	-22.5	0.00211	mg/L	0.000809	0.00211	mg/L	0.000809	38.31%
Sr 421.552†	51867.9	0.08966	mg/L	0.000601	0.08966	mg/L	0.000601	0.67%
Ti 334.903†	46.7	0.00058	mg/L	0.001063	0.00058	mg/L	0.001063	184.52%
Tl 190.801†	-13.8	-0.00382	mg/L	0.000789	-0.00382	mg/L	0.000789	20.67%
V 292.402†	2057.1	0.01010	mg/L	0.000151	0.01010	mg/L	0.000151	1.50%
Zn 206.200†	41.4	0.01753	mg/L	0.000273	0.01753	mg/L	0.000273	1.56%

Sequence No.: 21
 Sample ID: VQ25 ASPK WMN
 Analyst: EL
 Dilution: 1X

Autosampler Location: 42
 Date Collected: 11/1/2012 3:03:29 PM
 Data Type: Original

Nebulizer Parameters: VQ25 ASPK WMN

Analyte Back Pressure Flow
 All 233.0 kPa 0.55 L/min

Mean Data: VQ25 ASPK WMN

Analyte	Mean Corrected		Calib. Units	Std.Dev.	Sample		RSD
	Intensity	Conc.			Conc.	Units	
ScA 357.253	2695063.5	101.8	%	0.30			0.29%
ScR 361.383	219888.4	103.8	%	0.68			0.65%
Ag 328.068†	160513.6	0.5382	mg/L	0.00673	0.5382	mg/L	1.25%
Al 308.215†	3406.7	2.257	mg/L	0.0122	2.257	mg/L	0.54%
As 188.979†	5686.9	2.387	mg/L	0.0135	2.387	mg/L	0.57%
B 249.677†	21.7	0.00817	mg/L	0.001534	0.00817	mg/L	18.78%
Ba 233.527†	23264.2	2.263	mg/L	0.0040	2.263	mg/L	0.18%
Be 313.042†	159233.6	0.5966	mg/L	0.00090	0.5966	mg/L	0.15%
Ca 317.933†	385478.9	36.41	mg/L	0.062	36.41	mg/L	0.17%
Cd 228.802†	49463.7	0.5862	mg/L	0.00574	0.5862	mg/L	0.98%
Co 228.616†	46336.1	0.5487	mg/L	0.00469	0.5487	mg/L	0.85%
Cr 267.716†	2623.6	0.5730	mg/L	0.00328	0.5730	mg/L	0.57%
Cu 324.752†	175320.8	0.5604	mg/L	0.00367	0.5604	mg/L	0.66%
Fe 273.955†	2934.2	2.393	mg/L	0.0149	2.393	mg/L	0.62%
K 766.490†	52458.2	14.56	mg/L	0.098	14.56	mg/L	0.68%
Mg 279.077†	21493.9	18.45	mg/L	0.017	18.45	mg/L	0.09%
Mn 257.610†	23042.0	0.5699	mg/L	0.00108	0.5699	mg/L	0.19%
Mo 202.031†	41.5	0.00195	mg/L	0.000062	0.00195	mg/L	3.20%
Na 589.592†	125552.4	15.44	mg/L	0.036	15.44	mg/L	0.23%
Na 330.237†	424.0	15.06	mg/L	0.164	15.06	mg/L	1.09%
Ni 231.604†	1232.0	0.5568	mg/L	0.00217	0.5568	mg/L	0.39%
Pb 220.353†	30115.1	2.332	mg/L	0.0163	2.332	mg/L	0.70%
Sb 206.836†	19.9	-0.00314	mg/L	0.001241	-0.00314	mg/L	39.51%
Se 196.026†	4980.7	2.591	mg/L	0.0165	2.591	mg/L	0.64%
Si 288.158†	35875.2	26.53	mg/L	0.060	26.53	mg/L	0.23%
Sn 189.927†	-30.1	0.00361	mg/L	0.000563	0.00361	mg/L	15.60%
Sr 421.552†	394144.7	0.6813	mg/L	0.00136	0.6813	mg/L	0.20%
Ti 334.903†	83.5	0.00133	mg/L	0.000291	0.00133	mg/L	21.91%
Tl 190.801†	8557.0	2.332	mg/L	0.0133	2.332	mg/L	0.57%
V 292.402†	117215.2	0.5785	mg/L	0.00476	0.5785	mg/L	0.82%
Zn 206.200†	1460.5	0.6004	mg/L	0.00575	0.6004	mg/L	0.96%

Sequence No.: 22
Sample ID: VP23 MB2SPK WMN
Analyst: EL
Dilution: 1X

Autosampler Location: 43
Date Collected: 11/1/2012 3:09:33 PM
Data Type: Original

Nebulizer Parameters: VP23 MB2SPK WMN
Analyte Back Pressure Flow
All 233.0 kPa 0.55 L/min

Mean Data: VP23 MB2SPK WMN

Analyte	Mean Corrected		Calib. Units	Std.Dev.	Sample		RSD
	Intensity	Conc.			Conc.	Units	
ScA 357.253	2687766.0	101.5	%	0.67			0.66%
ScR 361.383	217065.8	102.5	%	0.84			0.82%
Ag 328.068†	161488.7	0.5418	mg/L	0.00601	0.5418	mg/L	0.00601 1.11%
Al 308.215†	3451.3	2.287	mg/L	0.0150	2.287	mg/L	0.0150 0.65%
As 188.979†	5587.7	2.345	mg/L	0.0256	2.345	mg/L	0.0256 1.09%
B 249.677†	3.5	-0.00027	mg/L	0.001332	-0.00027	mg/L	0.001332 491.37%
Ba 233.527†	23329.8	2.270	mg/L	0.0078	2.270	mg/L	0.0078 0.34%
Be 313.042†	161593.6	0.6054	mg/L	0.00217	0.6054	mg/L	0.00217 0.36%
Ca 317.933†	124267.4	11.74	mg/L	0.032	11.74	mg/L	0.032 0.27%
Cd 228.802†	49996.6	0.5927	mg/L	0.00358	0.5927	mg/L	0.00358 0.60%
Co 228.616†	47520.7	0.5627	mg/L	0.00270	0.5627	mg/L	0.00270 0.48%
Cr 267.716†	2668.7	0.5828	mg/L	0.00613	0.5828	mg/L	0.00613 1.05%
Cu 324.752†	174810.5	0.5587	mg/L	0.00314	0.5587	mg/L	0.00314 0.56%
Fe 273.955†	2928.8	2.389	mg/L	0.0247	2.389	mg/L	0.0247 1.03%
K 766.490†	43054.8	11.95	mg/L	0.059	11.95	mg/L	0.059 0.49%
Mg 279.077†	13934.8	11.96	mg/L	0.122	11.96	mg/L	0.122 1.02%
Mn 257.610†	23081.7	0.5709	mg/L	0.00156	0.5709	mg/L	0.00156 0.27%
Mo 202.031†	15.1	0.00060	mg/L	0.000182	0.00060	mg/L	0.000182 30.18%
Na 589.592†	96711.6	11.89	mg/L	0.055	11.89	mg/L	0.055 0.47%
Na 330.237†	325.0	11.57	mg/L	0.208	11.57	mg/L	0.208 1.80%
Ni 231.604†	1289.5	0.5828	mg/L	0.00572	0.5828	mg/L	0.00572 0.98%
Pb 220.353†	30809.6	2.385	mg/L	0.0087	2.385	mg/L	0.0087 0.36%
Sb 206.836†	17.0	-0.00412	mg/L	0.000983	-0.00412	mg/L	0.000983 23.84%
Se 196.026†	4789.1	2.491	mg/L	0.0247	2.491	mg/L	0.0247 0.99%
Si 288.158†	2.4	0.00585	mg/L	0.001312	0.00585	mg/L	0.001312 22.45%
Sn 189.927†	-14.5	0.00057	mg/L	0.000655	0.00057	mg/L	0.000655 114.70%
Sr 421.552†	345344.5	0.5970	mg/L	0.00206	0.5970	mg/L	0.00206 0.34%
Ti 334.903†	41.6	0.00090	mg/L	0.000349	0.00090	mg/L	0.000349 38.61%
Tl 190.801†	8738.1	2.381	mg/L	0.0191	2.381	mg/L	0.0191 0.80%
V 292.402†	116264.7	0.5739	mg/L	0.00153	0.5739	mg/L	0.00153 0.27%
Zn 206.200†	1453.6	0.5970	mg/L	0.00639	0.5970	mg/L	0.00639 1.07%

Sequence No.: 23
 Sample ID: CV3
 Analyst: EL
 Dilution: 1X

Autosampler Location: 7
 Date Collected: 11/1/2012 3:15:36 PM
 Data Type: Original

Nebulizer Parameters: CV

Analyte Back Pressure Flow
 All 233.0 kPa 0.55 L/min

Mean Data: CV

Analyte	Mean Corrected		Calib. Units	Std.Dev.	Sample		RSD	
	Intensity	Conc.			Conc.	Units		
ScA 357.253	2652436.1	100.2	%	0.48			0.48%	
ScR 361.383	213720.7	100.9	%	0.11			0.10%	
Ag 328.068†	295516.5	0.9915	mg/L	0.00520	0.9915	mg/L	0.00520	0.52%
Al 308.215†	3088.0	2.012	mg/L	0.0031	2.012	mg/L	0.0031	0.16%
As 188.979†	4920.7	2.064	mg/L	0.0146	2.064	mg/L	0.0146	0.71%
B 249.677†	2158.7	0.9935	mg/L	0.00334	0.9935	mg/L	0.00334	0.34%
Ba 233.527†	10217.3	0.9937	mg/L	0.00307	0.9937	mg/L	0.00307	0.31%
Be 313.042†	274128.4	1.027	mg/L	0.0063	1.027	mg/L	0.0063	0.61%
Ca 317.933†	21533.9	2.034	mg/L	0.0068	2.034	mg/L	0.0068	0.34%
Cd 228.802†	85058.9	1.013	mg/L	0.0017	1.013	mg/L	0.0017	0.16%
Co 228.616†	83267.5	0.9855	mg/L	0.00287	0.9855	mg/L	0.00287	0.29%
Cr 267.716†	4578.3	0.9997	mg/L	0.00325	0.9997	mg/L	0.00325	0.32%
Cu 324.752†	332434.0	1.062	mg/L	0.0029	1.062	mg/L	0.0029	0.28%
Fe 273.955†	2611.8	2.130	mg/L	0.0092	2.130	mg/L	0.0092	0.43%
K 766.490†	73698.9	20.45	mg/L	0.039	20.45	mg/L	0.039	0.19%
Mg 279.077†	2442.8	2.101	mg/L	0.0081	2.101	mg/L	0.0081	0.38%
Mn 257.610†	40357.2	0.9977	mg/L	0.00425	0.9977	mg/L	0.00425	0.43%
Mo 202.031†	17722.7	0.9576	mg/L	0.00509	0.9576	mg/L	0.00509	0.53%
Na 589.592†	414251.3	50.93	mg/L	0.177	50.93	mg/L	0.177	0.35%
Na 330.237†	1401.6	50.87	mg/L	0.052	50.87	mg/L	0.052	0.10%
Ni 231.604†	2246.3	1.017	mg/L	0.0017	1.017	mg/L	0.0017	0.16%
Pb 220.353†	26377.0	2.042	mg/L	0.0146	2.042	mg/L	0.0146	0.72%
Sb 206.836†	7664.3	2.093	mg/L	0.0151	2.093	mg/L	0.0151	0.72%
Se 196.026†	3842.5	1.997	mg/L	0.0107	1.997	mg/L	0.0107	0.53%
Si 288.158†	2920.4	2.166	mg/L	0.0064	2.166	mg/L	0.0064	0.30%
Sn 189.927†	5943.8	0.9072	mg/L	0.00465	0.9072	mg/L	0.00465	0.51%
Sr 421.552†	604317.9	1.045	mg/L	0.0014	1.045	mg/L	0.0014	0.13%
Ti 334.903†	25676.7	0.9978	mg/L	0.00333	0.9978	mg/L	0.00333	0.33%
Tl 190.801†	7326.8	1.990	mg/L	0.0131	1.990	mg/L	0.0131	0.66%
V 292.402†	203816.8	1.010	mg/L	0.0043	1.010	mg/L	0.0043	0.42%
Zn 206.200†	2637.5	1.082	mg/L	0.0063	1.082	mg/L	0.0063	0.59%

Sequence No.: 24
Sample ID: CB3
Analyst: EL
Dilution: 1X

Autosampler Location: 1
Date Collected: 11/1/2012 3:21:41 PM
Data Type: Original

Nebulizer Parameters: CB

Analyte Back Pressure Flow
All 232.0 kPa 0.55 L/min

Mean Data: CB

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2641997.0	99.76	%	0.272				0.27%
ScR 361.383	209711.4	99.04	%	0.617				0.62%
Ag 328.068†	40.4	0.00014	mg/L	0.000117	0.00014	mg/L	0.000117	85.98%
Al 308.215†	5.9	0.00392	mg/L	0.004763	0.00392	mg/L	0.004763	121.50%
As 188.979†	3.6	0.00152	mg/L	0.001565	0.00152	mg/L	0.001565	103.01%
B 249.677†	4.0	0.00183	mg/L	0.002697	0.00183	mg/L	0.002697	147.02%
Ba 233.527†	0.6	0.00005	mg/L	0.000256	0.00005	mg/L	0.000256	472.42%
Be 313.042†	2.8	0.00001	mg/L	0.000043	0.00001	mg/L	0.000043	431.22%
Ca 317.933†	13.2	0.00124	mg/L	0.000491	0.00124	mg/L	0.000491	39.52%
Cd 228.802†	11.7	0.00014	mg/L	0.000051	0.00014	mg/L	0.000051	36.93%
Co 228.616†	8.7	0.00010	mg/L	0.000024	0.00010	mg/L	0.000024	22.98%
Cr 267.716†	7.3	0.00159	mg/L	0.000351	0.00159	mg/L	0.000351	22.11%
Cu 324.752†	378.0	0.00121	mg/L	0.000081	0.00121	mg/L	0.000081	6.72%
Fe 273.955†	4.4	0.00360	mg/L	0.001547	0.00360	mg/L	0.001547	42.93%
K 766.490†	170.4	0.04730	mg/L	0.015301	0.04730	mg/L	0.015301	32.35%
Mg 279.077†	-1.1	-0.00092	mg/L	0.001887	-0.00092	mg/L	0.001887	204.51%
Mn 257.610†	22.4	0.00055	mg/L	0.000116	0.00055	mg/L	0.000116	20.90%
Mo 202.031†	-5.5	-0.00030	mg/L	0.000058	-0.00030	mg/L	0.000058	19.40%
Na 589.592†	260.4	0.03201	mg/L	0.006854	0.03201	mg/L	0.006854	21.41%
Na 330.237†	9.6	0.3488	mg/L	0.37818	0.3488	mg/L	0.37818	108.43%
Ni 231.604†	0.7	0.00030	mg/L	0.002784	0.00030	mg/L	0.002784	942.65%
Pb 220.353†	19.1	0.00148	mg/L	0.000472	0.00148	mg/L	0.000472	31.90%
Sb 206.836†	-4.7	-0.00130	mg/L	0.001476	-0.00130	mg/L	0.001476	113.50%
Se 196.026†	-0.6	-0.00032	mg/L	0.001361	-0.00032	mg/L	0.001361	427.19%
Si 288.158†	9.0	0.00662	mg/L	0.002411	0.00662	mg/L	0.002411	36.42%
Sn 189.927†	5.9	0.00090	mg/L	0.000236	0.00090	mg/L	0.000236	26.27%
Sr 421.552†	86.3	0.00015	mg/L	0.000066	0.00015	mg/L	0.000066	44.24%
Ti 334.903†	4.9	0.00019	mg/L	0.000246	0.00019	mg/L	0.000246	129.02%
Tl 190.801†	4.9	0.00133	mg/L	0.000646	0.00133	mg/L	0.000646	48.49%
V 292.402†	38.6	0.00020	mg/L	0.000115	0.00020	mg/L	0.000115	57.90%
Zn 206.200†	-0.4	-0.00016	mg/L	0.001037	-0.00016	mg/L	0.001037	663.26%

Sequence No.: 25

Autosampler Location: 44

Sample ID: VP40 MB1 SWC

Date Collected: 11/1/2012 3:27:39 PM

Analyst: EL

Data Type: Original

Dilution: 2X *EL*

Nebulizer Parameters: VP40 MB1 SWC

Analyte	Back Pressure	Flow
All	233.0 kPa	0.55 L/min

Mean Data: VP40 MB1 SWC

Analyte	Mean Corrected		Calib.	Std.Dev.	Sample		RSD
	Intensity	Conc. Units			Conc. Units	Std.Dev.	
ScA 357.253	2673523.7	101.0 %		0.24			0.24%
ScR 361.383	213796.1	101.0 %		0.51			0.51%
Ag 328.068†	18.6	0.00006 mg/L	0.000044	0.00013	mg/L	0.000089	70.92%
Al 308.215†	14.2	0.00943 mg/L	0.012522	0.01887	mg/L	0.025044	132.73%
As 188.979†	2.6	0.00111 mg/L	0.002511	0.00222	mg/L	0.005021	225.88%
B 249.677†	2.5	0.00117 mg/L	0.001627	0.00235	mg/L	0.003255	138.77%
Ba 233.527†	2.3	0.00023 mg/L	0.000295	0.00045	mg/L	0.000589	129.80%
Be 313.042†	2.6	0.00001 mg/L	0.000045	0.00002	mg/L	0.000090	508.04%
Ca 317.933†	143.1	0.01352 mg/L	0.001231	0.02703	mg/L	0.002462	9.11%
Cd 228.802†	6.3	0.00007 mg/L	0.000029	0.00015	mg/L	0.000058	39.34%
Co 228.616†	-0.8	-0.00001 mg/L	0.000099	-0.00002	mg/L	0.000197	859.58%
Cr 267.716†	3.2	0.00069 mg/L	0.000682	0.00138	mg/L	0.001363	98.90%
Cu 324.752†	1507.2	0.00481 mg/L	0.000060	0.00963	mg/L	0.000120	1.25%
Fe 273.955†	13.7	0.01118 mg/L	0.003154	0.02236	mg/L	0.006308	28.21%
K 766.490†	76.9	0.02133 mg/L	0.003425	0.04267	mg/L	0.006850	16.05%
Mg 279.077†	1.0	0.00081 mg/L	0.006400	0.00162	mg/L	0.012801	790.48%
Mn 257.610†	23.5	0.00058 mg/L	0.000164	0.00116	mg/L	0.000328	28.25%
Mo 202.031†	-2.2	-0.00012 mg/L	0.000066	-0.00023	mg/L	0.000133	56.71%
Na 589.592†	94.3	0.01160 mg/L	0.007923	0.02319	mg/L	0.015846	68.32%
Na 330.237†	-8.0	-0.2952 mg/L	0.44613	-0.5904	mg/L	0.89227	151.12%
Ni 231.604†	-0.1	-0.00006 mg/L	0.000440	-0.00011	mg/L	0.000879	787.70%
Pb 220.353†	15.2	0.00118 mg/L	0.000342	0.00236	mg/L	0.000684	29.03%
Sb 206.836†	2.5	0.00067 mg/L	0.000509	0.00134	mg/L	0.001018	75.86%
Se 196.026†	6.1	0.00316 mg/L	0.000767	0.00631	mg/L	0.001533	24.28%
Si 288.158†	17.5	0.01291 mg/L	0.003762	0.02582	mg/L	0.007525	29.14%
Sn 189.927†	-3.5	-0.00053 mg/L	0.000368	-0.00106	mg/L	0.000737	69.57%
Sr 421.552†	94.4	0.00016 mg/L	0.000027	0.00033	mg/L	0.000053	16.40%
Ti 334.903†	34.0	0.00132 mg/L	0.000560	0.00264	mg/L	0.001119	42.35%
Tl 190.801†	-9.8	-0.00268 mg/L	0.000797	-0.00536	mg/L	0.001594	29.71%
V 292.402†	59.7	0.00029 mg/L	0.000128	0.00059	mg/L	0.000257	43.57%
Zn 206.200†	23.5	0.00963 mg/L	0.000490	0.01927	mg/L	0.000981	5.09%

Sequence No.: 26

Sample ID: VP41 A SWC

Analyst: EL

Dilution: 2X

Autosampler Location: 45

Date Collected: 11/1/2012 3:33:39 PM

Data Type: Original

Nebulizer Parameters: VP41 A SWC

Analyte	Back Pressure	Flow
All	233.0 kPa	0.55 L/min

Mean Data: VP41 A SWC

Analyte	Mean Corrected		Calib. Units	Std.Dev.	Sample		Std.Dev.	RSD
	Intensity	Conc.			Conc.	Units		
ScA 357.253	2616861.3	98.82	%	0.368				0.37%
ScR 361.383	215629.0	101.8	%	0.94				0.92%
Ag 328.068†	-1255.1	-0.00043	mg/L	0.000095	-0.00086	mg/L	0.000191	22.09%
Al 308.215†	161726.6	107.5	mg/L	0.16	215.1	mg/L	0.32	0.15%
As 188.979†	529.0	0.2376	mg/L	0.00091	0.4751	mg/L	0.00181	0.38%
B 249.677†	56.0	0.02558	mg/L	0.004553	0.05116	mg/L	0.009107	17.80%
Ba 233.527†	3771.6	0.3591	mg/L	0.00288	0.7182	mg/L	0.00575	0.80%
Be 313.042†	590.2	0.00114	mg/L	0.000053	0.00228	mg/L	0.000107	4.68%
Ca 317.933†	1429603.0	135.1	mg/L	0.29	270.1	mg/L	0.58	0.21%
Cd 228.802†	178.2	0.00163	mg/L	0.000052	0.00327	mg/L	0.000105	3.21%
Co 228.616†	7058.5	0.06885	mg/L	0.000428	0.1377	mg/L	0.00086	0.62%
Cr 267.716†	620.2	0.1346	mg/L	0.00056	0.2692	mg/L	0.00113	0.42%
Cu 324.752†	115204.4	0.3797	mg/L	0.00083	0.7594	mg/L	0.00166	0.22%
Fe 273.955†	204107.4	166.5	mg/L	0.47	333.0	mg/L	0.95	0.28%
K 766.490†	28170.8	7.819	mg/L	0.0429	15.64	mg/L	0.086	0.55%
Mg 279.077†	65333.1	56.00	mg/L	0.100	112.0	mg/L	0.20	0.18%
Mn 257.610†	113741.4	2.810	mg/L	0.0028	5.620	mg/L	0.0056	0.10%
Mo 202.031†	433.7	0.02496	mg/L	0.000152	0.04991	mg/L	0.000305	0.61%
Na 589.592†	31384.1	3.859	mg/L	0.0138	7.717	mg/L	0.0275	0.36%
Na 330.237†	94.0	4.088	mg/L	0.1395	8.175	mg/L	0.2791	3.41%
Ni 231.604†	410.6	0.1859	mg/L	0.00234	0.3717	mg/L	0.00469	1.26%
Pb 220.353†	1596.9	0.1566	mg/L	0.00020	0.3132	mg/L	0.00041	0.13%
Sb 206.836†	213.6	0.05074	mg/L	0.002067	0.1015	mg/L	0.00413	4.07%
Se 196.026†	-75.9	-0.03998	mg/L	0.007237	-0.07996	mg/L	0.014473	18.10%
Si 288.158†	3937.0	2.918	mg/L	0.0250	5.836	mg/L	0.0501	0.86%
Sn 189.927†	-9.9	0.03127	mg/L	0.000638	0.06253	mg/L	0.001277	2.04%
Sr 421.552†	210392.9	0.3637	mg/L	0.00113	0.7274	mg/L	0.00225	0.31%
Ti 334.903†	187800.1	7.300	mg/L	0.0049	14.60	mg/L	0.010	0.07%
Tl 190.801†	23.9	-0.00596	mg/L	0.002253	-0.01192	mg/L	0.004506	37.80%
V 292.402†	75504.8	0.3496	mg/L	0.00075	0.6992	mg/L	0.00149	0.21%
Zn 206.200†	1214.9	0.5018	mg/L	0.00219	1.004	mg/L	0.0044	0.44%

Sequence No.: 27

Autosampler Location: 46

Sample ID: VP41 B SWC

Date Collected: 11/1/2012 3:39:29 PM

Analyst: EL

Data Type: Original

Dilution: 2X

Nebulizer Parameters: VP41 B SWC

Analyte	Back Pressure	Flow
All	233.0 kPa	0.55 L/min

Mean Data: VP41 B SWC

Analyte	Mean Corrected		Calib.		Sample		RSD
	Intensity	Conc.	Units	Std.Dev.	Conc.	Units	
ScA 357.253	2461674.4	92.96	%	0.443			0.48%
ScR 361.383	203648.1	96.17	%	0.972			1.01%
Ag 328.068†	-19471.8	-0.00698	mg/L	0.002458	-0.01396	mg/L	35.22%
Al 308.215†	110517.0	73.49	mg/L	0.128	147.0	mg/L	0.17%
As 188.979†	969.4	0.4127	mg/L	0.00740	0.8254	mg/L	1.79%
B 249.677†	702.1	0.3229	mg/L	0.01440	0.6457	mg/L	4.46%
Ba 233.527†	4652.3	0.3621	mg/L	0.00681	0.7241	mg/L	1.88%
Be 313.042†	367.8	0.00035	mg/L	0.000068	0.00071	mg/L	19.24%
Ca 317.933†	2512008.0	237.3	mg/L	0.15	474.6	mg/L	0.06%
Cd 228.802†	972.1	0.01099	mg/L	0.000231	0.02198	mg/L	2.10%
Co 228.616†	18702.0	0.1931	mg/L	0.00289	0.3861	mg/L	1.50%
Cr 267.716†	4855.3	1.056	mg/L	0.0129	2.113	mg/L	1.23%
Cu 324.752†	1031611.6	3.457	mg/L	0.0065	6.914	mg/L	0.19%
Fe 273.955†	2390948.9	1950	mg/L	2.1	3901	mg/L	0.11%
K 766.490†	14803.2	4.109	mg/L	0.0276	8.217	mg/L	0.67%
Mg 279.077†	148847.5	126.7	mg/L	0.04	253.4	mg/L	0.03%
Mn 257.610†	747759.1	18.48	mg/L	0.016	36.96	mg/L	0.09%
Mo 202.031†	3412.4	0.1842	mg/L	0.00209	0.3684	mg/L	1.14%
Na 589.592†	183028.9	22.50	mg/L	0.072	45.01	mg/L	0.32%
Na 330.237†	585.6	20.20	mg/L	0.639	40.40	mg/L	3.16%
Ni 231.604†	2884.0	1.305	mg/L	0.0110	2.611	mg/L	0.84%
Pb 220.353†	132916.3	10.22	mg/L	0.046	20.44	mg/L	0.45%
Sb 206.836†	926.3	0.05860	mg/L	0.010510	0.1172	mg/L	17.94%
Se 196.026†	-528.9	-0.2785	mg/L	0.00987	-0.5571	mg/L	3.54%
Si 288.158†	4684.8	3.481	mg/L	0.0609	6.961	mg/L	1.75%
Sn 189.927†	1779.3	0.3261	mg/L	0.00121	0.6523	mg/L	0.37%
Sr 421.552†	643054.0	1.112	mg/L	0.0020	2.223	mg/L	0.18%
Ti 334.903†	87539.0	3.394	mg/L	0.0047	6.788	mg/L	0.14%
Tl 190.801†	-454.0	-0.1532	mg/L	0.00397	-0.3065	mg/L	2.59%
V 292.402†	76828.6	0.1994	mg/L	0.00301	0.3988	mg/L	1.51%
Zn 206.200†	4914.3	2.023	mg/L	0.0302	4.047	mg/L	1.49%

Sequence No.: 28

Autosampler Location: 47

Sample ID: VP41 C SWC

Date Collected: 11/1/2012 3:43:56 PM

Analyst: EL

Data Type: Original

Dilution: 2X

Nebulizer Parameters: VP41 C SWC

Analyte	Back Pressure	Flow
All	233.0 kPa	0.55 L/min

Mean Data: VP41 C SWC

Analyte	Mean Corrected Intensity	Conc. Units	Calib.	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2618281.4	98.87 %		0.451			0.46%
ScR 361.383	208394.8	98.42 %		1.076			1.09%
Ag 328.068†	-6937.2	-0.00048 mg/L		0.000208	-0.00096 mg/L	0.000416	43.34%
Al 308.215†	44270.5	29.44 mg/L		0.102	58.89 mg/L	0.205	0.35%
As 188.979†	226.4	0.09486 mg/L		0.004379	0.1897 mg/L	0.00876	4.62%
B 249.677†	152.3	0.06999 mg/L		0.002217	0.1400 mg/L	0.00443	3.17%
Ba 233.527†	908.0	0.05364 mg/L		0.000711	0.1073 mg/L	0.00142	1.33%
Be 313.042†	118.9	0.00020 mg/L		0.000012	0.00040 mg/L	0.000023	5.87%
Ca 317.933†	642912.0	60.73 mg/L		0.088	121.5 mg/L	0.18	0.14%
Cd 228.802†	970.5	0.01147 mg/L		0.000187	0.02293 mg/L	0.000373	1.63%
Co 228.616†	6033.2	0.06267 mg/L		0.000467	0.1253 mg/L	0.00093	0.74%
Cr 267.716†	1171.0	0.2544 mg/L		0.00344	0.5087 mg/L	0.00689	1.35%
Cu 324.752†	540015.7	1.787 mg/L		0.0016	3.574 mg/L	0.0033	0.09%
Fe 273.955†	917135.7	748.2 mg/L		5.02	1496 mg/L	10.0	0.67%
K 766.490†	5779.9	1.604 mg/L		0.0243	3.208 mg/L	0.0486	1.51%
Mg 279.077†	25982.1	21.88 mg/L		0.217	43.76 mg/L	0.434	0.99%
Mn 257.610†	260967.3	6.448 mg/L		0.0215	12.90 mg/L	0.043	0.33%
Mo 202.031†	1193.0	0.06477 mg/L		0.001019	0.1295 mg/L	0.00204	1.57%
Na 589.592†	86518.3	10.64 mg/L		0.062	21.27 mg/L	0.124	0.58%
Na 330.237†	288.9	9.759 mg/L		0.1713	19.52 mg/L	0.343	1.76%
Ni 231.604†	736.7	0.3335 mg/L		0.00368	0.6669 mg/L	0.00736	1.10%
Pb 220.353†	4993.7	0.3607 mg/L		0.00172	0.7215 mg/L	0.00344	0.48%
Sb 206.836†	249.0	-0.00557 mg/L		0.002502	-0.01113 mg/L	0.005004	44.96%
Se 196.026†	-196.1	-0.1029 mg/L		0.00528	-0.2058 mg/L	0.01056	5.13%
Si 288.158†	4550.8	3.368 mg/L		0.0325	6.736 mg/L	0.0649	0.96%
Sn 189.927†	537.9	0.09552 mg/L		0.000676	0.1910 mg/L	0.00135	0.71%
Sr 421.552†	369507.7	0.6387 mg/L		0.00559	1.277 mg/L	0.0112	0.88%
Ti 334.903†	2848.7	0.1077 mg/L		0.00079	0.2155 mg/L	0.00157	0.73%
Tl 190.801†	-149.5	-0.04980 mg/L		0.002203	-0.09959 mg/L	0.004406	4.42%
V 292.402†	19509.1	0.02748 mg/L		0.000496	0.05495 mg/L	0.000991	1.80%
Zn 206.200†	3369.5	1.385 mg/L		0.0167	2.770 mg/L	0.0335	1.21%

Sequence No.: 29

Autosampler Location: 48

Sample ID: VP41 D SWC

Date Collected: 11/1/2012 3:49:48 PM

Analyst: EL

Data Type: Original

Dilution: 2X

Nebulizer Parameters: VP41 D SWC

Analyte	Back Pressure	Flow
All	233.0 kPa	0.55 L/min

Mean Data: VP41 D SWC

Analyte	Mean Corrected Intensity	Calib. Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2724288.1	102.9 %	0.47			0.46%
ScR 361.383	219704.1	103.8 %	0.35			0.33%
Ag 328.068†	-2484.8	0.00079 mg/L	0.000074	0.00158 mg/L	0.000147	9.32%
Al 308.215†	129968.2	86.43 mg/L	0.232	172.9 mg/L	0.46	0.27%
As 188.979†	166.6	0.07674 mg/L	0.001534	0.1535 mg/L	0.00307	2.00%
B 249.677†	136.8	0.06277 mg/L	0.001305	0.1255 mg/L	0.00261	2.08%
Ba 233.527†	6422.6	0.6098 mg/L	0.00313	1.220 mg/L	0.0063	0.51%
Be 313.042†	662.2	0.00174 mg/L	0.000023	0.00349 mg/L	0.000047	1.34%
Ca 317.933†	584705.6	55.24 mg/L	0.072	110.5 mg/L	0.14	0.13%
Cd 228.802†	987.6	0.01172 mg/L	0.000132	0.02344 mg/L	0.000264	1.12%
Co 228.616†	5879.4	0.05990 mg/L	0.000444	0.1198 mg/L	0.00089	0.74%
Cr 267.716†	1424.4	0.3098 mg/L	0.00172	0.6196 mg/L	0.00344	0.56%
Cu 324.752†	367622.8	1.200 mg/L	0.0010	2.400 mg/L	0.0020	0.08%
Fe 273.955†	394672.4	322.0 mg/L	1.39	643.9 mg/L	2.78	0.43%
K 766.490†	25611.5	7.108 mg/L	0.0217	14.22 mg/L	0.043	0.31%
Mg 279.077†	35781.1	30.54 mg/L	0.156	61.07 mg/L	0.311	0.51%
Mn 257.610†	224480.5	5.547 mg/L	0.0174	11.09 mg/L	0.035	0.31%
Mo 202.031†	579.9	0.03271 mg/L	0.000294	0.06541 mg/L	0.000589	0.90%
Na 589.592†	128343.7	15.78 mg/L	0.040	31.56 mg/L	0.079	0.25%
Na 330.237†	437.5	15.25 mg/L	0.192	30.50 mg/L	0.383	1.26%
Ni 231.604†	711.4	0.3220 mg/L	0.00371	0.6440 mg/L	0.00742	1.15%
Pb 220.353†	17672.6	1.383 mg/L	0.0072	2.766 mg/L	0.0143	0.52%
Sb 206.836†	164.0	0.01485 mg/L	0.000770	0.02969 mg/L	0.001540	5.19%
Se 196.026†	-107.5	-0.05675 mg/L	0.002957	-0.1135 mg/L	0.00591	5.21%
Si 288.158†	7355.3	5.442 mg/L	0.0374	10.88 mg/L	0.075	0.69%
Sn 189.927†	535.4	0.09536 mg/L	0.000510	0.1907 mg/L	0.00102	0.53%
Sr 421.552†	220178.2	0.3806 mg/L	0.00114	0.7612 mg/L	0.00227	0.30%
Ti 334.903†	86275.3	3.354 mg/L	0.0056	6.708 mg/L	0.0113	0.17%
Tl 190.801†	-31.1	-0.02017 mg/L	0.002525	-0.04033 mg/L	0.005050	12.52%
V 292.402†	54474.2	0.2368 mg/L	0.00036	0.4735 mg/L	0.00072	0.15%
Zn 206.200†	7160.7	2.942 mg/L	0.0228	5.884 mg/L	0.0456	0.77%

Sequence No.: 30

Autosampler Location: 49

Sample ID: VP41 E SWC

Date Collected: 11/1/2012 3:55:39 PM

Analyst: EL

Data Type: Original

Dilution: 2X

Nebulizer Parameters: VP41 E SWC

Analyte	Back Pressure	Flow
All	233.0 kPa	0.55 L/min

Mean Data: VP41 E SWC

Analyte	Mean Corrected		Calib. Units	Std.Dev.	Sample		Std.Dev.	RSD
	Intensity	Conc.			Conc.	Units		
ScA 357.253	2671460.5	100.9	%	0.76				0.75%
ScR 361.383	219481.5	103.7	%	1.67				1.61%
Ag 328.068†	-7280.6	0.00007	mg/L	0.000708	0.00015	mg/L	0.001416	974.30%
Al 308.215†	43935.8	29.22	mg/L	0.396	58.43	mg/L	0.792	1.36%
As 188.979†	393.4	0.1678	mg/L	0.00129	0.3356	mg/L	0.00258	0.77%
B 249.677†	43.0	0.01937	mg/L	0.003254	0.03874	mg/L	0.006509	16.80%
Ba 233.527†	1293.2	0.08977	mg/L	0.000679	0.1795	mg/L	0.00136	0.76%
Be 313.042†	194.5	0.00025	mg/L	0.000058	0.00051	mg/L	0.000116	22.80%
Ca 317.933†	203350.2	19.21	mg/L	0.255	38.42	mg/L	0.510	1.33%
Cd 228.802†	707.7	0.00829	mg/L	0.000220	0.01658	mg/L	0.000440	2.65%
Co 228.616†	10637.7	0.1144	mg/L	0.00180	0.2289	mg/L	0.00361	1.58%
Cr 267.716†	2039.8	0.4444	mg/L	0.00597	0.8888	mg/L	0.01193	1.34%
Cu 324.752†	858212.8	2.805	mg/L	0.0033	5.611	mg/L	0.0065	0.12%
Fe 273.955†	950250.6	775.2	mg/L	11.85	1550	mg/L	23.7	1.53%
K 766.490†	9065.9	2.516	mg/L	0.0435	5.032	mg/L	0.0870	1.73%
Mg 279.077†	26180.5	22.04	mg/L	0.318	44.07	mg/L	0.637	1.45%
Mn 257.610†	203581.8	5.030	mg/L	0.0657	10.06	mg/L	0.131	1.31%
Mo 202.031†	1364.3	0.07399	mg/L	0.001352	0.1480	mg/L	0.00270	1.83%
Na 589.592†	81254.8	9.990	mg/L	0.1458	19.98	mg/L	0.292	1.46%
Na 330.237†	262.9	8.975	mg/L	0.0604	17.95	mg/L	0.121	0.67%
Ni 231.604†	1870.1	0.8464	mg/L	0.00971	1.693	mg/L	0.0194	1.15%
Pb 220.353†	11896.4	0.8917	mg/L	0.01127	1.783	mg/L	0.0225	1.26%
Sb 206.836†	502.5	0.06722	mg/L	0.003482	0.1344	mg/L	0.00696	5.18%
Se 196.026†	-202.2	-0.1074	mg/L	0.00524	-0.2147	mg/L	0.01048	4.88%
Si 288.158†	4771.0	3.531	mg/L	0.0464	7.062	mg/L	0.0928	1.31%
Sn 189.927†	4749.4	0.7294	mg/L	0.00884	1.459	mg/L	0.0177	1.21%
Sr 421.552†	97133.3	0.1679	mg/L	0.00258	0.3358	mg/L	0.00516	1.54%
Ti 334.903†	39028.4	1.517	mg/L	0.0202	3.035	mg/L	0.0404	1.33%
Tl 190.801†	-158.0	-0.05245	mg/L	0.001683	-0.1049	mg/L	0.00337	3.21%
V 292.402†	35709.3	0.1043	mg/L	0.00127	0.2086	mg/L	0.00254	1.22%
Zn 206.200†	5279.5	2.168	mg/L	0.0287	4.337	mg/L	0.0574	1.32%

Sequence No.: 31

Autosampler Location: 50

Sample ID: VP40 B SWC

Date Collected: 11/1/2012 4:01:34 PM

Analyst: EL

Data Type: Original

Dilution: 2X

Nebulizer Parameters: VP40 B SWC

Analyte	Back Pressure	Flow
All	233.0 kPa	0.55 L/min

Mean Data: VP40 B SWC

Analyte	Mean Corrected		Calib.		Sample		RSD
	Intensity	Conc.	Units	Std.Dev.	Conc.	Units	
ScA 357.253	2695509.7	101.8	%	0.73			0.71%
ScR 361.383	219257.6	103.5	%	1.87			1.81%
Ag 328.068†	-1696.8	0.00011	mg/L	0.000135	0.00021	mg/L	0.000270 126.45%
Al 308.215†	122316.2	81.34	mg/L	0.699	162.7	mg/L	1.40 0.86%
As 188.979†	92.2	0.04752	mg/L	0.001493	0.09504	mg/L	0.002986 3.14%
B 249.677†	104.8	0.04802	mg/L	0.002398	0.09603	mg/L	0.004796 4.99%
Ba 233.527†	2409.9	0.2254	mg/L	0.00533	0.4508	mg/L	0.01067 2.37%
Be 313.042†	562.0	0.00123	mg/L	0.000059	0.00246	mg/L	0.000119 4.83%
Ca 317.933†	413650.5	39.08	mg/L	0.253	78.15	mg/L	0.506 0.65%
Cd 228.802†	157.8	0.00183	mg/L	0.000045	0.00365	mg/L	0.000090 2.46%
Co 228.616†	5252.6	0.05250	mg/L	0.000658	0.1050	mg/L	0.00132 1.25%
Cr 267.716†	1350.0	0.2943	mg/L	0.00785	0.5887	mg/L	0.01571 2.67%
Cu 324.752†	78482.6	0.2655	mg/L	0.00118	0.5310	mg/L	0.00235 0.44%
Fe 273.955†	235923.5	192.5	mg/L	1.26	384.9	mg/L	2.52 0.65%
K 766.490†	20274.5	5.627	mg/L	0.0652	11.25	mg/L	0.130 1.16%
Mg 279.077†	49118.5	42.06	mg/L	0.271	84.12	mg/L	0.542 0.64%
Mn 257.610†	72715.8	1.796	mg/L	0.0134	3.593	mg/L	0.0269 0.75%
Mo 202.031†	248.5	0.01456	mg/L	0.000331	0.02911	mg/L	0.000663 2.28%
Na 589.592†	140388.6	17.26	mg/L	0.195	34.52	mg/L	0.390 1.13%
Na 330.237†	455.0	17.11	mg/L	0.126	34.23	mg/L	0.252 0.74%
Ni 231.604†	403.6	0.1827	mg/L	0.00636	0.3653	mg/L	0.01271 3.48%
Pb 220.353†	2059.9	0.1800	mg/L	0.00149	0.3599	mg/L	0.00298 0.83%
Sb 206.836†	90.5	0.00761	mg/L	0.001276	0.01522	mg/L	0.002553 16.77%
Se 196.026†	-62.6	-0.03307	mg/L	0.001640	-0.06613	mg/L	0.003281 4.96%
Si 288.158†	4901.8	3.630	mg/L	0.0768	7.259	mg/L	0.1536 2.12%
Sn 189.927†	36.4	0.01645	mg/L	0.000863	0.03290	mg/L	0.001726 5.25%
Sr 421.552†	125765.7	0.2174	mg/L	0.00177	0.4348	mg/L	0.00355 0.82%
Ti 334.903†	109826.4	4.271	mg/L	0.0338	8.542	mg/L	0.0675 0.79%
Tl 190.801†	-13.0	-0.01165	mg/L	0.000322	-0.02330	mg/L	0.000644 2.76%
V 292.402†	63975.2	0.2941	mg/L	0.00096	0.5882	mg/L	0.00191 0.32%
Zn 206.200†	942.2	0.3876	mg/L	0.00934	0.7752	mg/L	0.01868 2.41%

Sequence No.: 32

Sample ID: VP40 C SWC

Analyst: EL

Dilution: 2X

Autosampler Location: 51

Date Collected: 11/1/2012 4:07:24 PM

Data Type: Original

Nebulizer Parameters: VP40 C SWC

Analyte	Back Pressure	Flow
All	233.0 kPa	0.55 L/min

Mean Data: VP40 C SWC

Analyte	Mean Corrected		Calib. Conc. Units	Std.Dev.	Sample		RSD	
	Intensity	Conc.			Conc.	Units		
ScA 357.253	2685212.2	101.4	%	0.35			0.35%	
ScR 361.383	216164.4	102.1	%	0.08			0.08%	
Ag 328.068†	-1973.4	0.00157	mg/L	0.000101	0.00313	mg/L	0.000202	6.43%
Al 308.215†	95162.5	63.28	mg/L	0.075	126.6	mg/L	0.15	0.12%
As 188.979†	127.6	0.06285	mg/L	0.000742	0.1257	mg/L	0.00148	1.18%
B 249.677†	117.8	0.05409	mg/L	0.003404	0.1082	mg/L	0.00681	6.29%
Ba 233.527†	13012.3	1.253	mg/L	0.0028	2.507	mg/L	0.0055	0.22%
Be 313.042†	340.7	0.00062	mg/L	0.000045	0.00124	mg/L	0.000090	7.23%
Ca 317.933†	639106.7	60.37	mg/L	0.034	120.7	mg/L	0.07	0.06%
Cd 228.802†	8346.7	0.09976	mg/L	0.000563	0.1995	mg/L	0.00113	0.56%
Co 228.616†	3948.0	0.03548	mg/L	0.000324	0.07096	mg/L	0.000648	0.91%
Cr 267.716†	832.0	0.1811	mg/L	0.00022	0.3623	mg/L	0.00045	0.12%
Cu 324.752†	74815.3	0.2605	mg/L	0.00019	0.5210	mg/L	0.00037	0.07%
Fe 273.955†	334887.8	273.2	mg/L	0.66	546.4	mg/L	1.32	0.24%
K 766.490†	18079.7	5.018	mg/L	0.0171	10.04	mg/L	0.034	0.34%
Mg 279.077†	53777.8	46.02	mg/L	0.050	92.03	mg/L	0.101	0.11%
Mn 257.610†	76541.7	1.892	mg/L	0.0020	3.784	mg/L	0.0041	0.11%
Mo 202.031†	169.3	0.00987	mg/L	0.000165	0.01974	mg/L	0.000330	1.67%
Na 589.592†	57588.8	7.080	mg/L	0.0126	14.16	mg/L	0.025	0.18%
Na 330.237†	562.7	4.150	mg/L	0.6053	8.300	mg/L	1.2106	14.59%
Ni 231.604†	325.3	0.1472	mg/L	0.00241	0.2945	mg/L	0.00482	1.64%
Pb 220.353†	51699.6	4.011	mg/L	0.0043	8.021	mg/L	0.0086	0.11%
Sb 206.836†	94.5	0.01201	mg/L	0.001134	0.02403	mg/L	0.002267	9.43%
Se 196.026†	-96.8	-0.05078	mg/L	0.004467	-0.1016	mg/L	0.00893	8.80%
Si 288.158†	4529.8	3.355	mg/L	0.0148	6.711	mg/L	0.0296	0.44%
Sn 189.927†	5040.3	0.7841	mg/L	0.00453	1.568	mg/L	0.0091	0.58%
Sr 421.552†	245049.1	0.4236	mg/L	0.00254	0.8472	mg/L	0.00509	0.60%
Ti 334.903†	113745.9	4.423	mg/L	0.0055	8.845	mg/L	0.0110	0.12%
Tl 190.801†	-18.2	-0.01280	mg/L	0.001566	-0.02560	mg/L	0.003131	12.23%
V 292.402†	46465.3	0.1997	mg/L	0.00029	0.3993	mg/L	0.00058	0.15%
Zn 206.200†	108725.1	44.66	mg/L	0.065	89.31	mg/L	0.129	0.14%

Sequence No.: 33

Sample ID: VQ16 MB2SPK DMN

Analyst: EL

Dilution: 1X

Autosampler Location: 52

Date Collected: 11/1/2012 4:13:13 PM

Data Type: Original

Nebulizer Parameters: VQ16 MB2SPK DMN

Analyte	Back Pressure	Flow
All	233.0 kPa	0.55 L/min

Mean Data: VQ16 MB2SPK DMN

Analyte	Mean Corrected		Calib. Conc. Units	Std.Dev.	Sample		RSD
	Intensity	Conc.			Conc.	Units	
ScA 357.253	2795176.3	105.5	%	0.44			0.42%
ScR 361.383	220436.4	104.1	%	0.75			0.72%
Ag 328.068†	157306.9	0.5278	mg/L	0.00261	0.5278	mg/L	0.00261 0.49%
Al 308.215†	3351.3	2.221	mg/L	0.0136	2.221	mg/L	0.0136 0.61%
As 188.979†	5385.1	2.260	mg/L	0.0122	2.260	mg/L	0.0122 0.54%
B 249.677†	-0.1	-0.00186	mg/L	0.000958	-0.00186	mg/L	0.000958 51.44%
Ba 233.527†	22282.6	2.168	mg/L	0.0056	2.168	mg/L	0.0056 0.26%
Be 313.042†	154019.3	0.5770	mg/L	0.00223	0.5770	mg/L	0.00223 0.39%
Ca 317.933†	120432.4	11.38	mg/L	0.050	11.38	mg/L	0.050 0.44%
Cd 228.802†	48026.7	0.5694	mg/L	0.00458	0.5694	mg/L	0.00458 0.80%
Co 228.616†	45854.2	0.5430	mg/L	0.00386	0.5430	mg/L	0.00386 0.71%
Cr 267.716†	2604.3	0.5688	mg/L	0.00265	0.5688	mg/L	0.00265 0.47%
Cu 324.752†	166170.3	0.5311	mg/L	0.00369	0.5311	mg/L	0.00369 0.70%
Fe 273.955†	2873.3	2.343	mg/L	0.0020	2.343	mg/L	0.0020 0.08%
K 766.490†	41684.7	11.57	mg/L	0.027	11.57	mg/L	0.027 0.24%
Mg 279.077†	13505.7	11.60	mg/L	0.013	11.60	mg/L	0.013 0.11%
Mn 257.610†	21912.5	0.5420	mg/L	0.00148	0.5420	mg/L	0.00148 0.27%
Mo 202.031†	13.1	0.00050	mg/L	0.000335	0.00050	mg/L	0.000335 66.63%
Na 589.592†	92591.4	11.38	mg/L	0.057	11.38	mg/L	0.057 0.50%
Na 330.237†	310.9	11.06	mg/L	0.256	11.06	mg/L	0.256 2.31%
Ni 231.604†	1256.9	0.5680	mg/L	0.00276	0.5680	mg/L	0.00276 0.49%
Pb 220.353†	29946.5	2.318	mg/L	0.0190	2.318	mg/L	0.0190 0.82%
Sb 206.836†	16.9	-0.00398	mg/L	0.000801	-0.00398	mg/L	0.000801 20.15%
Se 196.026†	4627.0	2.407	mg/L	0.0068	2.407	mg/L	0.0068 0.28%
Si 288.158†	2.3	0.00564	mg/L	0.004394	0.00564	mg/L	0.004394 77.88%
Sn 189.927†	-15.7	0.00031	mg/L	0.000261	0.00031	mg/L	0.000261 83.76%
Sr 421.552†	331542.4	0.5731	mg/L	0.00117	0.5731	mg/L	0.00117 0.20%
Ti 334.903†	37.6	0.00077	mg/L	0.000165	0.00077	mg/L	0.000165 21.38%
Tl 190.801†	8453.3	2.303	mg/L	0.0101	2.303	mg/L	0.0101 0.44%
V 292.402†	112096.1	0.5534	mg/L	0.00393	0.5534	mg/L	0.00393 0.71%
Zn 206.200†	1436.8	0.5901	mg/L	0.00037	0.5901	mg/L	0.00037 0.06%

Sequence No.: 34
 Sample ID: VQ25 MBSPK WMN
 Analyst: EL
 Dilution: 1X

Autosampler Location: 53
 Date Collected: 11/1/2012 4:19:16 PM
 Data Type: Original

Nebulizer Parameters: VQ25 MBSPK WMN

Analyte	Back Pressure	Flow
All	233.0 kPa	0.55 L/min

Mean Data: VQ25 MBSPK WMN

Analyte	Mean Corrected		Calib. Units	Std.Dev.	Sample		RSD
	Intensity	Conc.			Conc.	Units	
ScA 357.253	2793957.6	105.5	%	0.37			0.35%
ScR 361.383	223763.9	105.7	%	0.69			0.65%
Ag 328.068†	162560.5	0.5454	mg/L	0.00358	0.5454	mg/L	0.66%
Al 308.215†	3392.9	2.248	mg/L	0.0237	2.248	mg/L	1.05%
As 188.979†	5537.2	2.324	mg/L	0.0085	2.324	mg/L	0.36%
B 249.677†	-4.1	-0.00376	mg/L	0.002424	-0.00376	mg/L	64.42%
Ba 233.527†	22775.6	2.216	mg/L	0.0205	2.216	mg/L	0.92%
Be 313.042†	157967.1	0.5918	mg/L	0.00243	0.5918	mg/L	0.41%
Ca 317.933†	123291.6	11.65	mg/L	0.051	11.65	mg/L	0.44%
Cd 228.802†	49754.0	0.5899	mg/L	0.00519	0.5899	mg/L	0.88%
Co 228.616†	47554.5	0.5631	mg/L	0.00496	0.5631	mg/L	0.88%
Cr 267.716†	2656.6	0.5802	mg/L	0.00589	0.5802	mg/L	1.01%
Cu 324.752†	171945.1	0.5496	mg/L	0.00412	0.5496	mg/L	0.75%
Fe 273.955†	2923.8	2.385	mg/L	0.0154	2.385	mg/L	0.64%
K 766.490†	42319.4	11.75	mg/L	0.005	11.75	mg/L	0.04%
Mg 279.077†	13823.9	11.87	mg/L	0.107	11.87	mg/L	0.90%
Mn 257.610†	22402.8	0.5541	mg/L	0.00482	0.5541	mg/L	0.87%
Mo 202.031†	11.3	0.00040	mg/L	0.000151	0.00040	mg/L	37.90%
Na 589.592†	93827.2	11.54	mg/L	0.016	11.54	mg/L	0.14%
Na 330.237†	314.3	11.18	mg/L	0.323	11.18	mg/L	2.89%
Ni 231.604†	1284.1	0.5803	mg/L	0.00694	0.5803	mg/L	1.20%
Pb 220.353†	31008.3	2.401	mg/L	0.0213	2.401	mg/L	0.89%
Sb 206.836†	15.4	-0.00451	mg/L	0.001405	-0.00451	mg/L	31.18%
Se 196.026†	4756.6	2.474	mg/L	0.0085	2.474	mg/L	0.34%
Si 288.158†	-0.2	0.00384	mg/L	0.004367	0.00384	mg/L	113.80%
Sn 189.927†	-16.1	0.00032	mg/L	0.000475	0.00032	mg/L	150.82%
Sr 421.552†	339592.3	0.5870	mg/L	0.00031	0.5870	mg/L	0.05%
Ti 334.903†	28.7	0.00041	mg/L	0.000332	0.00041	mg/L	81.56%
Tl 190.801†	8707.9	2.373	mg/L	0.0046	2.373	mg/L	0.20%
V 292.402†	116010.2	0.5727	mg/L	0.00497	0.5727	mg/L	0.87%
Zn 206.200†	1462.2	0.6006	mg/L	0.00509	0.6006	mg/L	0.85%

=====
Analysis Begun

Start Time: 11/1/2012 4:24:13 PM

Plasma On Time: 11/1/2012 9:01:02 AM

Logged In Analyst: metals

Technique: ICP Continuous

Spectrometer Model: Optima 4300 DV, S/N 077N0060101 Autosampler Model: S10

Sample Information File: C:\pe\metals\Sample Information\1101.sif

Batch ID:

Results Data Set: PE121101

Results Library: C:\pe\metals\Results\Results.mdb

=====
Sequence No.: 1

Autosampler Location: 7

Sample ID: CV4

Date Collected: 11/1/2012 4:24:16 PM

Analyst: EL

Data Type: Original

Dilution: 1X

Nebulizer Parameters: CV

Analyte	Back Pressure	Flow
All	233.0 kPa	0.55 L/min

Mean Data: CV

Analyte	Mean Corrected Intensity	Calib. Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2696116.0	101.8 %	0.19			0.19%
ScR 361.383	215776.9	101.9 %	0.68			0.66%
Ag 328.068†	294934.7	0.9895 mg/L	0.00301	0.9895 mg/L	0.00301	0.30%
Al 308.215†	3079.6	2.007 mg/L	0.0047	2.007 mg/L	0.0047	0.23%
As 188.979†	4960.1	2.081 mg/L	0.0085	2.081 mg/L	0.0085	0.41%
B 249.677†	2141.7	0.9856 mg/L	0.00775	0.9856 mg/L	0.00775	0.79%
Ba 233.527†	10340.0	1.006 mg/L	0.0057	1.006 mg/L	0.0057	0.57%
Be 313.042†	273952.4	1.026 mg/L	0.0017	1.026 mg/L	0.0017	0.17%
Ca 317.933†	21850.7	2.064 mg/L	0.0117	2.064 mg/L	0.0117	0.57%
Cd 228.802†	84815.5	1.010 mg/L	0.0019	1.010 mg/L	0.0019	0.19%
Co 228.616†	83729.9	0.9910 mg/L	0.00159	0.9910 mg/L	0.00159	0.16%
Cr 267.716†	4617.7	1.008 mg/L	0.0051	1.008 mg/L	0.0051	0.51%
Cu 324.752†	328506.8	1.049 mg/L	0.0009	1.049 mg/L	0.0009	0.09%
Fe 273.955†	2660.9	2.170 mg/L	0.0129	2.170 mg/L	0.0129	0.60%
K 766.490†	74033.2	20.55 mg/L	0.056	20.55 mg/L	0.056	0.27%
Mg 279.077†	2476.8	2.130 mg/L	0.0139	2.130 mg/L	0.0139	0.65%
Mn 257.610†	40593.5	1.004 mg/L	0.0008	1.004 mg/L	0.0008	0.08%
Mo 202.031†	17682.3	0.9554 mg/L	0.00392	0.9554 mg/L	0.00392	0.41%
Na 589.592†	410712.4	50.50 mg/L	0.125	50.50 mg/L	0.125	0.25%
Na 330.237†	1386.0	50.28 mg/L	0.233	50.28 mg/L	0.233	0.46%
Ni 231.604†	2283.3	1.034 mg/L	0.0086	1.034 mg/L	0.0086	0.83%
Pb 220.353†	26879.8	2.081 mg/L	0.0094	2.081 mg/L	0.0094	0.45%
Sb 206.836†	7651.6	2.089 mg/L	0.0082	2.089 mg/L	0.0082	0.39%
Se 196.026†	3863.1	2.008 mg/L	0.0091	2.008 mg/L	0.0091	0.45%
Si 288.158†	2922.5	2.167 mg/L	0.0099	2.167 mg/L	0.0099	0.46%
Sn 189.927†	5983.6	0.9132 mg/L	0.00424	0.9132 mg/L	0.00424	0.46%
Sr 421.552†	606331.3	1.048 mg/L	0.0020	1.048 mg/L	0.0020	0.19%
Ti 334.903†	25672.7	0.9976 mg/L	0.00102	0.9976 mg/L	0.00102	0.10%
Tl 190.801†	7366.3	2.001 mg/L	0.0064	2.001 mg/L	0.0064	0.32%
V 292.402†	203480.9	1.008 mg/L	0.0037	1.008 mg/L	0.0037	0.37%
Zn 206.200†	2773.2	1.138 mg/L	0.0078	1.138 mg/L	0.0078	0.69%

Sequence No.: 2
 Sample ID: CB 4
 Analyst: EL
 Dilution: 1X

Autosampler Location: 1
 Date Collected: 11/1/2012 4:30:18 PM
 Data Type: Original

Nebulizer Parameters: CB

Analyte Back Pressure Flow
 All 233.0 kPa 0.55 L/min

Mean Data: CB

Analyte	Mean Corrected Intensity	Conc. Units	Calib. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2745444.6	103.7	%	0.69			0.67%
ScR 361.383	211900.8	100.1	%	0.89			0.89%
Ag 328.068†	97.5	0.00033	mg/L	0.000015	0.00033 mg/L	0.000015	4.71%
Al 308.215†	3.3	0.00220	mg/L	0.003726	0.00220 mg/L	0.003726	169.01%
As 188.979†	0.5	0.00021	mg/L	0.000415	0.00021 mg/L	0.000415	201.09%
B 249.677†	-1.4	-0.00064	mg/L	0.000423	-0.00064 mg/L	0.000423	66.29%
Ba 233.527†	-0.7	-0.00007	mg/L	0.000326	-0.00007 mg/L	0.000326	492.92%
Be 313.042†	38.0	0.00014	mg/L	0.000028	0.00014 mg/L	0.000028	19.28%
Ca 317.933†	19.5	0.00184	mg/L	0.000740	0.00184 mg/L	0.000740	40.25%
Cd 228.802†	15.7	0.00019	mg/L	0.000097	0.00019 mg/L	0.000097	51.36%
Co 228.616†	10.2	0.00012	mg/L	0.000108	0.00012 mg/L	0.000108	89.52%
Cr 267.716†	1.6	0.00034	mg/L	0.001895	0.00034 mg/L	0.001895	552.01%
Cu 324.752†	317.4	0.00102	mg/L	0.000182	0.00102 mg/L	0.000182	17.93%
Fe 273.955†	22.8	0.01858	mg/L	0.001814	0.01858 mg/L	0.001814	9.77%
K 766.490†	299.8	0.08321	mg/L	0.011592	0.08321 mg/L	0.011592	13.93%
Mg 279.077†	-12.9	-0.01109	mg/L	0.001236	-0.01109 mg/L	0.001236	11.15%
Mn 257.610†	23.8	0.00059	mg/L	0.000049	0.00059 mg/L	0.000049	8.33%
Mo 202.031†	-8.2	-0.00044	mg/L	0.000260	-0.00044 mg/L	0.000260	58.54%
Na 589.592†	275.2	0.03383	mg/L	0.003847	0.03383 mg/L	0.003847	11.37%
Na 330.237†	7.4	0.2626	mg/L	0.51393	0.2626 mg/L	0.51393	195.72%
Ni 231.604†	3.5	0.00157	mg/L	0.002350	0.00157 mg/L	0.002350	149.41%
Pb 220.353†	22.5	0.00174	mg/L	0.000351	0.00174 mg/L	0.000351	20.15%
Sb 206.836†	0.2	0.00006	mg/L	0.000904	0.00006 mg/L	0.000904	>999.9%
Se 196.026†	-2.4	-0.00125	mg/L	0.004492	-0.00125 mg/L	0.004492	360.54%
Si 288.158†	6.1	0.00453	mg/L	0.003544	0.00453 mg/L	0.003544	78.20%
Sn 189.927†	2.8	0.00043	mg/L	0.000592	0.00043 mg/L	0.000592	138.91%
Sr 421.552†	124.0	0.00021	mg/L	0.000063	0.00021 mg/L	0.000063	29.26%
Ti 334.903†	3.5	0.00014	mg/L	0.000945	0.00014 mg/L	0.000945	685.73%
Tl 190.801†	4.6	0.00125	mg/L	0.000828	0.00125 mg/L	0.000828	66.23%
V 292.402†	13.3	0.00006	mg/L	0.000105	0.00006 mg/L	0.000105	164.78%
Zn 206.200†	39.7	0.01631	mg/L	0.001689	0.01631 mg/L	0.001689	10.36%

=====
Analysis Begun

Start Time: 11/1/2012 4:37:40 PM

Plasma On Time: 11/1/2012 9:01:02 AM

Logged In Analyst: metals

Technique: ICP Continuous

Spectrometer Model: Optima 4300 DV, S/N 077N0060101 Autosampler Model: S10

Sample Information File: C:\pe\metals\Sample Information\1101.sif

Batch ID:

Results Data Set: PE121101

Results Library: C:\pe\metals\Results\Results.mdb
=====

Sequence No.: 1

Sample ID: Calib Blank 1

Date Collected: 11/1/2012 4:37:42 PM

Data Type: Original

Nebulizer Parameters: Calib Blank 1

Analyte	Back Pressure	Flow
All	233.0 kPa	0.55 L/min

Mean Data: Calib Blank 1

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Calib Conc.	Units
ScA 357.253	2743025.2	29392.22	1.07%	103.6	%
ScR 361.383	216784.2	2230.23	1.03%	102.4	%
Ag 328.068†	646.9	24.09	3.72%	[0.00]	mg/L
Al 308.215†	42.3	13.46	31.85%	[0.00]	mg/L
As 188.979†	3.2	1.64	51.33%	[0.00]	mg/L
B 249.677†	-126.9	8.24	6.49%	[0.00]	mg/L
Ba 233.527†	70.1	3.56	5.07%	[0.00]	mg/L
Be 313.042†	635.4	16.83	2.65%	[0.00]	mg/L
Ca 317.933†	-1.5	9.24	634.50%	[0.00]	mg/L
Cd 228.802†	311.3	8.41	2.70%	[0.00]	mg/L
Co 228.616†	319.0	9.02	2.83%	[0.00]	mg/L
Cr 267.716†	8.9	0.36	3.97%	[0.00]	mg/L
Cu 324.752†	1864.5	28.52	1.53%	[0.00]	mg/L
Fe 273.955†	-11.6	2.54	21.83%	[0.00]	mg/L
K 766.490†	2249.0	24.15	1.07%	[0.00]	mg/L
Mg 279.077†	-169.5	7.35	4.34%	[0.00]	mg/L
Mn 257.610†	-45.8	6.79	14.82%	[0.00]	mg/L
Mo 202.031†	-133.4	2.41	1.81%	[0.00]	mg/L
Na 589.592†	203.0	5.29	2.61%	[0.00]	mg/L
Na 330.237†	43.9	7.47	17.02%	[0.00]	mg/L
Ni 231.604†	30.7	3.00	9.78%	[0.00]	mg/L
Pb 220.353†	284.8	2.96	1.04%	[0.00]	mg/L
Sb 206.836†	123.5	3.01	2.44%	[0.00]	mg/L
Se 196.026†	-98.3	1.40	1.43%	[0.00]	mg/L
Si 288.158†	4.6	1.86	40.29%	[0.00]	mg/L
Sn 189.927†	-8.6	7.65	88.73%	[0.00]	mg/L
Sr 421.552†	736.2	33.60	4.56%	[0.00]	mg/L
Ti 334.903†	-44.9	6.40	14.25%	[0.00]	mg/L
Tl 190.801†	17.5	3.57	20.32%	[0.00]	mg/L
V 292.402†	-13.3	23.46	176.14%	[0.00]	mg/L
Zn 206.200†	-8.3	2.00	24.13%	[0.00]	mg/L

Sequence No.: 2
Sample ID: STD3

Date Collected: 11/1/2012 4:44:13 PM
Data Type: Original

Nebulizer Parameters: STD3

Analyte	Back Pressure	Flow
All	233.0 kPa	0.55 L/min

Mean Data: STD3

Analyte	Mean Corrected			Calib
	Intensity	Std.Dev.	RSD	Conc. Units
ScA 357.253	2706785.4	10235.05	0.38%	102.2 %
ScR 361.383	210301.8	1635.71	0.78%	99.32 %
Ag 328.068†	292246.5	537.41	0.18%	[1.0] mg/L
As 188.979†	23574.7	173.29	0.74%	[10] mg/L
B 249.677†	21810.3	69.78	0.32%	[10] mg/L
Be 313.042†	1379288.3	7495.92	0.54%	[5.0] mg/L
Na 589.592†	413710.4	554.80	0.13%	[50] mg/L
Ni 231.604†	22835.0	55.33	0.24%	[10] mg/L
Pb 220.353†	132246.6	216.73	0.16%	[10] mg/L
Se 196.026†	18880.0	80.49	0.43%	[10] mg/L
Sr 421.552†	3035653.2	42484.90	1.40%	[5] mg/L
Tl 190.801†	36287.7	201.09	0.55%	[10] mg/L
Zn 206.200†	25537.0	70.16	0.27%	[10] mg/L

=====
Analysis Begun

Start Time: 11/1/2012 4:52:12 PM
Logged In Analyst: metals
Spectrometer Model: Optima 4300 DV, S/N 077N0060101

Plasma On Time: 11/1/2012 9:01:02 AM
Technique: ICP Continuous
Autosampler Model: S10

Sample Information File: C:\pe\metals\Sample Information\1101.sif
Batch ID:
Results Data Set: PE121101
Results Library: C:\pe\metals\Results\Results.mdb

=====
Sequence No.: 1
Sample ID: CV 5
Analyst: EL
Dilution: 1X

Autosampler Location: 7
Date Collected: 11/1/2012 4:52:15 PM
Data Type: Original

Nebulizer Parameters: CV

Analyte Back Pressure Flow
All 233.0 kPa 0.55 L/min

Mean Data: CV

Analyte	Mean Corrected Intensity	Calib. Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2661489.5	100.5 %	0.91			0.90%
ScR 361.383	212234.8	100.2 %	0.26			0.26%
Ag 328.068†	297879.8	1.019 mg/L	0.0038	1.019 mg/L	0.0038	0.38%
Al 308.215†	3081.5	2.008 mg/L	0.0032	2.008 mg/L	0.0032	0.16%
As 188.979†	4941.0	2.095 mg/L	0.0126	2.095 mg/L	0.0126	0.60%
B 249.677†	2190.8	1.003 mg/L	0.0043	1.003 mg/L	0.0043	0.43%
Ba 233.527†	10337.0	1.005 mg/L	0.0015	1.005 mg/L	0.0015	0.15%
Be 313.042†	275463.4	0.9959 mg/L	0.00319	0.9959 mg/L	0.00319	0.32%
Ca 317.933†	21803.8	2.060 mg/L	0.0038	2.060 mg/L	0.0038	0.19%
Cd 228.802†	86004.2	1.024 mg/L	0.0016	1.024 mg/L	0.0016	0.15%
Co 228.616†	84378.7	0.9986 mg/L	0.00231	0.9986 mg/L	0.00231	0.23%
Cr 267.716†	4621.6	1.009 mg/L	0.0012	1.009 mg/L	0.0012	0.12%
Cu 324.752†	332812.7	1.063 mg/L	0.0015	1.063 mg/L	0.0015	0.14%
Fe 273.955†	2622.5	2.138 mg/L	0.0035	2.138 mg/L	0.0035	0.16%
K 766.490†	74438.7	20.66 mg/L	0.092	20.66 mg/L	0.092	0.45%
Mg 279.077†	2491.7	2.143 mg/L	0.0043	2.143 mg/L	0.0043	0.20%
Mn 257.610†	40808.4	1.009 mg/L	0.0010	1.009 mg/L	0.0010	0.10%
Mo 202.031†	17691.6	0.9559 mg/L	0.00654	0.9559 mg/L	0.00654	0.68%
Na 589.592†	416283.2	50.31 mg/L	0.128	50.31 mg/L	0.128	0.26%
Na 330.237†	1405.3	51.02 mg/L	0.185	51.02 mg/L	0.185	0.36%
Ni 231.604†	2274.5	0.9966 mg/L	0.00105	0.9966 mg/L	0.00105	0.11%
Pb 220.353†	26758.8	2.025 mg/L	0.0132	2.025 mg/L	0.0132	0.65%
Sb 206.836†	7639.5	2.086 mg/L	0.0152	2.086 mg/L	0.0152	0.73%
Se 196.026†	3833.9	2.028 mg/L	0.0058	2.028 mg/L	0.0058	0.28%
Si 288.158†	2923.9	2.169 mg/L	0.0058	2.169 mg/L	0.0058	0.27%
Sn 189.927†	5932.9	0.9055 mg/L	0.00426	0.9055 mg/L	0.00426	0.47%
Sr 421.552†	609822.9	1.004 mg/L	0.0037	1.004 mg/L	0.0037	0.37%
Ti 334.903†	25894.4	1.006 mg/L	0.0003	1.006 mg/L	0.0003	0.03%
Tl 190.801†	7365.2	2.017 mg/L	0.0144	2.017 mg/L	0.0144	0.72%
V 292.402†	207018.9	1.026 mg/L	0.0006	1.026 mg/L	0.0006	0.06%
Zn 206.200†	2675.8	1.047 mg/L	0.0024	1.047 mg/L	0.0024	0.23%

Sequence No.: 2
 Sample ID: CB 5
 Analyst: EL
 Dilution: 1X

Autosampler Location: 1
 Date Collected: 11/1/2012 4:58:18 PM
 Data Type: Original

Nebulizer Parameters: CB

Analyte Back Pressure Flow
 All 233.0 kPa 0.55 L/min

Mean Data: CB

Analyte	Mean Corrected Intensity	Conc. Units	Calib.	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2729381.8	103.1 %		0.48			0.47%
ScR 361.383	209067.3	98.73 %		0.546			0.55%
Ag 328.068†	5.1	0.00002 mg/L		0.000119	0.00002 mg/L	0.000119	689.21%
Al 308.215†	-8.1	-0.00538 mg/L		0.008457	-0.00538 mg/L	0.008457	157.10%
As 188.979†	0.6	0.00024 mg/L		0.001393	0.00024 mg/L	0.001393	589.17%
B 249.677†	23.7	0.01087 mg/L		0.001487	0.01087 mg/L	0.001487	13.67%
Ba 233.527†	-0.7	-0.00007 mg/L		0.000353	-0.00007 mg/L	0.000353	513.08%
Be 313.042†	36.7	0.00013 mg/L		0.000082	0.00013 mg/L	0.000082	61.23%
Ca 317.933†	-12.4	-0.00118 mg/L		0.002023	-0.00118 mg/L	0.002023	172.02%
Cd 228.802†	-8.2	-0.00010 mg/L		0.000062	-0.00010 mg/L	0.000062	63.37%
Co 228.616†	-5.9	-0.00007 mg/L		0.000081	-0.00007 mg/L	0.000081	119.13%
Cr 267.716†	-1.9	-0.00042 mg/L		0.000592	-0.00042 mg/L	0.000592	140.53%
Cu 324.752†	-107.7	-0.00034 mg/L		0.000060	-0.00034 mg/L	0.000060	17.36%
Fe 273.955†	-4.4	-0.00359 mg/L		0.001541	-0.00359 mg/L	0.001541	42.93%
K 766.490†	111.3	0.03089 mg/L		0.011186	0.03089 mg/L	0.011186	36.21%
Mg 279.077†	-0.0	-0.00001 mg/L		0.005506	-0.00001 mg/L	0.005506	>999.9%
Mn 257.610†	-1.9	-0.00005 mg/L		0.000073	-0.00005 mg/L	0.000073	157.18%
Mo 202.031†	-1.5	-0.00008 mg/L		0.000167	-0.00008 mg/L	0.000167	205.84%
Na 589.592†	268.7	0.03247 mg/L		0.011815	0.03247 mg/L	0.011815	36.38%
Na 330.237†	6.8	0.2477 mg/L		0.39726	0.2477 mg/L	0.39726	160.37%
Ni 231.604†	-0.5	-0.00022 mg/L		0.001586	-0.00022 mg/L	0.001586	706.91%
Pb 220.353†	-3.5	-0.00027 mg/L		0.000581	-0.00027 mg/L	0.000581	217.08%
Sb 206.836†	6.2	0.00171 mg/L		0.001166	0.00171 mg/L	0.001166	68.05%
Se 196.026†	-1.3	-0.00069 mg/L		0.002159	-0.00069 mg/L	0.002159	313.76%
Si 288.158†	5.5	0.00408 mg/L		0.002777	0.00408 mg/L	0.002777	68.02%
Sn 189.927†	1.3	0.00020 mg/L		0.000392	0.00020 mg/L	0.000392	195.56%
Sr 421.552†	-46.4	-0.00008 mg/L		0.000154	-0.00008 mg/L	0.000154	202.25%
Ti 334.903†	-23.9	-0.00093 mg/L		0.001104	-0.00093 mg/L	0.001104	118.55%
Tl 190.801†	2.1	0.00057 mg/L		0.000610	0.00057 mg/L	0.000610	107.25%
V 292.402†	-17.8	-0.00009 mg/L		0.000071	-0.00009 mg/L	0.000071	79.85%
Zn 206.200†	-11.7	-0.00458 mg/L		0.000598	-0.00458 mg/L	0.000598	13.06%

Sequence No.: 3

Autosampler Location: 54

Sample ID: VP44 MB LEN

Date Collected: 11/1/2012 5:04:17 PM

Analyst: EL

Data Type: Original

Dilution: 5X

Nebulizer Parameters: VP44 MB LEN

Analyte	Back Pressure	Flow
All	232.0 kPa	0.55 L/min

Mean Data: VP44 MB LEN

Analyte	Mean Corrected		Calib. Conc. Units	Std.Dev.	Sample		RSD
	Intensity	Conc.			Conc.	Units	
ScA 357.253	2558628.8	96.62	%	0.343			0.36%
ScR 361.383	205348.1	96.98	%	0.563			0.58%
Ag 328.068†	72.6	0.00025	mg/L	0.000187	0.00124	mg/L	0.000935 75.55%
Al 308.215†	-1.4	-0.00090	mg/L	0.004158	-0.00450	mg/L	0.020792 462.44%
As 188.979†	2.0	0.00086	mg/L	0.001360	0.00430	mg/L	0.006800 158.07%
B 249.677†	52.6	0.02412	mg/L	0.003025	0.1206	mg/L	0.01513 12.54%
Ba 233.527†	1790.8	0.1742	mg/L	0.00094	0.8712	mg/L	0.00472 0.54%
Be 313.042†	0.9	0.00000	mg/L	0.000011	0.00002	mg/L	0.000054 319.28%
Ca 317.933†	809.9	0.07651	mg/L	0.000392	0.3825	mg/L	0.00196 0.51%
Cd 228.802†	12.7	0.00015	mg/L	0.000046	0.00075	mg/L	0.000228 30.22%
Co 228.616†	33.9	0.00035	mg/L	0.000139	0.00173	mg/L	0.000693 40.18%
Cr 267.716†	-1.0	-0.00022	mg/L	0.000611	-0.00108	mg/L	0.003055 281.85%
Cu 324.752†	45.1	0.00014	mg/L	0.000099	0.00072	mg/L	0.000495 68.54%
Fe 273.955†	-2.0	-0.00162	mg/L	0.001513	-0.00812	mg/L	0.007566 93.16%
K 766.490†	1550.3	0.4303	mg/L	0.01749	2.151	mg/L	0.0875 4.07%
Mg 279.077†	4.5	0.00387	mg/L	0.002475	0.01934	mg/L	0.012374 63.97%
Mn 257.610†	-6.5	-0.00016	mg/L	0.000200	-0.00080	mg/L	0.001000 124.81%
Mo 202.031†	-7.0	-0.00038	mg/L	0.000217	-0.00190	mg/L	0.001085 57.03%
Na 589.592†	2257020.6	272.8	mg/L	1.05	1364	mg/L	5.3 0.39%
Na 330.237†	7793.3	284.1	mg/L	0.57	1420	mg/L	2.9 0.20%
Ni 231.604†	6.0	0.00262	mg/L	0.000465	0.01308	mg/L	0.002326 17.79%
Pb 220.353†	14.3	0.00108	mg/L	0.000354	0.00540	mg/L	0.001768 32.75%
Sb 206.836†	12.3	0.00338	mg/L	0.001437	0.01689	mg/L	0.007184 42.52%
Se 196.026†	-1.8	-0.00095	mg/L	0.002960	-0.00476	mg/L	0.014801 311.22%
Si 288.158†	29.6	0.02191	mg/L	0.004303	0.1096	mg/L	0.02151 19.64%
Sn 189.927†	-1.2	-0.00016	mg/L	0.000388	-0.00080	mg/L	0.001941 242.91%
Sr 421.552†	728.2	0.00120	mg/L	0.000016	0.00600	mg/L	0.000080 1.33%
Ti 334.903†	-18.3	-0.00071	mg/L	0.000273	-0.00357	mg/L	0.001363 38.13%
Tl 190.801†	4.7	0.00130	mg/L	0.001194	0.00652	mg/L	0.005969 91.49%
V 292.402†	-3.9	-0.00002	mg/L	0.000264	-0.00011	mg/L	0.001319 >999.9%
Zn 206.200†	89.2	0.03492	mg/L	0.000326	0.1746	mg/L	0.00163 0.93%

Sequence No.: 4

Autosampler Location: 55

Sample ID: VP51 MB1 SWC

Date Collected: 11/1/2012 5:10:37 PM

Analyst: EL

Data Type: Original

Dilution: 2X

Nebulizer Parameters: VP51 MB1 SWC

Analyte	Back Pressure	Flow
All	233.0 kPa	0.55 L/min

Mean Data: VP51 MB1 SWC

Analyte	Mean Corrected		Calib. Conc. Units	Std.Dev.	Sample		RSD
	Intensity	Conc.			Conc.	Units	
ScA 357.253	2721103.3	102.8	%	0.59			0.57%
ScR 361.383	209433.3	98.91	%	1.022			1.03%
Ag 328.068†	0.8	0.00000	mg/L	0.000109	0.00001	mg/L	0.000218 >999.9%
Al 308.215†	1.4	0.00096	mg/L	0.005012	0.00192	mg/L	0.010024 521.37%
As 188.979†	2.7	0.00113	mg/L	0.001774	0.00226	mg/L	0.003548 157.24%
B 249.677†	4.8	0.00220	mg/L	0.001394	0.00440	mg/L	0.002789 63.36%
Ba 233.527†	-3.7	-0.00036	mg/L	0.000239	-0.00072	mg/L	0.000478 66.74%
Be 313.042†	13.2	0.00005	mg/L	0.000063	0.00010	mg/L	0.000125 130.98%
Ca 317.933†	78.0	0.00737	mg/L	0.001221	0.01474	mg/L	0.002442 16.57%
Cd 228.802†	-0.5	-0.00001	mg/L	0.000060	-0.00002	mg/L	0.000120 653.77%
Co 228.616†	7.1	0.00009	mg/L	0.000013	0.00017	mg/L	0.000027 15.46%
Cr 267.716†	1.6	0.00036	mg/L	0.001059	0.00072	mg/L	0.002118 296.21%
Cu 324.752†	-171.2	-0.00055	mg/L	0.000225	-0.00109	mg/L	0.000450 41.24%
Fe 273.955†	1.4	0.00114	mg/L	0.001438	0.00228	mg/L	0.002876 126.38%
K 766.490†	185.2	0.05140	mg/L	0.010936	0.1028	mg/L	0.02187 21.28%
Mg 279.077†	2.5	0.00216	mg/L	0.002899	0.00432	mg/L	0.005799 134.15%
Mn 257.610†	-8.3	-0.00021	mg/L	0.000080	-0.00041	mg/L	0.000161 38.97%
Mo 202.031†	-4.3	-0.00023	mg/L	0.000206	-0.00047	mg/L	0.000413 88.74%
Na 589.592†	2591.5	0.3132	mg/L	0.01990	0.6264	mg/L	0.03981 6.35%
Na 330.237†	12.7	0.4648	mg/L	0.32740	0.9296	mg/L	0.65479 70.43%
Ni 231.604†	-0.3	-0.00013	mg/L	0.001213	-0.00026	mg/L	0.002426 919.95%
Pb 220.353†	-13.1	-0.00099	mg/L	0.000420	-0.00197	mg/L	0.000840 42.55%
Sb 206.836†	-0.4	-0.00011	mg/L	0.001320	-0.00022	mg/L	0.002640 >999.9%
Se 196.026†	0.7	0.00035	mg/L	0.002272	0.00070	mg/L	0.004544 646.02%
Si 288.158†	5.9	0.00439	mg/L	0.005070	0.00879	mg/L	0.010139 115.38%
Sn 189.927†	-1.3	-0.00020	mg/L	0.000528	-0.00039	mg/L	0.001055 269.08%
Sr 421.552†	26.0	0.00004	mg/L	0.000046	0.00009	mg/L	0.000092 107.46%
Ti 334.903†	-24.7	-0.00096	mg/L	0.000925	-0.00192	mg/L	0.001849 96.15%
Tl 190.801†	-3.0	-0.00082	mg/L	0.000385	-0.00164	mg/L	0.000770 47.05%
V 292.402†	14.2	0.00007	mg/L	0.000080	0.00014	mg/L	0.000160 111.64%
Zn 206.200†	-13.5	-0.00527	mg/L	0.000261	-0.01055	mg/L	0.000522 4.95%

Sequence No.: 5
 Sample ID: VP51 B SWC
 Analyst: EL
 Dilution: 2X

Autosampler Location: 56
 Date Collected: 11/1/2012 5:16:38 PM
 Data Type: Original

Nebulizer Parameters: VP51 B SWC

Analyte Back Pressure Flow
 All 232.0 kPa 0.55 L/min

Mean Data: VP51 B SWC

Analyte	Mean Corrected Intensity	Conc. Units	Calib. Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2658066.8	100.4 %	0.43			0.43%
ScR 361.383	215088.5	101.6 %	0.13			0.12%
Ag 328.068†	-970.5	0.00092 mg/L	0.000080	0.00183 mg/L	0.000160	8.74%
Al 308.215†	173647.4	115.5 mg/L	0.22	231.0 mg/L	0.43	0.19%
As 188.979†	70.6	0.04374 mg/L	0.000860	0.08748 mg/L	0.001719	1.97%
B 249.677†	66.0	0.02992 mg/L	0.000515	0.05983 mg/L	0.001031	1.72%
Ba 233.527†	3416.1	0.3249 mg/L	0.00146	0.6498 mg/L	0.00292	0.45%
Be 313.042†	661.1	0.00132 mg/L	0.000032	0.00264 mg/L	0.000065	2.46%
Ca 317.933†	751462.1	70.99 mg/L	0.097	142.0 mg/L	0.19	0.14%
Cd 228.802†	225.2	0.00267 mg/L	0.000086	0.00534 mg/L	0.000173	3.23%
Co 228.616†	6629.1	0.06523 mg/L	0.000546	0.1305 mg/L	0.00109	0.84%
Cr 267.716†	1118.2	0.2435 mg/L	0.00091	0.4869 mg/L	0.00182	0.37%
Cu 324.752†	71983.3	0.2412 mg/L	0.00062	0.4823 mg/L	0.00124	0.26%
Fe 273.955†	193203.2	157.6 mg/L	1.08	315.2 mg/L	2.16	0.68%
K 766.490†	33470.9	9.290 mg/L	0.0462	18.58 mg/L	0.092	0.50%
Mg 279.077†	67162.4	57.57 mg/L	0.094	115.1 mg/L	0.19	0.16%
Mn 257.610†	104157.5	2.573 mg/L	0.0053	5.146 mg/L	0.0105	0.20%
Mo 202.031†	0.2	0.00166 mg/L	0.000299	0.00332 mg/L	0.000599	18.04%
Na 589.592†	53585.7	6.476 mg/L	0.0184	12.95 mg/L	0.037	0.28%
Na 330.237†	168.7	6.881 mg/L	0.2290	13.76 mg/L	0.458	3.33%
Ni 231.604†	606.4	0.2656 mg/L	0.00068	0.5311 mg/L	0.00136	0.26%
Pb 220.353†	2261.3	0.2060 mg/L	0.00122	0.4120 mg/L	0.00244	0.59%
Sb 206.836†	98.1	0.01720 mg/L	0.000159	0.03440 mg/L	0.000318	0.92%
Se 196.026†	-65.9	-0.03556 mg/L	0.005170	-0.07113 mg/L	0.010341	14.54%
Si 288.158†	1400.5	1.043 mg/L	0.0057	2.085 mg/L	0.0113	0.54%
Sn 189.927†	134.5	0.03941 mg/L	0.001035	0.07882 mg/L	0.002070	2.63%
Sr 421.552†	163186.7	0.2688 mg/L	0.00142	0.5376 mg/L	0.00284	0.53%
Ti 334.903†	167778.6	6.524 mg/L	0.0020	13.05 mg/L	0.004	0.03%
Tl 190.801†	22.1	-0.00545 mg/L	0.000764	-0.01090 mg/L	0.001529	14.03%
V 292.402†	76753.6	0.3578 mg/L	0.00092	0.7157 mg/L	0.00184	0.26%
Zn 206.200†	1658.5	0.6508 mg/L	0.00457	1.302 mg/L	0.0091	0.70%

Sequence No.: 6
 Sample ID: VP40 ADUP SWC
 Analyst: EL
 Dilution: 2X

Autosampler Location: 57
 Date Collected: 11/1/2012 5:22:28 PM
 Data Type: Original

Nebulizer Parameters: VP40 ADUP SWC

Analyte Back Pressure Flow
 All 232.0 kPa 0.55 L/min

Mean Data: VP40 ADUP SWC

Analyte	Mean Intensity	Conc. Units	Calib.	Std.Dev.	Conc. Units	Sample	Std.Dev.	RSD
ScA 357.253	2638891.2	99.65 %		0.165				0.17%
ScR 361.383	211185.2	99.73 %		0.746				0.75%
Ag 328.068†	-1298.5	0.00107 mg/L		0.000192	0.00214 mg/L	0.000385		17.98%
Al 308.215†	185479.3	123.3 mg/L		0.03	246.7 mg/L	0.06		0.03%
As 188.979†	66.9	0.04406 mg/L		0.001185	0.08813 mg/L	0.002371		2.69%
B 249.677†	123.6	0.05628 mg/L		0.001929	0.1126 mg/L	0.00386		3.43%
Ba 233.527†	7066.6	0.6783 mg/L		0.00445	1.357 mg/L	0.0089		0.66%
Be 313.042†	762.0	0.00153 mg/L		0.000056	0.00306 mg/L	0.000112		3.66%
Ca 317.933†	734548.9	69.39 mg/L		0.142	138.8 mg/L	0.28		0.21%
Cd 228.802†	456.4	0.00545 mg/L		0.000112	0.01089 mg/L	0.000223		2.05%
Co 228.616†	7232.5	0.07021 mg/L		0.000944	0.1404 mg/L	0.00189		1.34%
Cr 267.716†	1396.1	0.3041 mg/L		0.00246	0.6082 mg/L	0.00492		0.81%
Cu 324.752†	99160.4	0.3308 mg/L		0.00045	0.6616 mg/L	0.00091		0.14%
Fe 273.955†	238760.2	194.8 mg/L		0.29	389.6 mg/L	0.58		0.15%
K 766.490†	44778.0	12.43 mg/L		0.022	24.86 mg/L	0.043		0.17%
Mg 279.077†	86316.1	74.00 mg/L		0.107	148.0 mg/L	0.21		0.14%
Mn 257.610†	107452.2	2.654 mg/L		0.0040	5.309 mg/L	0.0079		0.15%
Mo 202.031†	35.1	0.00350 mg/L		0.000180	0.00700 mg/L	0.000360		5.15%
Na 589.592†	96363.2	11.65 mg/L		0.018	23.29 mg/L	0.036		0.15%
Na 330.237†	303.3	11.96 mg/L		0.246	23.91 mg/L	0.492		2.06%
Ni 231.604†	665.3	0.2914 mg/L		0.00195	0.5827 mg/L	0.00389		0.67%
Pb 220.353†	2944.1	0.2586 mg/L		0.00223	0.5172 mg/L	0.00446		0.86%
Sb 206.836†	98.9	0.01396 mg/L		0.002395	0.02792 mg/L	0.004790		17.15%
Se 196.026†	-83.9	-0.04517 mg/L		0.000882	-0.09033 mg/L	0.001765		1.95%
Si 288.158†	4034.1	2.992 mg/L		0.0079	5.984 mg/L	0.0158		0.26%
Sn 189.927†	52.4	0.02727 mg/L		0.000548	0.05455 mg/L	0.001096		2.01%
Sr 421.552†	216813.2	0.3571 mg/L		0.00127	0.7142 mg/L	0.00253		0.35%
Ti 334.903†	191541.0	7.449 mg/L		0.0103	14.90 mg/L	0.021		0.14%
Tl 190.801†	19.6	-0.00741 mg/L		0.001663	-0.01482 mg/L	0.003326		22.45%
V 292.402†	87646.9	0.4074 mg/L		0.00007	0.8148 mg/L	0.00015		0.02%
Zn 206.200†	1823.2	0.7152 mg/L		0.00609	1.430 mg/L	0.0122		0.85%

Sequence No.: 7
 Sample ID: VP40 A SWC
 Analyst: EL
 Dilution: 2X

Autosampler Location: 58
 Date Collected: 11/1/2012 5:28:16 PM
 Data Type: Original

Nebulizer Parameters: VP40 A SWC

Analyte	Back Pressure	Flow
All	232.0 kPa	0.55 L/min

Mean Data: VP40 A SWC

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2684604.0	101.4	%	0.28				0.27%
ScR 361.383	215255.5	101.7	%	0.38				0.38%
Ag 328.068†	-1353.2	0.00099	mg/L	0.000182	0.00198	mg/L	0.000364	18.33%
Al 308.215†	185090.1	123.1	mg/L	0.12	246.2	mg/L	0.23	0.10%
As 188.979†	67.4	0.04244	mg/L	0.000500	0.08487	mg/L	0.001000	1.18%
B 249.677†	121.7	0.05543	mg/L	0.003441	0.1109	mg/L	0.00688	6.21%
Ba 233.527†	7413.0	0.7119	mg/L	0.00498	1.424	mg/L	0.0100	0.70%
Be 313.042†	774.0	0.00158	mg/L	0.000050	0.00316	mg/L	0.000100	3.17%
Ca 317.933†	681299.4	64.36	mg/L	0.062	128.7	mg/L	0.12	0.10%
Cd 228.802†	491.3	0.00588	mg/L	0.000038	0.01175	mg/L	0.000076	0.64%
Co 228.616†	7259.8	0.07199	mg/L	0.000477	0.1440	mg/L	0.00095	0.66%
Cr 267.716†	1420.2	0.3094	mg/L	0.00191	0.6188	mg/L	0.00382	0.62%
Cu 324.752†	105585.6	0.3518	mg/L	0.00050	0.7036	mg/L	0.00099	0.14%
Fe 273.955†	242118.2	197.5	mg/L	0.37	395.0	mg/L	0.75	0.19%
K 766.490†	48802.1	13.54	mg/L	0.038	27.09	mg/L	0.076	0.28%
Mg 279.077†	94421.7	80.95	mg/L	0.059	161.9	mg/L	0.12	0.07%
Mn 257.610†	109312.9	2.700	mg/L	0.0024	5.401	mg/L	0.0048	0.09%
Mo 202.031†	40.6	0.00370	mg/L	0.000332	0.00740	mg/L	0.000665	8.98%
Na 589.592†	99182.5	11.99	mg/L	0.030	23.97	mg/L	0.059	0.25%
Na 330.237†	324.1	12.56	mg/L	0.205	25.13	mg/L	0.411	1.63%
Ni 231.604†	783.7	0.3432	mg/L	0.00263	0.6864	mg/L	0.00525	0.77%
Pb 220.353†	2920.9	0.2565	mg/L	0.00147	0.5129	mg/L	0.00294	0.57%
Sb 206.836†	101.9	0.01348	mg/L	0.001774	0.02696	mg/L	0.003548	13.16%
Se 196.026†	-80.8	-0.04364	mg/L	0.002226	-0.08727	mg/L	0.004453	5.10%
Si 288.158†	4763.9	3.532	mg/L	0.0161	7.065	mg/L	0.0323	0.46%
Sn 189.927†	74.5	0.02943	mg/L	0.000315	0.05886	mg/L	0.000629	1.07%
Sr 421.552†	203403.8	0.3350	mg/L	0.00144	0.6700	mg/L	0.00288	0.43%
Ti 334.903†	169504.4	6.592	mg/L	0.0033	13.18	mg/L	0.007	0.05%
Tl 190.801†	9.0	-0.00960	mg/L	0.002834	-0.01920	mg/L	0.005667	29.52%
V 292.402†	88284.7	0.4110	mg/L	0.00044	0.8220	mg/L	0.00088	0.11%
Zn 206.200†	1841.3	0.7222	mg/L	0.00310	1.444	mg/L	0.0062	0.43%

Sequence No.: 8

Autosampler Location: 59

Sample ID: VP40 ASPK SWC

Date Collected: 11/1/2012 5:34:05 PM

Analyst: EL

Data Type: Original

Dilution: 2X

Nebulizer Parameters: VP40 ASPK SWC

Analyte	Back Pressure	Flow
All	232.0 kPa	0.55 L/min

Mean Data: VP40 ASPK SWC

Analyte	Mean Corrected Intensity	Conc. Units	Calib.	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2647957.2	99.99 %		0.374			0.37%
ScR 361.383	212990.8	100.6 %		0.59			0.59%
Ag 328.068†	146105.0	0.5047 mg/L		0.00228	1.009 mg/L	0.0046	0.45%
Al 308.215†	189449.4	126.0 mg/L		0.21	252.0 mg/L	0.41	0.16%
As 188.979†	4824.3	2.060 mg/L		0.0377	4.120 mg/L	0.0755	1.83%
B 249.677†	150.2	0.06697 mg/L		0.001534	0.1339 mg/L	0.00307	2.29%
Ba 233.527†	26945.3	2.613 mg/L		0.0132	5.226 mg/L	0.0264	0.51%
Be 313.042†	140509.1	0.5070 mg/L		0.00038	1.014 mg/L	0.0008	0.08%
Ca 317.933†	891998.0	84.26 mg/L		0.096	168.5 mg/L	0.19	0.11%
Cd 228.802†	42143.2	0.4995 mg/L		0.00920	0.9990 mg/L	0.01840	1.84%
Co 228.616†	45628.4	0.5267 mg/L		0.00983	1.053 mg/L	0.0197	1.87%
Cr 267.716†	3932.2	0.8580 mg/L		0.00506	1.716 mg/L	0.0101	0.59%
Cu 324.752†	261183.5	0.8473 mg/L		0.00054	1.695 mg/L	0.0011	0.06%
Fe 273.955†	217606.4	177.5 mg/L		0.31	355.0 mg/L	0.62	0.17%
K 766.490†	78649.9	21.83 mg/L		0.112	43.66 mg/L	0.225	0.51%
Mg 279.077†	94492.8	81.03 mg/L		0.063	162.1 mg/L	0.13	0.08%
Mn 257.610†	130456.2	3.223 mg/L		0.0056	6.446 mg/L	0.0113	0.17%
Mo 202.031†	339.3	0.01981 mg/L		0.000380	0.03962 mg/L	0.000759	1.92%
Na 589.592†	180526.6	21.82 mg/L		0.078	43.64 mg/L	0.156	0.36%
Na 330.237†	594.7	22.16 mg/L		0.027	44.32 mg/L	0.054	0.12%
Ni 231.604†	1756.3	0.7687 mg/L		0.00213	1.537 mg/L	0.0043	0.28%
Pb 220.353†	27842.6	2.144 mg/L		0.0385	4.288 mg/L	0.0771	1.80%
Sb 206.836†	1713.0	0.4473 mg/L		0.01343	0.8945 mg/L	0.02686	3.00%
Se 196.026†	3690.9	1.953 mg/L		0.0346	3.906 mg/L	0.0693	1.77%
Si 288.158†	5189.5	3.849 mg/L		0.0230	7.699 mg/L	0.0461	0.60%
Sn 189.927†	62.0	0.03172 mg/L		0.001634	0.06344 mg/L	0.003267	5.15%
Sr 421.552†	512765.0	0.8446 mg/L		0.00174	1.689 mg/L	0.0035	0.21%
Ti 334.903†	167112.0	6.498 mg/L		0.0125	13.00 mg/L	0.025	0.19%
Tl 190.801†	6802.4	1.857 mg/L		0.0336	3.713 mg/L	0.0672	1.81%
V 292.402†	179484.3	0.8641 mg/L		0.00114	1.728 mg/L	0.0023	0.13%
Zn 206.200†	2931.1	1.149 mg/L		0.0045	2.298 mg/L	0.0091	0.40%

Sequence No.: 9

Autosampler Location: 60

Sample ID: VP44 ADUP LEN

Date Collected: 11/1/2012 5:39:11 PM

Analyst: EL

Data Type: Original

Dilution: 5X

Nebulizer Parameters: VP44 ADUP LEN

Analyte	Back Pressure	Flow
All	232.0 kPa	0.55 L/min

Mean Data: VP44 ADUP LEN

Analyte	Mean Corrected		Calib.	Std.Dev.	Sample		RSD
	Intensity	Conc. Units			Conc. Units	Std.Dev.	
ScA 357.253	2566190.7	96.90 %	%	0.690			0.71%
ScR 361.383	203330.4	96.02 %	%	0.652			0.68%
Ag 328.068†	134.8	0.00046	mg/L	0.000197	0.00231	mg/L	0.000987 42.77%
Al 308.215†	459.0	0.3053	mg/L	0.00458	1.526	mg/L	0.0229 1.50%
As 188.979†	8.0	0.00340	mg/L	0.001216	0.01700	mg/L	0.006080 35.76%
B 249.677†	119.1	0.05461	mg/L	0.001343	0.2730	mg/L	0.00672 2.46%
Ba 233.527†	3541.4	0.3445	mg/L	0.00141	1.723	mg/L	0.0071 0.41%
Be 313.042†	124.4	0.00045	mg/L	0.000033	0.00224	mg/L	0.000165 7.35%
Ca 317.933†	19481.9	1.840	mg/L	0.0017	9.202	mg/L	0.0087 0.09%
Cd 228.802†	485.8	0.00581	mg/L	0.000102	0.02903	mg/L	0.000511 1.76%
Co 228.616†	170.5	0.00188	mg/L	0.000104	0.00940	mg/L	0.000522 5.55%
Cr 267.716†	15.0	0.00325	mg/L	0.001005	0.01626	mg/L	0.005023 30.88%
Cu 324.752†	6448.3	0.02068	mg/L	0.000189	0.1034	mg/L	0.00095 0.92%
Fe 273.955†	1281.1	1.045	mg/L	0.0033	5.225	mg/L	0.0166 0.32%
K 766.490†	5116.2	1.420	mg/L	0.0257	7.100	mg/L	0.1285 1.81%
Mg 279.077†	1227.1	1.053	mg/L	0.0091	5.265	mg/L	0.0453 0.86%
Mn 257.610†	2947.5	0.07284	mg/L	0.000391	0.3642	mg/L	0.00196 0.54%
Mo 202.031†	-9.2	-0.00051	mg/L	0.000277	-0.00253	mg/L	0.001384 54.78%
Na 589.592†	2066430.0	249.7	mg/L	0.98	1249	mg/L	4.9 0.39%
Na 330.237†	7151.2	260.5	mg/L	1.61	1303	mg/L	8.1 0.62%
Ni 231.604†	14.7	0.00643	mg/L	0.002094	0.03215	mg/L	0.010471 32.57%
Pb 220.353†	392.8	0.02979	mg/L	0.000824	0.1490	mg/L	0.00412 2.76%
Sb 206.836†	19.5	0.00519	mg/L	0.001502	0.02595	mg/L	0.007508 28.94%
Se 196.026†	-0.7	-0.00040	mg/L	0.005115	-0.00202	mg/L	0.025574 >999.9%
Si 288.158†	196.3	0.1453	mg/L	0.00516	0.7265	mg/L	0.02579 3.55%
Sn 189.927†	-3.1	-0.00005	mg/L	0.000692	-0.00027	mg/L	0.003460 >999.9%
Sr 421.552†	16193.1	0.02667	mg/L	0.000176	0.1334	mg/L	0.00088 0.66%
Ti 334.903†	195.4	0.00751	mg/L	0.000148	0.03757	mg/L	0.000738 1.96%
Tl 190.801†	18.6	0.00500	mg/L	0.000072	0.02502	mg/L	0.000360 1.44%
V 292.402†	266.4	0.00123	mg/L	0.000083	0.00616	mg/L	0.000417 6.77%
Zn 206.200†	850.9	0.3333	mg/L	0.00138	1.666	mg/L	0.0069 0.41%

Sequence No.: 10
 Sample ID: VP44 A LEN
 Analyst: EL
 Dilution: 5X

Autosampler Location: 61
 Date Collected: 11/1/2012 5:45:31 PM
 Data Type: Original

Nebulizer Parameters: VP44 A LEN

Analyte Back Pressure Flow
 All 232.0 kPa 0.55 L/min

Mean Data: VP44 A LEN

Analyte	Mean Corrected Intensity	Conc.	Units	Calib.	Std.Dev.	Conc.	Units	Sample Std.Dev.	RSD
ScA 357.253	2594742.4	97.98	%		0.092				0.09%
ScR 361.383	205102.5	96.86	%		1.130				1.17%
Ag 328.068†	-30.6	-0.00011	mg/L		0.000056	-0.00054	mg/L	0.000280	51.48%
Al 308.215†	285.7	0.1900	mg/L		0.00514	0.9500	mg/L	0.02572	2.71%
As 188.979†	1.9	0.00082	mg/L		0.001128	0.00409	mg/L	0.005642	138.06%
B 249.677†	114.1	0.05231	mg/L		0.002505	0.2615	mg/L	0.01252	4.79%
Ba 233.527†	3486.9	0.3392	mg/L		0.00319	1.696	mg/L	0.0160	0.94%
Be 313.042†	-14.7	-0.00005	mg/L		0.000033	-0.00027	mg/L	0.000165	61.21%
Ca 317.933†	18528.2	1.750	mg/L		0.0135	8.752	mg/L	0.0677	0.77%
Cd 228.802†	441.9	0.00529	mg/L		0.000115	0.02643	mg/L	0.000576	2.18%
Co 228.616†	128.1	0.00139	mg/L		0.000130	0.00696	mg/L	0.000652	9.37%
Cr 267.716†	11.6	0.00251	mg/L		0.000909	0.01253	mg/L	0.004547	36.28%
Cu 324.752†	6014.7	0.01928	mg/L		0.000123	0.09641	mg/L	0.000616	0.64%
Fe 273.955†	1063.9	0.8679	mg/L		0.00987	4.339	mg/L	0.0494	1.14%
K 766.490†	4504.0	1.250	mg/L		0.0249	6.250	mg/L	0.1245	1.99%
Mg 279.077†	1131.6	0.9710	mg/L		0.01197	4.855	mg/L	0.0599	1.23%
Mn 257.610†	2800.8	0.06921	mg/L		0.000589	0.3461	mg/L	0.00295	0.85%
Mo 202.031†	-6.3	-0.00035	mg/L		0.000032	-0.00175	mg/L	0.000159	9.08%
Na 589.592†	2068766.2	250.0	mg/L		2.64	1250	mg/L	13.2	1.06%
Na 330.237†	7121.7	259.5	mg/L		1.57	1297	mg/L	7.8	0.60%
Ni 231.604†	11.7	0.00514	mg/L		0.001530	0.02571	mg/L	0.007648	29.74%
Pb 220.353†	360.6	0.02732	mg/L		0.000145	0.1366	mg/L	0.00072	0.53%
Sb 206.836†	13.1	0.00344	mg/L		0.000355	0.01718	mg/L	0.001775	10.33%
Se 196.026†	-1.7	-0.00092	mg/L		0.001209	-0.00460	mg/L	0.006045	131.36%
Si 288.158†	182.2	0.1349	mg/L		0.00136	0.6744	mg/L	0.00681	1.01%
Sn 189.927†	-3.4	-0.00012	mg/L		0.000244	-0.00060	mg/L	0.001221	201.95%
Sr 421.552†	15740.4	0.02593	mg/L		0.000410	0.1296	mg/L	0.00205	1.58%
Ti 334.903†	35.8	0.00131	mg/L		0.000284	0.00654	mg/L	0.001419	21.71%
Tl 190.801†	-0.5	-0.00024	mg/L		0.000667	-0.00119	mg/L	0.003333	279.87%
V 292.402†	41.4	0.00015	mg/L		0.000172	0.00073	mg/L	0.000861	117.99%
Zn 206.200†	857.5	0.3358	mg/L		0.00407	1.679	mg/L	0.0203	1.21%

Sequence No.: 11
 Sample ID: VP44 ASPK LEN
 Analyst: EL
 Dilution: 5X

Autosampler Location: 62
 Date Collected: 11/1/2012 5:51:51 PM
 Data Type: Original

Nebulizer Parameters: VP44 ASPK LEN

Analyte Back Pressure Flow
 All 232.0 kPa 0.55 L/min

Mean Data: VP44 ASPK LEN

Analyte	Mean Intensity	Conc.	Units	Calib.	Std.Dev.	Conc.	Units	Sample Std.Dev.	RSD
ScA 357.253	2563572.3	96.80	%		0.501				0.52%
ScR 361.383	201802.1	95.30	%		1.083				1.14%
Ag 328.068†	60079.5	0.2056	mg/L		0.00224	1.028	mg/L	0.0112	1.09%
Al 308.215†	1532.9	1.016	mg/L		0.0112	5.082	mg/L	0.0559	1.10%
As 188.979†	2025.0	0.8589	mg/L		0.00463	4.295	mg/L	0.0232	0.54%
B 249.677†	118.7	0.05374	mg/L		0.003251	0.2687	mg/L	0.01625	6.05%
Ba 233.527†	11775.6	1.146	mg/L		0.0123	5.728	mg/L	0.0617	1.08%
Be 313.042†	57177.2	0.2067	mg/L		0.00106	1.034	mg/L	0.0053	0.51%
Ca 317.933†	63208.3	5.971	mg/L		0.0273	29.86	mg/L	0.136	0.46%
Cd 228.802†	18074.6	0.2143	mg/L		0.00260	1.071	mg/L	0.0130	1.21%
Co 228.616†	16781.7	0.1986	mg/L		0.00201	0.9930	mg/L	0.01003	1.01%
Cr 267.716†	976.6	0.2133	mg/L		0.00355	1.066	mg/L	0.0177	1.66%
Cu 324.752†	73169.3	0.2339	mg/L		0.00223	1.170	mg/L	0.0111	0.95%
Fe 273.955†	2110.3	1.721	mg/L		0.0179	8.607	mg/L	0.0897	1.04%
K 766.490†	19752.9	5.482	mg/L		0.0533	27.41	mg/L	0.267	0.97%
Mg 279.077†	6037.0	5.182	mg/L		0.0608	25.91	mg/L	0.304	1.17%
Mn 257.610†	10825.0	0.2677	mg/L		0.00303	1.338	mg/L	0.0151	1.13%
Mo 202.031†	4.4	0.00016	mg/L		0.000056	0.00078	mg/L	0.000280	35.85%
Na 589.592†	2113740.1	255.5	mg/L		3.15	1277	mg/L	15.7	1.23%
Na 330.237†	7237.9	263.6	mg/L		1.97	1318	mg/L	9.8	0.75%
Ni 231.604†	476.8	0.2086	mg/L		0.00209	1.043	mg/L	0.0104	1.00%
Pb 220.353†	11151.3	0.8438	mg/L		0.01168	4.219	mg/L	0.0584	1.38%
Sb 206.836†	22.7	0.00290	mg/L		0.000966	0.01452	mg/L	0.004831	33.27%
Se 196.026†	1604.6	0.8493	mg/L		0.00232	4.246	mg/L	0.0116	0.27%
Si 288.158†	234.6	0.1750	mg/L		0.00324	0.8752	mg/L	0.01621	1.85%
Sn 189.927†	-6.6	0.00039	mg/L		0.000651	0.00193	mg/L	0.003253	168.36%
Sr 421.552†	143562.1	0.2365	mg/L		0.00262	1.182	mg/L	0.0131	1.11%
Ti 334.903†	48.5	0.00154	mg/L		0.000283	0.00772	mg/L	0.001415	18.33%
Tl 190.801†	2798.2	0.7685	mg/L		0.00256	3.842	mg/L	0.0128	0.33%
V 292.402†	42099.8	0.2078	mg/L		0.00245	1.039	mg/L	0.0122	1.18%
Zn 206.200†	1356.9	0.5314	mg/L		0.00521	2.657	mg/L	0.0260	0.98%

Sequence No.: 12

Autosampler Location: 63

Sample ID: VP40 MB1SPK SWC

Date Collected: 11/1/2012 5:58:14 PM

Analyst: EL

Data Type: Original

Dilution: 2X

Nebulizer Parameters: VP40 MB1SPK SWC

Analyte	Back Pressure	Flow
All	232.0 kPa	0.55 L/min

Mean Data: VP40 MB1SPK SWC

Analyte	Mean Corrected Intensity	Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2726608.3	103.0 %	0.46			0.45%
ScR 361.383	211568.0	99.91 %	0.386			0.39%
Ag 328.068†	148988.8	0.5098 mg/L	0.00775	1.020 mg/L	0.0155	1.52%
Al 308.215†	3071.9	2.036 mg/L	0.0097	4.071 mg/L	0.0194	0.48%
As 188.979†	4802.0	2.037 mg/L	0.0204	4.074 mg/L	0.0409	1.00%
B 249.677†	2.6	-0.00046 mg/L	0.002848	-0.00091 mg/L	0.005696	624.04%
Ba 233.527†	20837.9	2.027 mg/L	0.0016	4.054 mg/L	0.0032	0.08%
Be 313.042†	143849.8	0.5202 mg/L	0.00084	1.040 mg/L	0.0017	0.16%
Ca 317.933†	111366.8	10.52 mg/L	0.015	21.04 mg/L	0.030	0.14%
Cd 228.802†	42410.4	0.5027 mg/L	0.00761	1.005 mg/L	0.0152	1.51%
Co 228.616†	42019.6	0.4976 mg/L	0.00800	0.9951 mg/L	0.01599	1.61%
Cr 267.716†	2382.8	0.5204 mg/L	0.00220	1.041 mg/L	0.0044	0.42%
Cu 324.752†	160205.8	0.5120 mg/L	0.00705	1.024 mg/L	0.0141	1.38%
Fe 273.955†	2638.4	2.152 mg/L	0.0083	4.304 mg/L	0.0167	0.39%
K 766.490†	37979.7	10.54 mg/L	0.031	21.08 mg/L	0.062	0.29%
Mg 279.077†	12490.0	10.72 mg/L	0.055	21.45 mg/L	0.109	0.51%
Mn 257.610†	20612.7	0.5098 mg/L	0.00116	1.020 mg/L	0.0023	0.23%
Mo 202.031†	10.8	0.00040 mg/L	0.000138	0.00080 mg/L	0.000275	34.57%
Na 589.592†	88211.5	10.66 mg/L	0.035	21.32 mg/L	0.070	0.33%
Na 330.237†	303.6	10.83 mg/L	0.140	21.67 mg/L	0.281	1.30%
Ni 231.604†	1148.4	0.5034 mg/L	0.00473	1.007 mg/L	0.0095	0.94%
Pb 220.353†	26734.7	2.023 mg/L	0.0343	4.046 mg/L	0.0686	1.70%
Sb 206.836†	7455.0	2.031 mg/L	0.0187	4.062 mg/L	0.0375	0.92%
Se 196.026†	3820.6	2.022 mg/L	0.0189	4.044 mg/L	0.0379	0.94%
Si 288.158†	5.0	0.00719 mg/L	0.000516	0.01438 mg/L	0.001032	7.18%
Sn 189.927†	-18.7	-0.00035 mg/L	0.000574	-0.00070 mg/L	0.001148	163.72%
Sr 421.552†	310705.8	0.5118 mg/L	0.00098	1.024 mg/L	0.0020	0.19%
Ti 334.903†	65.7	0.00192 mg/L	0.000341	0.00383 mg/L	0.000683	17.81%
Tl 190.801†	7222.8	1.984 mg/L	0.0183	3.968 mg/L	0.0367	0.92%
V 292.402†	102775.5	0.5074 mg/L	0.00849	1.015 mg/L	0.0170	1.67%
Zn 206.200†	1260.0	0.4929 mg/L	0.00188	0.9859 mg/L	0.00376	0.38%

Sequence No.: 13
 Sample ID: CV
 Analyst: EL
 Dilution: 1X

Autosampler Location: 7
 Date Collected: 11/1/2012 6:04:18 PM
 Data Type: Original

Nebulizer Parameters: CV

Analyte	Back Pressure	Flow
All	231.0 kPa	0.55 L/min

Mean Data: CV

Analyte	Mean Corrected Intensity	Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2640784.6	99.72 %	0.976			0.98%
ScR 361.383	211288.2	99.78 %	0.478			0.48%
Ag 328.068†	297223.8	1.017 mg/L	0.0022	1.017 mg/L	0.0022	0.22%
Al 308.215†	3079.3	2.006 mg/L	0.0161	2.006 mg/L	0.0161	0.80%
As 188.979†	4950.4	2.099 mg/L	0.0234	2.099 mg/L	0.0234	1.11%
B 249.677†	2131.6	0.9756 mg/L	0.00754	0.9756 mg/L	0.00754	0.77%
Ba 233.527†	10227.6	0.9947 mg/L	0.00520	0.9947 mg/L	0.00520	0.52%
Be 313.042†	271088.6	0.9801 mg/L	0.00604	0.9801 mg/L	0.00604	0.62%
Ca 317.933†	21564.3	2.037 mg/L	0.0112	2.037 mg/L	0.0112	0.55%
Cd 228.802†	85164.6	1.014 mg/L	0.0032	1.014 mg/L	0.0032	0.31%
Co 228.616†	84248.4	0.9971 mg/L	0.00092	0.9971 mg/L	0.00092	0.09%
Cr 267.716†	4579.1	0.9999 mg/L	0.00664	0.9999 mg/L	0.00664	0.66%
Cu 324.752†	334182.7	1.067 mg/L	0.0017	1.067 mg/L	0.0017	0.16%
Fe 273.955†	2602.5	2.122 mg/L	0.0144	2.122 mg/L	0.0144	0.68%
K 766.490†	74275.3	20.61 mg/L	0.112	20.61 mg/L	0.112	0.54%
Mg 279.077†	2467.7	2.122 mg/L	0.0151	2.122 mg/L	0.0151	0.71%
Mn 257.610†	40161.4	0.9929 mg/L	0.00496	0.9929 mg/L	0.00496	0.50%
Mo 202.031†	17718.4	0.9574 mg/L	0.00920	0.9574 mg/L	0.00920	0.96%
Na 589.592†	415009.9	50.16 mg/L	0.335	50.16 mg/L	0.335	0.67%
Na 330.237†	1392.0	50.54 mg/L	0.108	50.54 mg/L	0.108	0.21%
Ni 231.604†	2255.1	0.9881 mg/L	0.00672	0.9881 mg/L	0.00672	0.68%
Pb 220.353†	26976.2	2.041 mg/L	0.0201	2.041 mg/L	0.0201	0.99%
Sb 206.836†	7653.5	2.090 mg/L	0.0238	2.090 mg/L	0.0238	1.14%
Se 196.026†	3821.3	2.021 mg/L	0.0205	2.021 mg/L	0.0205	1.02%
Si 288.158†	2935.9	2.177 mg/L	0.0183	2.177 mg/L	0.0183	0.84%
Sn 189.927†	5943.9	0.9072 mg/L	0.00945	0.9072 mg/L	0.00945	1.04%
Sr 421.552†	603523.2	0.9941 mg/L	0.00153	0.9941 mg/L	0.00153	0.15%
Ti 334.903†	25549.2	0.9928 mg/L	0.00609	0.9928 mg/L	0.00609	0.61%
Tl 190.801†	7402.2	2.027 mg/L	0.0189	2.027 mg/L	0.0189	0.93%
V 292.402†	207588.3	1.029 mg/L	0.0046	1.029 mg/L	0.0046	0.45%
Zn 206.200†	2636.2	1.031 mg/L	0.0067	1.031 mg/L	0.0067	0.65%

Sequence No.: 14
 Sample ID: CB
 Analyst: EL
 Dilution: 1X

Autosampler Location: 1
 Date Collected: 11/1/2012 6:10:22 PM
 Data Type: Original

Nebulizer Parameters: CB

Analyte Back Pressure Flow
 All 231.0 kPa 0.55 L/min

Mean Data: CB

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2761143.0	104.3	%	0.08				0.08%
ScR 361.383	208243.2	98.34	%	0.343				0.35%
Ag 328.068†	60.8	0.00021	mg/L	0.000270	0.00021	mg/L	0.000270	130.01%
Al 308.215†	-1.1	-0.00071	mg/L	0.016022	-0.00071	mg/L	0.016022	>999.9%
As 188.979†	2.9	0.00124	mg/L	0.000606	0.00124	mg/L	0.000606	49.11%
B 249.677†	7.3	0.00333	mg/L	0.001351	0.00333	mg/L	0.001351	40.53%
Ba 233.527†	-3.8	-0.00037	mg/L	0.000247	-0.00037	mg/L	0.000247	66.67%
Be 313.042†	3.6	0.00001	mg/L	0.000028	0.00001	mg/L	0.000028	208.61%
Ca 317.933†	1.3	0.00012	mg/L	0.002312	0.00012	mg/L	0.002312	>999.9%
Cd 228.802†	4.0	0.00005	mg/L	0.000079	0.00005	mg/L	0.000079	172.85%
Co 228.616†	-5.5	-0.00007	mg/L	0.000041	-0.00007	mg/L	0.000041	62.41%
Cr 267.716†	0.5	0.00011	mg/L	0.001266	0.00011	mg/L	0.001266	>999.9%
Cu 324.752†	-171.0	-0.00055	mg/L	0.000047	-0.00055	mg/L	0.000047	8.56%
Fe 273.955†	-5.5	-0.00448	mg/L	0.000316	-0.00448	mg/L	0.000316	7.05%
K 766.490†	195.0	0.05411	mg/L	0.011971	0.05411	mg/L	0.011971	22.12%
Mg 279.077†	2.9	0.00248	mg/L	0.009119	0.00248	mg/L	0.009119	367.66%
Mn 257.610†	-4.8	-0.00012	mg/L	0.000177	-0.00012	mg/L	0.000177	150.69%
Mo 202.031†	2.9	0.00016	mg/L	0.000086	0.00016	mg/L	0.000086	54.12%
Na 589.592†	1243.0	0.1502	mg/L	0.00864	0.1502	mg/L	0.00864	5.75%
Na 330.237†	8.8	0.3239	mg/L	0.14637	0.3239	mg/L	0.14637	45.19%
Ni 231.604†	4.9	0.00215	mg/L	0.001050	0.00215	mg/L	0.001050	48.88%
Pb 220.353†	-12.9	-0.00097	mg/L	0.000148	-0.00097	mg/L	0.000148	15.25%
Sb 206.836†	4.5	0.00122	mg/L	0.000476	0.00122	mg/L	0.000476	38.92%
Se 196.026†	3.4	0.00178	mg/L	0.000739	0.00178	mg/L	0.000739	41.43%
Si 288.158†	2.5	0.00189	mg/L	0.002740	0.00189	mg/L	0.002740	145.29%
Sn 189.927†	0.1	0.00001	mg/L	0.000345	0.00001	mg/L	0.000345	>999.9%
Sr 421.552†	23.2	0.00004	mg/L	0.000070	0.00004	mg/L	0.000070	182.28%
Ti 334.903†	-0.9	-0.00004	mg/L	0.000939	-0.00004	mg/L	0.000939	>999.9%
Tl 190.801†	5.8	0.00161	mg/L	0.000604	0.00161	mg/L	0.000604	37.44%
V 292.402†	-33.3	-0.00016	mg/L	0.000268	-0.00016	mg/L	0.000268	165.91%
Zn 206.200†	-18.3	-0.00718	mg/L	0.000665	-0.00718	mg/L	0.000665	9.26%

Sequence No.: 15
 Sample ID: VP51 C SWC
 Analyst: EL
 Dilution: 2X

Autosampler Location: 64
 Date Collected: 11/1/2012 6:16:20 PM
 Data Type: Original

 Nebulizer Parameters: VP51 C SWC

Analyte Back Pressure Flow
 All 232.0 kPa 0.55 L/min

 Mean Data: VP51 C SWC

Analyte	Mean Corrected Intensity	Conc. Units	Calib.	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2673261.8	100.9	%	0.67			0.66%
ScR 361.383	213267.9	100.7	%	0.35			0.35%
Ag 328.068†	-1196.5	0.00033	mg/L	0.000140	0.00067 mg/L	0.000280	41.82%
Al 308.215†	111730.4	74.31	mg/L	0.438	148.6 mg/L	0.88	0.59%
As 188.979†	334.1	0.1459	mg/L	0.00098	0.2917 mg/L	0.00195	0.67%
B 249.677†	85.5	0.03889	mg/L	0.001036	0.07778 mg/L	0.002071	2.66%
Ba 233.527†	3238.3	0.3082	mg/L	0.00080	0.6164 mg/L	0.00160	0.26%
Be 313.042†	544.4	0.00132	mg/L	0.000040	0.00265 mg/L	0.000079	2.99%
Ca 317.933†	268678.9	25.38	mg/L	0.163	50.76 mg/L	0.327	0.64%
Cd 228.802†	316.2	0.00349	mg/L	0.000054	0.00697 mg/L	0.000108	1.55%
Co 228.616†	6506.4	0.07181	mg/L	0.000515	0.1436 mg/L	0.00103	0.72%
Cr 267.716†	823.4	0.1795	mg/L	0.00024	0.3590 mg/L	0.00048	0.13%
Cu 324.752†	120553.4	0.3967	mg/L	0.00138	0.7934 mg/L	0.00275	0.35%
Fe 273.955†	179401.3	146.4	mg/L	0.67	292.7 mg/L	1.33	0.45%
K 766.490†	25407.6	7.052	mg/L	0.0443	14.10 mg/L	0.089	0.63%
Mg 279.077†	50696.6	43.44	mg/L	0.272	86.88 mg/L	0.544	0.63%
Mn 257.610†	52576.3	1.299	mg/L	0.0088	2.597 mg/L	0.0176	0.68%
Mo 202.031†	149.8	0.00907	mg/L	0.000263	0.01814 mg/L	0.000526	2.90%
Na 589.592†	110496.8	13.35	mg/L	0.094	26.71 mg/L	0.188	0.71%
Na 330.237†	373.7	13.61	mg/L	0.262	27.22 mg/L	0.523	1.92%
Ni 231.604†	475.6	0.2083	mg/L	0.00139	0.4166 mg/L	0.00279	0.67%
Pb 220.353†	3221.8	0.2633	mg/L	0.00189	0.5265 mg/L	0.00379	0.72%
Sb 206.836†	81.0	0.00869	mg/L	0.000850	0.01737 mg/L	0.001700	9.78%
Se 196.026†	-50.9	-0.02752	mg/L	0.002706	-0.05504 mg/L	0.005413	9.83%
Si 288.158†	2112.9	1.568	mg/L	0.0103	3.135 mg/L	0.0205	0.65%
Sn 189.927†	85.1	0.02016	mg/L	0.000294	0.04032 mg/L	0.000589	1.46%
Sr 421.552†	97139.8	0.1600	mg/L	0.00039	0.3200 mg/L	0.00078	0.25%
Ti 334.903†	51898.2	2.018	mg/L	0.0142	4.036 mg/L	0.0285	0.71%
Tl 190.801†	-14.0	-0.00897	mg/L	0.002028	-0.01794 mg/L	0.004056	22.60%
V 292.402†	48685.0	0.2245	mg/L	0.00026	0.4491 mg/L	0.00052	0.11%
Zn 206.200†	2022.4	0.7924	mg/L	0.00319	1.585 mg/L	0.0064	0.40%

Sequence No.: 16
Sample ID: VP51 D SWC
Analyst: EL
Dilution: 2X

Autosampler Location: 65
Date Collected: 11/1/2012 6:22:08 PM
Data Type: Original

Nebulizer Parameters: VP51 D SWC

Analyte Back Pressure Flow
All 231.0 kPa 0.55 L/min

Mean Data: VP51 D SWC

Analyte	Mean Corrected Intensity	Conc. Units	Calib.	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2710276.8	102.3 %		0.21			0.20%
ScR 361.383	212110.4	100.2 %		0.57			0.57%
Ag 328.068†	-1580.1	0.00037 mg/L		0.000176	0.00074 mg/L	0.000352	47.56%
Al 308.215†	121414.3	80.74 mg/L		0.184	161.5 mg/L	0.37	0.23%
As 188.979†	114.1	0.05908 mg/L		0.001732	0.1182 mg/L	0.00346	2.93%
B 249.677†	64.6	0.02942 mg/L		0.001261	0.05884 mg/L	0.002522	4.29%
Ba 233.527†	3619.8	0.3425 mg/L		0.00125	0.6849 mg/L	0.00250	0.37%
Be 313.042†	375.6	0.00043 mg/L		0.000021	0.00086 mg/L	0.000042	4.89%
Ca 317.933†	847954.0	80.10 mg/L		0.074	160.2 mg/L	0.15	0.09%
Cd 228.802†	245.3	0.00284 mg/L		0.000071	0.00568 mg/L	0.000142	2.49%
Co 228.616†	4805.6	0.04556 mg/L		0.000351	0.09111 mg/L	0.000701	0.77%
Cr 267.716†	817.4	0.1779 mg/L		0.00075	0.3558 mg/L	0.00150	0.42%
Cu 324.752†	88186.0	0.2974 mg/L		0.00084	0.5949 mg/L	0.00168	0.28%
Fe 273.955†	253447.5	206.8 mg/L		1.21	413.5 mg/L	2.42	0.59%
K 766.490†	14048.7	3.899 mg/L		0.0067	7.798 mg/L	0.0134	0.17%
Mg 279.077†	76533.0	65.59 mg/L		0.160	131.2 mg/L	0.32	0.24%
Mn 257.610†	85255.9	2.106 mg/L		0.0049	4.212 mg/L	0.0097	0.23%
Mo 202.031†	402.8	0.02261 mg/L		0.000228	0.04521 mg/L	0.000456	1.01%
Na 589.592†	21699.6	2.623 mg/L		0.0049	5.245 mg/L	0.0098	0.19%
Na 330.237†	79.4	3.047 mg/L		0.0485	6.094 mg/L	0.0970	1.59%
Ni 231.604†	340.7	0.1492 mg/L		0.00286	0.2984 mg/L	0.00572	1.92%
Pb 220.353†	7372.7	0.5779 mg/L		0.00387	1.156 mg/L	0.0077	0.67%
Sb 206.836†	63.5	0.00688 mg/L		0.000622	0.01377 mg/L	0.001244	9.04%
Se 196.026†	-64.3	-0.03443 mg/L		0.000487	-0.06886 mg/L	0.000973	1.41%
Si 288.158†	1295.8	0.9662 mg/L		0.00365	1.932 mg/L	0.0073	0.38%
Sn 189.927†	2625.8	0.4209 mg/L		0.00246	0.8418 mg/L	0.00492	0.58%
Sr 421.552†	278398.4	0.4585 mg/L		0.00268	0.9171 mg/L	0.00536	0.58%
Ti 334.903†	130877.3	5.088 mg/L		0.0109	10.18 mg/L	0.022	0.21%
Tl 190.801†	-11.2	-0.01231 mg/L		0.000158	-0.02462 mg/L	0.000316	1.28%
V 292.402†	67073.3	0.3065 mg/L		0.00072	0.6130 mg/L	0.00145	0.24%
Zn 206.200†	3358.6	1.317 mg/L		0.0052	2.634 mg/L	0.0105	0.40%

Sequence No.: 17
 Sample ID: VP51 E SWC
 Analyst: EL
 Dilution: 2X

Autosampler Location: 66
 Date Collected: 11/1/2012 6:28:00 PM
 Data Type: Original

Nebulizer Parameters: VP51 E SWC

Analyte Back Pressure Flow
 All 231.0 kPa 0.55 L/min

Mean Data: VP51 E SWC

Analyte	Mean Corrected Intensity	Conc. Units	Calib. Units	Std.Dev.	Conc. Units	Sample Std.Dev.	RSD
ScA 357.253	2693088.7	101.7	%	2.05			2.01%
ScR 361.383	208827.3	98.62	%	2.462			2.50%
Ag 328.068†	-1399.2	0.00162	mg/L	0.000210	0.00324	0.000421	12.97%
Al 308.215†	101916.7	67.77	mg/L	0.744	135.5	1.49	1.10%
As 188.979†	116.0	0.05881	mg/L	0.003099	0.1176	0.00620	5.27%
B 249.677†	149.2	0.06821	mg/L	0.001573	0.1364	0.00315	2.31%
Ba 233.527†	8054.4	0.7739	mg/L	0.01951	1.548	0.0390	2.52%
Be 313.042†	370.6	0.00067	mg/L	0.000074	0.00134	0.000147	10.97%
Ca 317.933†	364055.3	34.39	mg/L	0.230	68.78	0.459	0.67%
Cd 228.802†	412.4	0.00486	mg/L	0.000217	0.00972	0.000434	4.46%
Co 228.616†	4907.3	0.04746	mg/L	0.001344	0.09493	0.002687	2.83%
Cr 267.716†	919.3	0.2003	mg/L	0.00677	0.4006	0.01354	3.38%
Cu 324.752†	183261.8	0.6014	mg/L	0.00470	1.203	0.0094	0.78%
Fe 273.955†	255650.6	208.6	mg/L	2.05	417.1	4.10	0.98%
K 766.490†	23817.9	6.611	mg/L	0.1087	13.22	0.217	1.64%
Mg 279.077†	56855.1	48.69	mg/L	0.352	97.39	0.703	0.72%
Mn 257.610†	64495.2	1.593	mg/L	0.0145	3.187	0.0290	0.91%
Mo 202.031†	486.6	0.02707	mg/L	0.000849	0.05414	0.001697	3.13%
Na 589.592†	168457.3	20.36	mg/L	0.270	40.72	0.540	1.33%
Na 330.237†	547.1	20.18	mg/L	0.751	40.37	1.502	3.72%
Ni 231.604†	502.4	0.2200	mg/L	0.00511	0.4400	0.01021	2.32%
Pb 220.353†	12726.6	0.9767	mg/L	0.02234	1.953	0.0447	2.29%
Sb 206.836†	88.4	0.00806	mg/L	0.000353	0.01612	0.000706	4.38%
Se 196.026†	-57.5	-0.03103	mg/L	0.003561	-0.06206	0.007122	11.48%
Si 288.158†	1023.8	0.7631	mg/L	0.02034	1.526	0.0407	2.67%
Sn 189.927†	413.7	0.07326	mg/L	0.001057	0.1465	0.00211	1.44%
Sr 421.552†	141494.1	0.2331	mg/L	0.00302	0.4661	0.00603	1.29%
Ti 334.903†	118086.4	4.593	mg/L	0.0435	9.185	0.0869	0.95%
Tl 190.801†	-20.2	-0.01327	mg/L	0.001394	-0.02654	0.002788	10.51%
V 292.402†	47192.7	0.2094	mg/L	0.00183	0.4188	0.00366	0.88%
Zn 206.200†	3475.4	1.362	mg/L	0.0349	2.723	0.0697	2.56%

Sequence No.: 18
 Sample ID: VP51 F SWC
 Analyst: EL
 Dilution: 2X

Autosampler Location: 67
 Date Collected: 11/1/2012 6:33:48 PM
 Data Type: Original

Nebulizer Parameters: VP51 F SWC

Analyte Back Pressure Flow
 All 231.0 kPa 0.55 L/min

Mean Data: VP51 F SWC

Analyte	Mean Corrected Intensity	Calib. Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2732249.3	103.2 %	0.08			0.08%
ScR 361.383	210861.4	99.58 %	0.480			0.48%
Ag 328.068†	-948.0	0.00213 mg/L	0.000276	0.00425 mg/L	0.000553	13.00%
Al 308.215†	75557.0	50.25 mg/L	0.111	100.5 mg/L	0.22	0.22%
As 188.979†	92.5	0.04499 mg/L	0.001081	0.08997 mg/L	0.002161	2.40%
B 249.677†	46.0	0.02099 mg/L	0.000731	0.04198 mg/L	0.001461	3.48%
Ba 233.527†	2109.0	0.1970 mg/L	0.00075	0.3940 mg/L	0.00151	0.38%
Be 313.042†	276.1	0.00051 mg/L	0.000046	0.00103 mg/L	0.000093	9.07%
Ca 317.933†	279599.7	26.41 mg/L	0.037	52.83 mg/L	0.073	0.14%
Cd 228.802†	350.5	0.00412 mg/L	0.000148	0.00825 mg/L	0.000296	3.59%
Co 228.616†	3193.4	0.03089 mg/L	0.000093	0.06178 mg/L	0.000185	0.30%
Cr 267.716†	589.7	0.1284 mg/L	0.00091	0.2569 mg/L	0.00181	0.71%
Cu 324.752†	100715.4	0.3355 mg/L	0.00026	0.6710 mg/L	0.00053	0.08%
Fe 273.955†	214718.7	175.2 mg/L	0.58	350.3 mg/L	1.16	0.33%
K 766.490†	16285.9	4.520 mg/L	0.0281	9.040 mg/L	0.0561	0.62%
Mg 279.077†	35489.8	30.37 mg/L	0.046	60.74 mg/L	0.092	0.15%
Mn 257.610†	53040.0	1.311 mg/L	0.0024	2.622 mg/L	0.0048	0.18%
Mo 202.031†	694.4	0.03818 mg/L	0.000237	0.07635 mg/L	0.000473	0.62%
Na 589.592†	45293.3	5.474 mg/L	0.0231	10.95 mg/L	0.046	0.42%
Na 330.237†	157.4	5.622 mg/L	0.3267	11.24 mg/L	0.653	5.81%
Ni 231.604†	279.3	0.1223 mg/L	0.00141	0.2446 mg/L	0.00281	1.15%
Pb 220.353†	54628.1	4.141 mg/L	0.0240	8.281 mg/L	0.0480	0.58%
Sb 206.836†	-27.5	0.01676 mg/L	0.001195	0.03352 mg/L	0.002390	7.13%
Se 196.026†	-50.8	-0.02720 mg/L	0.004551	-0.05439 mg/L	0.009103	16.73%
Si 288.158†	1289.3	0.9572 mg/L	0.00283	1.914 mg/L	0.0057	0.30%
Sn 189.927†	21939.4	3.353 mg/L	0.0164	6.705 mg/L	0.0329	0.49%
Sr 421.552†	111923.2	0.1843 mg/L	0.00069	0.3687 mg/L	0.00137	0.37%
Ti 334.903†	71687.9	2.788 mg/L	0.0055	5.576 mg/L	0.0110	0.20%
Tl 190.801†	-14.4	-0.00919 mg/L	0.001733	-0.01838 mg/L	0.003466	18.85%
V 292.402†	34982.4	0.1538 mg/L	0.00053	0.3075 mg/L	0.00105	0.34%
Zn 206.200†	3717.5	1.457 mg/L	0.0055	2.913 mg/L	0.0109	0.38%

Sequence No.: 19

Autosampler Location: 68

Sample ID: VP51 ADUP SWC

Date Collected: 11/1/2012 6:39:35 PM

Analyst: EL

Data Type: Original

Dilution: 2X

Nebulizer Parameters: VP51 ADUP SWC

Analyte	Back Pressure	Flow
All	231.0 kPa	0.55 L/min

Mean Data: VP51 ADUP SWC

Analyte	Mean Corrected		Calib. Units	Std.Dev.	Sample		RSD
	Intensity	Conc.			Conc.	Units	
ScA 357.253	2654476.2	100.2	%	0.48			0.48%
ScR 361.383	207293.3	97.90	%	1.693			1.73%
Ag 328.068†	-1173.1	-0.00095	mg/L	0.000255	-0.00190	mg/L	0.000509 26.76%
Al 308.215†	188786.5	125.5	mg/L	0.73	251.1	mg/L	1.46 0.58%
As 188.979†	230.1	0.1111	mg/L	0.00121	0.2222	mg/L	0.00242 1.09%
B 249.677†	209.2	0.09555	mg/L	0.001783	0.1911	mg/L	0.00357 1.87%
Ba 233.527†	6417.4	0.6162	mg/L	0.01069	1.232	mg/L	0.0214 1.73%
Be 313.042†	706.8	0.00149	mg/L	0.000088	0.00298	mg/L	0.000176 5.90%
Ca 317.933†	2229796.0	210.6	mg/L	2.55	421.3	mg/L	5.09 1.21%
Cd 228.802†	254.9	0.00287	mg/L	0.000111	0.00575	mg/L	0.000223 3.88%
Co 228.616†	6411.9	0.06254	mg/L	0.000726	0.1251	mg/L	0.00145 1.16%
Cr 267.716†	1581.9	0.3447	mg/L	0.00696	0.6894	mg/L	0.01393 2.02%
Cu 324.752†	81865.5	0.2739	mg/L	0.00058	0.5479	mg/L	0.00116 0.21%
Fe 273.955†	210492.2	171.7	mg/L	1.31	343.4	mg/L	2.62 0.76%
K 766.490†	42948.3	11.92	mg/L	0.108	23.84	mg/L	0.216 0.91%
Mg 279.077†	95169.2	81.61	mg/L	0.337	163.2	mg/L	0.67 0.41%
Mn 257.610†	114745.8	2.835	mg/L	0.0125	5.669	mg/L	0.0250 0.44%
Mo 202.031†	-50.2	-0.00116	mg/L	0.000058	-0.00232	mg/L	0.000117 5.05%
Na 589.592†	144433.8	17.46	mg/L	0.101	34.91	mg/L	0.201 0.58%
Na 330.237†	505.3	18.26	mg/L	0.315	36.53	mg/L	0.629 1.72%
Ni 231.604†	646.9	0.2833	mg/L	0.00683	0.5666	mg/L	0.01365 2.41%
Pb 220.353†	2875.9	0.2591	mg/L	0.00295	0.5182	mg/L	0.00590 1.14%
Sb 206.836†	113.4	0.01776	mg/L	0.002045	0.03553	mg/L	0.004090 11.51%
Se 196.026†	-70.1	-0.03787	mg/L	0.001184	-0.07574	mg/L	0.002367 3.13%
Si 288.158†	1201.6	0.8986	mg/L	0.02003	1.797	mg/L	0.0401 2.23%
Sn 189.927†	45.5	0.05611	mg/L	0.000290	0.1122	mg/L	0.00058 0.52%
Sr 421.552†	351902.2	0.5796	mg/L	0.00642	1.159	mg/L	0.0128 1.11%
Ti 334.903†	165660.7	6.435	mg/L	0.0682	12.87	mg/L	0.136 1.06%
Tl 190.801†	11.2	-0.00872	mg/L	0.001710	-0.01744	mg/L	0.003419 19.60%
V 292.402†	76508.7	0.3561	mg/L	0.00226	0.7122	mg/L	0.00452 0.64%
Zn 206.200†	3351.7	1.317	mg/L	0.0221	2.634	mg/L	0.0441 1.68%

Sequence No.: 20
 Sample ID: VP51 A SWC
 Analyst: EL
 Dilution: 2X

Autosampler Location: 69
 Date Collected: 11/1/2012 6:45:42 PM
 Data Type: Original

Nebulizer Parameters: VP51 A SWC

Analyte Back Pressure Flow
 All 230.0 kPa 0.55 L/min

Mean Data: VP51 A SWC

Analyte	Mean Corrected Intensity	Conc. Units	Calib. Units	Std.Dev.	Conc. Units	Sample Std.Dev.	RSD
ScA 357.253	2697139.7	101.8	%	0.37			0.37%
ScR 361.383	211186.3	99.73	%	0.185			0.19%
Ag 328.068†	-1248.0	-0.00081	mg/L	0.000297	-0.00161	0.000594	36.92%
Al 308.215†	185629.1	123.4	mg/L	0.20	246.9	0.40	0.16%
As 188.979†	200.5	0.09837	mg/L	0.003175	0.1967	0.00635	3.23%
B 249.677†	201.1	0.09182	mg/L	0.001519	0.1836	0.00304	1.65%
Ba 233.527†	6132.9	0.5882	mg/L	0.00293	1.176	0.0059	0.50%
Be 313.042†	806.3	0.00170	mg/L	0.000056	0.00339	0.000112	3.31%
Ca 317.933†	2041312.9	192.8	mg/L	0.19	385.7	0.37	0.10%
Cd 228.802†	211.0	0.00236	mg/L	0.000009	0.00472	0.000018	0.37%
Co 228.616†	6869.4	0.06807	mg/L	0.000414	0.1361	0.00083	0.61%
Cr 267.716†	1356.8	0.2955	mg/L	0.00146	0.5910	0.00292	0.49%
Cu 324.752†	85443.5	0.2859	mg/L	0.00029	0.5718	0.00058	0.10%
Fe 273.955†	218166.4	178.0	mg/L	0.55	356.0	1.10	0.31%
K 766.490†	38489.2	10.68	mg/L	0.027	21.37	0.054	0.25%
Mg 279.077†	91968.5	78.86	mg/L	0.103	157.7	0.21	0.13%
Mn 257.610†	118684.3	2.932	mg/L	0.0044	5.864	0.0087	0.15%
Mo 202.031†	-51.5	-0.00123	mg/L	0.000392	-0.00247	0.000784	31.75%
Na 589.592†	123569.2	14.93	mg/L	0.037	29.87	0.074	0.25%
Na 330.237†	422.6	15.46	mg/L	0.177	30.91	0.355	1.15%
Ni 231.604†	554.9	0.2430	mg/L	0.00541	0.4861	0.01082	2.23%
Pb 220.353†	2316.8	0.2152	mg/L	0.00183	0.4304	0.00367	0.85%
Sb 206.836†	99.5	0.01449	mg/L	0.002726	0.02898	0.005452	18.81%
Se 196.026†	-65.9	-0.03551	mg/L	0.004962	-0.07103	0.009924	13.97%
Si 288.158†	1204.6	0.9004	mg/L	0.00309	1.801	0.0062	0.34%
Sn 189.927†	14.8	0.04754	mg/L	0.000514	0.09507	0.001029	1.08%
Sr 421.552†	348016.8	0.5732	mg/L	0.00210	1.146	0.0042	0.37%
Ti 334.903†	163214.4	6.341	mg/L	0.0099	12.68	0.020	0.16%
Tl 190.801†	18.7	-0.00697	mg/L	0.002439	-0.01394	0.004878	35.00%
V 292.402†	88669.5	0.4149	mg/L	0.00104	0.8298	0.00207	0.25%
Zn 206.200†	2346.4	0.9228	mg/L	0.00428	1.846	0.0086	0.46%

Sequence No.: 21
 Sample ID: VP51 ASPK SWC
 Analyst: EL
 Dilution: 2X

Autosampler Location: 70
 Date Collected: 11/1/2012 6:51:49 PM
 Data Type: Original

 Nebulizer Parameters: VP51 ASPK SWC

Analyte Back Pressure Flow
 All 230.0 kPa 0.55 L/min

Mean Data: VP51 ASPK SWC

Analyte	Mean Corrected		Calib.	Std.Dev.	Sample		RSD
	Intensity	Conc.	Units		Conc.	Units	
ScA 357.253	2646528.1	99.94	%	0.689			0.69%
ScR 361.383	211171.2	99.73	%	0.385			0.39%
Ag 328.068†	146751.9	0.5064	mg/L	0.00225	1.013	mg/L	0.44%
Al 308.215†	260602.3	173.3	mg/L	1.74	346.6	mg/L	1.00%
As 188.979†	4864.3	2.082	mg/L	0.0159	4.164	mg/L	0.76%
B 249.677†	290.8	0.1313	mg/L	0.00108	0.2626	mg/L	0.82%
Ba 233.527†	28245.2	2.737	mg/L	0.0218	5.474	mg/L	0.80%
Be 313.042†	137355.3	0.4951	mg/L	0.00496	0.9903	mg/L	1.00%
Ca 317.933†	2922552.7	276.1	mg/L	2.69	552.2	mg/L	0.97%
Cd 228.802†	41681.0	0.4939	mg/L	0.00380	0.9879	mg/L	0.77%
Co 228.616†	47515.0	0.5441	mg/L	0.00347	1.088	mg/L	0.64%
Cr 267.716†	4198.9	0.9158	mg/L	0.00687	1.832	mg/L	0.75%
Cu 324.752†	281783.6	0.9169	mg/L	0.00220	1.834	mg/L	0.24%
Fe 273.955†	284756.8	232.3	mg/L	2.97	464.6	mg/L	1.28%
K 766.490†	95427.6	26.49	mg/L	0.321	52.97	mg/L	1.21%
Mg 279.077†	135742.7	116.4	mg/L	1.22	232.8	mg/L	1.05%
Mn 257.610†	192232.8	4.749	mg/L	0.0481	9.499	mg/L	1.01%
Mo 202.031†	-86.8	-0.00268	mg/L	0.000550	-0.00536	mg/L	20.52%
Na 589.592†	257907.2	31.17	mg/L	0.300	62.34	mg/L	0.96%
Na 330.237†	871.9	31.67	mg/L	0.269	63.35	mg/L	0.85%
Ni 231.604†	1892.3	0.8283	mg/L	0.00493	1.657	mg/L	0.60%
Pb 220.353†	27314.5	2.123	mg/L	0.0190	4.246	mg/L	0.89%
Sb 206.836†	1605.0	0.4150	mg/L	0.00214	0.8300	mg/L	0.51%
Se 196.026†	3512.2	1.858	mg/L	0.0101	3.716	mg/L	0.54%
Si 288.158†	2319.4	1.731	mg/L	0.0153	3.463	mg/L	0.88%
Sn 189.927†	6.4	0.06583	mg/L	0.000855	0.1317	mg/L	1.30%
Sr 421.552†	770174.1	1.269	mg/L	0.0101	2.537	mg/L	0.80%
Ti 334.903†	230233.9	8.944	mg/L	0.0789	17.89	mg/L	0.88%
Tl 190.801†	6421.4	1.747	mg/L	0.0166	3.493	mg/L	0.95%
V 292.402†	208508.7	0.9996	mg/L	0.00722	1.999	mg/L	0.72%
Zn 206.200†	4424.0	1.738	mg/L	0.0156	3.475	mg/L	0.90%

Sequence No.: 22

Autosampler Location: 71

Sample ID: VP51 MB1SPK SWC

Date Collected: 11/1/2012 6:57:01 PM

Analyst: EL

Data Type: Original

Dilution: 2X

Nebulizer Parameters: VP51 MB1SPK SWC

Analyte Back Pressure Flow
 All 230.0 kPa 0.55 L/min

Mean Data: VP51 MB1SPK SWC

Analyte	Mean Corrected Intensity	Conc. Units	Calib. Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2813773.0	106.3 %	1.39			1.31%
ScR 361.383	211697.4	99.98 %	0.159			0.16%
Ag 328.068†	143240.2	0.4901 mg/L	0.00807	0.9803 mg/L	0.01613	1.65%
Al 308.215†	3106.0	2.058 mg/L	0.0043	4.117 mg/L	0.0087	0.21%
As 188.979†	4568.0	1.938 mg/L	0.0186	3.875 mg/L	0.0372	0.96%
B 249.677†	-1.0	-0.00205 mg/L	0.001343	-0.00411 mg/L	0.002686	65.35%
Ba 233.527†	20112.3	1.957 mg/L	0.0080	3.913 mg/L	0.0160	0.41%
Be 313.042†	137629.9	0.4977 mg/L	0.00140	0.9953 mg/L	0.00281	0.28%
Ca 317.933†	108207.1	10.22 mg/L	0.037	20.44 mg/L	0.075	0.37%
Cd 228.802†	40455.6	0.4795 mg/L	0.00947	0.9590 mg/L	0.01894	1.97%
Co 228.616†	40248.7	0.4766 mg/L	0.00924	0.9532 mg/L	0.01848	1.94%
Cr 267.716†	2334.5	0.5098 mg/L	0.00242	1.020 mg/L	0.0048	0.48%
Cu 324.752†	153674.7	0.4912 mg/L	0.00818	0.9824 mg/L	0.01637	1.67%
Fe 273.955†	2735.7	2.231 mg/L	0.0084	4.463 mg/L	0.0167	0.37%
K 766.490†	37302.2	10.35 mg/L	0.025	20.71 mg/L	0.050	0.24%
Mg 279.077†	12216.7	10.49 mg/L	0.030	20.98 mg/L	0.060	0.29%
Mn 257.610†	19789.3	0.4894 mg/L	0.00129	0.9789 mg/L	0.00258	0.26%
Mo 202.031†	17.5	0.00077 mg/L	0.000172	0.00153 mg/L	0.000344	22.47%
Na 589.592†	82696.1	9.994 mg/L	0.0280	19.99 mg/L	0.056	0.28%
Na 330.237†	279.0	9.938 mg/L	0.1568	19.88 mg/L	0.314	1.58%
Ni 231.604†	1119.2	0.4906 mg/L	0.00329	0.9811 mg/L	0.00658	0.67%
Pb 220.353†	25690.6	1.944 mg/L	0.0362	3.888 mg/L	0.0725	1.86%
Sb 206.836†	7058.7	1.923 mg/L	0.0197	3.845 mg/L	0.0394	1.03%
Se 196.026†	3629.0	1.921 mg/L	0.0236	3.842 mg/L	0.0472	1.23%
Si 288.158†	10.4	0.01107 mg/L	0.002990	0.02213 mg/L	0.005981	27.02%
Sn 189.927†	-12.8	0.00047 mg/L	0.000269	0.00094 mg/L	0.000539	57.18%
Sr 421.552†	303492.1	0.4999 mg/L	0.00136	0.9998 mg/L	0.00272	0.27%
Ti 334.903†	99.8	0.00326 mg/L	0.000202	0.00652 mg/L	0.000403	6.18%
Tl 190.801†	6931.7	1.904 mg/L	0.0206	3.808 mg/L	0.0412	1.08%
V 292.402†	98971.1	0.4886 mg/L	0.00885	0.9773 mg/L	0.01770	1.81%
Zn 206.200†	1250.9	0.4894 mg/L	0.00241	0.9788 mg/L	0.00483	0.49%

Sequence No.: 23
 Sample ID: VP29 N TWC
 Analyst: EL
 Dilution: 1X

Autosampler Location: 72
 Date Collected: 11/1/2012 7:03:04 PM
 Data Type: Original

Nebulizer Parameters: VP29 N TWC

Analyte Back Pressure Flow
 All 231.0 kPa 0.55 L/min

Mean Data: VP29 N TWC

Analyte	Mean Corrected Intensity	Conc. Units	Calib. Units	Std.Dev.	Conc. Units	Sample Std.Dev.	RSD
ScA 357.253	2599950.7	98.18 %	%	0.500			0.51%
ScR 361.383	209341.2	98.86 %	%	0.266			0.27%
Ag 328.068†	249.5	-0.00062	mg/L	0.000191	-0.00062	0.000191	30.95%
Al 308.215†	1.4	0.00083	mg/L	0.004670	0.00083	0.004670	560.22%
As 188.979†	7.4	0.00313	mg/L	0.001395	0.00313	0.001395	44.56%
B 249.677†	553.4	0.2537	mg/L	0.00217	0.2537	0.00217	0.85%
Ba 233.527†	760.6	0.07399	mg/L	0.000316	0.07399	0.000316	0.43%
Be 313.042†	-19.0	-0.00008	mg/L	0.000027	-0.00008	0.000027	35.78%
Ca 317.933†	1290382.0	121.9	mg/L	0.25	121.9	0.25	0.20%
Cd 228.802†	-9.5	-0.00012	mg/L	0.000330	-0.00012	0.000330	272.42%
Co 228.616†	-30.3	-0.00041	mg/L	0.000426	-0.00041	0.000426	105.23%
Cr 267.716†	24.0	0.00513	mg/L	0.001155	0.00513	0.001155	22.53%
Cu 324.752†	81.3	0.00028	mg/L	0.000125	0.00028	0.000125	45.04%
Fe 273.955†	332.8	0.2715	mg/L	0.00209	0.2715	0.00209	0.77%
K 766.490†	62313.5	17.29	mg/L	0.017	17.29	0.017	0.10%
Mg 279.077†	57151.4	49.07	mg/L	0.203	49.07	0.203	0.41%
Mn 257.610†	20081.1	0.4962	mg/L	0.00188	0.4962	0.00188	0.38%
Mo 202.031†	33.6	0.00122	mg/L	0.000728	0.00122	0.000728	59.89%
Na 589.592†	2402279.7	290.3	mg/L	0.53	290.3	0.53	0.18%
Na 330.237†	8290.9	301.7	mg/L	1.26	301.7	1.26	0.42%
Ni 231.604†	2.7	0.00120	mg/L	0.000728	0.00120	0.000728	60.56%
Pb 220.353†	-49.3	-0.00061	mg/L	0.001995	-0.00061	0.001995	328.70%
Sb 206.836†	-5.4	-0.00166	mg/L	0.005215	-0.00166	0.005215	313.41%
Se 196.026†	19.6	0.01038	mg/L	0.005779	0.01038	0.005779	55.69%
Si 288.158†	15470.3	11.44	mg/L	0.037	11.44	0.037	0.32%
Sr 189.927†	-51.1	0.01933	mg/L	0.001390	0.01933	0.001390	7.19%
Sr 421.552†	401417.1	0.6612	mg/L	0.00243	0.6612	0.00243	0.37%
Ti 334.903†	275.0	0.00472	mg/L	0.000684	0.00472	0.000684	14.50%
Tl 190.801†	-2.5	-0.00131	mg/L	0.001770	-0.00131	0.001770	134.90%
V 292.402†	560.4	0.00283	mg/L	0.000085	0.00283	0.000085	3.02%
Zn 206.200†	-32.4	-0.01009	mg/L	0.001399	-0.01009	0.001399	13.87%

Sequence No.: 24
 Sample ID: VP40 APOST SWC
 Analyst: EL
 Dilution: 2X

Autosampler Location: 73
 Date Collected: 11/1/2012 7:09:30 PM
 Data Type: Original

Nebulizer Parameters: VP40 APOST SWC

Analyte Back Pressure Flow
 All 231.0 kPa 0.55 L/min

Mean Data: VP40 APOST SWC

Analyte	Mean Corrected Intensity	Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2739927.9	103.5 %	0.62			0.60%
ScR 361.383	214376.5	101.2 %	0.32			0.32%
Ag 328.068†	151312.3	0.5233 mg/L	0.00285	1.047 mg/L	0.0057	0.54%
Al 308.215†	184327.2	122.6 mg/L	0.35	245.1 mg/L	0.69	0.28%
As 188.979†	5157.4	2.201 mg/L	0.0237	4.402 mg/L	0.0475	1.08%
B 249.677†	111.2	0.04897 mg/L	0.004490	0.09793 mg/L	0.008979	9.17%
Ba 233.527†	29162.6	2.828 mg/L	0.0044	5.656 mg/L	0.0088	0.16%
Be 313.042†	151252.2	0.5457 mg/L	0.00183	1.091 mg/L	0.0037	0.34%
Ca 317.933†	782827.9	73.95 mg/L	0.270	147.9 mg/L	0.54	0.36%
Cd 228.802†	44315.7	0.5252 mg/L	0.00501	1.050 mg/L	0.0100	0.95%
Co 228.616†	48856.6	0.5648 mg/L	0.00376	1.130 mg/L	0.0075	0.67%
Cr 267.716†	3902.9	0.8516 mg/L	0.00177	1.703 mg/L	0.0035	0.21%
Cu 324.752†	273176.7	0.8873 mg/L	0.00127	1.775 mg/L	0.0025	0.14%
Fe 273.955†	241667.0	197.1 mg/L	0.09	394.3 mg/L	0.17	0.04%
K 766.490†	89074.7	24.72 mg/L	0.095	49.44 mg/L	0.191	0.39%
Mg 279.077†	104779.5	89.85 mg/L	0.300	179.7 mg/L	0.60	0.33%
Mn 257.610†	126920.5	3.136 mg/L	0.0102	6.272 mg/L	0.0204	0.33%
Mo 202.031†	48.1	0.00388 mg/L	0.000515	0.00777 mg/L	0.001030	13.26%
Na 589.592†	189420.4	22.89 mg/L	0.088	45.79 mg/L	0.175	0.38%
Na 330.237†	605.5	22.56 mg/L	0.118	45.12 mg/L	0.236	0.52%
Ni 231.604†	1945.3	0.8524 mg/L	0.00088	1.705 mg/L	0.0018	0.10%
Pb 220.353†	29489.0	2.266 mg/L	0.0181	4.532 mg/L	0.0362	0.80%
Sb 206.836†	7607.3	2.058 mg/L	0.0133	4.116 mg/L	0.0267	0.65%
Se 196.026†	3975.1	2.103 mg/L	0.0153	4.206 mg/L	0.0305	0.73%
Sl 288.158†	5401.3	4.007 mg/L	0.0043	8.014 mg/L	0.0086	0.11%
Sn 189.927†	59.5	0.02934 mg/L	0.000315	0.05869 mg/L	0.000630	1.07%
Sr 421.552†	536070.2	0.8830 mg/L	0.00144	1.766 mg/L	0.0029	0.16%
Ti 334.903†	165896.9	6.451 mg/L	0.0185	12.90 mg/L	0.037	0.29%
Tl 190.801†	7383.5	2.016 mg/L	0.0074	4.033 mg/L	0.0149	0.37%
V 292.402†	195347.9	0.9399 mg/L	0.00201	1.880 mg/L	0.0040	0.21%
Zn 206.200†	3095.3	1.213 mg/L	0.0026	2.425 mg/L	0.0052	0.21%

Sequence No.: 25
 Sample ID: CV7
 Analyst: EL
 Dilution: 1X

Autosampler Location: 7
 Date Collected: 11/1/2012 7:14:42 PM
 Data Type: Original

Nebulizer Parameters: CV

Analyte	Back Pressure	Flow
All	230.0 kPa	0.55 L/min

Mean Data: CV

Analyte	Mean Corrected Intensity	Conc. Units	Calib.	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2706570.5	102.2 %		0.73			0.71%
ScR 361.383	210587.7	99.45 %		0.850			0.85%
Ag 328.068†	289705.3	0.9913 mg/L		0.00610	0.9913 mg/L	0.00610	0.62%
Al 308.215†	3055.8	1.992 mg/L		0.0114	1.992 mg/L	0.0114	0.57%
As 188.979†	4752.6	2.015 mg/L		0.0121	2.015 mg/L	0.0121	0.60%
B 249.677†	2112.9	0.9670 mg/L		0.00616	0.9670 mg/L	0.00616	0.64%
Ba 233.527†	10169.4	0.9890 mg/L		0.00320	0.9890 mg/L	0.00320	0.32%
Be 313.042†	267430.8	0.9669 mg/L		0.00127	0.9669 mg/L	0.00127	0.13%
Ca 317.933†	21379.3	2.020 mg/L		0.0081	2.020 mg/L	0.0081	0.40%
Cd 228.802†	82599.0	0.9836 mg/L		0.00074	0.9836 mg/L	0.00074	0.07%
Co 228.616†	82333.2	0.9744 mg/L		0.00077	0.9744 mg/L	0.00077	0.08%
Cr 267.716†	4569.0	0.9977 mg/L		0.00517	0.9977 mg/L	0.00517	0.52%
Cu 324.752†	327083.3	1.045 mg/L		0.0020	1.045 mg/L	0.0020	0.19%
Fe 273.955†	2612.8	2.131 mg/L		0.0056	2.131 mg/L	0.0056	0.26%
K 766.490†	74309.0	20.62 mg/L		0.115	20.62 mg/L	0.115	0.56%
Mg 279.077†	2442.5	2.100 mg/L		0.0051	2.100 mg/L	0.0051	0.24%
Mn 257.610†	39795.3	0.9838 mg/L		0.00148	0.9838 mg/L	0.00148	0.15%
Mo 202.031†	17006.6	0.9189 mg/L		0.00635	0.9189 mg/L	0.00635	0.69%
Na 589.592†	412221.2	49.82 mg/L		0.202	49.82 mg/L	0.202	0.41%
Na 330.237†	1371.4	49.78 mg/L		0.348	49.78 mg/L	0.348	0.70%
Ni 231.604†	2240.8	0.9818 mg/L		0.00510	0.9818 mg/L	0.00510	0.52%
Pb 220.353†	26103.4	1.975 mg/L		0.0116	1.975 mg/L	0.0116	0.59%
Sb 206.836†	7330.4	2.001 mg/L		0.0111	2.001 mg/L	0.0111	0.56%
Se 196.026†	3654.3	1.933 mg/L		0.0121	1.933 mg/L	0.0121	0.62%
Si 288.158†	2947.4	2.186 mg/L		0.0164	2.186 mg/L	0.0164	0.75%
Sn 189.927†	5697.7	0.8696 mg/L		0.00512	0.8696 mg/L	0.00512	0.59%
Sr 421.552†	604546.6	0.9957 mg/L		0.00488	0.9957 mg/L	0.00488	0.49%
Ti 334.903†	25329.2	0.9843 mg/L		0.00173	0.9843 mg/L	0.00173	0.18%
Tl 190.801†	7114.0	1.948 mg/L		0.0107	1.948 mg/L	0.0107	0.55%
V 292.402†	202975.2	1.006 mg/L		0.0023	1.006 mg/L	0.0023	0.23%
Zn 206.200†	2637.8	1.032 mg/L		0.0048	1.032 mg/L	0.0048	0.47%

Sequence No.: 26
 Sample ID: CB
 Analyst: EL
 Dilution: 1X

Autosampler Location: 1
 Date Collected: 11/1/2012 7:20:45 PM
 Data Type: Original

Nebulizer Parameters: CB

Analyte	Back Pressure	Flow
All	230.0 kPa	0.55 L/min

Mean Data: CB

Analyte	Mean Corrected Intensity	Conc. Units	Calib.	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2763890.4	104.4 %		0.46			0.44%
ScR 361.383	207420.2	97.96 %		0.641			0.65%
Ag 328.068†	68.3	0.00023 mg/L		0.000304	0.00023 mg/L	0.000304	129.94%
Al 308.215†	3.0	0.00202 mg/L		0.014149	0.00202 mg/L	0.014149	699.39%
As 188.979†	6.2	0.00265 mg/L		0.001626	0.00265 mg/L	0.001626	61.46%
B 249.677†	4.7	0.00215 mg/L		0.002603	0.00215 mg/L	0.002603	121.02%
Ba 233.527†	-3.9	-0.00038 mg/L		0.000513	-0.00038 mg/L	0.000513	136.06%
Be 313.042†	1.5	0.00001 mg/L		0.000036	0.00001 mg/L	0.000036	639.48%
Ca 317.933†	-5.2	-0.00049 mg/L		0.001583	-0.00049 mg/L	0.001583	323.64%
Cd 228.802†	13.9	0.00016 mg/L		0.000067	0.00016 mg/L	0.000067	41.73%
Co 228.616†	-5.7	-0.00007 mg/L		0.000126	-0.00007 mg/L	0.000126	187.32%
Cr 267.716†	2.2	0.00048 mg/L		0.000717	0.00048 mg/L	0.000717	150.44%
Cu 324.752†	-99.2	-0.00032 mg/L		0.000123	-0.00032 mg/L	0.000123	38.75%
Fe 273.955†	0.2	0.00015 mg/L		0.001357	0.00015 mg/L	0.001357	886.75%
K 766.490†	206.0	0.05718 mg/L		0.015851	0.05718 mg/L	0.015851	27.72%
Mg 279.077†	-4.6	-0.00395 mg/L		0.003705	-0.00395 mg/L	0.003705	93.76%
Mn 257.610†	6.6	0.00016 mg/L		0.000150	0.00016 mg/L	0.000150	91.36%
Mo 202.031†	3.5	0.00019 mg/L		0.000255	0.00019 mg/L	0.000255	134.89%
Na 589.592†	759.6	0.09181 mg/L		0.009034	0.09181 mg/L	0.009034	9.84%
Na 330.237†	15.0	0.5496 mg/L		0.46305	0.5496 mg/L	0.46305	84.25%
Ni 231.604†	2.1	0.00094 mg/L		0.001802	0.00094 mg/L	0.001802	191.74%
Pb 220.353†	-7.7	-0.00058 mg/L		0.000685	-0.00058 mg/L	0.000685	117.87%
Sb 206.836†	5.6	0.00153 mg/L		0.001152	0.00153 mg/L	0.001152	75.10%
Se 196.026†	6.5	0.00344 mg/L		0.000409	0.00344 mg/L	0.000409	11.90%
Si 288.158†	3.8	0.00282 mg/L		0.000930	0.00282 mg/L	0.000930	32.95%
Sn 189.927†	5.7	0.00088 mg/L		0.000324	0.00088 mg/L	0.000324	37.04%
Sr 421.552†	65.3	0.00011 mg/L		0.000027	0.00011 mg/L	0.000027	24.66%
Ti 334.903†	-1.4	-0.00005 mg/L		0.000480	-0.00005 mg/L	0.000480	873.21%
Tl 190.801†	9.9	0.00274 mg/L		0.001649	0.00274 mg/L	0.001649	60.21%
V 292.402†	-22.1	-0.00010 mg/L		0.000210	-0.00010 mg/L	0.000210	201.84%
Zn 206.200†	-18.1	-0.00709 mg/L		0.000703	-0.00709 mg/L	0.000703	9.92%

End Page
EL
11-2-12



IEC Date: 8-1-12 Analysis Date: 11-2-12 Analyst: SL
LR Date: 8-2-12 Page: 1 of 5

All corrections made by analyst unless otherwise noted. *SL 11-2-12*

Edit Label	Delete Data	ARI Sample ID	Prep. Code	Dilution	Comments
		STD-0			2988-5
		↓ -2			2987-13
		↓ -3			↓ -14
		↓ -4			↓ -15
		↓ -5			↓ -16
		222222 ICB			2986-1
		222222 ICB			
		222222 CFI			
		222222 ICSA			
		222222 ICSAB			
		STD-0			
		ICV			
		ICB			
		CFI			
		ICSA			
		ICSAB			
		CCV1			
		CCB1			
		VP83 MB	TLCC		C. High - A.N.
✓		↓ B	↓	10	Analyses 100%, - F.R.
		↓ C	↓	↓	
		↓ D	↓	↓	
✓		↓ E	↓	↓	E-2R-X1
		↓ A.D.W.	↓	↓	VP83B TLCC X10



IEC Date: _____ Analysis Date: 11-2-12 Analyst: EL
LR Date: _____ Page: 2 of 5

All corrections made by analyst unless otherwise noted.

Edit Label	Delete Data	ARI Sample ID	Prep. Code	Dilution	Comments
		VP83 A	TWC	10	
		↓ ASPK	↓	↓	✓ Cu, Mg, Ni STD
		↓ MBSPK	↓		✓
		CCU 2			
		CCB 2			Std prep EL 11-2-12
✓		VP40 MBI	SWC	2	Cu Zn high - RR
		VQ42 MIBZ	DMN		
		VP41 A	SWC	2	
		↓ B	↓	20	
		↓ C	↓	10	
		↓ D	↓	5	
		↓ E	↓	10	
		VP40 B		2	
		↓ C	↓	5	
		VQ16 MBZSPK	DMN		✓ Cu, Ni, Zn, Pb, Cd
		CCU 3			
		CCB 3			
✓		V066 MBI	SWC	2	PRE out RR
		VP83 E	TWC		
		VQ42 B Dup	DMN		Cu high % PPD - ok low level
		↓ B	↓		CAP OK 11-2-12
		↓ BSPK	↓		✓ V080M ICP STD SeR noisy Zn noisy
		↓ MBZSPK	↓		✓ SeR noisy, Zn noisy
✓		V066 B	SWC	2	PRE out



IEC Date:

Analysis Date: 11-2-12

Analyst: RL

LR Date:

Page: 3 of 5

All corrections made by analyst unless otherwise noted.

GL 11-5-12

Edit Label	Delete Data	ARI Sample ID	Prep. Code	Dilution	Comments
	✓	1066 C	SXC	2	CFE out - RR
	✓	↓ D	↓	↓	↓
	✓	↓ E	↓	↓	↓
		CCV4			
		CCB4			
	✓	1066 F	SXC	2	Noisy - RR CFE - RR
		G			
		H			
		I			
		J			
		K			Low Noisy
		L			
		M			
		N			
		REF1			
		CCV5			
		CCB5			Ch high
	✓	1066 A	SXC	10	CFE RR
		A			
		Asp			
		AspK			
		Asp			
		AspK			
		F			



IEC Date: _____

Analysis Date: 11-2-12

Analyst: G.L.

LR Date: _____

Page: 4 of 5

All corrections made by analyst unless otherwise noted.

Edit Label	Delete Data	ARI Sample ID	Prep. Code	Dilution	Comments
		CR1			Cu high
		ICSA			
		ICBAB			
		CCJ6			Sn low
		CCB6			
	✓	VP23 MBZ	WMW		SCR noisy RR
		VP40 MBI	SUX	2	Cu high A.N.
		VP23 I	WMW		
		J			
		K			
	✓	L			SCR noisy RR
	✓	HQD			↓
		H			
		HSPK			↓ OIGSDM ICPSPK CuMnStL
	✓	↓ MBZSPK	↓		↓ Mg high & Po. RR
		CCJ7			Sn low
		CCB7			Sn low
		VR25 MBZ	WMW		
		VR25 MBZ I	TWC		
		↓ B	↓		
	✓	VR25 ADP	WMW		noisy - RR
	✓	↓ A	↓		
	✓	↓ ASPK	↓		↓ Ca, Fe, K, Mn, Na high & Po. RR
		VR25 MBZSPK	TWC		

AT 11-5-12

Metals Data Review Checklist

Method: ICP-ICP-MS GFA CVA

Analysis Date: 11-2-12

	Analyst	Peer	Comment
<i>Optima 1</i>	<i>KA 11-5-12</i>	<i>H. 11-3</i>	
Logbook:			
Analyst, Date, Method info	✓	✓	
Sample ID's	✓	✓	
Standard/QC solution ID's recorded	✓	✓	
Prep codes	✓	✓	
Dilution factors	✓	✓	
Crossouts/Corrections/Deletions	✓	✓	
Calibration:			
Blank & Standard intensities	✓	✓	
Standard deviations	✓	✓	
Curve fit	✓	✓	
Calibration Verification:			
ICV/CCV	✓	✓	<i>See log</i>
ICB/CCB	✓	✓	<i>See log</i>
Samples:			
RSD's & SD's	✓		
Internal Standards	✓	✓	<i>See log</i>
Carry-over	✓		
Method QC:			
CRI/CRA	✓	✓	<i>See log</i>
ICSA/ICSAB	✓	✓	<i>See log</i>
Post Spikes/Serial Dilutions	✓	✓	
Analytic Spikes	—	—	
Matrix QC:			
SRM/LCS	✓	✓	
Matrix Spikes	✓	✓	<i>See log</i>
Matrix Duplicates	✓	✓	<i>See log</i>
Method Blanks	✓	✓	<i>See log - AN</i>
Data Distribution			
Requested elements/isotope identified	✓	✓	
Correct samples identified for distribution	✓	✓	
Raw data match distributed data	✓	✓	
Data filename correct	✓	✓	
Necessary Analysts Notes and CAF's	—	—	<i>FIN. UP40</i>

Nebulizer Parameters: Hg_ReAlign

Analyte Back Pressure Flow
All 230.0 kPa 0.55 L/min

11/2/2012 9:12:08 AM Hg ReAlign... Actual peak offset (nm): -0.000
Drift (nm): 0.000 Slit adjustment: 0

Analysis Begun

Start Time: 11/2/2012 9:22:24 AM Plasma On Time: 11/2/2012 8:20:38 AM
Logged In Analyst: metals Technique: ICP Continuous
Spectrometer Model: Optima 4300 DV, S/N 077N0060101Autosampler Model: S10

Sample Information File: C:\pe\metals\Sample Information\CRISSET.sif

Batch ID:
Results Data Set: PE121102
Results Library: C:\pe\metals\Results\Results.mdb

Method Loaded

Method Name: ARIIEC6AN.552AS Method Last Saved: 8/1/2012 1:18:45 PM
IEC File: IEC48.iec MSF File:
Method Description: 12Axial Elements

Table with 6 columns: Analyte, Calibration Equation, Processing, View, Internal Standard, IEC. Lists various elements like Ag, Al, As, B, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, K, Mg, Mn, Mo, Na, Ni, Pb, Sb, Se, Si, Sn, Sr, Ti, Tl, V, Zn, ScA, ScR with their respective calibration and processing details.

Sequence No.: 1 Autosampler Location: 1
Sample ID: Calib Blank 1 Date Collected: 11/2/2012 9:22:31 AM
Data Type: Original

Nebulizer Parameters: Calib Blank 1

Analyte Back Pressure Flow
All 230.0 kPa 0.55 L/min

Mean Data: Calib Blank 1

Analyte	Mean Corrected		RSD	Calib	
	Intensity	Std.Dev.		Conc.	Units
ScA 357.253	2554494.8	29157.72	1.14%	100.0	%
ScR 361.383	193619.1	2064.73	1.07%	100.0	%
Ag 328.068†	732.6	39.36	5.37%	[0.00]	mg/L
Al 308.215†	27.3	8.65	31.68%	[0.00]	mg/L
As 188.979†	2.3	2.22	96.17%	[0.00]	mg/L
B 249.677†	-126.7	4.37	3.45%	[0.00]	mg/L
Ba 233.527†	63.9	5.75	8.99%	[0.00]	mg/L
Be 313.042†	614.4	13.57	2.21%	[0.00]	mg/L
Ca 317.933†	9.5	21.80	230.63%	[0.00]	mg/L
Cd 228.802†	297.2	0.65	0.22%	[0.00]	mg/L
Co 228.616†	337.6	3.00	0.89%	[0.00]	mg/L
Cr 267.716†	9.2	4.66	50.35%	[0.00]	mg/L
Cu 324.752†	1561.1	43.45	2.78%	[0.00]	mg/L
Fe 273.955†	-21.6	3.18	14.75%	[0.00]	mg/L
K 766.490†	2311.7	99.84	4.32%	[0.00]	mg/L
Mg 279.077†	-159.3	5.40	3.39%	[0.00]	mg/L
Mn 257.610†	-60.3	3.56	5.90%	[0.00]	mg/L
Mo 202.031†	-136.0	2.09	1.54%	[0.00]	mg/L
Na 589.592†	1406.7	188.06	13.37%	[0.00]	mg/L
Na 330.237†	50.5	2.06	4.08%	[0.00]	mg/L
Ni 231.604†	33.7	7.19	21.35%	[0.00]	mg/L
Pb 220.353†	282.8	9.80	3.47%	[0.00]	mg/L
Sb 206.836†	124.9	3.08	2.47%	[0.00]	mg/L
Se 196.026†	-103.5	3.28	3.17%	[0.00]	mg/L
Si 288.158†	24.7	5.27	21.34%	[0.00]	mg/L
Sn 189.927†	-10.3	1.56	15.07%	[0.00]	mg/L
Sr 421.552†	787.5	15.12	1.92%	[0.00]	mg/L
Ti 334.903†	-71.5	14.51	20.30%	[0.00]	mg/L
Tl 190.801†	14.5	0.83	5.71%	[0.00]	mg/L
V 292.402†	0.7	18.36	>999.9%	[0.00]	mg/L
Zn 206.200†	-27.9	2.04	7.31%	[0.00]	mg/L

Sequence No.: 2
Sample ID: STD2

Autosampler Location: 2
Date Collected: 11/2/2012 9:28:31 AM
Data Type: Original

Nebulizer Parameters: STD2

Analyte	Back Pressure	Flow
All	232.0 kPa	0.55 L/min

Mean Data: STD2

Analyte	Mean Corrected			RSD	Calib Conc. Units
	Intensity	Std.Dev.			
ScA 357.253	2654972.8	13247.62	0.50%	103.9 %	
ScR 361.383	204667.5	1153.89	0.56%	105.7 %	
Ba 233.527†	95574.9	326.20	0.34%	[10] mg/L	
Cd 228.802†	800879.4	3542.86	0.44%	[10] mg/L	
Co 228.616†	833800.8	979.85	0.12%	[10] mg/L	
Cr 267.716†	42945.7	99.10	0.23%	[10] mg/L	
Cu 324.752†	3125112.2	7177.39	0.23%	[10] mg/L	
Mn 257.610†	371797.5	844.29	0.23%	[10] mg/L	
V 292.402†	2049940.6	6926.06	0.34%	[10] mg/L	

Sequence No.: 3
Sample ID: STD3

Autosampler Location: 3
Date Collected: 11/2/2012 9:32:25 AM
Data Type: Original

Nebulizer Parameters: STD3

Analyte	Back Pressure	Flow
All	231.0 kPa	0.55 L/min

Mean Data: STD3

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Units	Calib
ScA 357.253	2594791.6	10405.35	0.40%	101.6	%	
ScR 361.383	205116.1	1429.27	0.70%	105.9	%	
Ag 328.068†	299448.3	393.42	0.13%	[1.0]	mg/L	
As 188.979†	23318.0	135.89	0.58%	[10]	mg/L	
B 249.677†	20385.9	108.23	0.53%	[10]	mg/L	
Be 313.042†	1296908.2	14341.89	1.11%	[5.0]	mg/L	
Na 589.592†	403936.6	3432.01	0.85%	[50]	mg/L	
Ni 231.604†	21408.6	38.58	0.18%	[10]	mg/L	
Pb 220.353†	131058.8	329.08	0.25%	[10]	mg/L	
Se 196.026†	18351.5	147.96	0.81%	[10]	mg/L	
Sr 421.552†	2987575.5	11425.40	0.38%	[5]	mg/L	
Tl 190.801†	35646.3	237.34	0.67%	[10]	mg/L	
Zn 206.200†	24443.0	83.77	0.34%	[10]	mg/L	

Sequence No.: 4
Sample ID: STD4

Autosampler Location: 4
Date Collected: 11/2/2012 9:37:02 AM
Data Type: Original

Nebulizer Parameters: STD4

Analyte	Back Pressure	Flow
All	231.0 kPa	0.55 L/min

Mean Data: STD4

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc. Units	Calib
ScA 357.253	2686353.4	12510.36	0.47%	105.2 %	
ScR 361.383	208940.3	3030.70	1.45%	107.9 %	
Mo 202.031†	170096.5	1096.53	0.64%	[10] mg/L	
Sb 206.836†	33815.6	117.25	0.35%	[10] mg/L	
Si 288.158†	13087.6	84.22	0.64%	[10] mg/L	
Sn 189.927†	61272.4	310.01	0.51%	[10] mg/L	
Tl 334.903†	240784.2	6226.51	2.59%	[10] mg/L	

Sequence No.: 5
 Sample ID: STD5

Autosampler Location: 5
 Date Collected: 11/2/2012 9:41:17 AM
 Data Type: Original

Nebulizer Parameters: STD5

Analyte	Back Pressure	Flow
All	231.0 kPa	0.55 L/min

Mean Data: STD5

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Calib Conc. Units
ScA 357.253	2573922.8	6054.98	0.24%	100.8 %
ScR 361.383	203394.0	1319.08	0.65%	105.0 %
Al 308.215†	42131.0	94.90	0.23%	[30] mg/L
Ca 317.933†	310012.4	258.52	0.08%	[30] mg/L
Fe 273.955†	117653.1	166.32	0.14%	[100] mg/L
K 766.490†	352762.9	1905.48	0.54%	[100] mg/L
Mg 279.077†	32759.3	64.21	0.20%	[30] mg/L
Na 330.237†	2501.9	16.69	0.67%	[100] mg/L

Calibration Summary

Analyte	Stds.	Equation	Intercept	Slope	Curvature	Corr. Coef.	Reslope
Ag 328.068	1	Lin Thru 0	0.0	299400	0.00000	1.000000	
Al 308.215	1	Lin Thru 0	0.0	1404	0.00000	1.000000	
As 188.979	1	Lin Thru 0	0.0	2332	0.00000	1.000000	
B 249.677	1	Lin Thru 0	0.0	2039	0.00000	1.000000	
Ba 233.527	1	Lin Thru 0	0.0	9557	0.00000	1.000000	
Be 313.042	1	Lin Thru 0	0.0	259400	0.00000	1.000000	
Ca 317.933	1	Lin Thru 0	0.0	10330	0.00000	1.000000	
Cd 228.802	1	Lin Thru 0	0.0	80090	0.00000	1.000000	
Co 228.616	1	Lin Thru 0	0.0	83380	0.00000	1.000000	
Cr 267.716	1	Lin Thru 0	0.0	4295	0.00000	1.000000	
Cu 324.752	1	Lin Thru 0	0.0	312500	0.00000	1.000000	
Fe 273.955	1	Lin Thru 0	0.0	1177	0.00000	1.000000	
K 766.490	1	Lin Thru 0	0.0	3528	0.00000	1.000000	
Mg 279.077	1	Lin Thru 0	0.0	1092	0.00000	1.000000	
Mn 257.610	1	Lin Thru 0	0.0	37180	0.00000	1.000000	
Mo 202.031	1	Lin Thru 0	0.0	17010	0.00000	1.000000	
Na 589.592	1	Lin Thru 0	0.0	8079	0.00000	1.000000	
Na 330.237	1	Lin Thru 0	0.0	25.02	0.00000	1.000000	
Ni 231.604	1	Lin Thru 0	0.0	2141	0.00000	1.000000	
Pb 220.353	1	Lin Thru 0	0.0	13110	0.00000	1.000000	
Sb 206.836	1	Lin Thru 0	0.0	3382	0.00000	1.000000	
Se 196.026	1	Lin Thru 0	0.0	1835	0.00000	1.000000	
Si 288.158	1	Lin Thru 0	0.0	1309	0.00000	1.000000	
Sn 189.927	1	Lin Thru 0	0.0	6127	0.00000	1.000000	
Sr 421.552	1	Lin Thru 0	0.0	597500	0.00000	1.000000	
Ti 334.903	1	Lin Thru 0	0.0	24080	0.00000	1.000000	
Tl 190.801	1	Lin Thru 0	0.0	3565	0.00000	1.000000	
V 292.402	1	Lin Thru 0	0.0	205000	0.00000	1.000000	
Zn 206.200	1	Lin Thru 0	0.0	2444	0.00000	1.000000	

=====
Analysis Begun

Start Time: 11/2/2012 9:47:02 AM
Logged In Analyst: metals
Spectrometer Model: Optima 4300 DV, S/N 077N0060101

Plasma On Time: 11/2/2012 8:20:38 AM
Technique: ICP Continuous

Sample Information File: C:\pe\metals\Sample Information\CRISSET.sif
Batch ID:
Results Data Set: PE121102
Results Library: C:\pe\metals\Results\Results.mdb

=====
Sequence No.: 1
Sample ID: ~~CV~~
Analyst: EL *222222*
Dilution: 1X *Ex 11572*

Autosampler Location: 7
Date Collected: 11/2/2012 9:47:04 AM
Data Type: Original

Nebulizer Parameters: CV

Analyte Back Pressure Flow
All 231.0 kPa 0.55 L/min

Mean Data: CV

Analyte	Mean Corrected		Calib.		Sample		RSD
	Intensity	Conc.	Units	Std.Dev.	Conc.	Units	
ScA 357.253	2559980.4	100.2	%	0.73			0.73%
ScR 361.383	203140.5	104.9	%	0.19			0.18%
Ag 328.068†	304026.0	1.015	mg/L	0.0043	1.015	mg/L	0.42%
Al 308.215†	2980.9	2.078	mg/L	0.0090	2.078	mg/L	0.43%
As 188.979†	4936.4	2.116	mg/L	0.0221	2.116	mg/L	1.05%
B 249.677†	2030.6	0.9944	mg/L	0.00588	0.9944	mg/L	0.59%
Ba 233.527†	9724.8	1.017	mg/L	0.0059	1.017	mg/L	0.58%
Be 313.042†	263560.7	1.013	mg/L	0.0005	1.013	mg/L	0.05%
Ca 317.933†	21136.4	2.045	mg/L	0.0150	2.045	mg/L	0.74%
Cd 228.802†	85101.6	1.058	mg/L	0.0025	1.058	mg/L	0.24%
Co 228.616†	84805.9	1.015	mg/L	0.0005	1.015	mg/L	0.05%
Cr 267.716†	4339.9	1.010	mg/L	0.0067	1.010	mg/L	0.66%
Cu 324.752†	344011.7	1.101	mg/L	0.0025	1.101	mg/L	0.23%
Fe 273.955†	2503.9	2.127	mg/L	0.0134	2.127	mg/L	0.63%
K 766.490†	74245.0	21.05	mg/L	0.025	21.05	mg/L	0.12%
Mg 279.077†	2350.2	2.156	mg/L	0.0166	2.156	mg/L	0.77%
Mn 257.610†	38122.1	1.026	mg/L	0.0018	1.026	mg/L	0.18%
Mo 202.031†	17355.7	1.020	mg/L	0.0114	1.020	mg/L	1.12%
Na 589.592†	416937.0	51.61	mg/L	0.103	51.61	mg/L	0.20%
Na 330.237†	1341.1	53.40	mg/L	0.275	53.40	mg/L	0.52%
Ni 231.604†	2125.2	0.9933	mg/L	0.00598	0.9933	mg/L	0.60%
Pb 220.353†	26810.1	2.047	mg/L	0.0227	2.047	mg/L	1.11%
Sb 206.836†	7492.7	2.214	mg/L	0.0258	2.214	mg/L	1.17%
Se 196.026†	3779.1	2.056	mg/L	0.0243	2.056	mg/L	1.18%
Si 288.158†	2812.5	2.156	mg/L	0.0191	2.156	mg/L	0.89%
Sn 189.927†	5920.3	0.9671	mg/L	0.01104	0.9671	mg/L	1.14%
Sr 421.552†	613653.4	1.027	mg/L	0.0053	1.027	mg/L	0.52%
Ti 334.903†	25274.8	1.048	mg/L	0.0006	1.048	mg/L	0.06%
Tl 190.801†	7331.5	2.044	mg/L	0.0222	2.044	mg/L	1.09%
V 292.402†	213953.0	1.055	mg/L	0.0031	1.055	mg/L	0.29%
Zn 206.200†	2556.1	1.044	mg/L	0.0058	1.044	mg/L	0.56%

Sequence No.: 2

Sample ID: ~~ICB~~

Analyst: EL *222222*
 Dilution: 1X *CL 11512*

Autosampler Location: 1

Date Collected: 11/2/2012 9:53:07 AM

Data Type: Original

Nebulizer Parameters: ~~ICB~~

Analyte Back Pressure Flow
 All 231.0 kPa 0.55 L/min

Mean Data: CB

Analyte	Mean Corrected Intensity	Calib. Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2636880.4	103.2 %	0.22			0.21%
ScR 361.383	204648.0	105.7 %	0.42			0.40%
Ag 328.068†	-43.8	-0.00015 mg/L	0.000109	-0.00015 mg/L	0.000109	74.31%
Al 308.215†	-13.7	-0.00979 mg/L	0.013845	-0.00979 mg/L	0.013845	141.49%
As 188.979†	-0.6	-0.00025 mg/L	0.002610	-0.00025 mg/L	0.002610	>999.9%
B 249.677†	23.1	0.01133 mg/L	0.001032	0.01133 mg/L	0.001032	9.11%
Ba 233.527†	3.3	0.00035 mg/L	0.000465	0.00035 mg/L	0.000465	134.55%
Be 313.042†	-26.3	-0.00010 mg/L	0.000056	-0.00010 mg/L	0.000056	55.38%
Ca 317.933†	-17.0	-0.00165 mg/L	0.002501	-0.00165 mg/L	0.002501	151.64%
Cd 228.802†	4.3	0.00005 mg/L	0.000049	0.00005 mg/L	0.000049	91.01%
Co 228.616†	-17.5	-0.00021 mg/L	0.000065	-0.00021 mg/L	0.000065	30.90%
Cr 267.716†	3.8	0.00088 mg/L	0.001669	0.00088 mg/L	0.001669	190.38%
Cu 324.752†	896.7	0.00287 mg/L	0.000175	0.00287 mg/L	0.000175	6.10%
Fe 273.955†	2.3	0.00195 mg/L	0.001847	0.00195 mg/L	0.001847	94.71%
K 766.490†	85.1	0.02413 mg/L	0.005135	0.02413 mg/L	0.005135	21.28%
Mg 279.077†	0.9	0.00081 mg/L	0.005390	0.00081 mg/L	0.005390	661.44%
Mn 257.610†	22.0	0.00059 mg/L	0.000056	0.00059 mg/L	0.000056	9.40%
Mo 202.031†	12.7	0.00075 mg/L	0.000345	0.00075 mg/L	0.000345	46.15%
Na 589.592†	6.5	0.00080 mg/L	0.007122	0.00080 mg/L	0.007122	888.27%
Na 330.237†	5.3	0.2110 mg/L	0.18188	0.2110 mg/L	0.18188	86.20%
Ni 231.604†	-0.6	-0.00026 mg/L	0.002638	-0.00026 mg/L	0.002638	>999.9%
Pb 220.353†	-8.9	-0.00068 mg/L	0.000518	-0.00068 mg/L	0.000518	75.82%
Sb 206.836†	3.0	0.00087 mg/L	0.002243	0.00087 mg/L	0.002243	257.36%
Se 196.026†	3.4	0.00184 mg/L	0.000163	0.00184 mg/L	0.000163	8.88%
Si 288.158†	-13.2	-0.01010 mg/L	0.004797	-0.01010 mg/L	0.004797	47.50%
Sn 189.927†	5.4	0.00088 mg/L	0.000445	0.00088 mg/L	0.000445	50.79%
Sr 421.552†	-42.6	-0.00007 mg/L	0.000088	-0.00007 mg/L	0.000088	123.30%
Ti 334.903†	10.7	0.00044 mg/L	0.000457	0.00044 mg/L	0.000457	102.68%
Tl 190.801†	1.2	0.00033 mg/L	0.000327	0.00033 mg/L	0.000327	98.56%
V 292.402†	-11.8	-0.00005 mg/L	0.000204	-0.00005 mg/L	0.000204	424.47%
Zn 206.200†	4.4	0.00180 mg/L	0.000770	0.00180 mg/L	0.000770	42.66%

Sequence No.: 3
 Sample ID: ~~CRI~~
 Analyst: EL *22222*
 Dilution: 1X *66 115-R*

Autosampler Location: 21
 Date Collected: 11/2/2012 9:59:05 AM
 Data Type: Original

Nebulizer Parameters: CRI
 Analyte Back Pressure Flow
 All 231.0 kPa 0.55 L/min

Mean Data: CRI

Analyte	Mean Corrected Intensity	Conc. Units	Calib.	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2693612.8	105.4 %		0.48			0.46%
ScR 361.383	207326.7	107.1 %		0.56			0.53%
Ag 328.068†	765.0	0.00256 mg/L		0.000277	0.00256 mg/L	0.000277	10.84%
Al 308.215†	70.4	0.04988 mg/L		0.005699	0.04988 mg/L	0.005699	11.43%
As 188.979†	122.0	0.05230 mg/L		0.002212	0.05230 mg/L	0.002212	4.23%
B 249.677†	58.5	0.02868 mg/L		0.002295	0.02868 mg/L	0.002295	8.00%
Ba 233.527†	27.4	0.00286 mg/L		0.000802	0.00286 mg/L	0.000802	28.07%
Be 313.042†	231.8	0.00089 mg/L		0.000042	0.00089 mg/L	0.000042	4.77%
Ca 317.933†	675.5	0.06537 mg/L		0.000956	0.06537 mg/L	0.000956	1.46%
Cd 228.802†	176.0	0.00208 mg/L		0.000045	0.00208 mg/L	0.000045	2.16%
Co 228.616†	259.7	0.00310 mg/L		0.000066	0.00310 mg/L	0.000066	2.12%
Cr 267.716†	19.4	0.00452 mg/L		0.000744	0.00452 mg/L	0.000744	16.47%
Cu 324.752†	1272.6	0.00407 mg/L		0.000054	0.00407 mg/L	0.000054	1.33%
Fe 273.955†	63.2	0.05373 mg/L		0.002994	0.05373 mg/L	0.002994	5.57%
K 766.490†	1892.1	0.5364 mg/L		0.00673	0.5364 mg/L	0.00673	1.26%
Mg 279.077†	62.9	0.05759 mg/L		0.004054	0.05759 mg/L	0.004054	7.04%
Mn 257.610†	54.5	0.00147 mg/L		0.000153	0.00147 mg/L	0.000153	10.39%
Mo 202.031†	102.8	0.00604 mg/L		0.000184	0.00604 mg/L	0.000184	3.05%
Na 589.592†	3854.6	0.4771 mg/L		0.00670	0.4771 mg/L	0.00670	1.41%
Na 330.237†	11.0	0.4345 mg/L		0.27979	0.4345 mg/L	0.27979	64.39%
Ni 231.604†	20.5	0.00959 mg/L		0.002438	0.00959 mg/L	0.002438	25.44%
Pb 220.353†	244.2	0.01866 mg/L		0.000359	0.01866 mg/L	0.000359	1.92%
Sb 206.836†	176.7	0.05231 mg/L		0.002032	0.05231 mg/L	0.002032	3.89%
Se 196.026†	103.4	0.05630 mg/L		0.004343	0.05630 mg/L	0.004343	7.71%
Si 288.158†	93.5	0.07150 mg/L		0.002944	0.07150 mg/L	0.002944	4.12%
Sn 189.927†	58.3	0.00952 mg/L		0.000647	0.00952 mg/L	0.000647	6.79%
Sr 421.552†	598.9	0.00100 mg/L		0.000054	0.00100 mg/L	0.000054	5.40%
Ti 334.903†	133.6	0.00554 mg/L		0.000090	0.00554 mg/L	0.000090	1.63%
Tl 190.801†	178.9	0.05015 mg/L		0.000938	0.05015 mg/L	0.000938	1.87%
V 292.402†	640.4	0.00318 mg/L		0.000119	0.00318 mg/L	0.000119	3.74%
Zn 206.200†	29.3	0.01196 mg/L		0.001380	0.01196 mg/L	0.001380	11.54%

Sequence No.: 4
 Sample ID: ICSA
 Analyst: EL *222222*
 Dilution: 1X *9L115-R*

Autosampler Location: 22
 Date Collected: 11/2/2012 10:05:05 AM
 Data Type: Original

Nebulizer Parameters: ICSA

Analyte Back Pressure Flow
 All 231.0 kPa 0.55 L/min

Mean Data: ICSA

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2542003.9	99.51	%	0.213			0.21%
ScR 361.383	199757.0	103.2	%	1.20			1.16%
Ag 328.068†	-1923.6	-0.00096	mg/L	0.000173	-0.00096 mg/L	0.000173	17.99%
Al 308.215†	285527.0	203.3	mg/L	0.85	203.3 mg/L	0.85	0.42%
As 188.979†	-5.4	-0.00228	mg/L	0.003965	-0.00228 mg/L	0.003965	173.76%
B 249.677†	-4.7	-0.00234	mg/L	0.003257	-0.00234 mg/L	0.003257	139.49%
Ba 233.527†	75.9	-0.00127	mg/L	0.000534	-0.00127 mg/L	0.000534	41.91%
Be 313.042†	-6.0	-0.00007	mg/L	0.000005	-0.00007 mg/L	0.000005	7.28%
Ca 317.933†	1007171.6	97.46	mg/L	0.115	97.46 mg/L	0.115	0.12%
Cd 228.802†	87.2	0.00109	mg/L	0.000041	0.00109 mg/L	0.000041	3.73%
Co 228.616†	136.4	-0.00068	mg/L	0.000156	-0.00068 mg/L	0.000156	22.91%
Cr 267.716†	15.6	0.00363	mg/L	0.001123	0.00363 mg/L	0.001123	30.89%
Cu 324.752†	-4484.6	0.00227	mg/L	0.000280	0.00227 mg/L	0.000280	12.31%
Fe 273.955†	233901.7	198.8	mg/L	1.04	198.8 mg/L	1.04	0.52%
K 766.490†	-2.0	-0.00058	mg/L	0.019048	-0.00058 mg/L	0.019048	>999.9%
Mg 279.077†	112449.2	102.9	mg/L	2.18	102.9 mg/L	2.18	2.12%
Mn 257.610†	43.5	-0.00023	mg/L	0.000145	-0.00023 mg/L	0.000145	62.98%
Mo 202.031†	-153.0	-0.00602	mg/L	0.000325	-0.00602 mg/L	0.000325	5.41%
Na 589.592†	-211.1	-0.02613	mg/L	0.005144	-0.02613 mg/L	0.005144	19.68%
Na 330.237†	21.6	0.4347	mg/L	0.54486	0.4347 mg/L	0.54486	125.33%
Ni 231.604†	8.5	0.00400	mg/L	0.000608	0.00400 mg/L	0.000608	15.19%
Pb 220.353†	-773.4	0.00524	mg/L	0.000262	0.00524 mg/L	0.000262	5.00%
Sb 206.836†	157.3	0.02778	mg/L	0.002421	0.02778 mg/L	0.002421	8.71%
Se 196.026†	-102.1	-0.05565	mg/L	0.001513	-0.05565 mg/L	0.001513	2.72%
Si 288.158†	-14.3	0.00140	mg/L	0.004466	0.00140 mg/L	0.004466	318.74%
Sn 189.927†	-51.4	0.01483	mg/L	0.000670	0.01483 mg/L	0.000670	4.51%
Sr 421.552†	2458.2	0.00411	mg/L	0.000136	0.00411 mg/L	0.000136	3.31%
Ti 334.903†	181.8	0.00278	mg/L	0.000561	0.00278 mg/L	0.000561	20.18%
Tl 190.801†	-36.8	-0.01043	mg/L	0.001961	-0.01043 mg/L	0.001961	18.79%
V 292.402†	3553.3	-0.00159	mg/L	0.000357	-0.00159 mg/L	0.000357	22.38%
Zn 206.200†	-19.1	-0.00574	mg/L	0.000533	-0.00574 mg/L	0.000533	9.28%

Sequence No.: 5

Autosampler Location: 23

Sample ID: ICSAB

Date Collected: 11/2/2012 10:11:08 AM

Analyst: EL 222222
 & 115-12

Data Type: Original

Nebulizer Parameters: ICSAB

Analyte Back Pressure Flow
 All 231.0 kPa 0.55 L/min

Mean Data: ICSAB

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2570405.2	100.6	%	0.99			0.99%
ScR 361.383	206838.9	106.8	%	1.96			1.83%
Ag 328.068†	293805.4	0.9865	mg/L	0.00215	0.9865 mg/L	0.00215	0.22%
Al 308.215†	276101.8	196.6	mg/L	1.91	196.6 mg/L	1.91	0.97%
As 188.979†	2293.1	0.9833	mg/L	0.01134	0.9833 mg/L	0.01134	1.15%
B 249.677†	12.5	0.00313	mg/L	0.003813	0.00313 mg/L	0.003813	121.68%
Ba 233.527†	9147.0	0.9477	mg/L	0.01765	0.9477 mg/L	0.01765	1.86%
Be 313.042†	250950.9	0.9650	mg/L	0.00839	0.9650 mg/L	0.00839	0.87%
Ca 317.933†	981430.7	94.97	mg/L	0.814	94.97 mg/L	0.814	0.86%
Cd 228.802†	78684.5	0.9803	mg/L	0.00339	0.9803 mg/L	0.00339	0.35%
Co 228.616†	75615.9	0.9042	mg/L	0.00129	0.9042 mg/L	0.00129	0.14%
Cr 267.716†	4057.4	0.9446	mg/L	0.01493	0.9446 mg/L	0.01493	1.58%
Cu 324.752†	311186.1	1.012	mg/L	0.0013	1.012 mg/L	0.0013	0.13%
Fe 273.955†	227345.4	193.2	mg/L	2.21	193.2 mg/L	2.21	1.14%
K 766.490†	-102.9	-0.02918	mg/L	0.005555	-0.02918 mg/L	0.005555	19.04%
Mg 279.077†	110545.4	101.1	mg/L	0.81	101.1 mg/L	0.81	0.80%
Mn 257.610†	35192.3	0.9454	mg/L	0.00933	0.9454 mg/L	0.00933	0.99%
Mo 202.031†	-154.3	-0.00639	mg/L	0.000196	-0.00639 mg/L	0.000196	3.07%
Na 589.592†	123.9	0.01533	mg/L	0.003736	0.01533 mg/L	0.003736	24.36%
Na 330.237†	37.3	0.7407	mg/L	0.18610	0.7407 mg/L	0.18610	25.13%
Ni 231.604†	1928.5	0.9011	mg/L	0.01688	0.9011 mg/L	0.01688	1.87%
Pb 220.353†	11313.8	0.9263	mg/L	0.00925	0.9263 mg/L	0.00925	1.00%
Sb 206.836†	3647.0	1.047	mg/L	0.0123	1.047 mg/L	0.0123	1.17%
Se 196.026†	1696.5	0.9219	mg/L	0.00842	0.9219 mg/L	0.00842	0.91%
Si 288.158†	25.7	0.03607	mg/L	0.005148	0.03607 mg/L	0.005148	14.27%
Sn 189.927†	-60.0	0.01285	mg/L	0.000256	0.01285 mg/L	0.000256	1.99%
Sr 421.552†	2608.0	0.00436	mg/L	0.000117	0.00436 mg/L	0.000117	2.68%
Ti 334.903†	173.2	0.00232	mg/L	0.000277	0.00232 mg/L	0.000277	11.94%
Tl 190.801†	3255.0	0.9011	mg/L	0.01013	0.9011 mg/L	0.01013	1.12%
V 292.402†	201302.3	0.9704	mg/L	0.00020	0.9704 mg/L	0.00020	0.02%
Zn 206.200†	2126.4	0.8711	mg/L	0.01537	0.8711 mg/L	0.01537	1.76%

=====
Analysis Begun

Start Time: 11/2/2012 10:28:05 AM

Plasma On Time: 11/2/2012 8:20:38 AM

Logged In Analyst: metals

Technique: ICP Continuous

Spectrometer Model: Optima 4300 DV, S/N 077N0060101Autosampler Model: S10

Sample Information File: C:\pe\metals\Sample Information\CRISSET.sif

Batch ID:

Results Data Set: PE121102

Results Library: C:\pe\metals\Results\Results.mdb
=====

Sequence No.: 1

Sample ID: Calib Blank 1

Date Collected: 11/2/2012 10:28:08 AM

Data Type: Original

Nebulizer Parameters: Calib Blank 1

Analyte	Back Pressure	Flow
All	231.0 kPa	0.55 L/min

Mean Data: Calib Blank 1

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
ScA 357.253	2614306.9	18448.97	0.71%	102.3	%
ScR 361.383	199400.6	601.47	0.30%	103.0	%
Ag 328.068†	634.3	12.43	1.96%	[0.00]	mg/L
Al 308.215†	25.9	12.53	48.32%	[0.00]	mg/L
As 188.979†	1.0	1.78	172.35%	[0.00]	mg/L
B 249.677†	-119.6	3.91	3.27%	[0.00]	mg/L
Ba 233.527†	66.0	2.37	3.60%	[0.00]	mg/L
Be 313.042†	590.8	11.95	2.02%	[0.00]	mg/L
Ca 317.933†	12.3	26.24	214.07%	[0.00]	mg/L
Cd 228.802†	302.0	2.51	0.83%	[0.00]	mg/L
Co 228.616†	325.4	6.40	1.97%	[0.00]	mg/L
Cr 267.716†	9.6	2.94	30.58%	[0.00]	mg/L
Cu 324.752†	1780.3	22.83	1.28%	[0.00]	mg/L
Fe 273.955†	-17.4	2.69	15.47%	[0.00]	mg/L
K 766.490†	2288.7	70.60	3.08%	[0.00]	mg/L
Mg 279.077†	-160.3	6.95	4.34%	[0.00]	mg/L
Mn 257.610†	-47.6	3.67	7.71%	[0.00]	mg/L
Mo 202.031†	-131.3	3.57	2.72%	[0.00]	mg/L
Na 589.592†	588.9	27.83	4.73%	[0.00]	mg/L
Na 330.237†	50.8	16.99	33.47%	[0.00]	mg/L
Ni 231.604†	30.7	5.87	19.14%	[0.00]	mg/L
Pb 220.353†	278.1	12.50	4.49%	[0.00]	mg/L
Sb 206.836†	125.6	2.41	1.91%	[0.00]	mg/L
Se 196.026†	-98.5	2.02	2.05%	[0.00]	mg/L
Si 288.158†	6.1	3.97	64.81%	[0.00]	mg/L
Sn 189.927†	-10.2	2.50	24.49%	[0.00]	mg/L
Sr 421.552†	775.2	37.91	4.89%	[0.00]	mg/L
Ti 334.903†	-68.8	15.16	22.02%	[0.00]	mg/L
Tl 190.801†	12.4	3.74	30.04%	[0.00]	mg/L
V 292.402†	1.1	31.70	>999.9%	[0.00]	mg/L
Zn 206.200†	-27.0	1.60	5.91%	[0.00]	mg/L

=====
Analysis Begun

Start Time: 11/2/2012 10:39:07 AM
 Logged In Analyst: metals
 Spectrometer Model: Optima 4300 DV, S/N 077N0060101

Plasma On Time: 11/2/2012 8:20:38 AM
 Technique: ICP Continuous

Sample Information File: C:\pe\metals\Sample Information\CRISSET.sif
 Batch ID:
 Results Data Set: PE121102
 Results Library: C:\pe\metals\Results\Results.mdb

Sequence No.: 1
 Sample ID: ICV
 Analyst: EL
 Dilution: 1X

Autosampler Location: 7
 Date Collected: 11/2/2012 10:39:09 AM
 Data Type: Original

Nebulizer Parameters: CV

Analyte	Back Pressure	Flow
All	231.0 kPa	0.55 L/min

Mean Data: CV

Analyte	Mean Corrected		Calib.	Std.Dev.	Sample		RSD
	Intensity	Conc. Units			Conc. Units	Std.Dev.	
ScA 357.253	2595292.4	101.6 %		0.38			0.38%
ScR 361.383	202605.3	104.6 %		0.08			0.08%
Ag 328.068†	300811.1	1.005 mg/L		0.0028	1.005 mg/L	0.0028	0.28%
Al 308.215†	2964.9	2.068 mg/L		0.0125	2.068 mg/L	0.0125	0.60%
As 188.979†	4813.7	2.063 mg/L		0.0117	2.063 mg/L	0.0117	0.57%
B 249.677†	1994.5	0.9766 mg/L		0.00159	0.9766 mg/L	0.00159	0.16%
Ba 233.527†	9641.4	1.008 mg/L		0.0035	1.008 mg/L	0.0035	0.35%
Be 313.042†	259637.0	0.9983 mg/L		0.00284	0.9983 mg/L	0.00284	0.28%
Ca 317.933†	20870.5	2.020 mg/L		0.0111	2.020 mg/L	0.0111	0.55%
Cd 228.802†	83664.2	1.040 mg/L		0.0039	1.040 mg/L	0.0039	0.38%
Co 228.616†	84155.6	1.007 mg/L		0.0009	1.007 mg/L	0.0009	0.09%
Cr 267.716†	4300.8	1.001 mg/L		0.0040	1.001 mg/L	0.0040	0.40%
Cu 324.752†	340215.7	1.089 mg/L		0.0013	1.089 mg/L	0.0013	0.12%
Fe 273.955†	2486.6	2.113 mg/L		0.0069	2.113 mg/L	0.0069	0.32%
K 766.490†	74063.4	21.00 mg/L		0.052	21.00 mg/L	0.052	0.25%
Mg 279.077†	2324.5	2.132 mg/L		0.0057	2.132 mg/L	0.0057	0.27%
Mn 257.610†	37721.5	1.015 mg/L		0.0005	1.015 mg/L	0.0005	0.05%
Mo 202.031†	16953.0	0.9965 mg/L		0.00485	0.9965 mg/L	0.00485	0.49%
Na 589.592†	414113.7	51.26 mg/L		0.090	51.26 mg/L	0.090	0.18%
Na 330.237†	1326.2	52.81 mg/L		0.263	52.81 mg/L	0.263	0.50%
Ni 231.604†	2110.0	0.9861 mg/L		0.00219	0.9861 mg/L	0.00219	0.22%
Pb 220.353†	26202.5	2.001 mg/L		0.0079	2.001 mg/L	0.0079	0.39%
Sb 206.836†	7311.4	2.160 mg/L		0.0059	2.160 mg/L	0.0059	0.27%
Se 196.026†	3679.4	2.002 mg/L		0.0036	2.002 mg/L	0.0036	0.18%
Si 288.158†	2817.2	2.159 mg/L		0.0106	2.159 mg/L	0.0106	0.49%
Sn 189.927†	5752.6	0.9397 mg/L		0.00405	0.9397 mg/L	0.00405	0.43%
Sr 421.552†	621412.3	1.040 mg/L		0.0018	1.040 mg/L	0.0018	0.18%
Ti 334.903†	24983.9	1.036 mg/L		0.0013	1.036 mg/L	0.0013	0.13%
Tl 190.801†	7188.2	2.004 mg/L		0.0085	2.004 mg/L	0.0085	0.42%
V 292.402†	211498.9	1.043 mg/L		0.0009	1.043 mg/L	0.0009	0.09%
Zn 206.200†	2529.3	1.033 mg/L		0.0037	1.033 mg/L	0.0037	0.36%

Sequence No.: 2
 Sample ID: CB
 Analyst: EL
 Dilution: 1X

Autosampler Location: 1
 Date Collected: 11/2/2012 10:45:13 AM
 Data Type: Original

Nebulizer Parameters: CB

Analyte Back Pressure Flow
 All 231.0 kPa 0.55 L/min

Mean Data: CB

Analyte	Mean Corrected Intensity	Calib. Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2701153.0	105.7 %	0.49			0.46%
ScR 361.383	205441.8	106.1 %	0.32			0.30%
Ag 328.068†	8.0	0.00003 mg/L	0.000056	0.00003 mg/L	0.000056	212.34%
Al 308.215†	7.5	0.00535 mg/L	0.005558	0.00535 mg/L	0.005558	103.88%
As 188.979†	2.3	0.00099 mg/L	0.001598	0.00099 mg/L	0.001598	160.76%
B 249.677†	9.9	0.00484 mg/L	0.001089	0.00484 mg/L	0.001089	22.48%
Ba 233.527†	-7.6	-0.00080 mg/L	0.000245	-0.00080 mg/L	0.000245	30.71%
Be 313.042†	-7.3	-0.00003 mg/L	0.000035	-0.00003 mg/L	0.000035	123.26%
Ca 317.933†	2.1	0.00020 mg/L	0.000191	0.00020 mg/L	0.000191	95.86%
Cd 228.802†	-8.3	-0.00011 mg/L	0.000062	-0.00011 mg/L	0.000062	58.07%
Co 228.616†	-13.6	-0.00016 mg/L	0.000080	-0.00016 mg/L	0.000080	48.98%
Cr 267.716†	-3.0	-0.00069 mg/L	0.000951	-0.00069 mg/L	0.000951	137.56%
Cu 324.752†	-63.6	-0.00020 mg/L	0.000128	-0.00020 mg/L	0.000128	62.96%
Fe 273.955†	-1.1	-0.00096 mg/L	0.001963	-0.00096 mg/L	0.001963	205.23%
K 766.490†	42.1	0.01195 mg/L	0.008132	0.01195 mg/L	0.008132	68.07%
Mg 279.077†	3.0	0.00277 mg/L	0.005845	0.00277 mg/L	0.005845	211.15%
Mn 257.610†	1.0	0.00003 mg/L	0.000079	0.00003 mg/L	0.000079	294.08%
Mo 202.031†	7.2	0.00042 mg/L	0.000162	0.00042 mg/L	0.000162	38.41%
Na 589.592†	288.0	0.03565 mg/L	0.005949	0.03565 mg/L	0.005949	16.69%
Na 330.237†	-0.9	-0.03563 mg/L	0.083915	-0.03563 mg/L	0.083915	235.49%
Ni 231.604†	-2.8	-0.00132 mg/L	0.000678	-0.00132 mg/L	0.000678	51.31%
Pb 220.353†	-5.9	-0.00045 mg/L	0.000237	-0.00045 mg/L	0.000237	53.20%
Sb 206.836†	-1.1	-0.00029 mg/L	0.001463	-0.00029 mg/L	0.001463	497.59%
Se 196.026†	12.4	0.00676 mg/L	0.000157	0.00676 mg/L	0.000157	2.32%
Si 288.158†	2.2	0.00164 mg/L	0.002235	0.00164 mg/L	0.002235	136.03%
Sn 189.927†	5.8	0.00094 mg/L	0.000331	0.00094 mg/L	0.000331	35.10%
Sr 421.552†	-7.4	-0.00001 mg/L	0.000028	-0.00001 mg/L	0.000028	225.93%
Ti 334.903†	9.2	0.00038 mg/L	0.000368	0.00038 mg/L	0.000368	96.26%
Tl 190.801†	3.5	0.00098 mg/L	0.001377	0.00098 mg/L	0.001377	140.11%
V 292.402†	-7.3	-0.00004 mg/L	0.000161	-0.00004 mg/L	0.000161	416.13%
Zn 206.200†	1.7	0.00071 mg/L	0.000272	0.00071 mg/L	0.000272	38.57%

Sequence No.: 3
Sample ID: CRI
Analyst: EL
Dilution: 1X

Autosampler Location: 21
Date Collected: 11/2/2012 10:51:11 AM
Data Type: Original

Nebulizer Parameters: CRI

Analyte Back Pressure Flow
All 231.0 kPa 0.55 L/min

Mean Data: CRI

Analyte	Mean Corrected		Calib. Units	Std.Dev.	Sample		Std.Dev.	RSD
	Intensity	Conc.			Conc.	Units		
ScA 357.253	2715329.2	106.3	%	0.96				0.91%
ScR 361.383	204059.2	105.4	%	0.03				0.03%
Ag 328.068†	838.8	0.00280	mg/L	0.000217	0.00280	mg/L	0.000217	7.74%
Al 308.215†	85.0	0.06032	mg/L	0.008544	0.06032	mg/L	0.008544	14.16%
As 188.979†	115.9	0.04971	mg/L	0.001654	0.04971	mg/L	0.001654	3.33%
B 249.677†	44.4	0.02175	mg/L	0.001257	0.02175	mg/L	0.001257	5.78%
Ba 233.527†	21.8	0.00228	mg/L	0.000254	0.00228	mg/L	0.000254	11.15%
Be 313.042†	260.5	0.00100	mg/L	0.000079	0.00100	mg/L	0.000079	7.92%
Ca 317.933†	516.7	0.05000	mg/L	0.002276	0.05000	mg/L	0.002276	4.55%
Cd 228.802†	161.9	0.00191	mg/L	0.000174	0.00191	mg/L	0.000174	9.14%
Co 228.616†	260.3	0.00311	mg/L	0.000027	0.00311	mg/L	0.000027	0.86%
Cr 267.716†	19.8	0.00460	mg/L	0.000439	0.00460	mg/L	0.000439	9.54%
Cu 324.752†	512.1	0.00164	mg/L	0.000187	0.00164	mg/L	0.000187	11.39%
Fe 273.955†	57.4	0.04875	mg/L	0.002464	0.04875	mg/L	0.002464	5.05%
K 766.490†	1859.2	0.5270	mg/L	0.01632	0.5270	mg/L	0.01632	3.10%
Mg 279.077†	62.9	0.05756	mg/L	0.003455	0.05756	mg/L	0.003455	6.00%
Mn 257.610†	34.5	0.00093	mg/L	0.000069	0.00093	mg/L	0.000069	7.42%
Mo 202.031†	92.9	0.00546	mg/L	0.000380	0.00546	mg/L	0.000380	6.97%
Na 589.592†	4172.2	0.5164	mg/L	0.00405	0.5164	mg/L	0.00405	0.78%
Na 330.237†	18.5	0.7350	mg/L	0.13688	0.7350	mg/L	0.13688	18.62%
Ni 231.604†	19.6	0.00916	mg/L	0.000929	0.00916	mg/L	0.000929	10.14%
Pb 220.353†	237.8	0.01817	mg/L	0.000718	0.01817	mg/L	0.000718	3.95%
Sb 206.836†	170.0	0.05031	mg/L	0.001479	0.05031	mg/L	0.001479	2.94%
Se 196.026†	98.7	0.05375	mg/L	0.000787	0.05375	mg/L	0.000787	1.46%
Si 288.158†	107.5	0.08220	mg/L	0.001530	0.08220	mg/L	0.001530	1.86%
Sn 189.927†	56.3	0.00921	mg/L	0.000779	0.00921	mg/L	0.000779	8.45%
Sr 421.552†	603.8	0.00101	mg/L	0.000056	0.00101	mg/L	0.000056	5.52%
Ti 334.903†	147.9	0.00613	mg/L	0.000801	0.00613	mg/L	0.000801	13.05%
Tl 190.801†	177.1	0.04965	mg/L	0.000101	0.04965	mg/L	0.000101	0.20%
V 292.402†	612.9	0.00304	mg/L	0.000222	0.00304	mg/L	0.000222	7.30%
Zn 206.200†	24.9	0.01016	mg/L	0.000614	0.01016	mg/L	0.000614	6.04%

Sequence No.: 4
 Sample ID: ICSA
 Analyst: EL
 Dilution: 1X

Autosampler Location: 22
 Date Collected: 11/2/2012 10:57:11 AM
 Data Type: Original

Nebulizer Parameters: ICSA

Analyte Back Pressure Flow
 All 231.0 kPa 0.55 L/min

Mean Data: ICSA

Analyte	Mean Corrected Intensity	Conc. Units	Calib. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2522799.3	98.76	%	0.149			0.15%
ScR 361.383	199705.4	103.1	%	0.67			0.65%
Ag 328.068†	-1696.3	-0.00018	mg/L	0.000204	-0.00018 mg/L	0.000204	112.12%
Al 308.215†	285026.4	203.0	mg/L	0.63	203.0 mg/L	0.63	0.31%
As 188.979†	-12.1	-0.00513	mg/L	0.001756	-0.00513 mg/L	0.001756	34.21%
B 249.677†	-20.0	-0.00983	mg/L	0.002292	-0.00983 mg/L	0.002292	23.32%
Ba 233.527†	74.4	-0.00145	mg/L	0.000088	-0.00145 mg/L	0.000088	6.09%
Be 313.042†	10.7	0.00000	mg/L	0.000012	0.00000 mg/L	0.000012	338.59%
Ca 317.933†	1006712.7	97.42	mg/L	0.173	97.42 mg/L	0.173	0.18%
Cd 228.802†	84.1	0.00106	mg/L	0.000050	0.00106 mg/L	0.000050	4.73%
Co 228.616†	163.8	-0.00036	mg/L	0.000135	-0.00036 mg/L	0.000135	37.81%
Cr 267.716†	14.4	0.00335	mg/L	0.000731	0.00335 mg/L	0.000731	21.78%
Cu 324.752†	-5102.7	0.00035	mg/L	0.000102	0.00035 mg/L	0.000102	29.36%
Fe 273.955†	234598.5	199.4	mg/L	0.84	199.4 mg/L	0.84	0.42%
K 766.490†	25.9	0.00735	mg/L	0.014262	0.00735 mg/L	0.014262	194.16%
Mg 279.077†	112640.6	103.0	mg/L	0.30	103.0 mg/L	0.30	0.29%
Mn 257.610†	22.6	-0.00079	mg/L	0.000140	-0.00079 mg/L	0.000140	17.79%
Mo 202.031†	-159.4	-0.00640	mg/L	0.000368	-0.00640 mg/L	0.000368	5.75%
Na 589.592†	283.1	0.03504	mg/L	0.005627	0.03504 mg/L	0.005627	16.06%
Na 330.237†	7.3	-0.1356	mg/L	0.23090	-0.1356 mg/L	0.23090	170.27%
Ni 231.604†	9.7	0.00457	mg/L	0.001304	0.00457 mg/L	0.001304	28.53%
Pb 220.353†	-755.8	0.00642	mg/L	0.000408	0.00642 mg/L	0.000408	6.35%
Sb 206.836†	146.0	0.02439	mg/L	0.002625	0.02439 mg/L	0.002625	10.76%
Se 196.026†	-107.1	-0.05836	mg/L	0.002548	-0.05836 mg/L	0.002548	4.37%
Si 288.158†	-4.0	0.00932	mg/L	0.004506	0.00932 mg/L	0.004506	48.32%
Sn 189.927†	-50.9	0.01490	mg/L	0.000748	0.01490 mg/L	0.000748	5.02%
Sr 421.552†	2507.7	0.00420	mg/L	0.000074	0.00420 mg/L	0.000074	1.76%
Ti 334.903†	172.8	0.00241	mg/L	0.000264	0.00241 mg/L	0.000264	10.94%
Tl 190.801†	-34.6	-0.00982	mg/L	0.002465	-0.00982 mg/L	0.002465	25.09%
V 292.402†	3544.8	-0.00170	mg/L	0.000429	-0.00170 mg/L	0.000429	25.27%
Zn 206.200†	-19.0	-0.00568	mg/L	0.001160	-0.00568 mg/L	0.001160	20.41%

Sequence No.: 5
 Sample ID: ICSAB
 Analyst: EL
 Dilution: 1X

Autosampler Location: 23
 Date Collected: 11/2/2012 11:03:14 AM
 Data Type: Original

Nebulizer Parameters: ICSAB

Analyte Back Pressure Flow
 All 232.0 kPa 0.55 L/min

Mean Data: ICSAB

Analyte	Mean Corrected Intensity	Calib. Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2555830.7	100.1 %	0.80			0.80%
ScR 361.383	200066.6	103.3 %	0.59			0.57%
Ag 328.068†	299290.6	1.005 mg/L	0.0071	1.005 mg/L	0.0071	0.71%
Al 308.215†	283616.4	201.9 mg/L	0.36	201.9 mg/L	0.36	0.18%
As 188.979†	2312.8	0.9917 mg/L	0.01232	0.9917 mg/L	0.01232	1.24%
B 249.677†	-0.2	-0.00323 mg/L	0.001762	-0.00323 mg/L	0.001762	54.62%
Ba 233.527†	9483.0	0.9826 mg/L	0.00560	0.9826 mg/L	0.00560	0.57%
Be 313.042†	256470.7	0.9862 mg/L	0.00293	0.9862 mg/L	0.00293	0.30%
Ca 317.933†	1006902.2	97.44 mg/L	0.265	97.44 mg/L	0.265	0.27%
Cd 228.802†	80017.2	0.9969 mg/L	0.00523	0.9969 mg/L	0.00523	0.53%
Co 228.616†	77706.5	0.9293 mg/L	0.00095	0.9293 mg/L	0.00095	0.10%
Cr 267.716†	4198.4	0.9775 mg/L	0.00537	0.9775 mg/L	0.00537	0.55%
Cu 324.752†	317565.2	1.033 mg/L	0.0012	1.033 mg/L	0.0012	0.12%
Fe 273.955†	233040.5	198.1 mg/L	0.38	198.1 mg/L	0.38	0.19%
K 766.490†	21.9	0.00620 mg/L	0.001919	0.00620 mg/L	0.001919	30.97%
Mg 279.077†	113240.5	103.6 mg/L	0.35	103.6 mg/L	0.35	0.34%
Mn 257.610†	36049.6	0.9685 mg/L	0.00329	0.9685 mg/L	0.00329	0.34%
Mo 202.031†	-162.9	-0.00682 mg/L	0.000566	-0.00682 mg/L	0.000566	8.30%
Na 589.592†	664.9	0.08230 mg/L	0.004357	0.08230 mg/L	0.004357	5.29%
Na 330.237†	30.0	0.4239 mg/L	0.15638	0.4239 mg/L	0.15638	36.89%
Ni 231.604†	2000.2	0.9346 mg/L	0.00924	0.9346 mg/L	0.00924	0.99%
Pb 220.353†	11447.6	0.9382 mg/L	0.00934	0.9382 mg/L	0.00934	1.00%
Sb 206.836†	3672.0	1.053 mg/L	0.0113	1.053 mg/L	0.0113	1.08%
Se 196.026†	1714.1	0.9314 mg/L	0.00788	0.9314 mg/L	0.00788	0.85%
Si 288.158†	44.7	0.05096 mg/L	0.005371	0.05096 mg/L	0.005371	10.54%
Sn 189.927†	-65.9	0.01247 mg/L	0.000445	0.01247 mg/L	0.000445	3.57%
Sr 421.552†	2740.5	0.00459 mg/L	0.000027	0.00459 mg/L	0.000027	0.60%
Ti 334.903†	170.9	0.00210 mg/L	0.000148	0.00210 mg/L	0.000148	7.04%
Tl 190.801†	3303.5	0.9144 mg/L	0.00635	0.9144 mg/L	0.00635	0.69%
V 292.402†	205361.8	0.9900 mg/L	0.00094	0.9900 mg/L	0.00094	0.10%
Zn 206.200†	2204.7	0.9032 mg/L	0.00447	0.9032 mg/L	0.00447	0.49%

Sequence No.: 6
 Sample ID: CV7
 Analyst: EL
 Dilution: 1X

Autosampler Location: 7
 Date Collected: 11/2/2012 11:10:15 AM
 Data Type: Original

Nebulizer Parameters: CV

Analyte Back Pressure Flow
 All 232.0 kPa 0.55 L/min

Mean Data: CV

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
SCA 357.253	2628079.8	102.9	%	0.59				0.57%
ScR 361.383	205929.1	106.4	%	0.23				0.22%
Ag 328.068†	293546.5	0.9803	mg/L	0.00117	0.9803	mg/L	0.00117	0.12%
Al 308.215†	2934.0	2.047	mg/L	0.0048	2.047	mg/L	0.0048	0.24%
As 188.979†	4738.7	2.031	mg/L	0.0155	2.031	mg/L	0.0155	0.76%
B 249.677†	1974.0	0.9666	mg/L	0.00434	0.9666	mg/L	0.00434	0.45%
Ba 233.527†	9578.9	1.002	mg/L	0.0012	1.002	mg/L	0.0012	0.12%
Be 313.042†	256649.3	0.9868	mg/L	0.00098	0.9868	mg/L	0.00098	0.10%
Ca 317.933†	20732.8	2.006	mg/L	0.0042	2.006	mg/L	0.0042	0.21%
Cd 228.802†	81874.0	1.018	mg/L	0.0036	1.018	mg/L	0.0036	0.35%
Co 228.616†	82250.9	0.9844	mg/L	0.00209	0.9844	mg/L	0.00209	0.21%
Cr 267.716†	4276.5	0.9954	mg/L	0.00291	0.9954	mg/L	0.00291	0.29%
Cu 324.752†	332575.3	1.064	mg/L	0.0015	1.064	mg/L	0.0015	0.14%
Fe 273.955†	2480.0	2.107	mg/L	0.0078	2.107	mg/L	0.0078	0.37%
K 766.490†	72718.0	20.61	mg/L	0.048	20.61	mg/L	0.048	0.23%
Mg 279.077†	2319.9	2.128	mg/L	0.0078	2.128	mg/L	0.0078	0.37%
Mn 257.610†	37217.9	1.001	mg/L	0.0014	1.001	mg/L	0.0014	0.14%
Mo 202.031†	16648.8	0.9786	mg/L	0.00841	0.9786	mg/L	0.00841	0.86%
Na 589.592†	405906.5	50.24	mg/L	0.047	50.24	mg/L	0.047	0.09%
Na 330.237†	1298.6	51.70	mg/L	0.070	51.70	mg/L	0.070	0.13%
Ni 231.604†	2107.4	0.9849	mg/L	0.00210	0.9849	mg/L	0.00210	0.21%
Pb 220.353†	25844.3	1.974	mg/L	0.0155	1.974	mg/L	0.0155	0.79%
Sb 206.836†	7201.6	2.127	mg/L	0.0149	2.127	mg/L	0.0149	0.70%
Se 196.026†	3620.0	1.970	mg/L	0.0136	1.970	mg/L	0.0136	0.69%
Si 288.158†	2799.3	2.146	mg/L	0.0076	2.146	mg/L	0.0076	0.35%
Sn 189.927†	5671.8	0.9265	mg/L	0.00525	0.9265	mg/L	0.00525	0.57%
Sr 421.552†	610837.7	1.022	mg/L	0.0043	1.022	mg/L	0.0043	0.42%
Ti 334.903†	24553.5	1.018	mg/L	0.0012	1.018	mg/L	0.0012	0.11%
Tl 190.801†	7067.8	1.970	mg/L	0.0162	1.970	mg/L	0.0162	0.82%
V 292.402†	207228.3	1.022	mg/L	0.0043	1.022	mg/L	0.0043	0.42%
Zn 206.200†	2541.6	1.039	mg/L	0.0018	1.039	mg/L	0.0018	0.17%

Sequence No.: 7
Sample ID: CB {
Analyst: EL
Dilution: 1X

Autosampler Location: 1
Date Collected: 11/2/2012 11:16:17 AM
Data Type: Original

Nebulizer Parameters: CB

Analyte Back Pressure Flow
All 232.0 kPa 0.55 L/min

Mean Data: CB

Analyte	Mean Corrected Intensity	Calib. Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2686417.9	105.2 %	0.77			0.74%
ScR 361.383	203375.1	105.0 %	0.49			0.47%
Ag 328.068†	144.6	0.00048 mg/L	0.000078	0.00048 mg/L	0.000078	16.22%
Al 308.215†	14.9	0.01062 mg/L	0.012302	0.01062 mg/L	0.012302	115.81%
As 188.979†	1.1	0.00047 mg/L	0.001434	0.00047 mg/L	0.001434	305.79%
B 249.677†	4.0	0.00197 mg/L	0.002173	0.00197 mg/L	0.002173	110.04%
Ba 233.527†	-6.7	-0.00070 mg/L	0.000086	-0.00070 mg/L	0.000086	12.37%
Be 313.042†	3.9	0.00002 mg/L	0.000111	0.00002 mg/L	0.000111	739.92%
Ca 317.933†	-18.5	-0.00179 mg/L	0.000916	-0.00179 mg/L	0.000916	51.25%
Cd 228.802†	7.4	0.00009 mg/L	0.000009	0.00009 mg/L	0.000009	9.89%
Co 228.616†	-3.6	-0.00004 mg/L	0.000055	-0.00004 mg/L	0.000055	124.39%
Cr 267.716†	-1.1	-0.00027 mg/L	0.000542	-0.00027 mg/L	0.000542	202.78%
Cu 324.752†	26.0	0.00008 mg/L	0.000011	0.00008 mg/L	0.000011	12.85%
Fe 273.955†	-0.4	-0.00033 mg/L	0.001492	-0.00033 mg/L	0.001492	451.66%
K 766.490†	82.5	0.02340 mg/L	0.016561	0.02340 mg/L	0.016561	70.78%
Mg 279.077†	0.8	0.00071 mg/L	0.000691	0.00071 mg/L	0.000691	97.35%
Mn 257.610†	6.2	0.00017 mg/L	0.000095	0.00017 mg/L	0.000095	57.52%
Mo 202.031†	6.2	0.00036 mg/L	0.000142	0.00036 mg/L	0.000142	39.07%
Na 589.592†	177.9	0.02202 mg/L	0.005662	0.02202 mg/L	0.005662	25.71%
Na 330.237†	16.6	0.6629 mg/L	0.20443	0.6629 mg/L	0.20443	30.84%
Ni 231.604†	-3.1	-0.00144 mg/L	0.001299	-0.00144 mg/L	0.001299	90.32%
Pb 220.353†	-15.4	-0.00118 mg/L	0.000412	-0.00118 mg/L	0.000412	35.04%
Sb 206.836†	-1.3	-0.00038 mg/L	0.001043	-0.00038 mg/L	0.001043	275.66%
Se 196.026†	8.2	0.00446 mg/L	0.001044	0.00446 mg/L	0.001044	23.40%
Si 288.158†	2.2	0.00169 mg/L	0.003589	0.00169 mg/L	0.003589	212.36%
Sn 189.927†	6.5	0.00107 mg/L	0.000391	0.00107 mg/L	0.000391	36.68%
Sr 421.552†	6.6	0.00001 mg/L	0.000077	0.00001 mg/L	0.000077	701.95%
Ti 334.903†	18.9	0.00079 mg/L	0.000418	0.00079 mg/L	0.000418	53.19%
Tl 190.801†	4.6	0.00129 mg/L	0.000469	0.00129 mg/L	0.000469	36.42%
V 292.402†	14.5	0.00007 mg/L	0.000172	0.00007 mg/L	0.000172	245.07%
Zn 206.200†	3.7	0.00152 mg/L	0.000268	0.00152 mg/L	0.000268	17.60%

=====
Analysis Begun

Start Time: 11/2/2012 11:34:44 AM

Plasma On Time: 11/2/2012 6:20:38 AM

Logged In Analyst: metals

Technique: ICP Continuous

Spectrometer Model: Optima 4300 DV, S/N 077N0060101 Autosampler Model: S10

Sample Information File: C:\pe\metals\Sample Information\1102.sif

Batch ID:

Results Data Set: PE121102

Results Library: C:\pe\metals\Results\Results.mdb

=====
Sequence No.: 1

Autosampler Location: 24

Sample ID: VP83 MB TWC

Date Collected: 11/2/2012 11:34:46 AM

Analyst: EL

Data Type: Original

Dilution: 1X

Nebulizer Parameters: VP83 MB TWC

Analyte	Back Pressure	Flow
All	232.0 kPa	0.55 L/min

Mean Data: VP83 MB TWC

Analyte	Mean Corrected		Calib.		Sample		Std.Dev.	RSD
	Intensity	Conc.	Units	Std.Dev.	Conc.	Units		
ScA 357.253	2643319.8	103.5	%	1.04				1.00%
ScR 361.383	201565.9	104.1	%	1.43				1.37%
Ag 328.068†	-26.9	-0.00009	mg/L	0.000051	-0.00009	mg/L	0.000051	54.62%
Al 308.215†	161.5	0.1150	mg/L	0.00751	0.1150	mg/L	0.00751	6.53%
As 188.979†	1.4	0.00062	mg/L	0.001991	0.00062	mg/L	0.001991	322.14%
B 249.677†	25.6	0.01257	mg/L	0.002129	0.01257	mg/L	0.002129	16.94%
Ba 233.527†	-2.2	-0.00023	mg/L	0.000464	-0.00023	mg/L	0.000464	200.42%
Be 313.042†	10.7	0.00004	mg/L	0.000052	0.00004	mg/L	0.000052	127.27%
Ca 317.933†	2654.2	0.2568	mg/L	0.00054	0.2568	mg/L	0.00054	0.21%
Cd 228.802†	-0.1	0.00000	mg/L	0.000113	0.00000	mg/L	0.000113	>999.9%
Co 228.616†	-9.0	-0.00011	mg/L	0.000045	-0.00011	mg/L	0.000045	42.42%
Cr 267.716†	0.3	0.00007	mg/L	0.000614	0.00007	mg/L	0.000614	858.74%
Cu 324.752†	-93.9	-0.00030	mg/L	0.000127	-0.00030	mg/L	0.000127	42.27%
Fe 273.955†	0.5	0.00041	mg/L	0.001883	0.00041	mg/L	0.001883	460.89%
K 766.490†	64.2	0.01821	mg/L	0.017682	0.01821	mg/L	0.017682	97.09%
Mg 279.077†	3.9	0.00358	mg/L	0.004661	0.00358	mg/L	0.004661	130.11%
Mn 257.610†	0.4	0.00001	mg/L	0.000027	0.00001	mg/L	0.000027	254.56%
Mo 202.031†	4.4	0.00026	mg/L	0.000383	0.00026	mg/L	0.000383	147.85%
Na 589.592†	-125.9	-0.01558	mg/L	0.002673	-0.01558	mg/L	0.002673	17.16%
Na 330.237†	8.3	0.3287	mg/L	0.30594	0.3287	mg/L	0.30594	93.09%
Ni 231.604†	-2.0	-0.00092	mg/L	0.000547	-0.00092	mg/L	0.000547	59.29%
Pb 220.353†	-2.5	-0.00015	mg/L	0.000395	-0.00015	mg/L	0.000395	271.51%
Sb 206.836†	-6.3	-0.00187	mg/L	0.001026	-0.00187	mg/L	0.001026	54.99%
Se 196.026†	8.0	0.00439	mg/L	0.001079	0.00439	mg/L	0.001079	24.61%
Si 288.158†	7.4	0.00569	mg/L	0.000926	0.00569	mg/L	0.000926	16.28%
Sn 189.927†	0.6	0.00015	mg/L	0.000154	0.00015	mg/L	0.000154	102.98%
Sr 421.552†	842.8	0.00141	mg/L	0.000038	0.00141	mg/L	0.000038	2.73%
Ti 334.903†	-4.9	-0.00021	mg/L	0.000766	-0.00021	mg/L	0.000766	357.37%
Tl 190.801†	1.5	0.00043	mg/L	0.001235	0.00043	mg/L	0.001235	288.55%
V 292.402†	40.9	0.00020	mg/L	0.000043	0.00020	mg/L	0.000043	21.43%
Zn 206.200†	4.0	0.00163	mg/L	0.001068	0.00163	mg/L	0.001068	65.53%

Sequence No.: 2
 Sample ID: VP83 B TWC
 Analyst: EL
 Dilution: 10X

Autosampler Location: 25
 Date Collected: 11/2/2012 11:40:46 AM
 Data Type: Original

Nebulizer Parameters: VP83 B TWC

Analyte Back Pressure Flow
 All 232.0 kPa 0.55 L/min

Mean Data: VP83 B TWC

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc. Units	Sample Std.Dev.	RSD
ScA 357.253	2431072.7	95.17	%	0.663			0.70%
ScR 361.383	195687.8	101.1	%	1.05			1.04%
Ag 328.068†	105.3	0.00014	mg/L	0.000077	0.00144 mg/L	0.000772	53.59%
Al 308.215†	15.3	0.01085	mg/L	0.008211	0.1085 mg/L	0.08211	75.67%
As 188.979†	2.8	0.00118	mg/L	0.000173	0.01179 mg/L	0.001733	14.69%
B 249.677†	325.8	0.1598	mg/L	0.00675	1.598 mg/L	0.0675	4.23%
Ba 233.527†	101.0	0.01056	mg/L	0.000911	0.1056 mg/L	0.00911	8.63%
Be 313.042†	-6.2	-0.00002	mg/L	0.000032	-0.00022 mg/L	0.000316	143.20%
Ca 317.933†	156417.4	15.14	mg/L	0.768	151.4 mg/L	7.68	5.08%
Cd 228.802†	8.4	0.00010	mg/L	0.000077	0.00103 mg/L	0.000766	74.15%
Co 228.616†	42.1	0.00050	mg/L	0.000075	0.00495 mg/L	0.000749	15.13%
Cr 267.716†	14.1	0.00322	mg/L	0.000669	0.03218 mg/L	0.006691	20.79%
Cu 324.752†	70.7	0.00025	mg/L	0.000076	0.00254 mg/L	0.000755	29.69%
Fe 273.955†	405.6	0.3448	mg/L	0.01657	3.448 mg/L	0.1657	4.81%
K 766.490†	53605.5	15.20	mg/L	0.563	152.0 mg/L	5.63	3.71%
Mg 279.077†	48114.2	44.06	mg/L	2.136	440.6 mg/L	21.36	4.85%
Mn 257.610†	9029.8	0.2429	mg/L	0.01156	2.429 mg/L	0.1156	4.76%
Mo 202.031†	25.8	0.00098	mg/L	0.000186	0.00980 mg/L	0.001864	19.02%
Na 589.592†	2861524.9	354.2	mg/L	13.03	354 mg/L	130.3	3.68%
Na 330.237†	9362.2	374.1	mg/L	17.88	3741 mg/L	178.8	4.78%
Ni 231.604†	5.6	0.00264	mg/L	0.002178	0.02640 mg/L	0.021780	82.49%
Pb 220.353†	0.8	0.00044	mg/L	0.000505	0.00442 mg/L	0.005046	114.25%
Sb 206.836†	3.6	0.00093	mg/L	0.000914	0.00926 mg/L	0.009135	98.60%
Se 196.026†	2.9	0.00156	mg/L	0.003884	0.01555 mg/L	0.038845	249.77%
Si 288.158†	786.4	0.6062	mg/L	0.02796	6.062 mg/L	0.2796	4.61%
Sn 189.927†	-15.7	0.00172	mg/L	0.000702	0.01718 mg/L	0.007024	40.88%
Sr 421.552†	174707.5	0.2924	mg/L	0.01129	2.924 mg/L	0.1129	3.86%
Ti 334.903†	38.5	0.00086	mg/L	0.000999	0.00855 mg/L	0.009993	116.87%
Tl 190.801†	-6.3	-0.00208	mg/L	0.000443	-0.02078 mg/L	0.004434	21.33%
V 292.402†	-134.8	-0.00063	mg/L	0.000166	-0.00625 mg/L	0.001659	26.53%
Zn 206.200†	-1.3	-0.00020	mg/L	0.001272	-0.00201 mg/L	0.012722	632.94%

Sequence No.: 3
 Sample ID: VP83 C TWC
 Analyst: EL
 Dilution: 10X

Autosampler Location: 26
 Date Collected: 11/2/2012 11:47:10 AM
 Data Type: Original

Nebulizer Parameters: VP83 C TWC
 Analyte Back Pressure Flow
 All 232.0 kPa 0.55 L/min

Mean Data: VP83 C TWC

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc. Units	Sample Std.Dev.	RSD
ScA 357.253	2583127.8	101.1	%	0.64			0.63%
ScR 361.383	201651.4	104.1	%	0.11			0.11%
Ag 328.068†	-7.9	-0.00016	mg/L	0.000111	-0.00157	0.001107	70.44%
Al 308.215†	4.5	0.00322	mg/L	0.012161	0.03218	0.121607	377.88%
As 188.979†	0.7	0.00031	mg/L	0.001022	0.00311	0.010223	329.12%
B 249.677†	144.8	0.07105	mg/L	0.001329	0.7105	0.01329	1.87%
Ba 233.527†	195.9	0.02050	mg/L	0.000125	0.2050	0.00125	0.61%
Be 313.042†	-24.1	-0.00009	mg/L	0.000012	-0.00092	0.000116	12.58%
Ca 317.933†	81427.6	7.880	mg/L	0.0491	78.80	0.491	0.62%
Cd 228.802†	0.4	0.00000	mg/L	0.000083	0.00005	0.000827	>999.9%
Co 228.616†	20.7	0.00024	mg/L	0.000044	0.00240	0.000437	18.24%
Cr 267.716†	5.1	0.00115	mg/L	0.000529	0.01151	0.005291	45.96%
Cu 324.752†	-38.8	-0.00012	mg/L	0.000059	-0.00125	0.000589	47.18%
Fe 273.955†	-2.5	-0.00215	mg/L	0.002028	-0.02145	0.020278	94.53%
K 766.490†	20520.6	5.817	mg/L	0.0354	58.17	0.354	0.61%
Mg 279.077†	19221.7	17.60	mg/L	0.073	176.0	0.73	0.41%
Mn 257.610†	7957.8	0.2140	mg/L	0.00052	2.140	0.0052	0.24%
Mo 202.031†	13.5	0.00058	mg/L	0.000280	0.00579	0.002805	48.44%
Na 589.592†	1305957.7	161.7	mg/L	0.23	1617	2.3	0.14%
Na 330.237†	4283.7	171.2	mg/L	0.63	1712	6.3	0.37%
Ni 231.604†	-0.3	-0.00013	mg/L	0.001941	-0.00135	0.019405	>999.9%
Pb 220.353†	-6.5	-0.00029	mg/L	0.000544	-0.00290	0.005440	187.28%
Sb 206.836†	-3.1	-0.00097	mg/L	0.001245	-0.00966	0.012450	128.91%
Se 196.026†	10.5	0.00574	mg/L	0.003761	0.05740	0.037614	65.53%
Si 288.158†	662.3	0.5082	mg/L	0.00329	5.082	0.0329	0.65%
Sn 189.927†	-5.2	0.00126	mg/L	0.000457	0.01255	0.004570	36.40%
Sr 421.552†	74938.9	0.1254	mg/L	0.00092	1.254	0.0092	0.73%
Ti 334.903†	21.8	0.00052	mg/L	0.001224	0.00516	0.012240	237.23%
Tl 190.801†	-0.1	-0.00029	mg/L	0.001953	-0.00290	0.019528	674.00%
V 292.402†	-67.6	-0.00029	mg/L	0.000085	-0.00287	0.000855	29.80%
Zn 206.200†	0.7	0.00047	mg/L	0.000971	0.00466	0.009713	208.29%

Sequence No.: 4
 Sample ID: VP83 D TWC
 Analyst: EL
 Dilution: 10X

Autosampler Location: 27
 Date Collected: 11/2/2012 11:53:29 AM
 Data Type: Original

Nebulizer Parameters: VP83 D TWC

Analyte	Back Pressure	Flow
All	232.0 kPa	0.55 L/min

Mean Data: VP83 D TWC

Analyte	Mean Corrected Intensity	Calib. Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2521117.8	98.69 %	0.849			0.86%
ScR 361.383	199446.1	103.0 %	0.36			0.35%
Ag 328.068†	39.3	-0.00003 mg/L	0.000171	-0.00033 mg/L	0.001707	512.44%
Al 308.215†	1.4	0.00097 mg/L	0.011131	0.00972 mg/L	0.111307	>999.9%
As 188.979†	2.1	0.00089 mg/L	0.000472	0.00890 mg/L	0.004720	53.06%
B 249.677†	226.7	0.1112 mg/L	0.00180	1.112 mg/L	0.0180	1.62%
Ba 233.527†	117.3	0.01226 mg/L	0.000373	0.1226 mg/L	0.00373	3.04%
Be 313.042†	-9.5	-0.00004 mg/L	0.000038	-0.00036 mg/L	0.000380	106.83%
Ca 317.933†	120126.5	11.62 mg/L	0.119	116.2 mg/L	1.19	1.03%
Cd 228.802†	-6.7	-0.00008 mg/L	0.000131	-0.00085 mg/L	0.001315	154.95%
Co 228.616†	7.0	0.00007 mg/L	0.000210	0.00074 mg/L	0.002101	282.45%
Cr 267.716†	11.4	0.00262 mg/L	0.000951	0.02616 mg/L	0.009515	36.37%
Cu 324.752†	-99.7	-0.00029 mg/L	0.000141	-0.00295 mg/L	0.001407	47.70%
Fe 273.955†	349.2	0.2968 mg/L	0.00191	2.968 mg/L	0.0191	0.64%
K 766.490†	35269.3	9.998 mg/L	0.0325	99.98 mg/L	0.325	0.33%
Mg 279.077†	33348.2	30.54 mg/L	0.285	305.4 mg/L	2.85	0.93%
Mn 257.610†	8102.4	0.2179 mg/L	0.00181	2.179 mg/L	0.0181	0.83%
Mo 202.031†	25.8	0.00114 mg/L	0.000649	0.01144 mg/L	0.006487	56.68%
Na 589.592†	1954834.8	242.0 mg/L	0.34	2420 mg/L	3.4	0.14%
Na 330.237†	6456.4	258.0 mg/L	1.27	2580 mg/L	12.7	0.49%
Ni 231.604†	2.8	0.00133 mg/L	0.002088	0.01326 mg/L	0.020885	157.48%
Pb 220.353†	-11.5	-0.00059 mg/L	0.001400	-0.00585 mg/L	0.014003	239.22%
Sb 206.836†	-5.4	-0.00170 mg/L	0.000623	-0.01695 mg/L	0.006233	36.77%
Se 196.026†	15.2	0.00830 mg/L	0.002675	0.08299 mg/L	0.026754	32.24%
Si 288.158†	659.3	0.5074 mg/L	0.00210	5.074 mg/L	0.0210	0.41%
Sn 189.927†	-10.5	0.00149 mg/L	0.000210	0.01494 mg/L	0.002099	14.05%
Sr 421.552†	124158.0	0.2078 mg/L	0.00044	2.078 mg/L	0.0044	0.21%
Ti 334.903†	32.3	0.00077 mg/L	0.001047	0.00771 mg/L	0.010469	135.80%
Tl 190.801†	-6.4	-0.00206 mg/L	0.000622	-0.02058 mg/L	0.006216	30.21%
V 292.402†	-98.9	-0.00045 mg/L	0.000072	-0.00454 mg/L	0.000724	15.95%
Zn 206.200†	-0.2	0.00017 mg/L	0.000937	0.00169 mg/L	0.009367	552.68%

Sequence No.: 5
 Sample ID: VP83 E TWC
 Analyst: EL
 Dilution: 10X *EL*

Autosampler Location: 28
 Date Collected: 11/2/2012 11:59:53 AM
 Data Type: Original

Nebulizer Parameters: VP83 E TWC

Analyte Back Pressure Flow
 All 232.0 kPa 0.55 L/min

Mean Data: VP83 E TWC

Analyte	Mean Corrected Intensity	Calib. Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2677117.6	104.8 %	0.32			0.31%
ScR 361.383	200191.8	103.4 %	1.07			1.03%
Ag 328.068†	-2.8	-0.00001 mg/L	0.000178	-0.00010 mg/L	0.001784	>999.9%
Al 308.215†	23.6	0.01680 mg/L	0.010099	0.1680 mg/L	0.10099	60.09%
As 188.979†	5.0	0.00214 mg/L	0.000789	0.02144 mg/L	0.007891	36.80%
B 249.677†	4.2	0.00206 mg/L	0.001137	0.02062 mg/L	0.011371	55.15%
Ba 233.527†	-7.3	-0.00076 mg/L	0.000331	-0.00759 mg/L	0.003308	43.57%
Be 313.042†	-26.0	-0.00010 mg/L	0.000002	-0.00100 mg/L	0.000017	1.73%
Ca 317.933†	402.9	0.03899 mg/L	0.000347	0.3899 mg/L	0.00347	0.89%
Cd 228.802†	-10.4	-0.00013 mg/L	0.000091	-0.00135 mg/L	0.000910	67.63%
Co 228.616†	-1.4	-0.00002 mg/L	0.000146	-0.00016 mg/L	0.001458	921.52%
Cr 267.716†	0.4	0.00009 mg/L	0.000490	0.00085 mg/L	0.004900	574.02%
Cu 324.752†	-204.5	-0.00065 mg/L	0.000062	-0.00655 mg/L	0.000618	9.44%
Fe 273.955†	-2.0	-0.00173 mg/L	0.001898	-0.01732 mg/L	0.018980	109.60%
K 766.490†	109.1	0.03094 mg/L	0.015129	0.3094 mg/L	0.15129	48.90%
Mg 279.077†	5.9	0.00543 mg/L	0.003960	0.05426 mg/L	0.039599	72.98%
Mn 257.610†	8.2	0.00022 mg/L	0.000079	0.00221 mg/L	0.000789	35.69%
Mo 202.031†	9.6	0.00056 mg/L	0.000139	0.00562 mg/L	0.001392	24.76%
Na 589.592†	3456.0	0.4278 mg/L	0.01747	4.278 mg/L	0.1747	4.08%
Na 330.237†	16.9	0.6747 mg/L	0.06733	6.747 mg/L	0.6733	9.98%
Ni 231.604†	-1.6	-0.00073 mg/L	0.002177	-0.00729 mg/L	0.021775	298.90%
Pb 220.353†	-18.9	-0.00143 mg/L	0.000312	-0.01434 mg/L	0.003120	21.75%
Sb 206.836†	-7.5	-0.00222 mg/L	0.001741	-0.02218 mg/L	0.017412	78.52%
Se 196.026†	4.3	0.00236 mg/L	0.000641	0.02357 mg/L	0.006409	27.19%
Si 288.158†	6.4	0.00486 mg/L	0.001882	0.04856 mg/L	0.018824	38.76%
Sn 189.927†	3.3	0.00055 mg/L	0.000099	0.00545 mg/L	0.000987	18.11%
Sr 421.552†	137.9	0.00023 mg/L	0.000019	0.00231 mg/L	0.000194	8.41%
Ti 334.903†	-0.5	-0.00002 mg/L	0.000326	-0.00022 mg/L	0.003256	>999.9%
Tl 190.801†	1.7	0.00049 mg/L	0.001114	0.00486 mg/L	0.011135	228.99%
V 292.402†	9.8	0.00005 mg/L	0.000106	0.00051 mg/L	0.001058	205.83%
Zn 206.200†	-0.7	-0.00030 mg/L	0.000988	-0.00300 mg/L	0.009882	329.38%

=====
Analysis BegunStart Time: 11/2/2012 12:06:01 PM
Logged In Analyst: metals
Spectrometer Model: Optima 4300 DV, S/N 077N0060101Plasma On Time: 11/2/2012 8:20:38 AM
Technique: ICP Continuous
Autosampler Model: S10Sample Information File: C:\pe\metals\Sample Information\1102.sif
Batch ID:
Results Data Set: PE121102
Results Library: C:\pe\metals\Results\Results.mdb

Sequence No.: 1

Sample ID: VP83 B TWC

Analyst: EL

Dilution: 10X

Autosampler Location: 29

Date Collected: 11/2/2012 12:06:03 PM

Data Type: Original

Nebulizer Parameters: VP83 B TWC

Analyte	Back Pressure	Flow
All	232.0 kPa	0.55 L/min

Mean Data: VP83 B TWC

Analyte	Mean Corrected		Calib. Conc. Units	Std.Dev.	Sample		RSD
	Intensity	Conc.			Conc.	Units	
ScA 357.253	2442092.8	95.60	%	0.281			0.29%
ScR 361.383	194928.6	100.7	%	1.09			1.08%
Ag 328.068†	-0.4	-0.00021	mg/L	0.000028	-0.00207	mg/L	0.000281 13.56%
Al 308.215†	17.9	0.01274	mg/L	0.001689	0.1274	mg/L	0.01689 13.26%
As 188.979†	1.6	0.00068	mg/L	0.001197	0.00675	mg/L	0.011970 177.21%
B 249.677†	321.6	0.1577	mg/L	0.00270	1.577	mg/L	0.0270 1.71%
Ba 233.527†	94.9	0.00991	mg/L	0.000427	0.09915	mg/L	0.004273 4.31%
Be 313.042†	-2.3	-0.00001	mg/L	0.000083	-0.00007	mg/L	0.000829 >999.9%
Ca 317.933†	155425.5	15.04	mg/L	0.134	150.4	mg/L	1.34 0.89%
Cd 228.802†	6.8	0.00008	mg/L	0.000132	0.00084	mg/L	0.001320 158.00%
Co 228.616†	41.5	0.00049	mg/L	0.000164	0.00489	mg/L	0.001640 33.55%
Cr 267.716†	14.4	0.00330	mg/L	0.001040	0.03304	mg/L	0.010397 31.47%
Cu 324.752†	-25.2	-0.00005	mg/L	0.000153	-0.00053	mg/L	0.001525 288.04%
Fe 273.955†	399.9	0.3399	mg/L	0.00606	3.399	mg/L	0.0606 1.78%
K 766.490†	52664.2	14.93	mg/L	0.188	149.3	mg/L	1.88 1.26%
Mg 279.077†	47746.2	43.72	mg/L	0.350	437.2	mg/L	3.50 0.80%
Mn 257.610†	8942.9	0.2405	mg/L	0.00203	2.405	mg/L	0.0203 0.84%
Mo 202.031†	32.6	0.00138	mg/L	0.000194	0.01381	mg/L	0.001944 14.08%
Na 589.592†	2805661.4	347.3	mg/L	3.61	3473	mg/L	36.1 1.04%
Na 330.237†	9337.5	373.1	mg/L	2.89	3731	mg/L	28.9 0.77%
Ni 231.604†	5.6	0.00259	mg/L	0.004069	0.02594	mg/L	0.040686 156.88%
Pb 220.353†	-6.2	-0.00009	mg/L	0.000060	-0.00090	mg/L	0.000601 67.14%
Sb 206.836†	-4.8	-0.00156	mg/L	0.001122	-0.01556	mg/L	0.011221 72.10%
Se 196.026†	16.6	0.00902	mg/L	0.001300	0.09021	mg/L	0.012999 14.41%
Si 288.158†	793.2	0.6114	mg/L	0.00937	6.114	mg/L	0.0937 1.53%
Sn 189.927†	-12.4	0.00222	mg/L	0.000457	0.02224	mg/L	0.004568 20.54%
Sr 421.552†	170879.6	0.2860	mg/L	0.00374	2.860	mg/L	0.0374 1.31%
Ti 334.903†	28.6	0.00045	mg/L	0.000321	0.00449	mg/L	0.003208 71.48%
Tl 190.801†	-6.5	-0.00211	mg/L	0.001372	-0.02112	mg/L	0.013722 64.96%
V 292.402†	-133.0	-0.00061	mg/L	0.000141	-0.00614	mg/L	0.001411 22.98%
Zn 206.200†	-1.1	-0.00013	mg/L	0.000596	-0.00128	mg/L	0.005961 465.80%

Sequence No.: 2
 Sample ID: VP83 ADUP TWC
 Analyst: EL
 Dilution: 10X

Autosampler Location: 30
 Date Collected: 11/2/2012 12:12:27 PM
 Data Type: Original

Nebulizer Parameters: VP83 ADUP TWC

Analyte Back Pressure Flow
 All 232.0 kPa 0.55 L/min

Mean Data: VP83 ADUP TWC

Analyte	Mean Corrected Intensity	Conc. Units	Calib. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2594578.8	101.6	%	0.64			0.63%
ScR 361.383	199835.3	103.2	%	0.12			0.12%
Ag 328.068†	-27.1	-0.00015	mg/L	0.000091	-0.00151 mg/L	0.000913	60.32%
Al 308.215†	10.2	0.00726	mg/L	0.003832	0.07257 mg/L	0.038323	52.80%
As 188.979†	-1.1	-0.00046	mg/L	0.000716	-0.00456 mg/L	0.007158	156.99%
B 249.677†	100.0	0.04907	mg/L	0.003470	0.4907 mg/L	0.03470	7.07%
Ba 233.527†	42.2	0.00442	mg/L	0.000545	0.04420 mg/L	0.005449	12.33%
Be 313.042†	-17.6	-0.00007	mg/L	0.000016	-0.00069 mg/L	0.000157	22.91%
Ca 317.933†	47473.9	4.594	mg/L	0.0385	45.94 mg/L	0.385	0.84%
Cd 228.802†	0.5	0.00001	mg/L	0.000071	0.00008 mg/L	0.000714	936.16%
Co 228.616†	20.0	0.00024	mg/L	0.000071	0.00238 mg/L	0.000712	29.95%
Cr 267.716†	4.9	0.00112	mg/L	0.000808	0.01120 mg/L	0.008075	72.13%
Cu 324.752†	-228.5	-0.00073	mg/L	0.000173	-0.00732 mg/L	0.001727	23.61%
Fe 273.955†	-2.2	-0.00187	mg/L	0.001694	-0.01875 mg/L	0.016942	90.37%
K 766.490†	12743.3	3.612	mg/L	0.0125	36.12 mg/L	0.125	0.35%
Mg 279.077†	9945.5	9.108	mg/L	0.0547	91.08 mg/L	0.547	0.60%
Mn 257.610†	1624.3	0.04369	mg/L	0.000347	0.4369 mg/L	0.00347	0.79%
Mo 202.031†	16.7	0.00087	mg/L	0.000351	0.00873 mg/L	0.003506	40.18%
Na 589.592†	658609.5	81.52	mg/L	0.019	815.2 mg/L	0.19	0.02%
Na 330.237†	2120.4	84.73	mg/L	0.911	847.3 mg/L	9.11	1.08%
Ni 231.604†	2.0	0.00091	mg/L	0.002224	0.00912 mg/L	0.022236	243.90%
Pb 220.353†	-12.4	-0.00082	mg/L	0.000431	-0.00820 mg/L	0.004306	52.49%
Sb 206.836†	-5.0	-0.00152	mg/L	0.002060	-0.01522 mg/L	0.020599	135.31%
Se 196.026†	7.8	0.00427	mg/L	0.003392	0.04274 mg/L	0.033922	79.37%
Si 288.158†	597.8	0.4579	mg/L	0.00510	4.579 mg/L	0.0510	1.11%
Sn 189.927†	-5.2	0.00036	mg/L	0.000149	0.00355 mg/L	0.001495	42.09%
Sr 421.552†	39637.9	0.06634	mg/L	0.000215	0.6634 mg/L	0.00215	0.32%
Ti 334.903†	15.6	0.00042	mg/L	0.000399	0.00422 mg/L	0.003986	94.41%
Tl 190.801†	-1.6	-0.00052	mg/L	0.000689	-0.00517 mg/L	0.006886	133.10%
V 292.402†	76.1	0.00039	mg/L	0.000015	0.00390 mg/L	0.000154	3.95%
Zn 206.200†	-0.9	-0.00027	mg/L	0.001201	-0.00270 mg/L	0.012006	445.00%

Sequence No.: 3
 Sample ID: VP83 A TWC
 Analyst: EL
 Dilution: 10X

Autosampler Location: 31
 Date Collected: 11/2/2012 12:18:45 PM
 Data Type: Original

Nebulizer Parameters: VP83 A TWC

Analyte Back Pressure Flow
 All 232.0 kPa 0.55 L/min

Mean Data: VP83 A TWC

Analyte	Mean Corrected Intensity	Conc. Units	Calib. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2623870.9	102.7	%	0.70			0.68%
ScR 361.383	204381.5	105.6	%	0.87			0.82%
Ag 328.068†	-34.5	-0.00017	mg/L	0.000065	-0.00174 mg/L	0.000648	37.29%
Al 308.215†	-3.6	-0.00262	mg/L	0.006592	-0.02618 mg/L	0.065921	251.76%
As 188.979†	3.4	0.00147	mg/L	0.000158	0.01465 mg/L	0.001582	10.80%
B 249.677†	98.5	0.04830	mg/L	0.002790	0.4830 mg/L	0.02790	5.78%
Ba 233.527†	38.0	0.00397	mg/L	0.000402	0.03971 mg/L	0.004022	10.13%
Be 313.042†	-28.8	-0.00011	mg/L	0.000015	-0.00112 mg/L	0.000153	13.62%
Ca 317.933†	45903.1	4.442	mg/L	0.0635	44.42 mg/L	0.635	1.43%
Cd 228.802†	-7.0	-0.00009	mg/L	0.000047	-0.00091 mg/L	0.000467	51.60%
Co 228.616†	14.8	0.00017	mg/L	0.000043	0.00175 mg/L	0.000427	24.44%
Cr 267.716†	3.3	0.00075	mg/L	0.001555	0.00749 mg/L	0.015546	207.42%
Cu 324.752†	-309.7	-0.00099	mg/L	0.000095	-0.00992 mg/L	0.000947	9.55%
Fe 273.955†	-0.3	-0.00024	mg/L	0.000466	-0.00237 mg/L	0.004662	196.73%
K 766.490†	12233.6	3.468	mg/L	0.0181	34.68 mg/L	0.181	0.52%
Mg 279.077†	9599.7	8.791	mg/L	0.0869	87.91 mg/L	0.869	0.99%
Mn 257.610†	1574.8	0.04235	mg/L	0.000421	0.4235 mg/L	0.00421	0.99%
Mo 202.031†	20.5	0.00110	mg/L	0.000190	0.01099 mg/L	0.001902	17.31%
Na 589.592†	636338.2	78.77	mg/L	0.095	787.7 mg/L	0.95	0.12%
Na 330.237†	2045.6	81.74	mg/L	1.266	817.4 mg/L	12.66	1.55%
Ni 231.604†	3.2	0.00150	mg/L	0.000250	0.01499 mg/L	0.002495	16.64%
Pb 220.353†	-11.8	-0.00079	mg/L	0.000689	-0.00786 mg/L	0.006893	87.73%
Sb 206.836†	-7.1	-0.00211	mg/L	0.000881	-0.02111 mg/L	0.008809	41.72%
Se 196.026†	11.0	0.00597	mg/L	0.003869	0.05967 mg/L	0.038689	64.84%
Si 288.158†	554.6	0.4248	mg/L	0.00563	4.248 mg/L	0.0563	1.32%
Sn 189.927†	-3.1	0.00065	mg/L	0.000322	0.00654 mg/L	0.003221	49.23%
Sr 421.552†	38497.7	0.06443	mg/L	0.000243	0.6443 mg/L	0.00243	0.38%
Ti 334.903†	27.2	0.00091	mg/L	0.000937	0.00909 mg/L	0.009368	103.04%
Tl 190.801†	-1.8	-0.00055	mg/L	0.002067	-0.00551 mg/L	0.020670	375.00%
V 292.402†	79.0	0.00040	mg/L	0.000083	0.00402 mg/L	0.000835	20.77%
Zn 206.200†	0.5	0.00032	mg/L	0.000789	0.00316 mg/L	0.007890	249.78%

Sequence No.: 4
 Sample ID: VP83 ASPK TWC
 Analyst: EL
 Dilution: 10X

Autosampler Location: 32
 Date Collected: 11/2/2012 12:25:03 PM
 Data Type: Original

Nebulizer Parameters: VP83 ASPK TWC

Analyte Back Pressure Flow
 All 232.0 kPa 0.55 L/min

Mean Data: VP83 ASPK TWC

Analyte	Mean Corrected Intensity	Conc. Units	Calib.	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2541698.5	99.50 %		0.727			0.73%
ScR 361.383	202756.0	104.7 %		0.64			0.61%
Ag 328.068†	15343.4	0.05118 mg/L		0.000217	0.5118 mg/L	0.00217	0.42%
Al 308.215†	301.9	0.2141 mg/L		0.00037	2.141 mg/L	0.0037	0.17%
As 188.979†	507.0	0.2174 mg/L		0.00099	2.174 mg/L	0.0099	0.46%
B 249.677†	102.3	0.05003 mg/L		0.001923	0.5003 mg/L	0.01923	3.84%
Ba 233.527†	2007.4	0.2100 mg/L		0.00030	2.100 mg/L	0.0030	0.14%
Be 313.042†	13628.4	0.05240 mg/L		0.000860	0.5240 mg/L	0.00860	1.64%
Ca 317.933†	58296.1	5.641 mg/L		0.0955	56.41 mg/L	0.955	1.69%
Cd 228.802†	4298.1	0.05316 mg/L		0.000262	0.5316 mg/L	0.00262	0.49%
Co 228.616†	4289.4	0.05137 mg/L		0.000381	0.5137 mg/L	0.00381	0.74%
Cr 267.716†	228.1	0.05308 mg/L		0.001313	0.5308 mg/L	0.01313	2.47%
Cu 324.752†	17390.8	0.05569 mg/L		0.000422	0.5569 mg/L	0.00422	0.76%
Fe 273.955†	252.1	0.2142 mg/L		0.00207	2.142 mg/L	0.0207	0.97%
K 766.490†	16215.5	4.597 mg/L		0.0729	45.97 mg/L	0.729	1.59%
Mg 279.077†	11176.8	10.24 mg/L		0.175	102.4 mg/L	1.75	1.71%
Mn 257.610†	3561.4	0.09583 mg/L		0.000334	0.9583 mg/L	0.00334	0.35%
Mo 202.031†	17.5	0.00090 mg/L		0.000097	0.00898 mg/L	0.000974	10.85%
Na 589.592†	670105.1	82.95 mg/L		0.277	829.5 mg/L	2.77	0.33%
Na 330.237†	2131.4	85.14 mg/L		1.730	851.4 mg/L	17.30	2.03%
Ni 231.604†	114.0	0.05316 mg/L		0.000746	0.5316 mg/L	0.00746	1.40%
Pb 220.353†	2605.0	0.1990 mg/L		0.00045	1.990 mg/L	0.0045	0.23%
Sb 206.836†	0.7	-0.00059 mg/L		0.002014	-0.00593 mg/L	0.020139	339.69%
Se 196.026†	390.1	0.2124 mg/L		0.00215	2.124 mg/L	0.0215	1.01%
Si 288.158†	571.8	0.4383 mg/L		0.00417	4.383 mg/L	0.0417	0.95%
Sn 189.927†	-6.8	0.00033 mg/L		0.000559	0.00334 mg/L	0.005591	167.59%
Sr 421.552†	72393.1	0.1212 mg/L		0.00028	1.212 mg/L	0.0028	0.23%
Ti 334.903†	24.9	0.00074 mg/L		0.001173	0.00744 mg/L	0.011732	157.59%
Tl 190.801†	713.9	0.1995 mg/L		0.00088	1.995 mg/L	0.0088	0.44%
V 292.402†	11102.7	0.05454 mg/L		0.000279	0.5454 mg/L	0.00279	0.51%
Zn 206.200†	126.5	0.05187 mg/L		0.000206	0.5187 mg/L	0.00206	0.40%

Sequence No.: 5
 Sample ID: VP83 MBSPK TWC
 Analyst: EL
 Dilution: 1X

Autosampler Location: 33
 Date Collected: 11/2/2012 12:31:22 PM
 Data Type: Original

Nebulizer Parameters: VP83 MBSPK TWC

Analyte Back Pressure Flow
 All 232.0 kPa 0.55 L/min

Mean Data: VP83 MBSPK TWC

Analyte	Mean Corrected Intensity	Conc. Units	Calib. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2631915.4	103.0	%	0.21			0.20%
ScR 361.383	203129.1	104.9	%	0.06			0.06%
Ag 328.068†	151876.4	0.5072	mg/L	0.00369	0.5072 mg/L	0.00369	0.73%
Al 308.215†	3137.2	2.226	mg/L	0.0062	2.226 mg/L	0.0062	0.28%
As 188.979†	4730.8	2.029	mg/L	0.0029	2.029 mg/L	0.0029	0.14%
B 249.677†	27.5	0.01181	mg/L	0.000221	0.01181 mg/L	0.000221	1.87%
Ba 233.527†	19480.8	2.038	mg/L	0.0067	2.038 mg/L	0.0067	0.33%
Be 313.042†	137497.0	0.5287	mg/L	0.00177	0.5287 mg/L	0.00177	0.33%
Ca 317.933†	109834.8	10.63	mg/L	0.032	10.63 mg/L	0.032	0.30%
Cd 228.802†	42210.1	0.5223	mg/L	0.00205	0.5223 mg/L	0.00205	0.39%
Co 228.616†	42220.0	0.5056	mg/L	0.00342	0.5056 mg/L	0.00342	0.68%
Cr 267.716†	2248.1	0.5234	mg/L	0.00226	0.5234 mg/L	0.00226	0.43%
Cu 324.752†	166256.9	0.5324	mg/L	0.00262	0.5324 mg/L	0.00262	0.49%
Fe 273.955†	2534.5	2.154	mg/L	0.0059	2.154 mg/L	0.0059	0.27%
K 766.490†	38066.2	10.79	mg/L	0.025	10.79 mg/L	0.025	0.23%
Mg 279.077†	11795.3	10.80	mg/L	0.032	10.80 mg/L	0.032	0.30%
Mn 257.610†	19073.6	0.5135	mg/L	0.00147	0.5135 mg/L	0.00147	0.29%
Mo 202.031†	16.9	0.00081	mg/L	0.000066	0.00081 mg/L	0.000066	8.20%
Na 589.592†	87059.1	10.78	mg/L	0.003	10.78 mg/L	0.003	0.03%
Na 330.237†	281.6	11.02	mg/L	0.238	11.02 mg/L	0.238	2.16%
Ni 231.604†	1080.9	0.5042	mg/L	0.00354	0.5042 mg/L	0.00354	0.70%
Pb 220.353†	26332.0	2.011	mg/L	0.0132	2.011 mg/L	0.0132	0.66%
Sb 206.836†	14.6	-0.00349	mg/L	0.002084	-0.00349 mg/L	0.002084	59.70%
Se 196.026†	3705.7	2.018	mg/L	0.0014	2.018 mg/L	0.0014	0.07%
Si 288.158†	7.5	0.00937	mg/L	0.003571	0.00937 mg/L	0.003571	38.13%
Sn 189.927†	-8.3	0.00117	mg/L	0.000196	0.00117 mg/L	0.000196	16.65%
Sr 421.552†	316440.8	0.5296	mg/L	0.00151	0.5296 mg/L	0.00151	0.28%
Ti 334.903†	15.8	0.00001	mg/L	0.000514	0.00001 mg/L	0.000514	>999.9%
Tl 190.801†	7066.2	1.976	mg/L	0.0033	1.976 mg/L	0.0033	0.17%
V 292.402†	107166.2	0.5264	mg/L	0.00204	0.5264 mg/L	0.00204	0.39%
Zn 206.200†	1236.0	0.5057	mg/L	0.00200	0.5057 mg/L	0.00200	0.40%

Sequence No.: 6
 Sample ID: CV 2
 Analyst: EL
 Dilution: 1X

Autosampler Location: 7
 Date Collected: 11/2/2012 12:37:27 PM
 Data Type: Original

Nebulizer Parameters: CV

Analyte	Back Pressure	Flow
All	232.0 kPa	0.55 L/min

Mean Data: CV

Analyte	Mean Corrected Intensity	Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2597963.1	101.7 %	0.52			0.51%
ScR 361.383	202606.2	104.6 %	0.43			0.42%
Ag 328.068†	293219.4	0.9792 mg/L	0.00391	0.9792 mg/L	0.00391	0.40%
Al 308.215†	2936.5	2.048 mg/L	0.0083	2.048 mg/L	0.0083	0.40%
As 188.979†	4708.4	2.018 mg/L	0.0227	2.018 mg/L	0.0227	1.13%
B 249.677†	1987.8	0.9734 mg/L	0.00397	0.9734 mg/L	0.00397	0.41%
Ba 233.527†	9624.4	1.007 mg/L	0.0027	1.007 mg/L	0.0027	0.27%
Be 313.042†	257552.9	0.9903 mg/L	0.00129	0.9903 mg/L	0.00129	0.13%
Ca 317.933†	20719.8	2.005 mg/L	0.0042	2.005 mg/L	0.0042	0.21%
Cd 228.802†	82065.1	1.020 mg/L	0.0030	1.020 mg/L	0.0030	0.30%
Co 228.616†	82580.2	0.9884 mg/L	0.00188	0.9884 mg/L	0.00188	0.19%
Cr 267.716†	4287.3	0.9979 mg/L	0.00260	0.9979 mg/L	0.00260	0.26%
Cu 324.752†	335176.0	1.072 mg/L	0.0005	1.072 mg/L	0.0005	0.05%
Fe 273.955†	2467.6	2.096 mg/L	0.0060	2.096 mg/L	0.0060	0.29%
K 766.490†	73722.0	20.90 mg/L	0.091	20.90 mg/L	0.091	0.44%
Mg 279.077†	2310.8	2.120 mg/L	0.0046	2.120 mg/L	0.0046	0.22%
Mn 257.610†	37399.9	1.006 mg/L	0.0018	1.006 mg/L	0.0018	0.18%
Mo 202.031†	16562.2	0.9735 mg/L	0.01044	0.9735 mg/L	0.01044	1.07%
Na 589.592†	414626.4	51.32 mg/L	0.191	51.32 mg/L	0.191	0.37%
Na 330.237†	1316.9	52.44 mg/L	0.273	52.44 mg/L	0.273	0.52%
Ni 231.604†	2106.6	0.9845 mg/L	0.00535	0.9845 mg/L	0.00535	0.54%
Pb 220.353†	25705.0	1.963 mg/L	0.0215	1.963 mg/L	0.0215	1.10%
Sb 206.836†	7140.1	2.109 mg/L	0.0229	2.109 mg/L	0.0229	1.08%
Se 196.026†	3600.4	1.959 mg/L	0.0236	1.959 mg/L	0.0236	1.21%
Si 288.158†	2801.2	2.147 mg/L	0.0080	2.147 mg/L	0.0080	0.37%
Sn 189.927†	5632.5	0.9201 mg/L	0.01220	0.9201 mg/L	0.01220	1.33%
Sr 421.552†	612997.2	1.026 mg/L	0.0038	1.026 mg/L	0.0038	0.37%
Ti 334.903†	24703.6	1.025 mg/L	0.0025	1.025 mg/L	0.0025	0.25%
Tl 190.801†	7025.7	1.958 mg/L	0.0206	1.958 mg/L	0.0206	1.05%
V 292.402†	208343.3	1.027 mg/L	0.0038	1.027 mg/L	0.0038	0.37%
Zn 206.200†	2543.3	1.039 mg/L	0.0054	1.039 mg/L	0.0054	0.52%

Sequence No.: 7
 Sample ID: CB 2
 Analyst: EL
 Dilution: 1X

Autosampler Location: 1
 Date Collected: 11/2/2012 12:43:30 PM
 Data Type: Original

Nebulizer Parameters: CB

Analyte Back Pressure Flow
 All 232.0 kPa 0.55 L/min

Mean Data: CB

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc. Units	Sample	Std.Dev.	RSD
ScA 357.253	2646454.2	103.6	%	1.01				0.98%
ScR 361.383	200390.7	103.5	%	0.23				0.22%
Ag 328.068†	76.5	0.00026	mg/L	0.000082	0.00026	mg/L	0.000082	32.17%
Al 308.215†	7.2	0.00512	mg/L	0.010762	0.00512	mg/L	0.010762	210.22%
As 188.979†	3.6	0.00154	mg/L	0.000635	0.00154	mg/L	0.000635	41.14%
B 249.677†	5.2	0.00257	mg/L	0.000599	0.00257	mg/L	0.000599	23.28%
Ba 233.527†	-5.2	-0.00055	mg/L	0.000494	-0.00055	mg/L	0.000494	90.66%
Be 313.042†	7.3	0.00003	mg/L	0.000053	0.00003	mg/L	0.000053	188.59%
Ca 317.933†	-26.7	-0.00258	mg/L	0.000886	-0.00258	mg/L	0.000886	34.31%
Cd 228.802†	-0.2	-0.00001	mg/L	0.000051	-0.00001	mg/L	0.000051	944.56%
Co 228.616†	-2.5	-0.00003	mg/L	0.000061	-0.00003	mg/L	0.000061	207.04%
Cr 267.716†	-4.2	-0.00097	mg/L	0.001173	-0.00097	mg/L	0.001173	121.25%
Cu 324.752†	-163.3	-0.00052	mg/L	0.000157	-0.00052	mg/L	0.000157	30.09%
Fe 273.955†	-3.4	-0.00287	mg/L	0.000567	-0.00287	mg/L	0.000567	19.73%
K 766.490†	114.8	0.03254	mg/L	0.011289	0.03254	mg/L	0.011289	34.69%
Mg 279.077†	-5.9	-0.00541	mg/L	0.006724	-0.00541	mg/L	0.006724	124.37%
Mn 257.610†	-1.1	-0.00003	mg/L	0.000062	-0.00003	mg/L	0.000062	212.43%
Mo 202.031†	4.6	0.00027	mg/L	0.000323	0.00027	mg/L	0.000323	120.36%
Na 589.592†	1203.8	0.1490	mg/L	0.00997	0.1490	mg/L	0.00997	6.69%
Na 330.237†	2.2	0.08628	mg/L	0.102277	0.08628	mg/L	0.102277	118.54%
Ni 231.604†	2.7	0.00125	mg/L	0.000258	0.00125	mg/L	0.000258	20.60%
Pb 220.353†	-14.7	-0.00112	mg/L	0.000231	-0.00112	mg/L	0.000231	20.60%
Sb 206.836†	-4.6	-0.00132	mg/L	0.002590	-0.00132	mg/L	0.002590	196.50%
Se 196.026†	12.6	0.00684	mg/L	0.002487	0.00684	mg/L	0.002487	36.37%
Si 288.158†	1.9	0.00142	mg/L	0.007071	0.00142	mg/L	0.007071	497.73%
Sn 189.927†	7.0	0.00114	mg/L	0.000655	0.00114	mg/L	0.000655	57.58%
Sr 421.552†	4.9	0.00001	mg/L	0.000034	0.00001	mg/L	0.000034	418.28%
Ti 334.903†	-2.6	-0.00011	mg/L	0.000514	-0.00011	mg/L	0.000514	473.88%
Tl 190.801†	2.7	0.00075	mg/L	0.001735	0.00075	mg/L	0.001735	231.92%
V 292.402†	-2.0	-0.00002	mg/L	0.000177	-0.00002	mg/L	0.000177	>999.9%
Zn 206.200†	-1.7	-0.00070	mg/L	0.000790	-0.00070	mg/L	0.000790	112.77%

=====
Analysis BegunStart Time: 11/2/2012 12:58:00 PM
Logged In Analyst: metals
Spectrometer Model: Optima 4300 DV, S/N 077N0060101Plasma On Time: 11/2/2012 8:20:38 AM
Technique: ICP Continuous
Autosampler Model: S10Sample Information File: C:\pe\metals\Sample Information\1102.sif
Batch ID:
Results Data Set: PE121102
Results Library: C:\pe\metals\Results\Results.mdb=====
Sequence No.: 1Sample ID: VP40 MB1 SWC
Analyst: EL
Dilution: 2XAutosampler Location: 34
Date Collected: 11/2/2012 12:58:03 PM
Data Type: Original-----
Nebulizer Parameters: VP40 MB1 SWCAnalyte Back Pressure Flow
All 232.0 kPa 0.55 L/min-----
Mean Data: VP40 MB1 SWC

Analyte	Mean Corrected		Calib. Conc. Units	Std.Dev.	Sample		RSD
	Intensity	Conc.			Conc.	Units	
ScA 357.253	2626979.4	102.8	%	0.30			0.29%
ScR 361.383	199584.0	103.1	%	1.07			1.03%
Ag 328.068†	-21.9	-0.00007	mg/L	0.000172	-0.00015	mg/L	0.000344 234.47%
Al 308.215†	8.2	0.00581	mg/L	0.012706	0.01161	mg/L	0.025411 218.82%
As 188.979†	2.1	0.00091	mg/L	0.000756	0.00182	mg/L	0.001512 83.26%
B 249.677†	4.6	0.00227	mg/L	0.000397	0.00453	mg/L	0.000793 17.50%
Ba 233.527†	1.2	0.00012	mg/L	0.000337	0.00024	mg/L	0.000674 277.03%
Be 313.042†	-6.9	-0.00003	mg/L	0.000039	-0.00005	mg/L	0.000077 145.28%
Ca 317.933†	151.7	0.01468	mg/L	0.001157	0.02935	mg/L	0.002314 7.88%
Cd 228.802†	-3.0	-0.00004	mg/L	0.000077	-0.00008	mg/L	0.000154 196.76%
Co 228.616†	-3.1	-0.00004	mg/L	0.000118	-0.00008	mg/L	0.000236 311.74%
Cr 267.716†	2.2	0.00051	mg/L	0.000894	0.00101	mg/L	0.001788 176.54%
Cu 324.752†	989.5	0.00317	mg/L	0.000035	0.00633	mg/L	0.000069 1.10%
Fe 273.955†	2.2	0.00188	mg/L	0.000460	0.00376	mg/L	0.000920 24.47%
K 766.490†	97.3	0.02758	mg/L	0.017446	0.05516	mg/L	0.034893 63.26%
Mg 279.077†	9.2	0.00842	mg/L	0.005322	0.01684	mg/L	0.010643 63.19%
Mn 257.610†	-2.4	-0.00006	mg/L	0.000106	-0.00013	mg/L	0.000212 163.38%
Mo 202.031†	3.5	0.00021	mg/L	0.000360	0.00041	mg/L	0.000719 174.13%
Na 589.592†	574.1	0.07107	mg/L	0.003783	0.1421	mg/L	0.00757 5.32%
Na 330.237†	2.1	0.07199	mg/L	0.416146	0.1440	mg/L	0.83229 578.04%
Ni 231.604†	1.5	0.00071	mg/L	0.000903	0.00142	mg/L	0.001807 127.57%
Pb 220.353†	-2.8	-0.00021	mg/L	0.000392	-0.00043	mg/L	0.000784 183.89%
Sb 206.836†	-4.8	-0.00142	mg/L	0.001599	-0.00284	mg/L	0.003198 112.61%
Se 196.026†	10.0	0.00543	mg/L	0.001784	0.01087	mg/L	0.003568 32.83%
Si 288.158†	2.8	0.00212	mg/L	0.002128	0.00424	mg/L	0.004256 100.33%
Sn 189.927†	-0.7	-0.00011	mg/L	0.000658	-0.00022	mg/L	0.001316 599.16%
Sr 421.552†	35.5	0.00006	mg/L	0.000030	0.00012	mg/L	0.000060 50.90%
Ti 334.903†	1.4	0.00006	mg/L	0.000089	0.00012	mg/L	0.000179 155.19%
Tl 190.801†	-2.6	-0.00073	mg/L	0.000363	-0.00145	mg/L	0.000726 50.00%
V 292.402†	-10.0	-0.00004	mg/L	0.000089	-0.00009	mg/L	0.000179 200.67%
Zn 206.200†	65.8	0.02691	mg/L	0.000565	0.05382	mg/L	0.001130 2.10%

Sequence No.: 2
 Sample ID: VQ42 MB2 DMN
 Analyst: EL
 Dilution: 1X

Autosampler Location: 35
 Date Collected: 11/2/2012 1:04:04 PM
 Data Type: Original

Nebulizer Parameters: VQ42 MB2 DMN

Analyte Back Pressure Flow
 All 232.0 kPa 0.55 L/min

Mean Data: VQ42 MB2 DMN

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc. Units	Sample Std.Dev.	RSD
ScA 357.253	2651875.7	103.8	%	0.36			0.35%
ScR 361.383	205292.8	106.0	%	0.38			0.36%
Ag 328.068†	-56.2	-0.00019	mg/L	0.000131	-0.00019 mg/L	0.000131	69.36%
Al 308.215†	-2.5	-0.00179	mg/L	0.009673	-0.00179 mg/L	0.009673	540.17%
As 188.979†	4.1	0.00177	mg/L	0.001486	0.00177 mg/L	0.001486	83.82%
B 249.677†	2.6	0.00126	mg/L	0.001607	0.00126 mg/L	0.001607	127.65%
Ba 233.527†	-7.2	-0.00075	mg/L	0.000422	-0.00075 mg/L	0.000422	56.45%
Be 313.042†	-8.4	-0.00003	mg/L	0.000005	-0.00003 mg/L	0.000005	15.09%
Ca 317.933†	-15.9	-0.00154	mg/L	0.000457	-0.00154 mg/L	0.000457	29.66%
Cd 228.802†	-5.8	-0.00008	mg/L	0.000058	-0.00008 mg/L	0.000058	76.01%
Co 228.616†	-8.5	-0.00010	mg/L	0.000030	-0.00010 mg/L	0.000030	29.39%
Cr 267.716†	0.8	0.00019	mg/L	0.000646	0.00019 mg/L	0.000646	347.98%
Cu 324.752†	-470.9	-0.00151	mg/L	0.000034	-0.00151 mg/L	0.000034	2.29%
Fe 273.955†	-16.5	-0.01402	mg/L	0.002366	-0.01402 mg/L	0.002366	16.88%
K 766.490†	-16.5	-0.00469	mg/L	0.007524	-0.00469 mg/L	0.007524	160.42%
Mg 279.077†	5.2	0.00475	mg/L	0.004145	0.00475 mg/L	0.004145	87.20%
Mn 257.610†	-15.5	-0.00042	mg/L	0.000045	-0.00042 mg/L	0.000045	10.81%
Mo 202.031†	4.0	0.00024	mg/L	0.000067	0.00024 mg/L	0.000067	28.32%
Na 589.592†	74.5	0.00922	mg/L	0.011018	0.00922 mg/L	0.011018	119.53%
Na 330.237†	-1.0	-0.03957	mg/L	0.452445	-0.03957 mg/L	0.452445	>999.9%
Ni 231.604†	-3.9	-0.00181	mg/L	0.000372	-0.00181 mg/L	0.000372	20.55%
Pb 220.353†	-22.8	-0.00174	mg/L	0.000670	-0.00174 mg/L	0.000670	38.49%
Sb 206.836†	-12.0	-0.00357	mg/L	0.000571	-0.00357 mg/L	0.000571	16.01%
Se 196.026†	12.2	0.00665	mg/L	0.005235	0.00665 mg/L	0.005235	78.66%
Si 288.158†	-4.4	-0.00337	mg/L	0.004652	-0.00337 mg/L	0.004652	138.20%
Sn 189.927†	-1.8	-0.00029	mg/L	0.000456	-0.00029 mg/L	0.000456	157.75%
Sr 421.552†	-36.5	-0.00006	mg/L	0.000134	-0.00006 mg/L	0.000134	218.87%
Ti 334.903†	3.5	0.00014	mg/L	0.000808	0.00014 mg/L	0.000808	564.44%
Tl 190.801†	-0.9	-0.00025	mg/L	0.000614	-0.00025 mg/L	0.000614	248.54%
V 292.402†	-12.7	-0.00006	mg/L	0.000294	-0.00006 mg/L	0.000294	503.22%
Zn 206.200†	0.2	0.00007	mg/L	0.000392	0.00007 mg/L	0.000392	537.67%

Sequence No.: 3
 Sample ID: VP41 A SWC
 Analyst: EL
 Dilution: 2X

Autosampler Location: 36
 Date Collected: 11/2/2012 1:10:06 PM
 Data Type: Original

Nebulizer Parameters: VP41 A SWC

Analyte Back Pressure Flow
 All 232.0 kPa 0.55 L/min

Mean Data: VP41 A SWC

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc. Units	Sample Std.Dev.	RSD
ScA 357.253	2586656.0	101.3	%	0.23			0.23%
ScR 361.383	202685.5	104.7	%	0.54			0.51%
Ag 328.068†	-1242.7	-0.00040	mg/L	0.000443	-0.00080 mg/L	0.000887	110.82%
Al 308.215†	153108.6	109.0	mg/L	0.29	218.0 mg/L	0.58	0.27%
As 188.979†	517.1	0.2378	mg/L	0.00119	0.4757 mg/L	0.00237	0.50%
B 249.677†	49.0	0.02378	mg/L	0.001530	0.04756 mg/L	0.003060	6.43%
Ba 233.527†	3578.9	0.3667	mg/L	0.00477	0.7333 mg/L	0.00953	1.30%
Be 313.042†	555.9	0.00105	mg/L	0.000054	0.00210 mg/L	0.000107	5.10%
Ca 317.933†	1369973.1	132.6	mg/L	0.38	265.1 mg/L	0.76	0.29%
Cd 228.802†	157.9	0.00147	mg/L	0.000029	0.00294 mg/L	0.000058	1.95%
Co 228.616†	6918.3	0.06764	mg/L	0.000497	0.1353 mg/L	0.00099	0.73%
Cr 267.716†	579.8	0.1341	mg/L	0.00236	0.2683 mg/L	0.00471	1.76%
Cu 324.752†	118204.0	0.3897	mg/L	0.00108	0.7795 mg/L	0.00216	0.28%
Fe 273.955†	193493.9	164.5	mg/L	0.42	328.9 mg/L	0.84	0.25%
K 766.490†	28297.6	8.022	mg/L	0.0394	16.04 mg/L	0.079	0.49%
Mg 279.077†	61153.8	55.91	mg/L	0.170	111.8 mg/L	0.34	0.30%
Mn 257.610†	104558.9	2.812	mg/L	0.0045	5.623 mg/L	0.0089	0.16%
Mo 202.031†	443.9	0.02765	mg/L	0.000246	0.05529 mg/L	0.000493	0.89%
Na 589.592†	32114.3	3.975	mg/L	0.0204	7.950 mg/L	0.0408	0.51%
Na 330.237†	99.7	4.717	mg/L	0.1245	9.433 mg/L	0.2491	2.64%
Ni 231.604†	386.1	0.1804	mg/L	0.00282	0.3608 mg/L	0.00564	1.56%
Pb 220.353†	1538.8	0.1510	mg/L	0.00106	0.3020 mg/L	0.00212	0.70%
Sb 206.836†	196.8	0.05108	mg/L	0.001924	0.1022 mg/L	0.00385	3.77%
Se 196.026†	-71.2	-0.03928	mg/L	0.003266	-0.07856 mg/L	0.006532	8.32%
Si 288.158†	5065.4	3.877	mg/L	0.0396	7.755 mg/L	0.0792	1.02%
Sn 189.927†	-15.6	0.02980	mg/L	0.000802	0.05961 mg/L	0.001603	2.69%
Sr 421.552†	212823.9	0.3562	mg/L	0.00130	0.7124 mg/L	0.00259	0.36%
Ti 334.903†	182828.2	7.586	mg/L	0.0136	15.17 mg/L	0.027	0.18%
Tl 190.801†	26.7	-0.00530	mg/L	0.001433	-0.01060 mg/L	0.002866	27.02%
V 292.402†	76834.8	0.3543	mg/L	0.00208	0.7085 mg/L	0.00415	0.59%
Zn 206.200†	1199.5	0.4935	mg/L	0.00461	0.9870 mg/L	0.00922	0.93%

Sequence No.: 4
 Sample ID: VP41 B SWC
 Analyst: EL
 Dilution: 20X

Autosampler Location: 37
 Date Collected: 11/2/2012 1:15:55 PM
 Data Type: Original

Nebulizer Parameters: VP41 B SWC

Analyte	Back Pressure	Flow
All	232.0 kPa	0.55 L/min

Mean Data: VP41 B SWC

Analyte	Mean Corrected Intensity	Conc.	Units	Calib.	Std.Dev.	Conc.	Units	Sample Std.Dev.	RSD
ScA 357.253	2683404.8	105.0	%		0.63				0.60%
ScR 361.383	204911.7	105.8	%		1.25				1.18%
Ag 328.068†	-1830.1	0.00019	mg/L		0.000170	0.00376	mg/L	0.003394	90.27%
Al 308.215†	10374.2	7.385	mg/L		0.0907	147.7	mg/L	1.81	1.23%
As 188.979†	92.6	0.04033	mg/L		0.000405	0.8066	mg/L	0.00811	1.01%
B 249.677†	54.9	0.02683	mg/L		0.001096	0.5366	mg/L	0.02192	4.08%
Ba 233.527†	447.8	0.03710	mg/L		0.000629	0.7420	mg/L	0.01257	1.69%
Be 313.042†	6.2	-0.00008	mg/L		0.000027	-0.00153	mg/L	0.000549	35.88%
Ca 317.933†	253485.6	24.53	mg/L		0.149	490.6	mg/L	2.98	0.61%
Cd 228.802†	100.0	0.00119	mg/L		0.000049	0.02377	mg/L	0.000982	4.13%
Co 228.616†	2068.4	0.02173	mg/L		0.000230	0.4346	mg/L	0.00461	1.06%
Cr 267.716†	473.1	0.1097	mg/L		0.00121	2.194	mg/L	0.0241	1.10%
Cu 324.752†	102054.3	0.3440	mg/L		0.00016	6.881	mg/L	0.0033	0.05%
Fe 273.955†	247154.0	210.1	mg/L		1.16	4201	mg/L	23.1	0.55%
K 766.490†	1445.9	0.4099	mg/L		0.01720	8.198	mg/L	0.3440	4.20%
Mg 279.077†	14686.7	13.33	mg/L		0.073	266.6	mg/L	1.47	0.55%
Mn 257.610†	73010.0	1.964	mg/L		0.0123	39.28	mg/L	0.246	0.63%
Mo 202.031†	347.1	0.02038	mg/L		0.001320	0.4076	mg/L	0.02639	6.47%
Na 589.592†	18227.0	2.256	mg/L		0.0218	45.12	mg/L	0.435	0.96%
Na 330.237†	59.1	2.241	mg/L		0.0711	44.81	mg/L	1.421	3.17%
Ni 231.604†	294.6	0.1376	mg/L		0.00307	2.753	mg/L	0.0614	2.23%
Pb 220.353†	14226.3	1.078	mg/L		0.0018	21.57	mg/L	0.036	0.17%
Sb 206.836†	78.3	0.00221	mg/L		0.001673	0.04417	mg/L	0.033470	75.78%
Se 196.026†	-43.0	-0.02376	mg/L		0.003723	-0.4752	mg/L	0.07446	15.67%
Si 288.158†	709.3	0.5437	mg/L		0.00798	10.87	mg/L	0.160	1.47%
Sn 189.927†	166.8	0.03290	mg/L		0.000069	0.6580	mg/L	0.00139	0.21%
Sr 421.552†	65029.7	0.1088	mg/L		0.00042	2.177	mg/L	0.0084	0.39%
Ti 334.903†	8600.3	0.3559	mg/L		0.00325	7.119	mg/L	0.0651	0.91%
Tl 190.801†	-35.5	-0.01306	mg/L		0.001517	-0.2611	mg/L	0.03035	11.62%
V 292.402†	7507.7	0.01752	mg/L		0.000464	0.3504	mg/L	0.00927	2.65%
Zn 206.200†	524.9	0.2153	mg/L		0.00224	4.305	mg/L	0.0448	1.04%

Sequence No.: 5

Autosampler Location: 38

Sample ID: VP41 C SWC

Date Collected: 11/2/2012 1:21:57 PM

Analyst: EL

Data Type: Original

Dilution: 10X

Nebulizer Parameters: VP41 C SWC

Analyte	Back Pressure	Flow
All	232.0 kPa	0.55 L/min

Mean Data: VP41 C SWC

Analyte	Mean Corrected Intensity	Conc. Units	Calib.	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2602671.9	101.9 %		0.70			0.69%
ScR 361.383	197018.7	101.8 %		0.52			0.51%
Ag 328.068†	-1331.5	0.00007 mg/L		0.000137	0.00075 mg/L	0.001366	183.19%
Al 308.215†	8173.5	5.819 mg/L		0.0367	58.19 mg/L	0.367	0.63%
As 188.979†	43.5	0.01862 mg/L		0.000566	0.1862 mg/L	0.00566	3.04%
B 249.677†	16.2	0.00790 mg/L		0.000697	0.07904 mg/L	0.006973	8.82%
Ba 233.527†	168.5	0.01075 mg/L		0.000298	0.1075 mg/L	0.00298	2.77%
Be 313.042†	22.9	0.00004 mg/L		0.000029	0.00041 mg/L	0.000291	70.36%
Ca 317.933†	122620.1	11.87 mg/L		0.060	118.7 mg/L	0.60	0.51%
Cd 228.802†	181.9	0.00224 mg/L		0.000029	0.02243 mg/L	0.000287	1.28%
Co 228.616†	1226.9	0.01295 mg/L		0.000202	0.1295 mg/L	0.00202	1.56%
Cr 267.716†	219.8	0.05090 mg/L		0.000842	0.5090 mg/L	0.00842	1.65%
Cu 324.752†	105801.0	0.3510 mg/L		0.00237	3.510 mg/L	0.0237	0.68%
Fe 273.955†	174640.1	148.4 mg/L		0.55	1484 mg/L	5.5	0.37%
K 766.490†	1164.4	0.3301 mg/L		0.00891	3.301 mg/L	0.0891	2.70%
Mg 279.077†	4897.5	4.400 mg/L		0.0185	44.00 mg/L	0.185	0.42%
Mn 257.610†	48181.9	1.296 mg/L		0.0059	12.96 mg/L	0.059	0.45%
Mo 202.031†	221.6	0.01309 mg/L		0.000208	0.1309 mg/L	0.00208	1.59%
Na 589.592†	17109.5	2.118 mg/L		0.0202	21.18 mg/L	0.202	0.95%
Na 330.237†	59.4	2.223 mg/L		0.1815	22.23 mg/L	1.815	8.17%
Ni 231.604†	138.4	0.06468 mg/L		0.003067	0.6468 mg/L	0.03067	4.74%
Pb 220.353†	966.9	0.06869 mg/L		0.001097	0.6869 mg/L	0.01097	1.60%
Sb 206.836†	41.3	-0.00242 mg/L		0.000640	-0.02418 mg/L	0.006404	26.48%
Se 196.026†	-41.4	-0.02271 mg/L		0.002888	-0.2271 mg/L	0.02888	12.72%
Si 288.158†	1072.4	0.8200 mg/L		0.01063	8.200 mg/L	0.1063	1.30%
Sn 189.927†	99.6	0.01890 mg/L		0.000305	0.1890 mg/L	0.00305	1.61%
Sr 421.552†	72903.4	0.1220 mg/L		0.00048	1.220 mg/L	0.0048	0.39%
Ti 334.903†	546.0	0.02207 mg/L		0.000054	0.2207 mg/L	0.00054	0.25%
Tl 190.801†	-21.7	-0.00789 mg/L		0.001854	-0.07889 mg/L	0.018536	23.50%
V 292.402†	3691.3	0.00449 mg/L		0.000131	0.04491 mg/L	0.001308	2.91%
Zn 206.200†	661.8	0.2710 mg/L		0.00107	2.710 mg/L	0.0107	0.39%

Sequence No.: 6
 Sample ID: VP41 D SWC
 Analyst: EL
 Dilution: 5X

Autosampler Location: 39
 Date Collected: 11/2/2012 1:27:57 PM
 Data Type: Original

Nebulizer Parameters: VP41 D SWC

Analyte Back Pressure Flow
 All 232.0 kPa 0.55 L/min

Mean Data: VP41 D SWC

Analyte	Mean Corrected Intensity	Calib. Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2721036.2	106.5 %	0.62			0.58%
ScR 361.383	210688.9	108.8 %	0.09			0.08%
Ag 328.068†	-1011.0	0.00020 mg/L	0.000043	0.00099 mg/L	0.000216	21.89%
Al 308.215†	48733.3	34.70 mg/L	0.181	173.5 mg/L	0.90	0.52%
As 188.979†	61.2	0.02902 mg/L	0.001737	0.1451 mg/L	0.00869	5.99%
B 249.677†	48.3	0.02360 mg/L	0.001182	0.1180 mg/L	0.00591	5.01%
Ba 233.527†	2369.7	0.2420 mg/L	0.00101	1.210 mg/L	0.0051	0.42%
Be 313.042†	212.3	0.00052 mg/L	0.000023	0.00261 mg/L	0.000117	4.50%
Ca 317.933†	220538.6	21.34 mg/L	0.108	106.7 mg/L	0.54	0.51%
Cd 228.802†	368.7	0.00457 mg/L	0.000043	0.02284 mg/L	0.000217	0.95%
Co 228.616†	2335.5	0.02407 mg/L	0.000154	0.1203 mg/L	0.00077	0.64%
Cr 267.716†	519.9	0.1205 mg/L	0.00062	0.6026 mg/L	0.00311	0.52%
Cu 324.752†	145869.4	0.4769 mg/L	0.00063	2.385 mg/L	0.0032	0.13%
Fe 273.955†	148484.1	126.2 mg/L	0.64	631.0 mg/L	3.21	0.51%
K 766.490†	10084.8	2.859 mg/L	0.0164	14.29 mg/L	0.082	0.57%
Mg 279.077†	13289.8	12.10 mg/L	0.059	60.49 mg/L	0.294	0.49%
Mn 257.610†	82581.8	2.221 mg/L	0.0144	11.11 mg/L	0.072	0.65%
Mo 202.031†	232.7	0.01423 mg/L	0.000239	0.07116 mg/L	0.001196	1.68%
Na 589.592†	51295.2	6.349 mg/L	0.0421	31.75 mg/L	0.210	0.66%
Na 330.237†	168.3	6.479 mg/L	0.1182	32.39 mg/L	0.591	1.82%
Ni 231.604†	266.1	0.1243 mg/L	0.00181	0.6216 mg/L	0.00905	1.46%
Pb 220.353†	6904.2	0.5332 mg/L	0.00342	2.666 mg/L	0.0171	0.64%
Sb 206.836†	49.0	0.00283 mg/L	0.001919	0.01417 mg/L	0.009595	67.70%
Se 196.026†	-31.4	-0.01744 mg/L	0.002247	-0.08721 mg/L	0.011236	12.88%
Si 288.158†	3539.0	2.706 mg/L	0.0115	13.53 mg/L	0.057	0.42%
Sn 189.927†	200.6	0.03807 mg/L	0.000631	0.1903 mg/L	0.00315	1.66%
Sr 421.552†	87562.6	0.1465 mg/L	0.00100	0.7327 mg/L	0.00502	0.69%
Ti 334.903†	32900.1	1.365 mg/L	0.0103	6.826 mg/L	0.0514	0.75%
Tl 190.801†	-5.1	-0.00613 mg/L	0.002941	-0.03064 mg/L	0.014705	47.99%
V 292.402†	21805.5	0.09447 mg/L	0.000036	0.4723 mg/L	0.00018	0.04%
Zn 206.200†	2723.5	1.115 mg/L	0.0092	5.573 mg/L	0.0459	0.82%

Sequence No.: 7
 Sample ID: VP41 E SWC
 Analyst: EL
 Dilution: 10X

Autosampler Location: 40
 Date Collected: 11/2/2012 1:33:57 PM
 Data Type: Original

Nebulizer Parameters: VP41 E SWC

Analyte Back Pressure Flow
 All 232.0 kPa 0.55 L/min

Mean Data: VP41 E SWC

Analyte	Mean Corrected			Std.Dev.	Sample			RSD
	Intensity	Conc.	Calib. Units		Conc.	Units	Std.Dev.	
ScA 357.253	2666359.1	104.4	%	0.55				0.53%
ScR 361.383	204294.9	105.5	%	0.89				0.84%
Ag 328.068†	-1529.4	-0.00005	mg/L	0.000020	-0.00045	mg/L	0.000204	45.05%
Al 308.215†	8479.5	6.036	mg/L	0.0478	60.36	mg/L	0.478	0.79%
As 188.979†	73.4	0.03204	mg/L	0.002242	0.3204	mg/L	0.02242	7.00%
B 249.677†	0.7	0.00025	mg/L	0.001697	0.00247	mg/L	0.016970	686.54%
Ba 233.527†	244.4	0.01812	mg/L	0.000430	0.1812	mg/L	0.00430	2.37%
Be 313.042†	18.8	-0.00002	mg/L	0.000030	-0.00024	mg/L	0.000296	123.21%
Ca 317.933†	40242.1	3.894	mg/L	0.0117	38.94	mg/L	0.117	0.30%
Cd 228.802†	136.2	0.00167	mg/L	0.000016	0.01670	mg/L	0.000156	0.93%
Co 228.616†	2197.0	0.02391	mg/L	0.000079	0.2391	mg/L	0.00079	0.33%
Cr 267.716†	390.1	0.09058	mg/L	0.000719	0.9058	mg/L	0.00719	0.79%
Cu 324.752†	174311.2	0.5711	mg/L	0.00859	5.711	mg/L	0.0859	1.50%
Fe 273.955†	188506.4	160.2	mg/L	0.60	1602	mg/L	6.0	0.37%
K 766.490†	1880.9	0.5332	mg/L	0.00994	5.332	mg/L	0.0994	1.86%
Mg 279.077†	5048.5	4.532	mg/L	0.0264	45.32	mg/L	0.264	0.58%
Mn 257.610†	39160.5	1.053	mg/L	0.0017	10.53	mg/L	0.017	0.16%
Mo 202.031†	258.6	0.01526	mg/L	0.000252	0.1526	mg/L	0.00252	1.65%
Na 589.592†	16763.3	2.075	mg/L	0.0075	20.75	mg/L	0.075	0.36%
Na 330.237†	53.7	2.029	mg/L	0.1180	20.29	mg/L	1.180	5.82%
Ni 231.604†	371.8	0.1737	mg/L	0.00154	1.737	mg/L	0.0154	0.89%
Pb 220.353†	2355.1	0.1738	mg/L	0.00073	1.738	mg/L	0.0073	0.42%
Sb 206.836†	87.4	0.01137	mg/L	0.001072	0.1137	mg/L	0.01072	9.43%
Se 196.026†	-35.9	-0.02001	mg/L	0.000789	-0.2001	mg/L	0.00789	3.95%
Si 288.158†	1147.2	0.8773	mg/L	0.00392	8.773	mg/L	0.0392	0.45%
Sn 189.927†	922.9	0.1517	mg/L	0.00079	1.517	mg/L	0.0079	0.52%
Sr 421.552†	20007.1	0.03348	mg/L	0.000124	0.3348	mg/L	0.00124	0.37%
Ti 334.903†	7730.5	0.3208	mg/L	0.00006	3.208	mg/L	0.0006	0.02%
Tl 190.801†	-24.7	-0.00888	mg/L	0.000920	-0.08875	mg/L	0.009198	10.36%
V 292.402†	7235.5	0.02067	mg/L	0.000616	0.2067	mg/L	0.00616	2.98%
Zn 206.200†	1061.5	0.4343	mg/L	0.00329	4.343	mg/L	0.0329	0.76%

Sequence No.: 8
 Sample ID: VP40 B SWC
 Analyst: EL
 Dilution: 2X

Autosampler Location: 41
 Date Collected: 11/2/2012 1:39:57 PM
 Data Type: Original

Nebulizer Parameters: VP40 B SWC

Analyte Back Pressure Flow
 All 233.0 kPa 0.55 L/min

Mean Data: VP40 B SWC

Analyte	Mean Corrected Intensity	Conc. Units	Calib. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2585957.6	101.2 %	%	0.13			0.13%
ScR 361.383	201445.7	104.0 %	%	0.19			0.19%
Ag 328.068†	-1745.0	-0.00010 mg/L	mg/L	0.000151	-0.00020 mg/L	0.000303	148.83%
Al 308.215†	118346.5	84.26 mg/L	mg/L	0.163	168.5 mg/L	0.33	0.19%
As 188.979†	90.6	0.04818 mg/L	mg/L	0.000723	0.09635 mg/L	0.001447	1.50%
B 249.677†	95.3	0.04647 mg/L	mg/L	0.001201	0.09295 mg/L	0.002403	2.59%
Ba 233.527†	2295.4	0.2312 mg/L	mg/L	0.00088	0.4625 mg/L	0.00176	0.38%
Be 313.042†	528.3	0.00114 mg/L	mg/L	0.000012	0.00228 mg/L	0.000025	1.09%
Ca 317.933†	399105.1	38.62 mg/L	mg/L	0.022	77.24 mg/L	0.043	0.06%
Cd 228.802†	141.4	0.00170 mg/L	mg/L	0.000031	0.00340 mg/L	0.000062	1.82%
Co 228.616†	5247.8	0.05277 mg/L	mg/L	0.000336	0.1055 mg/L	0.00067	0.64%
Cr 267.716†	1266.1	0.2942 mg/L	mg/L	0.00174	0.5885 mg/L	0.00347	0.59%
Cu 324.752†	79299.1	0.2683 mg/L	mg/L	0.00040	0.5366 mg/L	0.00080	0.15%
Fe 273.955†	223474.9	189.9 mg/L	mg/L	0.05	379.9 mg/L	0.11	0.03%
K 766.490†	20628.5	5.848 mg/L	mg/L	0.0113	11.70 mg/L	0.023	0.19%
Mg 279.077†	46150.6	42.16 mg/L	mg/L	0.011	84.31 mg/L	0.022	0.03%
Mn 257.610†	67864.4	1.825 mg/L	mg/L	0.0039	3.650 mg/L	0.0078	0.21%
Mo 202.031†	241.2	0.01537 mg/L	mg/L	0.000253	0.03073 mg/L	0.000506	1.65%
Na 589.592†	143576.3	17.77 mg/L	mg/L	0.063	35.54 mg/L	0.127	0.36%
Na 330.237†	442.0	18.25 mg/L	mg/L	0.061	36.50 mg/L	0.122	0.33%
Ni 231.604†	376.2	0.1757 mg/L	mg/L	0.00207	0.3514 mg/L	0.00415	1.18%
Pb 220.353†	1953.5	0.1708 mg/L	mg/L	0.00108	0.3416 mg/L	0.00216	0.63%
Sb 206.836†	81.0	0.00734 mg/L	mg/L	0.001202	0.01468 mg/L	0.002404	16.38%
Se 196.026†	-59.5	-0.03289 mg/L	mg/L	0.008442	-0.06578 mg/L	0.016885	25.67%
Si 288.158†	6062.2	4.637 mg/L	mg/L	0.0152	9.275 mg/L	0.0303	0.33%
Sn 189.927†	31.9	0.01610 mg/L	mg/L	0.000520	0.03220 mg/L	0.001041	3.23%
Sr 421.552†	129496.2	0.2167 mg/L	mg/L	0.00073	0.4334 mg/L	0.00145	0.34%
Ti 334.903†	108424.3	4.501 mg/L	mg/L	0.0053	9.002 mg/L	0.0106	0.12%
Tl 190.801†	-3.0	-0.00922 mg/L	mg/L	0.001340	-0.01844 mg/L	0.002679	14.53%
V 292.402†	65523.4	0.3002 mg/L	mg/L	0.00077	0.6004 mg/L	0.00154	0.26%
Zn 206.200†	903.1	0.3701 mg/L	mg/L	0.00113	0.7401 mg/L	0.00226	0.30%

Sequence No.: 9
Sample ID: VP40 C SWC
Analyst: EL
Dilution: 5X

Autosampler Location: 42
Date Collected: 11/2/2012 1:45:44 PM
Data Type: Original

Nebulizer Parameters: VP40 C SWC

Analyte Back Pressure Flow
All 232.0 kPa 0.55 L/min

Mean Data: VP40 C SWC

Analyte	Mean Corrected		Calib. Units	Std.Dev.	Sample		Std.Dev.	RSD
	Intensity	Conc.			Conc.	Units		
ScA 357.253	2634390.1	103.1	%	0.13				0.13%
ScR 361.383	200397.1	103.5	%	0.62				0.60%
Ag 328.068†	-942.5	0.00012	mg/L	0.000204	0.00060	mg/L	0.001020	169.20%
Al 308.215†	36736.1	26.15	mg/L	0.036	130.8	mg/L	0.18	0.14%
As 188.979†	45.1	0.02321	mg/L	0.000978	0.1161	mg/L	0.00489	4.22%
B 249.677†	43.6	0.02131	mg/L	0.001361	0.1066	mg/L	0.00680	6.38%
Ba 233.527†	5008.3	0.5189	mg/L	0.00463	2.595	mg/L	0.0232	0.89%
Be 313.042†	121.3	0.00020	mg/L	0.000045	0.00100	mg/L	0.000225	22.52%
Ca 317.933†	247565.7	23.96	mg/L	0.085	119.8	mg/L	0.42	0.35%
Cd 228.802†	3230.0	0.04030	mg/L	0.000232	0.2015	mg/L	0.00116	0.57%
Co 228.616†	1583.1	0.01432	mg/L	0.000144	0.07158	mg/L	0.000718	1.00%
Cr 267.716†	319.7	0.07419	mg/L	0.001234	0.3709	mg/L	0.00617	1.66%
Cu 324.752†	29917.6	0.1043	mg/L	0.00038	0.5215	mg/L	0.00192	0.37%
Fe 273.955†	128274.1	109.0	mg/L	0.65	545.1	mg/L	3.23	0.59%
K 766.490†	7397.0	2.097	mg/L	0.0024	10.48	mg/L	0.012	0.11%
Mg 279.077†	20408.7	18.63	mg/L	0.040	93.14	mg/L	0.202	0.22%
Mn 257.610†	28847.9	0.7761	mg/L	0.00069	3.880	mg/L	0.0034	0.09%
Mo 202.031†	83.3	0.00520	mg/L	0.000353	0.02601	mg/L	0.001767	6.79%
Na 589.592†	23685.1	2.932	mg/L	0.0124	14.66	mg/L	0.062	0.42%
Na 330.237†	232.6	2.940	mg/L	0.5567	14.70	mg/L	2.783	18.93%
Ni 231.604†	127.0	0.05931	mg/L	0.003360	0.2966	mg/L	0.01680	5.67%
Pb 220.353†	20359.5	1.558	mg/L	0.0067	7.790	mg/L	0.0336	0.43%
Sb 206.836†	30.7	0.00372	mg/L	0.000464	0.01858	mg/L	0.002318	12.48%
Se 196.026†	-29.2	-0.01604	mg/L	0.002012	-0.08018	mg/L	0.010062	12.55%
Si 288.158†	2264.5	1.733	mg/L	0.0145	8.664	mg/L	0.0727	0.84%
Sn 189.927†	1918.6	0.3194	mg/L	0.00038	1.597	mg/L	0.0019	0.12%
Sr 421.552†	101080.4	0.1692	mg/L	0.00038	0.8458	mg/L	0.00189	0.22%
Ti 334.903†	44429.0	1.844	mg/L	0.0011	9.220	mg/L	0.0057	0.06%
Tl 190.801†	-3.5	-0.00421	mg/L	0.001602	-0.02106	mg/L	0.008011	38.03%
V 292.402†	18880.7	0.08084	mg/L	0.000215	0.4042	mg/L	0.00108	0.27%
Zn 206.200†	42541.5	17.40	mg/L	0.067	87.02	mg/L	0.336	0.39%

Sequence No.: 10
 Sample ID: VQ16 MB2SPK DMN
 Analyst: EL
 Dilution: 1X

Autosampler Location: 43
 Date Collected: 11/2/2012 1:51:44 PM
 Data Type: Original

Nebulizer Parameters: VQ16 MB2SPK DMN

Analyte Back Pressure Flow
 All 232.0 kPa 0.55 L/min

Mean Data: VQ16 MB2SPK DMN

Analyte	Mean Corrected Intensity	Conc. Units	Calib.	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2655214.2	103.9 %		0.40			0.39%
ScR 361.383	218876.4	113.0 %		4.78			4.23%
Ag 328.068†	160455.5	0.5358 mg/L		0.00282	0.5358 mg/L	0.00282	0.53%
Al 308.215†	3030.6	2.149 mg/L		0.1016	2.149 mg/L	0.1016	4.73%
As 188.979†	5204.3	2.232 mg/L		0.0154	2.232 mg/L	0.0154	0.69%
B 249.677†	13.1	0.00461 mg/L		0.004627	0.00461 mg/L	0.004627	100.40%
Ba 233.527†	19754.1	2.067 mg/L		0.0968	2.067 mg/L	0.0968	4.68%
Be 313.042†	135784.6	0.5220 mg/L		0.03127	0.5220 mg/L	0.03127	5.99%
Ca 317.933†	107762.3	10.43 mg/L		0.637	10.43 mg/L	0.637	6.10%
Cd 228.802†	47304.9	0.5854 mg/L		0.00428	0.5854 mg/L	0.00428	0.73%
Co 228.616†	45715.4	0.5475 mg/L		0.00382	0.5475 mg/L	0.00382	0.70%
Cr 267.716†	2275.2	0.5297 mg/L		0.02472	0.5297 mg/L	0.02472	4.67%
Cu 324.752†	172811.8	0.5534 mg/L		0.00147	0.5534 mg/L	0.00147	0.27%
Fe 273.955†	2535.3	2.154 mg/L		0.1013	2.154 mg/L	0.1013	4.70%
K 766.490†	39321.0	11.15 mg/L		0.688	11.15 mg/L	0.688	6.17%
Mg 279.077†	11911.8	10.91 mg/L		0.501	10.91 mg/L	0.501	4.60%
Mn 257.610†	19165.6	0.5160 mg/L		0.02319	0.5160 mg/L	0.02319	4.50%
Mo 202.031†	25.6	0.00131 mg/L		0.000252	0.00131 mg/L	0.000252	19.16%
Na 589.592†	87800.7	10.87 mg/L		0.596	10.87 mg/L	0.596	5.49%
Na 330.237†	274.1	10.71 mg/L		0.718	10.71 mg/L	0.718	6.71%
Ni 231.604†	1103.7	0.5148 mg/L		0.02292	0.5148 mg/L	0.02292	4.45%
Pb 220.353†	29048.6	2.218 mg/L		0.0080	2.218 mg/L	0.0080	0.36%
Sb 206.836†	12.9	-0.00390 mg/L		0.001845	-0.00390 mg/L	0.001845	47.26%
Se 196.026†	4391.4	2.391 mg/L		0.0167	2.391 mg/L	0.0167	0.70%
Si 288.158†	-6.0	-0.00077 mg/L		0.004894	-0.00077 mg/L	0.004894	638.28%
Sn 189.927†	-12.8	0.00039 mg/L		0.000385	0.00039 mg/L	0.000385	98.42%
Sr 421.552†	318525.5	0.5331 mg/L		0.03027	0.5331 mg/L	0.03027	5.68%
Ti 334.903†	47.0	0.00132 mg/L		0.000091	0.00132 mg/L	0.000091	6.91%
Tl 190.801†	8149.1	2.279 mg/L		0.0135	2.279 mg/L	0.0135	0.59%
V 292.402†	116014.6	0.5696 mg/L		0.00052	0.5696 mg/L	0.00052	0.09%
Zn 206.200†	1294.1	0.5295 mg/L		0.02541	0.5295 mg/L	0.02541	4.80%

Sequence No.: 11
 Sample ID: CV 3
 Analyst: EL
 Dilution: 1X

Autosampler Location: 7
 Date Collected: 11/2/2012 1:57:46 PM
 Data Type: Original

Nebulizer Parameters: CV

Analyte Back Pressure Flow
 All 232.0 kPa 0.55 L/min

Mean Data: CV

Analyte	Mean Corrected Intensity	Calib. Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2569152.7	100.6 %	0.80			0.80%
ScR 361.383	196404.7	101.4 %	1.31			1.29%
Ag 328.068†	295130.7	0.9856 mg/L	0.00432	0.9856 mg/L	0.00432	0.44%
Al 308.215†	2998.7	2.093 mg/L	0.0346	2.093 mg/L	0.0346	1.65%
As 188.979†	4655.3	1.995 mg/L	0.0185	1.995 mg/L	0.0185	0.93%
B 249.677†	2030.7	0.9944 mg/L	0.01458	0.9944 mg/L	0.01458	1.47%
Ba 233.527†	9912.3	1.037 mg/L	0.0158	1.037 mg/L	0.0158	1.52%
Be 313.042†	263422.6	1.013 mg/L	0.0081	1.013 mg/L	0.0081	0.80%
Ca 317.933†	21363.1	2.067 mg/L	0.0352	2.067 mg/L	0.0352	1.70%
Cd 228.802†	81843.9	1.017 mg/L	0.0057	1.017 mg/L	0.0057	0.56%
Co 228.616†	81880.8	0.9799 mg/L	0.00352	0.9799 mg/L	0.00352	0.36%
Cr 267.716†	4377.6	1.019 mg/L	0.0156	1.019 mg/L	0.0156	1.53%
Cu 324.752†	333307.4	1.066 mg/L	0.0041	1.066 mg/L	0.0041	0.38%
Fe 273.955†	2523.8	2.144 mg/L	0.0336	2.144 mg/L	0.0336	1.57%
K 766.490†	75362.7	21.36 mg/L	0.059	21.36 mg/L	0.059	0.28%
Mg 279.077†	2386.2	2.189 mg/L	0.0398	2.189 mg/L	0.0398	1.82%
Mn 257.610†	38343.9	1.032 mg/L	0.0067	1.032 mg/L	0.0067	0.65%
Mo 202.031†	16387.5	0.9632 mg/L	0.00705	0.9632 mg/L	0.00705	0.73%
Na 589.592†	422448.8	52.29 mg/L	0.258	52.29 mg/L	0.258	0.49%
Na 330.237†	1343.9	53.50 mg/L	0.956	53.50 mg/L	0.956	1.79%
Ni 231.604†	2172.3	1.015 mg/L	0.0132	1.015 mg/L	0.0132	1.30%
Pb 220.353†	25443.5	1.943 mg/L	0.0141	1.943 mg/L	0.0141	0.73%
Sb 206.836†	7072.6	2.088 mg/L	0.0150	2.088 mg/L	0.0150	0.72%
Se 196.026†	3558.8	1.936 mg/L	0.0127	1.936 mg/L	0.0127	0.65%
Si 288.158†	2841.3	2.178 mg/L	0.0270	2.178 mg/L	0.0270	1.24%
Sn 189.927†	5587.0	0.9127 mg/L	0.00564	0.9127 mg/L	0.00564	0.62%
Sr 421.552†	622564.1	1.042 mg/L	0.0085	1.042 mg/L	0.0085	0.82%
Ti 334.903†	25194.9	1.045 mg/L	0.0061	1.045 mg/L	0.0061	0.59%
Tl 190.801†	6958.9	1.940 mg/L	0.0135	1.940 mg/L	0.0135	0.70%
V 292.402†	207034.6	1.021 mg/L	0.0049	1.021 mg/L	0.0049	0.48%
Zn 206.200†	2664.3	1.089 mg/L	0.0152	1.089 mg/L	0.0152	1.39%

Sequence No.: 12
 Sample ID: CB #3
 Analyst: EL
 Dilution: 1X

Autosampler Location: 1
 Date Collected: 11/2/2012 2:03:48 PM
 Data Type: Original

Nebulizer Parameters: CB

Analyte Back Pressure Flow
 All 232.0 kPa 0.55 L/min

Mean Data: CB

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc. Units	Sample Std.Dev.	RSD
ScA 357.253	2687108.3	105.2	%	1.28			1.21%
ScR 361.383	202932.6	104.8	%	1.09			1.04%
Ag 328.068†	70.5	0.00024	mg/L	0.000166	0.00024 mg/L	0.000166	70.45%
Al 308.215†	14.7	0.01044	mg/L	0.005436	0.01044 mg/L	0.005436	52.05%
As 188.979†	2.8	0.00122	mg/L	0.001724	0.00122 mg/L	0.001724	141.67%
B 249.677†	12.1	0.00592	mg/L	0.001915	0.00592 mg/L	0.001915	32.37%
Ba 233.527†	-3.1	-0.00032	mg/L	0.000405	-0.00032 mg/L	0.000405	125.23%
Be 313.042†	4.5	0.00002	mg/L	0.000083	0.00002 mg/L	0.000083	467.96%
Ca 317.933†	-18.7	-0.00181	mg/L	0.001137	-0.00181 mg/L	0.001137	62.89%
Cd 228.802†	-3.7	-0.00005	mg/L	0.000107	-0.00005 mg/L	0.000107	216.58%
Co 228.616†	-14.9	-0.00018	mg/L	0.000139	-0.00018 mg/L	0.000139	77.41%
Cr 267.716†	0.1	0.00003	mg/L	0.000200	0.00003 mg/L	0.000200	584.24%
Cu 324.752†	-166.8	-0.00053	mg/L	0.000082	-0.00053 mg/L	0.000082	15.29%
Fe 273.955†	1.9	0.00163	mg/L	0.001952	0.00163 mg/L	0.001952	119.67%
K 766.490†	62.7	0.01777	mg/L	0.006531	0.01777 mg/L	0.006531	36.76%
Mg 279.077†	8.2	0.00751	mg/L	0.006457	0.00751 mg/L	0.006457	85.93%
Mn 257.610†	-1.3	-0.00004	mg/L	0.000027	-0.00004 mg/L	0.000027	75.49%
Mo 202.031†	7.5	0.00044	mg/L	0.000259	0.00044 mg/L	0.000259	58.35%
Na 589.592†	232.4	0.02877	mg/L	0.006660	0.02877 mg/L	0.006660	23.15%
Na 330.237†	-4.6	-0.1863	mg/L	0.56629	-0.1863 mg/L	0.56629	303.91%
Ni 231.604†	-1.3	-0.00059	mg/L	0.000871	-0.00059 mg/L	0.000871	148.42%
Pb 220.353†	-23.4	-0.00178	mg/L	0.000417	-0.00178 mg/L	0.000417	23.40%
Sb 206.836†	-4.5	-0.00132	mg/L	0.000906	-0.00132 mg/L	0.000906	68.88%
Se 196.026†	9.5	0.00520	mg/L	0.000315	0.00520 mg/L	0.000315	6.07%
Si 288.158†	4.1	0.00314	mg/L	0.002479	0.00314 mg/L	0.002479	78.90%
Sn 189.927†	5.3	0.00087	mg/L	0.000719	0.00087 mg/L	0.000719	82.79%
Sr 421.552†	-7.6	-0.00001	mg/L	0.000076	-0.00001 mg/L	0.000076	593.56%
Ti 334.903†	14.4	0.00060	mg/L	0.000198	0.00060 mg/L	0.000198	33.10%
Tl 190.801†	1.2	0.00033	mg/L	0.000656	0.00033 mg/L	0.000656	200.37%
V 292.402†	-30.3	-0.00015	mg/L	0.000086	-0.00015 mg/L	0.000086	58.70%
Zn 206.200†	17.3	0.00708	mg/L	0.000702	0.00708 mg/L	0.000702	9.91%

Sequence No.: 13

Autosampler Location: 44

Sample ID: VO66 MB1 SWC

Date Collected: 11/2/2012 2:09:46 PM

Analyst: EL

Data Type: Original

Dilution: 2X

Nebulizer Parameters: VO66 MB1 SWC

Analyte	Back Pressure	Flow
All	232.0 kPa	0.55 L/min

Mean Data: VO66 MB1 SWC

Analyte	Mean Corrected		Calib. Units	Std.Dev.	Sample		Std.Dev.	RSD
	Intensity	Conc.			Conc.	Units		
ScA 357.253	2665306.7	104.3	%	0.55				0.52%
ScR 361.383	201331.4	104.0	%	0.55				0.53%
Ag 328.068†	67.7	0.00023	mg/L	0.000037	0.00045	mg/L	0.000073	16.20%
Al 308.215†	27.5	0.01956	mg/L	0.013852	0.03912	mg/L	0.027705	70.82%
As 188.979†	0.1	0.00003	mg/L	0.001584	0.00005	mg/L	0.003168	>999.9%
B 249.677†	-1.3	-0.00063	mg/L	0.000174	-0.00126	mg/L	0.000348	27.56%
Ba 233.527†	-5.0	-0.00052	mg/L	0.000224	-0.00104	mg/L	0.000449	43.03%
Be 313.042†	15.2	0.00006	mg/L	0.000027	0.00012	mg/L	0.000054	46.37%
Ca 317.933†	132.8	0.01285	mg/L	0.000798	0.02570	mg/L	0.001596	6.21%
Cd 228.802†	-1.7	-0.00002	mg/L	0.000064	-0.00004	mg/L	0.000128	295.51%
Co 228.616†	-5.2	-0.00006	mg/L	0.000068	-0.00013	mg/L	0.000136	107.06%
Cr 267.716†	-1.0	-0.00024	mg/L	0.000427	-0.00047	mg/L	0.000853	180.53%
Cu 324.752†	-242.4	-0.00078	mg/L	0.000210	-0.00155	mg/L	0.000419	27.02%
Fe 273.955†	6.4	0.00541	mg/L	0.000518	0.01082	mg/L	0.001036	9.57%
K 766.490†	78.0	0.02212	mg/L	0.017482	0.04424	mg/L	0.034963	79.02%
Mg 279.077†	0.5	0.00049	mg/L	0.009017	0.00098	mg/L	0.018035	>999.9%
Mn 257.610†	3.3	0.00009	mg/L	0.000074	0.00018	mg/L	0.000148	82.61%
Mo 202.031†	7.9	0.00046	mg/L	0.000379	0.00093	mg/L	0.000759	81.68%
Na 589.592†	242.1	0.02997	mg/L	0.009749	0.05993	mg/L	0.019498	32.53%
Na 330.237†	-3.3	-0.1332	mg/L	0.37659	-0.2663	mg/L	0.75318	282.80%
Ni 231.604†	1.7	0.00081	mg/L	0.001465	0.00162	mg/L	0.002930	181.20%
Pb 220.353†	-11.5	-0.00087	mg/L	0.000064	-0.00175	mg/L	0.000128	7.32%
Sb 206.836†	1.1	0.00032	mg/L	0.000277	0.00063	mg/L	0.000554	87.48%
Se 196.026†	11.0	0.00602	mg/L	0.002354	0.01204	mg/L	0.004709	39.11%
Si 288.158†	3.5	0.00267	mg/L	0.003301	0.00535	mg/L	0.006602	123.44%
Sn 189.927†	-0.8	-0.00012	mg/L	0.000836	-0.00024	mg/L	0.001671	696.13%
Sr 421.552†	-9.2	-0.00002	mg/L	0.000044	-0.00003	mg/L	0.000087	282.25%
Ti 334.903†	19.9	0.00083	mg/L	0.000440	0.00165	mg/L	0.000880	53.25%
Tl 190.801†	1.5	0.00043	mg/L	0.000238	0.00085	mg/L	0.000477	56.03%
V 292.402†	17.7	0.00009	mg/L	0.000118	0.00017	mg/L	0.000235	137.07%
Zn 206.200†	14.8	0.00606	mg/L	0.000231	0.01213	mg/L	0.000462	3.81%

Sequence No.: 14
 Sample ID: VP83 E TWC
 Analyst: EL
 Dilution: 1X

Autosampler Location: 45
 Date Collected: 11/2/2012 2:15:46 PM
 Data Type: Original

Nebulizer Parameters: VP83 E TWC

Analyte Back Pressure Flow
 All .232.0 kPa 0.55 L/min

Mean Data: VP83 E TWC

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc. Units	Sample Std.Dev.	RSD
ScA 357.253	2692317.3	105.4	%	0.62			0.59%
ScR 361.383	203891.5	105.3	%	0.77			0.73%
Ag 328.068†	-6.7	-0.00003	mg/L	0.000032	-0.00003	mg/L	0.000032 119.38%
Al 308.215†	171.6	0.1222	mg/L	0.00623	0.1222	mg/L	0.00623 5.10%
As 188.979†	-0.6	-0.00024	mg/L	0.002179	-0.00024	mg/L	0.002179 909.45%
B 249.677†	28.3	0.01390	mg/L	0.000714	0.01390	mg/L	0.000714 5.13%
Ba 233.527†	-3.2	-0.00034	mg/L	0.000318	-0.00034	mg/L	0.000318 94.33%
Be 313.042†	-16.6	-0.00006	mg/L	0.000028	-0.00006	mg/L	0.000028 43.18%
Ca 317.933†	3927.8	0.3801	mg/L	0.00179	0.3801	mg/L	0.00179 0.47%
Cd 228.802†	-7.8	-0.00010	mg/L	0.000061	-0.00010	mg/L	0.000061 63.14%
Co 228.616†	31.8	0.00038	mg/L	0.000047	0.00038	mg/L	0.000047 12.36%
Cr 267.716†	-1.0	-0.00023	mg/L	0.001178	-0.00023	mg/L	0.001178 515.67%
Cu 324.752†	-220.3	-0.00070	mg/L	0.000169	-0.00070	mg/L	0.000169 24.00%
Fe 273.955†	19.9	0.01695	mg/L	0.002065	0.01695	mg/L	0.002065 12.18%
K 766.490†	6.3	0.00178	mg/L	0.004568	0.00178	mg/L	0.004568 256.46%
Mg 279.077†	29.7	0.02719	mg/L	0.005538	0.02719	mg/L	0.005538 20.37%
Mn 257.610†	110.8	0.00298	mg/L	0.000078	0.00298	mg/L	0.000078 2.61%
Mo 202.031†	10.4	0.00061	mg/L	0.000226	0.00061	mg/L	0.000226 36.72%
Na 589.592†	369.0	0.04567	mg/L	0.004605	0.04567	mg/L	0.004605 10.08%
Na 330.237†	11.7	0.4628	mg/L	0.54361	0.4628	mg/L	0.54361 117.45%
Ni 231.604†	3.9	0.00181	mg/L	0.000291	0.00181	mg/L	0.000291 16.07%
Pb 220.353†	-14.1	-0.00103	mg/L	0.000418	-0.00103	mg/L	0.000418 40.74%
Sb 206.836†	-8.6	-0.00253	mg/L	0.001631	-0.00253	mg/L	0.001631 64.54%
Se 196.026†	5.1	0.00280	mg/L	0.002128	0.00280	mg/L	0.002128 76.05%
Si 288.158†	9.2	0.00706	mg/L	0.000392	0.00706	mg/L	0.000392 5.55%
Sn 189.927†	3.5	0.00065	mg/L	0.000083	0.00065	mg/L	0.000083 12.78%
Sr 421.552†	1184.3	0.00198	mg/L	0.000053	0.00198	mg/L	0.000053 2.69%
Ti 334.903†	17.9	0.00072	mg/L	0.000468	0.00072	mg/L	0.000468 64.76%
Tl 190.801†	1.9	0.00052	mg/L	0.001195	0.00052	mg/L	0.001195 231.46%
V 292.402†	-6.7	-0.00003	mg/L	0.000154	-0.00003	mg/L	0.000154 468.00%
Zn 206.200†	17.1	0.00701	mg/L	0.000743	0.00701	mg/L	0.000743 10.59%

Sequence No.: 15
 Sample ID: VQ42 BDUP DMN
 Analyst: EL
 Dilution: 1X

Autosampler Location: 46
 Date Collected: 11/2/2012 2:21:46 PM
 Data Type: Original

Nebulizer Parameters: VQ42 BDUP DMN

Analyte Back Pressure Flow
 All 233.0 kPa 0.55 L/min

Mean Data: VQ42 BDUP DMN

Analyte	Mean Corrected Intensity	Calib. Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2691675.1	105.4 %	1.49			1.41%
ScR 361.383	212401.2	109.7 %	8.07			7.35%
Ag 328.068†	16.6	0.00000 mg/L	0.000145	0.00000 mg/L	0.000145	>999.9%
Al 308.215†	82.5	0.05867 mg/L	0.006615	0.05867 mg/L	0.006615	11.28%
As 188.979†	6.8	0.00292 mg/L	0.001535	0.00292 mg/L	0.001535	52.54%
B 249.677†	132.8	0.06516 mg/L	0.001308	0.06516 mg/L	0.001308	2.01%
Ba 233.527†	98.3	0.01028 mg/L	0.001198	0.01028 mg/L	0.001198	11.65%
Be 313.042†	-43.3	-0.00017 mg/L	0.000173	-0.00017 mg/L	0.000173	103.11%
Ca 317.933†	49458.1	4.786 mg/L	0.3664	4.786 mg/L	0.3664	7.66%
Cd 228.802†	7.8	0.00009 mg/L	0.000070	0.00009 mg/L	0.000070	76.97%
Co 228.616†	46.1	0.00054 mg/L	0.000077	0.00054 mg/L	0.000077	14.30%
Cr 267.716†	2.5	0.00057 mg/L	0.000458	0.00057 mg/L	0.000458	80.52%
Cu 324.752†	1014.4	0.00326 mg/L	0.000268	0.00326 mg/L	0.000268	8.23%
Fe 273.955†	246.7	0.2096 mg/L	0.01415	0.2096 mg/L	0.01415	6.75%
K 766.490†	12711.7	3.603 mg/L	0.3352	3.603 mg/L	0.3352	9.30%
Mg 279.077†	659.6	0.6040 mg/L	0.03518	0.6040 mg/L	0.03518	5.83%
Mn 257.610†	794.1	0.02136 mg/L	0.001527	0.02136 mg/L	0.001527	7.15%
Mo 202.031†	31.5	0.00184 mg/L	0.000282	0.00184 mg/L	0.000282	15.30%
Na 589.592†	41922.6	5.189 mg/L	0.3926	5.189 mg/L	0.3926	7.57%
Na 330.237†	130.6	5.171 mg/L	0.6701	5.171 mg/L	0.6701	12.96%
Ni 231.604†	4.1	0.00189 mg/L	0.002765	0.00189 mg/L	0.002765	146.08%
Pb 220.353†	-16.3	-0.00111 mg/L	0.000333	-0.00111 mg/L	0.000333	29.95%
Sb 206.836†	-9.7	-0.00290 mg/L	0.001061	-0.00290 mg/L	0.001061	36.57%
Se 196.026†	14.1	0.00769 mg/L	0.001309	0.00769 mg/L	0.001309	17.01%
Si 288.158†	472.0	0.3607 mg/L	0.02899	0.3607 mg/L	0.02899	8.04%
Sn 189.927†	-3.8	0.00042 mg/L	0.000393	0.00042 mg/L	0.000393	93.77%
Sr 421.552†	16025.6	0.02682 mg/L	0.002160	0.02682 mg/L	0.002160	8.06%
Ti 334.903†	79.0	0.00304 mg/L	0.000646	0.00304 mg/L	0.000646	21.24%
Tl 190.801†	1.5	0.00038 mg/L	0.000329	0.00038 mg/L	0.000329	87.67%
V 292.402†	105.1	0.00051 mg/L	0.000072	0.00051 mg/L	0.000072	14.19%
Zn 206.200†	181.3	0.07428 mg/L	0.005051	0.07428 mg/L	0.005051	6.80%

Sequence No.: 16
 Sample ID: VQ42 B DMN
 Analyst: EL
 Dilution: 1X

Autosampler Location: 47
 Date Collected: 11/2/2012 2:27:47 PM
 Data Type: Original

Nebulizer Parameters: VQ42 B DMN

Analyte	Back Pressure	Flow
All	233.0 kPa	0.55 L/min

Mean Data: VQ42 B DMN

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc. Units	Std.Dev.	RSD
ScA 357.253	2861406.3	112.0	%	9.47			8.45%
ScR 361.383	215917.6	111.5	%	2.19			1.96%
Ag 328.068†	-53.9	-0.00023	mg/L	0.000212	-0.00023 mg/L	0.000212	91.92%
Al 308.215†	81.5	0.05800	mg/L	0.002108	0.05800 mg/L	0.002108	3.63%
As 188.979†	3.9	0.00168	mg/L	0.000489	0.00168 mg/L	0.000489	29.02%
B 249.677†	131.6	0.06455	mg/L	0.000602	0.06455 mg/L	0.000602	0.93%
Ba 233.527†	95.3	0.00996	mg/L	0.000805	0.00996 mg/L	0.000805	8.08%
Be 313.042†	-46.5	-0.00018	mg/L	0.000073	-0.00018 mg/L	0.000073	40.22%
Ca 317.933†	48318.6	4.676	mg/L	0.00659	4.676 mg/L	0.00659	1.41%
Cd 228.802†	-10.9	-0.00014	mg/L	0.000274	-0.00014 mg/L	0.000274	196.55%
Co 228.616†	18.0	0.00021	mg/L	0.000285	0.00021 mg/L	0.000285	138.73%
Cr 267.716†	3.6	0.00083	mg/L	0.000696	0.00083 mg/L	0.000696	83.53%
Cu 324.752†	817.1	0.00263	mg/L	0.000782	0.00263 mg/L	0.000782	29.74%
Fe 273.955†	245.1	0.2083	mg/L	0.00462	0.2083 mg/L	0.00462	2.22%
K 766.490†	12376.7	3.509	mg/L	0.0474	3.509 mg/L	0.0474	1.35%
Mg 279.077†	647.4	0.5928	mg/L	0.01046	0.5928 mg/L	0.01046	1.76%
Mn 257.610†	773.0	0.02079	mg/L	0.000506	0.02079 mg/L	0.000506	2.44%
Mo 202.031†	29.4	0.00172	mg/L	0.000341	0.00172 mg/L	0.000341	19.81%
Na 589.592†	40818.0	5.053	mg/L	0.0649	5.053 mg/L	0.0649	1.29%
Na 330.237†	134.5	5.329	mg/L	0.2195	5.329 mg/L	0.2195	4.12%
Ni 231.604†	5.1	0.00236	mg/L	0.002671	0.00236 mg/L	0.002671	113.23%
Pb 220.353†	-24.3	-0.00172	mg/L	0.002038	-0.00172 mg/L	0.002038	118.19%
Sb 206.836†	-16.0	-0.00475	mg/L	0.003538	-0.00475 mg/L	0.003538	74.42%
Se 196.026†	18.6	0.01014	mg/L	0.004654	0.01014 mg/L	0.004654	45.88%
Si 288.158†	461.0	0.3523	mg/L	0.01020	0.3523 mg/L	0.01020	2.89%
Sn 189.927†	-2.7	0.00057	mg/L	0.000960	0.00057 mg/L	0.000960	169.42%
Sr 421.552†	15642.5	0.02618	mg/L	0.000338	0.02618 mg/L	0.000338	1.29%
Tl 334.903†	71.8	0.00275	mg/L	0.000676	0.00275 mg/L	0.000676	24.58%
Tl 190.801†	-0.9	-0.00029	mg/L	0.000417	-0.00029 mg/L	0.000417	143.20%
V 292.402†	126.7	0.00061	mg/L	0.000176	0.00061 mg/L	0.000176	28.65%
Zn 206.200†	176.7	0.07241	mg/L	0.002510	0.07241 mg/L	0.002510	3.47%

Sequence No.: 17
 Sample ID: VQ42 BSPK DMN
 Analyst: EL
 Dilution: 1X

Autosampler Location: 48
 Date Collected: 11/2/2012 2:33:48 PM
 Data Type: Original

Nebulizer Parameters: VQ42 BSPK DMN

Analyte	Back Pressure	Flow
All	233.0 kPa	0.55 L/min

Mean Data: VQ42 BSPK DMN

Analyte	Mean Corrected		Calib. Conc. Units	Std.Dev.	Sample		Std.Dev.	RSD
	Intensity				Conc. Units			
ScA 357.253	2602208.6		101.9 %	0.65				0.64%
ScR 361.383	218991.5		113.1 %	10.74				9.49%
Ag 328.068†	157219.4		0.5250 mg/L	0.00468	0.5250 mg/L	0.00468		0.89%
Al 308.215†	3102.7		2.200 mg/L	0.2149	2.200 mg/L	0.2149		9.77%
As 188.979†	5201.7		2.231 mg/L	0.0232	2.231 mg/L	0.0232		1.04%
B 249.677†	127.6		0.06074 mg/L	0.001366	0.06074 mg/L	0.001366		2.25%
Ba 233.527†	19870.6		2.079 mg/L	0.2047	2.079 mg/L	0.2047		9.85%
Be 313.042†	136032.5		0.5230 mg/L	0.05647	0.5230 mg/L	0.05647		10.80%
Ca 317.933†	153283.8		14.83 mg/L	1.580	14.83 mg/L	1.580		10.65%
Cd 228.802†	48146.9		0.5960 mg/L	0.00686	0.5960 mg/L	0.00686		1.15%
Co 228.616†	46855.9		0.5612 mg/L	0.00621	0.5612 mg/L	0.00621		1.11%
Cr 267.716†	2281.2		0.5311 mg/L	0.05247	0.5311 mg/L	0.05247		9.88%
Cu 324.752†	188305.0		0.6030 mg/L	0.00582	0.6030 mg/L	0.00582		0.97%
Fe 273.955†	2762.5		2.348 mg/L	0.2297	2.348 mg/L	0.2297		9.79%
K 766.490†	50662.0		14.36 mg/L	1.506	14.36 mg/L	1.506		10.49%
Mg 279.077†	12523.3		11.47 mg/L	1.123	11.47 mg/L	1.123		9.79%
Mn 257.610†	19814.6		0.5335 mg/L	0.05217	0.5335 mg/L	0.05217		9.78%
Mo 202.031†	39.5		0.00212 mg/L	0.000121	0.00212 mg/L	0.000121		5.70%
Na 589.592†	125776.8		15.57 mg/L	1.620	15.57 mg/L	1.620		10.40%
Na 330.237†	394.4		15.47 mg/L	1.913	15.47 mg/L	1.913		12.36%
Ni 231.604†	1074.9		0.5013 mg/L	0.05077	0.5013 mg/L	0.05077		10.13%
Pb 220.353†	29579.2		2.258 mg/L	0.0220	2.258 mg/L	0.0220		0.97%
Sb 206.836†	17.7		-0.00251 mg/L	0.001138	-0.00251 mg/L	0.001138		45.42%
Se 196.026†	4327.3		2.357 mg/L	0.0228	2.357 mg/L	0.0228		0.97%
Si 288.158†	550.6		0.4247 mg/L	0.04007	0.4247 mg/L	0.04007		9.43%
Sn 189.927†	-12.9		0.00132 mg/L	0.000492	0.00132 mg/L	0.000492		37.19%
Sr 421.552†	332305.4		0.5561 mg/L	0.05708	0.5561 mg/L	0.05708		10.26%
Ti 334.903†	94.2		0.00306 mg/L	0.000440	0.00306 mg/L	0.000440		14.40%
Tl 190.801†	8100.7		2.265 mg/L	0.0236	2.265 mg/L	0.0236		1.04%
V 292.402†	118079.2		0.5797 mg/L	0.00562	0.5797 mg/L	0.00562		0.97%
Zn 206.200†	1479.5		0.6054 mg/L	0.05795	0.6054 mg/L	0.05795		9.57%

Sequence No.: 18

Sample ID: VQ42 MB2SPK DMN

Analyst: EL

Dilution: 1X

Autosampler Location: 49

Date Collected: 11/2/2012 2:39:52 PM

Data Type: Original

Nebulizer Parameters: VQ42 MB2SPK DMN

Analyte	Back Pressure	Flow
All	233.0 kPa	0.55 L/min

Mean Data: VQ42 MB2SPK DMN

Analyte	Mean Corrected		Calib. Conc. Units	Std.Dev.	Sample		RSD
	Intensity	Conc. Units			Conc. Units	Std.Dev.	
ScA 357.253	2659306.2	104.1 %	0.96			0.92%	
ScR 361.383	219960.6	113.6 %	6.94			6.11%	
Ag 328.068†	159929.4	0.5341 mg/L	0.00451	0.5341 mg/L	0.00451	0.84%	
Al 308.215†	3085.7	2.188 mg/L	0.1408	2.188 mg/L	0.1408	6.43%	
As 188.979†	5215.0	2.236 mg/L	0.0155	2.236 mg/L	0.0155	0.69%	
B 249.677†	12.4	0.00427 mg/L	0.002652	0.00427 mg/L	0.002652	62.11%	
Ba 233.527†	20203.0	2.114 mg/L	0.1419	2.114 mg/L	0.1419	6.71%	
Be 313.042†	139299.5	0.5356 mg/L	0.03294	0.5356 mg/L	0.03294	6.15%	
Ca 317.933†	110303.1	10.67 mg/L	0.650	10.67 mg/L	0.650	6.09%	
Cd 228.802†	47733.3	0.5908 mg/L	0.00461	0.5908 mg/L	0.00461	0.78%	
Co 228.616†	46185.5	0.5531 mg/L	0.00357	0.5531 mg/L	0.00357	0.65%	
Cr 267.716†	2325.5	0.5414 mg/L	0.03681	0.5414 mg/L	0.03681	6.80%	
Cu 324.752†	174588.7	0.5591 mg/L	0.00440	0.5591 mg/L	0.00440	0.79%	
Fe 273.955†	2593.0	2.203 mg/L	0.1444	2.203 mg/L	0.1444	6.55%	
K 766.490†	39854.1	11.30 mg/L	0.774	11.30 mg/L	0.774	6.85%	
Mg 279.077†	12193.1	11.17 mg/L	0.748	11.17 mg/L	0.748	6.70%	
Mn 257.610†	19595.3	0.5276 mg/L	0.03576	0.5276 mg/L	0.03576	6.78%	
Mo 202.031†	21.5	0.00107 mg/L	0.000058	0.00107 mg/L	0.000058	5.45%	
Na 589.592†	88980.4	11.01 mg/L	0.682	11.01 mg/L	0.682	6.19%	
Na 330.237†	282.3	11.03 mg/L	0.961	11.03 mg/L	0.961	8.71%	
Ni 231.604†	1125.1	0.5247 mg/L	0.03728	0.5247 mg/L	0.03728	7.10%	
Pb 220.353†	29309.0	2.238 mg/L	0.0204	2.238 mg/L	0.0204	0.91%	
Sb 206.836†	15.4	-0.00339 mg/L	0.001534	-0.00339 mg/L	0.001534	45.24%	
Se 196.026†	4402.1	2.397 mg/L	0.0088	2.397 mg/L	0.0088	0.37%	
Si 288.158†	-5.9	-0.00058 mg/L	0.002051	-0.00058 mg/L	0.002051	355.37%	
Sn 189.927†	-13.8	0.00029 mg/L	0.000262	0.00029 mg/L	0.000262	90.77%	
Sr 421.552†	323521.3	0.5414 mg/L	0.03463	0.5414 mg/L	0.03463	6.40%	
Ti 334.903†	41.0	0.00105 mg/L	0.000320	0.00105 mg/L	0.000320	30.43%	
Tl 190.801†	8167.9	2.284 mg/L	0.0181	2.284 mg/L	0.0181	0.79%	
V 292.402†	117107.5	0.5750 mg/L	0.00619	0.5750 mg/L	0.00619	1.08%	
Zn 206.200†	1319.9	0.5400 mg/L	0.03592	0.5400 mg/L	0.03592	6.65%	

Sequence No.: 19
 Sample ID: VO66 B SWC
 Analyst: EL
 Dilution: 2X *pd*

Autosampler Location: 50
 Date Collected: 11/2/2012 2:45:56 PM
 Data Type: Original

Nebulizer Parameters: VO66 B SWC

Analyte	Back Pressure	Flow
All	233.0 kPa	0.55 L/min

Mean Data: VO66 B SWC

Analyte	Mean Corrected Intensity	Calib. Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2621885.5	102.6 %	0.74			0.72%
ScR 361.383	195546.5	101.0 %	1.01			1.00%
Ag 328.068†	-726.1	0.00315 mg/L	0.000610	0.00631 mg/L	0.001221	19.36%
Al 308.215†	222062.7	158.1 mg/L	1.14	316.2 mg/L	2.27	0.72%
As 188.979†	127.8	0.07101 mg/L	0.001578	0.1420 mg/L	0.00316	2.22%
B 249.677†	249.0	0.1219 mg/L	0.00346	0.2437 mg/L	0.00691	2.84%
Ba 233.527†	4833.7	0.4972 mg/L	0.00684	0.9944 mg/L	0.01367	1.38%
Be 313.042†	1162.9	0.00327 mg/L	0.000291	0.00653 mg/L	0.000583	8.92%
Ca 317.933†	405936.6	39.28 mg/L	0.156	78.57 mg/L	0.312	0.40%
Cd 228.802†	298.0	0.00361 mg/L	0.000205	0.00721 mg/L	0.000410	5.69%
Co 228.616†	5717.2	0.05291 mg/L	0.000311	0.1058 mg/L	0.00062	0.59%
Cr 267.716†	776.1	0.1801 mg/L	0.00197	0.3601 mg/L	0.00394	1.09%
Cu 324.752†	77374.4	0.2605 mg/L	0.00338	0.5209 mg/L	0.00676	1.30%
Fe 273.955†	213007.3	181.0 mg/L	1.58	362.1 mg/L	3.16	0.87%
K 766.490†	68140.6	19.32 mg/L	0.145	38.63 mg/L	0.291	0.75%
Mg 279.077†	53673.8	49.05 mg/L	0.217	98.10 mg/L	0.435	0.44%
Mn 257.610†	65744.6	1.767 mg/L	0.0120	3.534 mg/L	0.0241	0.68%
Mo 202.031†	-54.9	-0.00058 mg/L	0.000380	-0.00116 mg/L	0.000760	65.73%
Na 589.592†	530787.0	65.70 mg/L	0.513	131.4 mg/L	1.03	0.78%
Na 330.237†	1670.7	67.87 mg/L	0.966	135.7 mg/L	1.93	1.42%
Ni 231.604†	309.6	0.1446 mg/L	0.00285	0.2893 mg/L	0.00570	1.97%
Pb 220.353†	1351.6	0.1510 mg/L	0.00247	0.3020 mg/L	0.00493	1.63%
Sb 206.836†	93.3	0.01836 mg/L	0.000949	0.03671 mg/L	0.001898	5.17%
Se 196.026†	-82.0	-0.04508 mg/L	0.003295	-0.09016 mg/L	0.006591	7.31%
Si 288.158†	10597.1	8.103 mg/L	0.0588	16.21 mg/L	0.118	0.73%
Sn 189.927†	17.5	0.01520 mg/L	0.000781	0.03040 mg/L	0.001562	5.14%
Sr 421.552†	349625.0	0.5851 mg/L	0.00313	1.170 mg/L	0.0063	0.53%
Ti 334.903†	183979.5	7.639 mg/L	0.0449	15.28 mg/L	0.090	0.59%
Tl 190.801†	20.8	-0.00588 mg/L	0.003058	-0.01176 mg/L	0.006116	52.01%
V 292.402†	86662.0	0.4006 mg/L	0.00642	0.8012 mg/L	0.01284	1.60%
Zn 206.200†	1594.9	0.6532 mg/L	0.00887	1.306 mg/L	0.0177	1.36%

Sequence No.: 20
 Sample ID: VO66 C SWC
 Analyst: EL
 Dilution: 2X

Autosampler Location: 51
 Date Collected: 11/2/2012 2:51:47 PM
 Data Type: Original

Nebulizer Parameters: VO66 C SWC

Analyte Back Pressure Flow
 All 233.0 kPa 0.55 L/min

Mean Data: VO66 C SWC

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2628494.6	102.9	%	0.17				0.16%
ScR 361.383	207045.7	106.9	%	0.87				0.81%
Ag 328.068†	-1284.5	0.00085	mg/L	0.000093	0.00170	mg/L	0.000186	10.99%
Al 308.215†	193856.2	138.0	mg/L	0.73	276.0	mg/L	1.46	0.53%
As 188.979†	87.7	0.05266	mg/L	0.001757	0.1053	mg/L	0.00351	3.34%
B 249.677†	250.7	0.1227	mg/L	0.00541	0.2454	mg/L	0.01083	4.41%
Ba 233.527†	3675.9	0.3767	mg/L	0.00328	0.7534	mg/L	0.00657	0.87%
Be 313.042†	688.1	0.00149	mg/L	0.000039	0.00299	mg/L	0.000079	2.64%
Ca 317.933†	381148.2	36.88	mg/L	0.167	73.77	mg/L	0.335	0.45%
Cd 228.802†	166.8	0.00200	mg/L	0.000065	0.00401	mg/L	0.000131	3.26%
Co 228.616†	5433.9	0.05067	mg/L	0.000114	0.1013	mg/L	0.00023	0.23%
Cr 267.716†	676.2	0.1568	mg/L	0.00275	0.3137	mg/L	0.00550	1.75%
Cu 324.752†	67233.1	0.2270	mg/L	0.00005	0.4540	mg/L	0.00010	0.02%
Fe 273.955†	196618.7	167.1	mg/L	0.64	334.2	mg/L	1.29	0.39%
K 766.490†	58962.9	16.71	mg/L	0.041	33.43	mg/L	0.083	0.25%
Mg 279.077†	49230.2	44.99	mg/L	0.228	89.98	mg/L	0.457	0.51%
Mn 257.610†	62399.4	1.677	mg/L	0.0079	3.355	mg/L	0.0158	0.47%
Mo 202.031†	-48.6	-0.00057	mg/L	0.000441	-0.00114	mg/L	0.000883	77.18%
Na 589.592†	491863.7	60.88	mg/L	0.271	121.8	mg/L	0.54	0.44%
Na 330.237†	1534.8	62.40	mg/L	0.370	124.8	mg/L	0.74	0.59%
Ni 231.604†	264.9	0.1238	mg/L	0.00270	0.2475	mg/L	0.00539	2.18%
Pb 220.353†	799.6	0.1024	mg/L	0.00090	0.2049	mg/L	0.00179	0.87%
Sb 206.836†	77.4	0.01555	mg/L	0.001750	0.03110	mg/L	0.003499	11.25%
Se 196.026†	-65.4	-0.03599	mg/L	0.004728	-0.07198	mg/L	0.009456	13.14%
Si 288.158†	5073.3	3.882	mg/L	0.0273	7.764	mg/L	0.0546	0.70%
Sn 189.927†	479.4	0.08978	mg/L	0.000734	0.1796	mg/L	0.00147	0.82%
Sr 421.552†	306155.7	0.5124	mg/L	0.00384	1.025	mg/L	0.0077	0.75%
Ti 334.903†	170818.5	7.092	mg/L	0.0377	14.18	mg/L	0.075	0.53%
Tl 190.801†	13.9	-0.00709	mg/L	0.001239	-0.01417	mg/L	0.002478	17.49%
V 292.402†	82836.5	0.3836	mg/L	0.00089	0.7671	mg/L	0.00178	0.23%
Zn 206.200†	1210.1	0.4958	mg/L	0.00460	0.9915	mg/L	0.00919	0.93%

Sequence No.: 21
 Sample ID: VO66 D SWC
 Analyst: EL
 Dilution: 2X *ml*

Autosampler Location: 52
 Date Collected: 11/2/2012 2:57:36 PM
 Data Type: Original

Nebulizer Parameters: VO66 D SWC

Analyte Back Pressure Flow
 All 233.0 kPa 0.55 L/min

Mean Data: VO66 D SWC

Analyte	Mean Corrected		Calib.		Sample		Std.Dev.	RSD
	Intensity	Conc.	Units	Std.Dev.	Conc.	Units		
ScA 357.253	2660434.0	104.1	%	1.15				1.10%
ScR 361.383	207908.9	107.4	%	0.66				0.62%
Ag 328.068†	-1077.1	0.00225	mg/L	0.000213	0.00450	mg/L	0.000425	9.44%
Al 308.215†	242155.3	172.4	mg/L	0.34	344.8	mg/L	0.67	0.20%
As 188.979†	99.2	0.06007	mg/L	0.002207	0.1201	mg/L	0.00441	3.67%
B 249.677†	254.4	0.1245	mg/L	0.00278	0.2491	mg/L	0.00556	2.23%
Ba 233.527†	4757.4	0.4888	mg/L	0.00571	0.9776	mg/L	0.01143	1.17%
Be 313.042†	819.9	0.00188	mg/L	0.000039	0.00376	mg/L	0.000079	2.10%
Ca 317.933†	417925.6	40.44	mg/L	0.023	80.89	mg/L	0.045	0.06%
Cd 228.802†	278.9	0.00339	mg/L	0.000106	0.00678	mg/L	0.000211	3.12%
Co 228.616†	6027.5	0.05548	mg/L	0.001329	0.1110	mg/L	0.00266	2.39%
Cr 267.716†	726.6	0.1685	mg/L	0.00176	0.3370	mg/L	0.00353	1.05%
Cu 324.752†	86317.8	0.2896	mg/L	0.00098	0.5792	mg/L	0.00195	0.34%
Fe 273.955†	222992.8	189.5	mg/L	0.21	379.1	mg/L	0.42	0.11%
K 766.490†	73115.8	20.73	mg/L	0.095	41.45	mg/L	0.189	0.46%
Mg 279.077†	55429.0	50.65	mg/L	0.083	101.3	mg/L	0.17	0.16%
Mn 257.610†	70212.1	1.887	mg/L	0.0025	3.775	mg/L	0.0050	0.13%
Mo 202.031†	-58.8	-0.00053	mg/L	0.000425	-0.00107	mg/L	0.000850	79.74%
Na 589.592†	534221.1	66.13	mg/L	0.133	132.3	mg/L	0.27	0.20%
Na 330.237†	1673.2	68.10	mg/L	0.848	136.2	mg/L	1.70	1.25%
Ni 231.604†	271.4	0.1268	mg/L	0.00271	0.2536	mg/L	0.00542	2.14%
Pb 220.353†	1706.9	0.1827	mg/L	0.00198	0.3654	mg/L	0.00396	1.08%
Sb 206.836†	96.2	0.01950	mg/L	0.002397	0.03901	mg/L	0.004794	12.29%
Se 196.026†	-87.5	-0.04802	mg/L	0.003448	-0.09603	mg/L	0.006896	7.18%
Si 288.158†	7979.2	6.103	mg/L	0.0565	12.21	mg/L	0.113	0.93%
Sn 189.927†	28.2	0.01746	mg/L	0.000620	0.03492	mg/L	0.001241	3.55%
Sr 421.552†	374566.5	0.6269	mg/L	0.00057	1.254	mg/L	0.0011	0.09%
Ti 334.903†	198535.9	8.243	mg/L	0.0149	16.49	mg/L	0.030	0.18%
Tl 190.801†	22.3	-0.00628	mg/L	0.000663	-0.01257	mg/L	0.001327	10.56%
V 292.402†	91240.5	0.4216	mg/L	0.00252	0.8431	mg/L	0.00505	0.60%
Zn 206.200†	1512.3	0.6195	mg/L	0.00820	1.239	mg/L	0.0164	1.32%

Sequence No.: 22
 Sample ID: VO66 E SWC
 Analyst: EL
 Dilution: 2X

Autosampler Location: 53
 Date Collected: 11/2/2012 3:03:27 PM
 Data Type: Original

Nebulizer Parameters: VO66 E SWC
 Analyte Back Pressure Flow
 All 233.0 kPa 0.55 L/min

Mean Data: VO66 E SWC

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2643319.8	103.5	%	0.73			0.71%
ScR 361.383	203511.3	105.1	%	0.72			0.68%
Ag 328.068†	-1434.5	0.00044	mg/L	0.000379	0.00089 mg/L	0.000757	85.56%
Al 308.215†	197335.7	140.5	mg/L	0.25	281.0 mg/L	0.50	0.18%
As 188.979†	82.9	0.05042	mg/L	0.002728	0.1008 mg/L	0.00546	5.41%
B 249.677†	261.9	0.1282	mg/L	0.00127	0.2564 mg/L	0.00255	0.99%
Ba 233.527†	3995.1	0.4099	mg/L	0.00322	0.8198 mg/L	0.00644	0.79%
Be 313.042†	723.5	0.00162	mg/L	0.000002	0.00323 mg/L	0.000004	0.13%
Ca 317.933†	375488.8	36.34	mg/L	0.124	72.67 mg/L	0.249	0.34%
Cd 228.802†	168.4	0.00203	mg/L	0.000040	0.00406 mg/L	0.000079	1.96%
Co 228.616†	5564.9	0.05236	mg/L	0.000519	0.1047 mg/L	0.00104	0.99%
Cr 267.716†	672.3	0.1559	mg/L	0.00146	0.3118 mg/L	0.00293	0.94%
Cu 324.752†	69546.2	0.2347	mg/L	0.00037	0.4695 mg/L	0.00074	0.16%
Fe 273.955†	200890.2	170.7	mg/L	0.30	341.5 mg/L	0.59	0.17%
K 766.490†	60517.5	17.16	mg/L	0.022	34.31 mg/L	0.044	0.13%
Mg 279.077†	50143.9	45.82	mg/L	0.121	91.65 mg/L	0.242	0.26%
Mn 257.610†	68040.4	1.829	mg/L	0.0045	3.658 mg/L	0.0090	0.25%
Mo 202.031†	-49.3	-0.00057	mg/L	0.000077	-0.00115 mg/L	0.000154	13.41%
Na 589.592†	523159.4	64.76	mg/L	0.082	129.5 mg/L	0.16	0.13%
Na 330.237†	1639.6	66.57	mg/L	0.408	133.1 mg/L	0.82	0.61%
Ni 231.604†	270.1	0.1262	mg/L	0.00060	0.2523 mg/L	0.00121	0.48%
Pb 220.353†	564.1	0.08513	mg/L	0.000362	0.1703 mg/L	0.00072	0.43%
Sb 206.836†	88.9	0.01760	mg/L	0.002423	0.03521 mg/L	0.004846	13.76%
Se 196.026†	-76.9	-0.04223	mg/L	0.001330	-0.08445 mg/L	0.002659	3.15%
Si 288.158†	10756.4	8.224	mg/L	0.0255	16.45 mg/L	0.051	0.31%
Sn 189.927†	-12.7	0.00934	mg/L	0.000778	0.01868 mg/L	0.001555	8.32%
Sr 421.552†	310288.6	0.5193	mg/L	0.00303	1.039 mg/L	0.0061	0.58%
Ti 334.903†	168479.9	6.995	mg/L	0.0221	13.99 mg/L	0.044	0.32%
Tl 190.801†	19.3	-0.00569	mg/L	0.001020	-0.01138 mg/L	0.002040	17.93%
V 292.402†	84117.9	0.3896	mg/L	0.00097	0.7791 mg/L	0.00195	0.25%
Zn 206.200†	1191.4	0.4881	mg/L	0.00564	0.9762 mg/L	0.01129	1.16%

Sequence No.: 23
 Sample ID: CV4
 Analyst: EL
 Dilution: 1X

Autosampler Location: 7
 Date Collected: 11/2/2012 3:09:17 PM
 Data Type: Original

Nebulizer Parameters: CV

Analyte	Back Pressure	Flow
All	233.0 kPa	0.55 L/min

Mean Data: CV

Analyte	Mean Corrected Intensity	Calib. Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2639541.5	103.3 %	0.50			0.48%
ScR 361.383	206574.8	106.7 %	0.83			0.78%
Ag 328.068†	291620.3	0.9738 mg/L	0.00276	0.9738 mg/L	0.00276	0.28%
Al 308.215†	2856.6	1.993 mg/L	0.0224	1.993 mg/L	0.0224	1.12%
As 188.979†	4570.0	1.959 mg/L	0.0066	1.959 mg/L	0.0066	0.34%
B 249.677†	1937.4	0.9487 mg/L	0.00637	0.9487 mg/L	0.00637	0.67%
Ba 233.527†	9413.8	0.9845 mg/L	0.00905	0.9845 mg/L	0.00905	0.92%
Be 313.042†	251095.9	0.9655 mg/L	0.00749	0.9655 mg/L	0.00749	0.78%
Ca 317.933†	20143.4	1.949 mg/L	0.0198	1.949 mg/L	0.0198	1.01%
Cd 228.802†	80903.0	1.006 mg/L	0.0029	1.006 mg/L	0.0029	0.29%
Co 228.616†	80666.0	0.9655 mg/L	0.00168	0.9655 mg/L	0.00168	0.17%
Cr 267.716†	4154.2	0.9670 mg/L	0.00613	0.9670 mg/L	0.00613	0.63%
Cu 324.752†	327532.3	1.048 mg/L	0.0005	1.048 mg/L	0.0005	0.04%
Fe 273.955†	2390.0	2.031 mg/L	0.0183	2.031 mg/L	0.0183	0.90%
K 766.490†	72882.2	20.66 mg/L	0.137	20.66 mg/L	0.137	0.66%
Mg 279.077†	2252.7	2.066 mg/L	0.0211	2.066 mg/L	0.0211	1.02%
Mn 257.610†	36765.1	0.9893 mg/L	0.00708	0.9893 mg/L	0.00708	0.72%
Mo 202.031†	16014.7	0.9413 mg/L	0.00299	0.9413 mg/L	0.00299	0.32%
Na 589.592†	408344.6	50.55 mg/L	0.338	50.55 mg/L	0.338	0.67%
Na 330.237†	1291.0	51.40 mg/L	0.522	51.40 mg/L	0.522	1.02%
Ni 231.604†	2057.3	0.9615 mg/L	0.00824	0.9615 mg/L	0.00824	0.86%
Pb 220.353†	25021.5	1.911 mg/L	0.0050	1.911 mg/L	0.0050	0.26%
Sb 206.836†	6913.7	2.042 mg/L	0.0079	2.042 mg/L	0.0079	0.38%
Se 196.026†	3505.3	1.907 mg/L	0.0010	1.907 mg/L	0.0010	0.05%
Si 288.158†	2705.6	2.074 mg/L	0.0231	2.074 mg/L	0.0231	1.11%
Sn 189.927†	5532.3	0.9037 mg/L	0.00313	0.9037 mg/L	0.00313	0.35%
Sr 421.552†	597919.5	1.001 mg/L	0.0085	1.001 mg/L	0.0085	0.85%
Ti 334.903†	24192.0	1.004 mg/L	0.0068	1.004 mg/L	0.0068	0.68%
Tl 190.801†	6810.2	1.898 mg/L	0.0059	1.898 mg/L	0.0059	0.31%
V 292.402†	203485.4	1.003 mg/L	0.0037	1.003 mg/L	0.0037	0.36%
Zn 206.200†	2501.4	1.022 mg/L	0.0111	1.022 mg/L	0.0111	1.09%

Sequence No.: 24
 Sample ID: CB 4
 Analyst: EL
 Dilution: 1X

Autosampler Location: 1
 Date Collected: 11/2/2012 3:15:20 PM
 Data Type: Original

Nebulizer Parameters: CB

Analyte Back Pressure Flow
 All 233.0 kPa 0.55 L/min

Mean Data: CB

Analyte	Mean Corrected Intensity	Calib. Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2668092.1	104.4 %	1.12			1.07%
ScR 361.383	203969.9	105.3 %	0.28			0.27%
Ag 328.068†	109.5	0.00037 mg/L	0.000312	0.00037 mg/L	0.000312	85.48%
Al 308.215†	10.7	0.00759 mg/L	0.012354	0.00759 mg/L	0.012354	162.88%
As 188.979†	2.6	0.00113 mg/L	0.001082	0.00113 mg/L	0.001082	95.99%
B 249.677†	7.4	0.00364 mg/L	0.000374	0.00364 mg/L	0.000374	10.28%
Ba 233.527†	-6.2	-0.00065 mg/L	0.000321	-0.00065 mg/L	0.000321	49.35%
Be 313.042†	-1.2	0.00000 mg/L	0.000028	0.00000 mg/L	0.000028	631.00%
Ca 317.933†	-23.5	-0.00227 mg/L	0.002276	-0.00227 mg/L	0.002276	100.21%
Cd 228.802†	-6.3	-0.00008 mg/L	0.000041	-0.00008 mg/L	0.000041	50.22%
Co 228.616†	-1.0	-0.00001 mg/L	0.000045	-0.00001 mg/L	0.000045	363.08%
Cr 267.716†	-5.4	-0.00126 mg/L	0.000577	-0.00126 mg/L	0.000577	45.60%
Cu 324.752†	-92.5	-0.00030 mg/L	0.000074	-0.00030 mg/L	0.000074	25.04%
Fe 273.955†	-1.9	-0.00159 mg/L	0.001194	-0.00159 mg/L	0.001194	74.92%
K 766.490†	149.3	0.04232 mg/L	0.006279	0.04232 mg/L	0.006279	14.84%
Mg 279.077†	-1.9	-0.00173 mg/L	0.006622	-0.00173 mg/L	0.006622	383.69%
Mn 257.610†	-1.9	-0.00005 mg/L	0.000031	-0.00005 mg/L	0.000031	59.43%
Mo 202.031†	6.8	0.00040 mg/L	0.000257	0.00040 mg/L	0.000257	64.48%
Na 589.592†	388.9	0.04814 mg/L	0.008565	0.04814 mg/L	0.008565	17.79%
Na 330.237†	0.3	0.01232 mg/L	0.237011	0.01232 mg/L	0.237011	>999.9%
Ni 231.604†	0.6	0.00029 mg/L	0.001928	0.00029 mg/L	0.001928	670.99%
Pb 220.353†	-12.7	-0.00097 mg/L	0.000486	-0.00097 mg/L	0.000486	50.11%
Sb 206.836†	-7.8	-0.00226 mg/L	0.000863	-0.00226 mg/L	0.000863	38.13%
Se 196.026†	8.2	0.00447 mg/L	0.004013	0.00447 mg/L	0.004013	89.83%
Si 288.158†	-0.6	-0.00048 mg/L	0.002837	-0.00048 mg/L	0.002837	596.68%
Sn 189.927†	2.5	0.00040 mg/L	0.000392	0.00040 mg/L	0.000392	97.75%
Sr 421.552†	7.0	0.00001 mg/L	0.000051	0.00001 mg/L	0.000051	440.19%
Ti 334.903†	7.2	0.00030 mg/L	0.000332	0.00030 mg/L	0.000332	111.12%
Tl 190.801†	2.1	0.00058 mg/L	0.001990	0.00058 mg/L	0.001990	342.08%
V 292.402†	-11.8	-0.00006 mg/L	0.000054	-0.00006 mg/L	0.000054	83.18%
Zn 206.200†	0.8	0.00034 mg/L	0.000319	0.00034 mg/L	0.000319	95.10%

Sequence No.: 25

Sample ID: VO66 F SWC

Analyst: EL

Dilution: 2X

Autosampler Location: 54

Date Collected: 11/2/2012 3:21:18 PM

Data Type: Original

Nebulizer Parameters: VO66 F SWC

Analyte	Back Pressure	Flow
All	233.0 kPa	0.55 L/min

Mean Data: VO66 F SWC

Analyte	Mean Corrected		Calib. Units	Std.Dev.	Sample		RSD
	Intensity	Conc.			Conc.	Units	
ScA 357.253	2609825.7	102.2	%	0.44			0.43%
ScR 361.383	203502.2	105.1	%	0.71			0.68%
Ag 328.068†	-1312.3	0.00074	mg/L	0.000312	0.00147	mg/L	0.000625 42.37%
Al 308.215†	190890.6	135.9	mg/L	6.14	271.8	mg/L	12.29 4.52%
As 188.979†	101.5	0.05738	mg/L	0.000844	0.1148	mg/L	0.00169 1.47%
B 249.677†	204.6	0.1001	mg/L	0.00530	0.2001	mg/L	0.01060 5.29%
Ba 233.527†	4293.1	0.4413	mg/L	0.02391	0.8826	mg/L	0.04782 5.42%
Be 313.042†	726.6	0.00159	mg/L	0.000158	0.00318	mg/L	0.000317 9.97%
Ca 317.933†	351604.1	34.02	mg/L	1.489	68.05	mg/L	2.978 4.38%
Cd 228.802†	217.2	0.00262	mg/L	0.000074	0.00524	mg/L	0.000147 2.81%
Co 228.616†	6043.9	0.05897	mg/L	0.000349	0.1179	mg/L	0.00070 0.59%
Cr 267.716†	687.0	0.1594	mg/L	0.00925	0.3187	mg/L	0.01850 5.80%
Cu 324.752†	74006.0	0.2488	mg/L	0.00122	0.4976	mg/L	0.00245 0.49%
Fe 273.955†	195569.6	166.2	mg/L	7.27	332.5	mg/L	14.53 4.37%
K 766.490†	57327.5	16.25	mg/L	0.786	32.50	mg/L	1.573 4.84%
Mg 279.077†	48835.2	44.63	mg/L	1.942	89.25	mg/L	3.885 4.35%
Mn 257.610†	63805.6	1.715	mg/L	0.0754	3.430	mg/L	0.1508 4.39%
Mo 202.031†	-46.6	-0.00050	mg/L	0.000215	-0.00100	mg/L	0.000429 42.90%
Na 589.592†	475247.8	58.83	mg/L	2.606	117.7	mg/L	5.21 4.43%
Na 330.237†	1505.3	61.12	mg/L	3.113	122.2	mg/L	6.23 5.09%
Ni 231.604†	294.4	0.1375	mg/L	0.00534	0.2751	mg/L	0.01069 3.89%
Pb 220.353†	892.2	0.1087	mg/L	0.00213	0.2174	mg/L	0.00425 1.96%
Sb 206.836†	89.6	0.01773	mg/L	0.001721	0.03546	mg/L	0.003442 9.71%
Se 196.026†	-68.4	-0.03761	mg/L	0.003894	-0.07522	mg/L	0.007788 10.35%
Si 288.158†	9137.8	6.988	mg/L	0.3919	13.98	mg/L	0.784 5.61%
Sn 189.927†	5.2	0.01157	mg/L	0.000372	0.02314	mg/L	0.000744 3.22%
Sr 421.552†	294590.6	0.4930	mg/L	0.02317	0.9861	mg/L	0.04635 4.70%
Ti 334.903†	157241.2	6.529	mg/L	0.2919	13.06	mg/L	0.584 4.47%
Tl 190.801†	17.4	-0.00578	mg/L	0.001317	-0.01155	mg/L	0.002634 22.80%
V 292.402†	87754.8	0.4081	mg/L	0.00138	0.8163	mg/L	0.00275 0.34%
Zn 206.200†	1234.1	0.5055	mg/L	0.02894	1.011	mg/L	0.0579 5.73%

Sequence No.: 26
 Sample ID: VO66 G SWC
 Analyst: EL
 Dilution: 2X *fil*

Autosampler Location: 55
 Date Collected: 11/2/2012 3:27:08 PM
 Data Type: Original

Nebulizer Parameters: VO66 G SWC

Analyte Back Pressure Flow
 All 233.0 kPa 0.55 L/min

Mean Data: VO66 G SWC

Analyte	Mean Corrected Intensity	Conc. Units	Calib. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2572571.6	100.7	%	0.59			0.59%
ScR 361.383	200032.4	103.3	%	1.21			1.17%
Ag 328.068†	-1377.0	0.00059	mg/L	0.000199	0.00118 mg/L	0.000398	33.67%
Al 308.215†	197347.0	140.5	mg/L	0.27	281.0 mg/L	0.53	0.19%
As 188.979†	90.2	0.05365	mg/L	0.000980	0.1073 mg/L	0.00196	1.83%
B 249.677†	254.8	0.1247	mg/L	0.00386	0.2495 mg/L	0.00771	3.09%
Ba 233.527†	3932.3	0.4035	mg/L	0.00487	0.8069 mg/L	0.00973	1.21%
Be 313.042†	713.2	0.00158	mg/L	0.000055	0.00317 mg/L	0.000110	3.48%
Ca 317.933†	370053.2	35.81	mg/L	0.041	71.62 mg/L	0.082	0.11%
Cd 228.802†	174.7	0.00210	mg/L	0.000068	0.00420 mg/L	0.000136	3.24%
Co 228.616†	5580.1	0.05247	mg/L	0.000600	0.1049 mg/L	0.00120	1.14%
Cr 267.716†	696.5	0.1616	mg/L	0.00138	0.3231 mg/L	0.00277	0.86%
Cu 324.752†	70054.0	0.2362	mg/L	0.00025	0.4723 mg/L	0.00050	0.11%
Fe 273.955†	198302.7	168.5	mg/L	0.54	337.1 mg/L	1.08	0.32%
K 766.490†	61290.3	17.37	mg/L	0.051	34.75 mg/L	0.103	0.30%
Mg 279.077†	49906.3	45.61	mg/L	0.038	91.21 mg/L	0.075	0.08%
Mn 257.610†	63682.0	1.712	mg/L	0.0028	3.424 mg/L	0.0056	0.16%
Mo 202.031†	27.4	0.00394	mg/L	0.000498	0.00788 mg/L	0.000997	12.65%
Na 589.592†	500143.2	61.91	mg/L	0.184	123.8 mg/L	0.37	0.30%
Na 330.237†	1556.9	63.28	mg/L	0.993	126.6 mg/L	1.99	1.57%
Ni 231.604†	289.3	0.1351	mg/L	0.00442	0.2703 mg/L	0.00885	3.27%
Pb 220.353†	718.3	0.09700	mg/L	0.001278	0.1940 mg/L	0.00256	1.32%
Sb 206.836†	86.8	0.01713	mg/L	0.001154	0.03426 mg/L	0.002307	6.74%
Se 196.026†	-72.3	-0.03976	mg/L	0.001796	-0.07952 mg/L	0.003592	4.52%
Si 288.158†	9374.9	7.169	mg/L	0.0401	14.34 mg/L	0.080	0.56%
Sn 189.927†	-10.0	0.00967	mg/L	0.000520	0.01934 mg/L	0.001041	5.38%
Sr 421.552†	310900.7	0.5203	mg/L	0.00268	1.041 mg/L	0.0054	0.52%
Ti 334.903†	169898.9	7.054	mg/L	0.0094	14.11 mg/L	0.019	0.13%
Tl 190.801†	20.9	-0.00516	mg/L	0.002137	-0.01032 mg/L	0.004274	41.43%
V 292.402†	83460.0	0.3866	mg/L	0.00081	0.7731 mg/L	0.00162	0.21%
Zn 206.200†	1207.7	0.4947	mg/L	0.00676	0.9894 mg/L	0.01352	1.37%

Sequence No.: 27
 Sample ID: VO66 H SWC
 Analyst: EL
 Dilution: 2X

Autosampler Location: 56
 Date Collected: 11/2/2012 3:32:58 PM
 Data Type: Original

Nebulizer Parameters: VO66 H SWC
 Analyte Back Pressure Flow
 All 233.0 kPa 0.55 L/min

Mean Data: VO66 H SWC

Analyte	Mean Corrected Intensity	Calib. Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2657613.6	104.0 %	0.51			0.49%
ScR 361.383	206117.0	106.5 %	1.16			1.09%
Ag 328.068†	-992.4	0.00202 mg/L	0.000179	0.00405 mg/L	0.000357	8.82%
Al 308.215†	205669.7	146.4 mg/L	0.27	292.9 mg/L	0.54	0.18%
As 188.979†	107.7	0.06127 mg/L	0.001718	0.1225 mg/L	0.00344	2.80%
B 249.677†	264.1	0.1293 mg/L	0.00223	0.2586 mg/L	0.00445	1.72%
Ba 233.527†	4252.2	0.4367 mg/L	0.00609	0.8734 mg/L	0.01218	1.39%
Be 313.042†	705.2	0.00155 mg/L	0.000070	0.00310 mg/L	0.000140	4.52%
Ca 317.933†	375142.0	36.30 mg/L	0.098	72.61 mg/L	0.196	0.27%
Cd 228.802†	250.7	0.00303 mg/L	0.000111	0.00606 mg/L	0.000221	3.66%
Co 228.616†	5505.0	0.05143 mg/L	0.000170	0.1029 mg/L	0.00034	0.33%
Cr 267.716†	674.0	0.1563 mg/L	0.00334	0.3127 mg/L	0.00668	2.14%
Cu 324.752†	78464.1	0.2634 mg/L	0.00017	0.5269 mg/L	0.00035	0.07%
Fe 273.955†	203667.5	173.1 mg/L	0.81	346.2 mg/L	1.62	0.47%
K 766.490†	64326.3	18.23 mg/L	0.024	36.47 mg/L	0.048	0.13%
Mg 279.077†	49554.3	45.28 mg/L	0.108	90.56 mg/L	0.217	0.24%
Mn 257.610†	63324.3	1.702 mg/L	0.0030	3.404 mg/L	0.0060	0.18%
Mo 202.031†	-45.2	-0.00020 mg/L	0.000451	-0.00041 mg/L	0.000901	221.38%
Na 589.592†	506300.7	62.67 mg/L	0.160	125.3 mg/L	0.32	0.25%
Na 330.237†	1570.9	63.81 mg/L	0.853	127.6 mg/L	1.71	1.34%
Ni 231.604†	261.0	0.1219 mg/L	0.00187	0.2439 mg/L	0.00373	1.53%
Pb 220.353†	1293.6	0.1427 mg/L	0.00028	0.2855 mg/L	0.00056	0.20%
Sb 206.836†	85.0	0.01641 mg/L	0.001689	0.03282 mg/L	0.003378	10.29%
Se 196.026†	-76.7	-0.04211 mg/L	0.003116	-0.08423 mg/L	0.006232	7.40%
Si 288.158†	8251.8	6.311 mg/L	0.0923	12.62 mg/L	0.185	1.46%
Sn 189.927†	27.9	0.01597 mg/L	0.000892	0.03194 mg/L	0.001784	5.59%
Sr 421.552†	328565.0	0.5499 mg/L	0.00210	1.100 mg/L	0.0042	0.38%
Tl 334.903†	170933.2	7.097 mg/L	0.0062	14.19 mg/L	0.012	0.09%
Tl 190.801†	15.2	-0.00677 mg/L	0.001141	-0.01353 mg/L	0.002281	16.86%
V 292.402†	83500.0	0.3862 mg/L	0.00030	0.7724 mg/L	0.00060	0.08%
Zn 206.200†	1400.9	0.5738 mg/L	0.00640	1.148 mg/L	0.0128	1.12%

Sequence No.: 28
 Sample ID: VO66 I SWC
 Analyst: EL
 Dilution: 2X *Del*

Autosampler Location: 57
 Date Collected: 11/2/2012 3:38:48 PM
 Data Type: Original

Nebulizer Parameters: VO66 I SWC

Analyte Back Pressure Flow
 All 233.0 kPa 0.55 L/min

Mean Data: VO66 I SWC

Analyte	Mean Corrected		Calib. Units	Std.Dev.	Sample		RSD
	Intensity	Conc.			Conc.	Units	
ScA 357.253	2585036.2	101.2	%	0.65			0.64%
ScR 361.383	200970.4	103.8	%	1.06			1.02%
Ag 328.068†	-1349.2	0.00006	mg/L	0.000234	0.00012	mg/L	379.65%
Al 308.215†	175402.3	124.9	mg/L	1.16	249.8	mg/L	0.93%
As 188.979†	67.4	0.04340	mg/L	0.001063	0.08680	mg/L	2.45%
B 249.677†	160.0	0.07826	mg/L	0.003500	0.1565	mg/L	4.47%
Ba 233.527†	4114.0	0.4233	mg/L	0.00448	0.8466	mg/L	1.06%
Be 313.042†	603.9	0.00123	mg/L	0.000038	0.00247	mg/L	3.09%
Ca 317.933†	389109.2	37.65	mg/L	0.436	75.31	mg/L	1.16%
Cd 228.802†	135.6	0.00163	mg/L	0.000166	0.00327	mg/L	10.14%
Co 228.616†	5361.9	0.05047	mg/L	0.000509	0.1009	mg/L	1.01%
Cr 267.716†	613.6	0.1422	mg/L	0.00162	0.2845	mg/L	1.14%
Cu 324.752†	49758.2	0.1698	mg/L	0.00043	0.3397	mg/L	0.25%
Fe 273.955†	177846.9	151.2	mg/L	1.05	302.3	mg/L	0.69%
K 766.490†	46060.8	13.06	mg/L	0.117	26.11	mg/L	0.90%
Mg 279.077†	43611.8	39.85	mg/L	0.423	79.70	mg/L	1.06%
Mn 257.610†	66011.6	1.775	mg/L	0.0184	3.549	mg/L	1.04%
Mo 202.031†	-42.2	-0.00041	mg/L	0.000148	-0.00081	mg/L	36.57%
Na 589.592†	409807.2	50.73	mg/L	0.452	101.5	mg/L	0.89%
Na 330.237†	1263.4	51.53	mg/L	0.615	103.1	mg/L	1.19%
Ni 231.604†	261.4	0.1221	mg/L	0.00258	0.2442	mg/L	2.11%
Pb 220.353†	269.4	0.05817	mg/L	0.000242	0.1163	mg/L	0.42%
Sb 206.836†	75.2	0.01527	mg/L	0.001090	0.03055	mg/L	7.14%
Se 196.026†	-74.0	-0.04065	mg/L	0.006585	-0.08130	mg/L	16.20%
Si 288.158†	6049.5	4.627	mg/L	0.0473	9.254	mg/L	1.02%
Sn 189.927†	-26.9	0.00709	mg/L	0.000892	0.01418	mg/L	12.59%
Sr 421.552†	288477.7	0.4828	mg/L	0.00365	0.9656	mg/L	0.76%
Ti 334.903†	164128.7	6.815	mg/L	0.0702	13.63	mg/L	1.03%
Tl 190.801†	28.5	-0.00273	mg/L	0.002396	-0.00546	mg/L	87.85%
V 292.402†	78012.5	0.3617	mg/L	0.00189	0.7234	mg/L	0.52%
Zn 206.200†	979.0	0.4012	mg/L	0.00530	0.8024	mg/L	1.32%

Sequence No.: 29

Sample ID: VO66 J SWC

Analyst: EL

Dilution: 2X

Autosampler Location: 58

Date Collected: 11/2/2012 3:44:39 PM

Data Type: Original

Nebulizer Parameters: VO66 J SWC

Analyte	Back Pressure	Flow
All	233.0 kPa	0.55 L/min

Mean Data: VO66 J SWC

Analyte	Mean Corrected		Calib.		Sample			RSD
	Intensity	Conc.	Units	Std.Dev.	Conc.	Units	Std.Dev.	
ScA 357.253	2610668.9	102.2	%	0.41				0.40%
ScR 361.383	202205.7	104.4	%	0.79				0.75%
Ag 328.068†	-1296.7	0.00042	mg/L	0.000029	0.00083	mg/L	0.000058	6.99%
Al 308.215†	177808.7	126.6	mg/L	0.12	253.2	mg/L	0.24	0.09%
As 188.979†	94.6	0.05465	mg/L	0.001658	0.1093	mg/L	0.00332	3.03%
B 249.677†	237.7	0.1163	mg/L	0.00074	0.2327	mg/L	0.00149	0.64%
Ba 233.527†	4189.8	0.4309	mg/L	0.00527	0.8617	mg/L	0.01053	1.22%
Be 313.042†	644.6	0.00140	mg/L	0.000074	0.00280	mg/L	0.000147	5.26%
Ca 317.933†	411513.1	39.82	mg/L	0.052	79.64	mg/L	0.105	0.13%
Cd 228.802†	147.2	0.00175	mg/L	0.000041	0.00350	mg/L	0.000082	2.35%
Co 228.616†	5303.3	0.05002	mg/L	0.000130	0.1000	mg/L	0.00026	0.26%
Cr 267.716†	626.8	0.1453	mg/L	0.00126	0.2906	mg/L	0.00251	0.86%
Cu 324.752†	61728.6	0.2088	mg/L	0.00092	0.4177	mg/L	0.00183	0.44%
Fe 273.955†	186710.1	158.7	mg/L	0.74	317.4	mg/L	1.47	0.46%
K 766.490†	51177.7	14.51	mg/L	0.051	29.02	mg/L	0.102	0.35%
Mg 279.077†	45621.6	41.69	mg/L	0.094	83.38	mg/L	0.188	0.23%
Mn 257.610†	72973.8	1.962	mg/L	0.0037	3.924	mg/L	0.0074	0.19%
Mo 202.031†	-24.4	0.00065	mg/L	0.000155	0.00131	mg/L	0.000310	23.67%
Na 589.592†	467449.5	57.86	mg/L	0.062	115.7	mg/L	0.12	0.11%
Na 330.237†	1454.4	59.10	mg/L	0.684	118.2	mg/L	1.37	1.16%
Ni 231.604†	260.3	0.1216	mg/L	0.00177	0.2432	mg/L	0.00354	1.45%
Pb 220.353†	547.7	0.07967	mg/L	0.000366	0.1593	mg/L	0.00073	0.46%
Sb 206.836†	75.5	0.01438	mg/L	0.003210	0.02876	mg/L	0.006419	22.32%
Se 196.026†	-66.9	-0.03676	mg/L	0.001844	-0.07352	mg/L	0.003689	5.02%
Si 288.158†	8949.3	6.843	mg/L	0.0881	13.69	mg/L	0.176	1.29%
Sn 189.927†	-6.5	0.01085	mg/L	0.000736	0.02169	mg/L	0.001472	6.78%
Sr 421.552†	313331.6	0.5244	mg/L	0.00094	1.049	mg/L	0.0019	0.18%
Ti 334.903†	159434.6	6.619	mg/L	0.0102	13.24	mg/L	0.020	0.15%
Tl 190.801†	20.3	-0.00505	mg/L	0.002799	-0.01011	mg/L	0.005598	55.39%
V 292.402†	77498.3	0.3587	mg/L	0.00160	0.7174	mg/L	0.00321	0.45%
Zn 206.200†	1089.1	0.4463	mg/L	0.00494	0.8926	mg/L	0.00989	1.11%

Sequence No.: 30

Autosampler Location: 59

Sample ID: VO66 K SWC

Date Collected: 11/2/2012 3:50:29 PM

Analyst: EL

Data Type: Original

Dilution: 2X

Nebulizer Parameters: VO66 K SWC

Analyte	Back Pressure	Flow
All	233.0 kPa	0.55 L/min

Mean Data: VO66 K SWC

Analyte	Mean Corrected Intensity	Conc. Units	Calib. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2609601.0	102.2	%	0.17			0.17%
ScR 361.383	205376.0	106.1	%	3.70			3.49%
Ag 328.068†	-883.3	0.00236	mg/L	0.000126	0.00472 mg/L	0.000253	5.35%
Al 308.215†	212505.9	151.3	mg/L	5.13	302.6 mg/L	10.25	3.39%
As 188.979†	96.5	0.05716	mg/L	0.000799	0.1143 mg/L	0.00160	1.40%
B 249.677†	234.3	0.1146	mg/L	0.00278	0.2293 mg/L	0.00555	2.42%
Ba 233.527†	4785.6	0.4924	mg/L	0.01569	0.9849 mg/L	0.03137	3.19%
Be 313.042†	715.7	0.00155	mg/L	0.000149	0.00311 mg/L	0.000297	9.57%
Ca 317.933†	399980.4	38.71	mg/L	1.249	77.41 mg/L	2.497	3.23%
Cd 228.802†	310.1	0.00378	mg/L	0.000082	0.00757 mg/L	0.000164	2.17%
Co 228.616†	5907.8	0.05566	mg/L	0.000537	0.1113 mg/L	0.00107	0.97%
Cr 267.716†	738.0	0.1711	mg/L	0.00531	0.3423 mg/L	0.01062	3.10%
Cu 324.752†	80248.4	0.2692	mg/L	0.00021	0.5384 mg/L	0.00042	0.08%
Fe 273.955†	205720.1	174.9	mg/L	5.93	349.7 mg/L	11.86	3.39%
K 766.490†	59653.5	16.91	mg/L	0.667	33.82 mg/L	1.334	3.95%
Mg 279.077†	50185.7	45.86	mg/L	1.579	91.72 mg/L	3.159	3.44%
Mn 257.610†	77159.1	2.074	mg/L	0.0696	4.149 mg/L	0.1392	3.36%
Mo 202.031†	-47.6	-0.00025	mg/L	0.000490	-0.00050 mg/L	0.000979	194.21%
Na 589.592†	475943.1	58.91	mg/L	2.036	117.8 mg/L	4.07	3.46%
Na 330.237†	1462.4	59.53	mg/L	1.936	119.1 mg/L	3.87	3.25%
Ni 231.604†	284.0	0.1327	mg/L	0.00482	0.2654 mg/L	0.00963	3.63%
Pb 220.353†	1909.4	0.1914	mg/L	0.00118	0.3829 mg/L	0.00236	0.62%
Sb 206.836†	90.7	0.01812	mg/L	0.001792	0.03624 mg/L	0.003584	9.89%
Se 196.026†	-78.6	-0.04317	mg/L	0.002214	-0.08634 mg/L	0.004429	5.13%
Si 288.158†	8724.9	6.672	mg/L	0.1999	13.34 mg/L	0.400	3.00%
Sn 189.927†	39.7	0.01855	mg/L	0.001596	0.03711 mg/L	0.003192	8.60%
Sr 421.552†	338409.5	0.5664	mg/L	0.01953	1.133 mg/L	0.0391	3.45%
Ti 334.903†	178704.7	7.420	mg/L	0.2512	14.84 mg/L	0.502	3.38%
Tl 190.801†	29.9	-0.00351	mg/L	0.003037	-0.00701 mg/L	0.006073	86.61%
V 292.402†	86206.6	0.3991	mg/L	0.00181	0.7983 mg/L	0.00362	0.45%
Zn 206.200†	1404.9	0.5755	mg/L	0.01756	1.151 mg/L	0.0351	3.05%

Sequence No.: 31
 Sample ID: VO66 L SWC
 Analyst: EL
 Dilution: 2X *EL*

Autosampler Location: 60
 Date Collected: 11/2/2012 3:56:19 PM
 Data Type: Original

Nebulizer Parameters: VO66 L SWC
 Analyte Back Pressure Flow
 All 233.0 kPa 0.55 L/min

Mean Data: VO66 L SWC

Analyte	Mean Corrected Intensity	Conc. Units	Calib. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2601774.6	101.9	%	0.22			0.22%
ScR 361.383	199517.8	103.0	%	0.21			0.20%
Ag 328.068†	-947.0	0.00253	mg/L	0.000139	0.00505 mg/L	0.000277	5.49%
Al 308.215†	240350.4	171.1	mg/L	0.38	342.2 mg/L	0.77	0.22%
As 188.979†	105.3	0.06144	mg/L	0.003325	0.1229 mg/L	0.00665	5.41%
B 249.677†	213.7	0.1045	mg/L	0.00079	0.2091 mg/L	0.00159	0.76%
Ba 233.527†	5441.2	0.5604	mg/L	0.00335	1.121 mg/L	0.0067	0.60%
Be 313.042†	843.6	0.00198	mg/L	0.000034	0.00397 mg/L	0.000068	1.72%
Ca 317.933†	424293.5	41.06	mg/L	0.204	82.12 mg/L	0.409	0.50%
Cd 228.802†	352.8	0.00430	mg/L	0.000081	0.00861 mg/L	0.000162	1.88%
Co 228.616†	6234.7	0.05898	mg/L	0.000205	0.1180 mg/L	0.00041	0.35%
Cr 267.716†	717.5	0.1663	mg/L	0.00038	0.3326 mg/L	0.00077	0.23%
Cu 324.752†	86529.5	0.2904	mg/L	0.00053	0.5807 mg/L	0.00106	0.18%
Fe 273.955†	221508.9	188.3	mg/L	0.98	376.5 mg/L	1.95	0.52%
K 766.490†	65652.9	18.61	mg/L	0.036	37.22 mg/L	0.072	0.19%
Mg 279.077†	53357.0	48.76	mg/L	0.232	97.51 mg/L	0.464	0.48%
Mn 257.610†	87614.9	2.355	mg/L	0.0084	4.711 mg/L	0.0168	0.36%
Mo 202.031†	-69.3	-0.00115	mg/L	0.000248	-0.00230 mg/L	0.000497	21.58%
Na 589.592†	508040.0	62.89	mg/L	0.071	125.8 mg/L	0.14	0.11%
Na 330.237†	1562.3	63.55	mg/L	0.562	127.1 mg/L	1.12	0.89%
Ni 231.604†	255.2	0.1192	mg/L	0.00236	0.2385 mg/L	0.00473	1.98%
Pb 220.353†	2239.4	0.2230	mg/L	0.00103	0.4459 mg/L	0.00206	0.46%
Sb 206.836†	108.0	0.02244	mg/L	0.000318	0.04488 mg/L	0.000636	1.42%
Se 196.026†	-87.8	-0.04815	mg/L	0.003740	-0.09630 mg/L	0.007479	7.77%
Si 288.158†	7684.2	5.877	mg/L	0.0339	11.75 mg/L	0.068	0.58%
Sn 189.927†	32.5	0.01803	mg/L	0.000647	0.03607 mg/L	0.001294	3.59%
Sr 421.552†	376617.3	0.6303	mg/L	0.00266	1.261 mg/L	0.0053	0.42%
Ti 334.903†	184486.5	7.660	mg/L	0.0213	15.32 mg/L	0.043	0.28%
Tl 190.801†	23.0	-0.00614	mg/L	0.000450	-0.01228 mg/L	0.000899	7.32%
V 292.402†	90815.5	0.4201	mg/L	0.00120	0.8403 mg/L	0.00240	0.29%
Zn 206.200†	1489.7	0.6102	mg/L	0.00296	1.220 mg/L	0.0059	0.49%

Sequence No.: 32
 Sample ID: VO66 M SWC
 Analyst: EL
 Dilution: 2X *Dil*

Autosampler Location: 61
 Date Collected: 11/2/2012 4:02:09 PM
 Data Type: Original

Nebulizer Parameters: VO66 M SWC

Analyte Back Pressure Flow
 All 233.0 kPa 0.55 L/min

Mean Data: VO66 M SWC

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2651909.5	103.8	%	0.23			0.22%
ScR 361.383	206794.5	106.8	%	0.38			0.36%
Ag 328.068†	-1345.3	0.00061	mg/L	0.000269	0.00122 mg/L	0.000538	43.97%
Al 308.215†	179711.2	127.9	mg/L	0.39	255.9 mg/L	0.77	0.30%
As 188.979†	108.2	0.05954	mg/L	0.003242	0.1191 mg/L	0.00648	5.45%
B 249.677†	233.4	0.1143	mg/L	0.00330	0.2285 mg/L	0.00660	2.89%
Ba 233.527†	3802.2	0.3900	mg/L	0.00138	0.7799 mg/L	0.00277	0.36%
Be 313.042†	668.9	0.00148	mg/L	0.000033	0.00295 mg/L	0.000066	2.23%
Ca 317.933†	347194.6	33.60	mg/L	0.026	67.20 mg/L	0.052	0.08%
Cd 228.802†	175.2	0.00209	mg/L	0.000104	0.00418 mg/L	0.000208	4.97%
Co 228.616†	5316.8	0.05086	mg/L	0.000116	0.1017 mg/L	0.00023	0.23%
Cr 267.716†	677.5	0.1572	mg/L	0.00058	0.3143 mg/L	0.00117	0.37%
Cu 324.752†	69467.3	0.2344	mg/L	0.00056	0.4687 mg/L	0.00112	0.24%
Fe 273.955†	195542.1	166.2	mg/L	0.31	332.4 mg/L	0.61	0.18%
K 766.490†	57559.5	16.32	mg/L	0.057	32.63 mg/L	0.114	0.35%
Mg 279.077†	49685.4	45.41	mg/L	0.089	90.81 mg/L	0.178	0.20%
Mn 257.610†	63050.6	1.695	mg/L	0.0057	3.390 mg/L	0.0113	0.33%
Mo 202.031†	-33.0	0.00013	mg/L	0.000147	0.00026 mg/L	0.000293	114.31%
Na 589.592†	492689.3	60.99	mg/L	0.073	122.0 mg/L	0.15	0.12%
Na 330.237†	1521.6	61.71	mg/L	0.318	123.4 mg/L	0.64	0.52%
Ni 231.604†	277.0	0.1294	mg/L	0.00148	0.2588 mg/L	0.00297	1.15%
Pb 220.353†	751.3	0.09516	mg/L	0.000072	0.1903 mg/L	0.00014	0.08%
Sb 206.836†	78.8	0.01398	mg/L	0.002180	0.02796 mg/L	0.004360	15.59%
Se 196.026†	-65.8	-0.03618	mg/L	0.003372	-0.07236 mg/L	0.006744	9.32%
Si 288.158†	9124.5	6.978	mg/L	0.0148	13.96 mg/L	0.030	0.21%
Sn 189.927†	0.0	0.01053	mg/L	0.000426	0.02105 mg/L	0.000853	4.05%
Sr 421.552†	295214.1	0.4941	mg/L	0.00123	0.9881 mg/L	0.00245	0.25%
Ti 334.903†	149064.8	6.189	mg/L	0.0186	12.38 mg/L	0.037	0.30%
Tl 190.801†	16.3	-0.00551	mg/L	0.001042	-0.01102 mg/L	0.002084	18.91%
V 292.402†	79592.9	0.3686	mg/L	0.00132	0.7372 mg/L	0.00265	0.36%
Zn 206.200†	1185.8	0.4857	mg/L	0.00040	0.9714 mg/L	0.00079	0.08%

Sequence No.: 33
 Sample ID: VO66 N SWC
 Analyst: EL
 Dilution: 2X *DL*

Autosampler Location: 62
 Date Collected: 11/2/2012 4:07:59 PM
 Data Type: Original

Nebulizer Parameters: VO66 N SWC

Analyte Back Pressure Flow
 All 233.0 kPa 0.55 L/min

Mean Data: VO66 N SWC

Analyte	Mean Corrected		Calib.		Std.Dev.	Sample		RSD
	Intensity	Conc.	Units	Conc.		Units	Std.Dev.	
ScA 357.253	2592220.4	101.5	%	0.41				0.40%
ScR 361.383	205689.7	106.2	%	0.65				0.61%
Ag 328.068†	15490.4	0.05905	mg/L	0.000177	0.1181	mg/L	0.00035	0.30%
Al 308.215†	169443.2	120.6	mg/L	0.20	241.3	mg/L	0.40	0.16%
As 188.979†	401.3	0.1774	mg/L	0.00198	0.3548	mg/L	0.00397	1.12%
B 249.677†	355.8	0.1734	mg/L	0.00390	0.3468	mg/L	0.00781	2.25%
Ba 233.527†	12003.8	1.244	mg/L	0.0087	2.488	mg/L	0.0174	0.70%
Be 313.042†	1907.4	0.00617	mg/L	0.000036	0.01233	mg/L	0.000072	0.59%
Ca 317.933†	677279.4	65.54	mg/L	0.052	131.1	mg/L	0.10	0.08%
Cd 228.802†	6767.4	0.08423	mg/L	0.000024	0.1685	mg/L	0.00005	0.03%
Co 228.616†	8419.5	0.09157	mg/L	0.000251	0.1831	mg/L	0.00050	0.27%
Cr 267.716†	8234.2	1.916	mg/L	0.0126	3.833	mg/L	0.0253	0.66%
Cu 324.752†	1139453.6	3.667	mg/L	0.0056	7.333	mg/L	0.0112	0.15%
Fe 273.955†	301044.1	255.9	mg/L	0.15	511.7	mg/L	0.30	0.06%
K 766.490†	101049.2	28.65	mg/L	0.037	57.29	mg/L	0.074	0.13%
Mg 279.077†	82002.6	74.95	mg/L	0.078	149.9	mg/L	0.16	0.10%
Mn 257.610†	119265.3	3.208	mg/L	0.0026	6.415	mg/L	0.0051	0.08%
Mo 202.031†	381.9	0.02381	mg/L	0.000387	0.04763	mg/L	0.000774	1.62%
Na 589.592†	739751.5	91.57	mg/L	0.150	183.1	mg/L	0.30	0.16%
Na 330.237†	2358.4	92.54	mg/L	0.597	185.1	mg/L	1.19	0.65%
Ni 231.604†	1300.5	0.6075	mg/L	0.00362	1.215	mg/L	0.0072	0.60%
Pb 220.353†	37344.3	2.882	mg/L	0.0103	5.764	mg/L	0.0205	0.36%
Sb 206.836†	209.9	0.00999	mg/L	0.001400	0.01998	mg/L	0.002799	14.01%
Se 196.026†	-62.8	-0.03573	mg/L	0.006769	-0.07147	mg/L	0.013539	18.94%
Si 288.158†	9444.4	7.227	mg/L	0.0480	14.45	mg/L	0.096	0.66%
Sn 189.927†	2005.6	0.3443	mg/L	0.00157	0.6887	mg/L	0.00314	0.46%
Sr 421.552†	340045.3	0.5691	mg/L	0.00240	1.138	mg/L	0.0048	0.42%
Ti 334.903†	82931.3	3.441	mg/L	0.0015	6.881	mg/L	0.0030	0.04%
Tl 190.801†	-10.2	-0.01327	mg/L	0.002453	-0.02655	mg/L	0.004906	18.48%
V 292.402†	89791.9	0.4250	mg/L	0.00101	0.8501	mg/L	0.00203	0.24%
Zn 206.200†	13580.1	5.556	mg/L	0.0393	11.11	mg/L	0.079	0.71%

Sequence No.: 34
 Sample ID: VO66 REF1 SWC
 Analyst: EL
 Dilution: 2X

Autosampler Location: 63
 Date Collected: 11/2/2012 4:13:56 PM
 Data Type: Original

Nebulizer Parameters: VO66 REF1 SWC

Analyte Back Pressure Flow
 All 233.0 kPa 0.55 L/min

Mean Data: VO66 REF1 SWC

Analyte	Mean Corrected		Calib. Conc. Units	Std.Dev.	Sample		RSD
	Intensity	Conc.			Conc.	Units	
ScA 357.253	2589533.1	101.4	%	0.13			0.13%
ScR 361.383	200251.5	103.4	%	0.30			0.29%
Ag 328.068†	329294.6	1.103	mg/L	0.0044	2.207	mg/L	0.0088
Al 308.215†	130585.9	92.96	mg/L	0.362	185.9	mg/L	0.72
As 188.979†	3140.5	1.350	mg/L	0.0044	2.700	mg/L	0.0089
B 249.677†	2255.0	1.104	mg/L	0.0123	2.209	mg/L	0.0247
Ba 233.527†	32194.8	3.361	mg/L	0.0438	6.723	mg/L	0.0877
Be 313.042†	240228.3	0.9239	mg/L	0.00391	1.848	mg/L	0.0078
Ca 317.933†	430070.4	41.62	mg/L	0.202	83.24	mg/L	0.405
Cd 228.802†	59133.7	0.7352	mg/L	0.00123	1.470	mg/L	0.0025
Co 228.616†	61830.6	0.7351	mg/L	0.00168	1.470	mg/L	0.0034
Cr 267.716†	3199.2	0.7437	mg/L	0.00876	1.487	mg/L	0.0175
Cu 324.752†	227653.8	0.7402	mg/L	0.00086	1.480	mg/L	0.0017
Fe 273.955†	172426.7	146.6	mg/L	0.46	293.1	mg/L	0.91
K 766.490†	135873.4	38.52	mg/L	0.158	77.03	mg/L	0.316
Mg 279.077†	31674.1	28.93	mg/L	0.389	57.85	mg/L	0.779
Mn 257.610†	175212.8	4.712	mg/L	0.0223	9.425	mg/L	0.0445
Mo 202.031†	7179.2	0.4235	mg/L	0.00150	0.8470	mg/L	0.00301
Na 589.592†	49932.9	6.181	mg/L	0.0238	12.36	mg/L	0.048
Na 330.237†	164.7	6.114	mg/L	0.2794	12.23	mg/L	0.559
Ni 231.604†	1217.5	0.5685	mg/L	0.00725	1.137	mg/L	0.0145
Pb 220.353†	16623.9	1.296	mg/L	0.0036	2.592	mg/L	0.0071
Sb 206.836†	1622.0	0.4770	mg/L	0.00222	0.9540	mg/L	0.00443
Se 196.026†	2990.3	1.628	mg/L	0.0088	3.256	mg/L	0.0176
Si 288.158†	9612.8	7.353	mg/L	0.0773	14.71	mg/L	0.155
Sn 189.927†	9928.1	1.631	mg/L	0.0067	3.261	mg/L	0.0133
Sr 421.552†	350814.1	0.5871	mg/L	0.00259	1.174	mg/L	0.0052
Ti 334.903†	50628.2	2.100	mg/L	0.0107	4.200	mg/L	0.0213
Tl 190.801†	4785.6	1.326	mg/L	0.0064	2.652	mg/L	0.0127
V 292.402†	175352.8	0.8478	mg/L	0.00149	1.696	mg/L	0.0030
Zn 206.200†	4496.7	1.840	mg/L	0.0243	3.680	mg/L	0.0487

=====
Analysis Begun

Start Time: 11/2/2012 4:18:48 PM
 Logged In Analyst: metals
 Spectrometer Model: Optima 4300 DV, S/N 077N0060101

Plasma On Time: 11/2/2012 8:20:38 AM
 Technique: ICP Continuous

Autosampler Model: S10

Sample Information File: C:\pe\metals\Sample Information\1102.sif

Batch ID:

Results Data Set: PE121102

Results Library: C:\pe\metals\Results\Results.mdb

Sequence No.: 1
 Sample ID: CV
 Analyst: EL
 Dilution: 1X

Autosampler Location: 7
 Date Collected: 11/2/2012 4:18:50 PM
 Data Type: Original

Nebulizer Parameters: CV

Analyte	Back Pressure	Flow
All	232.0 kPa	0.55 L/min

Mean Data: CV

Analyte	Mean Corrected		Calib.		Sample		Std.Dev.	RSD
	Intensity	Conc.	Units	Std.Dev.	Conc.	Units		
ScA 357.253	2624539.7	102.7	%	0.31				0.31%
ScR 361.383	199413.4	103.0	%	0.66				0.64%
Ag 328.068†	292069.7	0.9753	mg/L	0.00863	0.9753	mg/L	0.00863	0.89%
Al 308.215†	2949.5	2.059	mg/L	0.0204	2.059	mg/L	0.0204	0.99%
As 188.979†	4593.6	1.969	mg/L	0.0170	1.969	mg/L	0.0170	0.86%
B 249.677†	2009.7	0.9841	mg/L	0.00204	0.9841	mg/L	0.00204	0.21%
Ba 233.527†	9768.1	1.022	mg/L	0.0074	1.022	mg/L	0.0074	0.72%
Be 313.042†	255393.6	0.9820	mg/L	0.01159	0.9820	mg/L	0.01159	1.18%
Ca 317.933†	20794.9	2.012	mg/L	0.0142	2.012	mg/L	0.0142	0.70%
Cd 228.802†	81098.3	1.008	mg/L	0.0079	1.008	mg/L	0.0079	0.78%
Co 228.616†	81043.8	0.9699	mg/L	0.00623	0.9699	mg/L	0.00623	0.64%
Cr 267.716†	4312.5	1.004	mg/L	0.0069	1.004	mg/L	0.0069	0.69%
Cu 324.752†	330817.2	1.059	mg/L	0.0063	1.059	mg/L	0.0063	0.59%
Fe 273.955†	2484.0	2.110	mg/L	0.0113	2.110	mg/L	0.0113	0.53%
K 766.490†	75277.8	21.34	mg/L	0.266	21.34	mg/L	0.266	1.25%
Mg 279.077†	2326.3	2.134	mg/L	0.0218	2.134	mg/L	0.0218	1.02%
Mn 257.610†	37613.4	1.012	mg/L	0.0134	1.012	mg/L	0.0134	1.32%
Mo 202.031†	16059.9	0.9440	mg/L	0.00602	0.9440	mg/L	0.00602	0.64%
Na 589.592†	417002.5	51.62	mg/L	0.496	51.62	mg/L	0.496	0.96%
Na 330.237†	1315.5	52.36	mg/L	0.458	52.36	mg/L	0.458	0.87%
Ni 231.604†	2146.3	1.003	mg/L	0.0058	1.003	mg/L	0.0058	0.58%
Pb 220.353†	25260.9	1.929	mg/L	0.0139	1.929	mg/L	0.0139	0.72%
Sb 206.836†	6929.2	2.046	mg/L	0.0129	2.046	mg/L	0.0129	0.63%
Se 196.026†	3502.8	1.906	mg/L	0.0125	1.906	mg/L	0.0125	0.66%
Si 288.158†	2804.7	2.150	mg/L	0.0069	2.150	mg/L	0.0069	0.32%
Sn 189.927†	5533.5	0.9040	mg/L	0.00791	0.9040	mg/L	0.00791	0.87%
Sr 421.552†	611696.0	1.024	mg/L	0.0113	1.024	mg/L	0.0113	1.10%
Ti 334.903†	24638.4	1.022	mg/L	0.0122	1.022	mg/L	0.0122	1.20%
Tl 190.801†	6836.0	1.905	mg/L	0.0149	1.905	mg/L	0.0149	0.78%
V 292.402†	206060.3	1.016	mg/L	0.0078	1.016	mg/L	0.0078	0.76%
Zn 206.200†	2623.8	1.072	mg/L	0.0084	1.072	mg/L	0.0084	0.78%

Sequence No.: 2
 Sample ID: CB₂
 Analyst: EL
 Dilution: 1X

Autosampler Location: 1
 Date Collected: 11/2/2012 4:24:53 PM
 Data Type: Original

Nebulizer Parameters: CB

Analyte Back Pressure Flow
 All 232.0 kPa 0.55 L/min

Mean Data: CB

Analyte	Mean Corrected Intensity	Calib. Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2690771.6	105.3 %	1.83			1.74%
ScR 361.383	199317.7	102.9 %	0.66			0.64%
Ag 328.068†	83.2	0.00028 mg/L	0.000231	0.00028 mg/L	0.000231	83.11%
Al 308.215†	21.7	0.01541 mg/L	0.001794	0.01541 mg/L	0.001794	11.64%
As 188.979†	1.4	0.00058 mg/L	0.000536	0.00058 mg/L	0.000536	91.98%
B 249.677†	11.2	0.00551 mg/L	0.002905	0.00551 mg/L	0.002905	52.72%
Ba 233.527†	-2.6	-0.00027 mg/L	0.000462	-0.00027 mg/L	0.000462	171.36%
Be 313.042†	1.2	0.00000 mg/L	0.000023	0.00000 mg/L	0.000023	557.14%
Ca 317.933†	-33.2	-0.00322 mg/L	0.000978	-0.00322 mg/L	0.000978	30.41%
Cd 228.802†	-9.2	-0.00012 mg/L	0.000044	-0.00012 mg/L	0.000044	37.88%
Co 228.616†	-7.8	-0.00009 mg/L	0.000088	-0.00009 mg/L	0.000088	92.73%
Cr 267.716†	-1.5	-0.00034 mg/L	0.000504	-0.00034 mg/L	0.000504	146.87%
Cu 324.752†	628.0	0.00201 mg/L	0.000079	0.00201 mg/L	0.000079	3.93%
Fe 273.955†	-4.5	-0.00379 mg/L	0.000727	-0.00379 mg/L	0.000727	19.21%
K 766.490†	267.4	0.07581 mg/L	0.008143	0.07581 mg/L	0.008143	10.74%
Mg 279.077†	-5.4	-0.00490 mg/L	0.003794	-0.00490 mg/L	0.003794	77.38%
Mn 257.610†	-4.6	-0.00012 mg/L	0.000115	-0.00012 mg/L	0.000115	92.19%
Mo 202.031†	10.6	0.00062 mg/L	0.000142	0.00062 mg/L	0.000142	22.67%
Na 589.592†	395.5	0.04895 mg/L	0.009628	0.04895 mg/L	0.009628	19.67%
Na 330.237†	13.1	0.5217 mg/L	0.86983	0.5217 mg/L	0.86983	166.73%
Ni 231.604†	2.1	0.00096 mg/L	0.001119	0.00096 mg/L	0.001119	116.25%
Pb 220.353†	-11.0	-0.00084 mg/L	0.000799	-0.00084 mg/L	0.000799	95.50%
Sb 206.836†	-7.6	-0.00223 mg/L	0.000840	-0.00223 mg/L	0.000840	37.75%
Se 196.026†	6.0	0.00329 mg/L	0.005806	0.00329 mg/L	0.005806	176.25%
Si 288.158†	-1.9	-0.00148 mg/L	0.000553	-0.00148 mg/L	0.000553	37.33%
Sn 189.927†	5.9	0.00097 mg/L	0.000240	0.00097 mg/L	0.000240	24.77%
Sr 421.552†	31.8	0.00005 mg/L	0.000025	0.00005 mg/L	0.000025	47.62%
Ti 334.903†	19.8	0.00082 mg/L	0.000651	0.00082 mg/L	0.000651	79.24%
Tl 190.801†	1.5	0.00042 mg/L	0.001190	0.00042 mg/L	0.001190	280.49%
V 292.402†	43.0	0.00021 mg/L	0.000109	0.00021 mg/L	0.000109	51.94%
Zn 206.200†	6.4	0.00261 mg/L	0.000334	0.00261 mg/L	0.000334	12.80%

Sequence No.: 3

Sample ID: VO66 A-L SWC

Analyst: EL

Dilution: 10X

Autosampler Location: 64

Date Collected: 11/2/2012 4:30:51 PM

Data Type: Original

Nebulizer Parameters: VO66 A-L SWC

Analyte	Back Pressure	Flow
All	232.0 kPa	0.55 L/min

Mean Data: VO66 A-L SWC

Analyte	Mean Corrected		Calib.		Sample		Std.Dev.	RSD
	Intensity	Conc.	Units	Std.Dev.	Conc.	Units		
ScA 357.253	2612097.9	102.3	%	0.60				0.58%
ScR 361.383	197603.2	102.1	%	0.58				0.57%
Ag 328.068†	-265.1	0.00020	mg/L	0.000174	0.00204	mg/L	0.001737	85.21%
Al 308.215†	40565.5	28.88	mg/L	0.128	288.8	mg/L	1.28	0.44%
As 188.979†	19.6	0.01147	mg/L	0.001303	0.1147	mg/L	0.01303	11.36%
B 249.677†	52.9	0.02589	mg/L	0.002261	0.2589	mg/L	0.02261	8.73%
Ba 233.527†	794.8	0.08149	mg/L	0.000410	0.8149	mg/L	0.00410	0.50%
Be 313.042†	138.8	0.00030	mg/L	0.000017	0.00296	mg/L	0.000169	5.70%
Ca 317.933†	74728.5	7.231	mg/L	0.0360	72.31	mg/L	0.360	0.50%
Cd 228.802†	34.1	0.00041	mg/L	0.000106	0.00408	mg/L	0.001064	26.06%
Co 228.616†	1166.0	0.01103	mg/L	0.000203	0.1103	mg/L	0.00203	1.84%
Cr 267.716†	146.0	0.03388	mg/L	0.000988	0.3388	mg/L	0.00988	2.92%
Cu 324.752†	15600.4	0.05244	mg/L	0.000261	0.5244	mg/L	0.00261	0.50%
Fe 273.955†	41478.7	35.26	mg/L	0.236	352.6	mg/L	2.36	0.67%
K 766.490†	13406.6	3.800	mg/L	0.0182	38.00	mg/L	0.182	0.48%
Mg 279.077†	10554.1	9.645	mg/L	0.0517	96.45	mg/L	0.517	0.54%
Mn 257.610†	12806.6	0.3443	mg/L	0.00216	3.443	mg/L	0.0216	0.63%
Mo 202.031†	4.8	0.00076	mg/L	0.000219	0.00756	mg/L	0.002186	28.93%
Na 589.592†	107761.3	13.34	mg/L	0.066	133.4	mg/L	0.66	0.49%
Na 330.237†	355.7	14.43	mg/L	0.419	144.3	mg/L	4.19	2.91%
Ni 231.604†	61.1	0.02852	mg/L	0.001919	0.2852	mg/L	0.01919	6.73%
Pb 220.353†	169.5	0.02157	mg/L	0.000362	0.2157	mg/L	0.00362	1.68%
Sb 206.836†	11.2	0.00149	mg/L	0.002075	0.01487	mg/L	0.020752	139.57%
Se 196.026†	-3.8	-0.00212	mg/L	0.002100	-0.02124	mg/L	0.020999	98.84%
Si 288.158†	2008.3	1.536	mg/L	0.0114	15.36	mg/L	0.114	0.74%
Sn 189.927†	0.0	0.00230	mg/L	0.000416	0.02304	mg/L	0.004162	18.06%
Sr 421.552†	63393.2	0.1061	mg/L	0.00045	1.061	mg/L	0.0045	0.42%
Ti 334.903†	34630.2	1.438	mg/L	0.0088	14.38	mg/L	0.088	0.61%
Tl 190.801†	6.7	-0.00037	mg/L	0.000705	-0.00366	mg/L	0.007045	192.42%
V 292.402†	17092.7	0.07911	mg/L	0.000610	0.7911	mg/L	0.00610	0.77%
Zn 206.200†	264.8	0.1085	mg/L	0.00068	1.085	mg/L	0.0068	0.62%

Sequence No.: 4
 Sample ID: VO66 A SWC
 Analyst: EL
 Dilution: 2X *EL*

Autosampler Location: 65
 Date Collected: 11/2/2012 4:36:54 PM
 Data Type: Original

Nebulizer Parameters: VO66 A SWC

Analyte Back Pressure Flow
 All 231.0 kPa 0.55 L/min

Mean Data: VO66 A SWC

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2544472.4	99.61	%	0.589			0.59%
ScR 361.383	195912.3	101.2	%	0.99			0.97%
Ag 328.068†	-1301.5	0.00090	mg/L	0.000207	0.00180 mg/L	0.000413	22.99%
Al 308.215†	199138.6	141.8	mg/L	0.28	283.6 mg/L	0.57	0.20%
As 188.979†	84.5	0.05116	mg/L	0.001315	0.1023 mg/L	0.00263	2.57%
B 249.677†	247.2	0.1210	mg/L	0.00134	0.2420 mg/L	0.00268	1.11%
Ba 233.527†	3895.5	0.3995	mg/L	0.00249	0.7991 mg/L	0.00497	0.62%
Be 313.042†	729.6	0.00165	mg/L	0.000042	0.00329 mg/L	0.000084	2.56%
Ca 317.933†	361984.0	35.03	mg/L	0.096	70.06 mg/L	0.192	0.27%
Cd 228.802†	196.4	0.00238	mg/L	0.000039	0.00476 mg/L	0.000079	1.66%
Co 228.616†	5541.4	0.05202	mg/L	0.000509	0.1040 mg/L	0.00102	0.98%
Cr 267.716†	722.6	0.1677	mg/L	0.00166	0.3353 mg/L	0.00331	0.99%
Cu 324.752†	75692.8	0.2543	mg/L	0.00047	0.5086 mg/L	0.00094	0.18%
Fe 273.955†	199601.5	169.7	mg/L	0.33	339.3 mg/L	0.66	0.19%
K 766.490†	64166.8	18.19	mg/L	0.130	36.38 mg/L	0.261	0.72%
Mg 279.077†	50764.4	46.39	mg/L	0.122	92.78 mg/L	0.245	0.26%
Mn 257.610†	61613.7	1.656	mg/L	0.0028	3.312 mg/L	0.0056	0.17%
Mo 202.031†	-29.2	0.00063	mg/L	0.000057	0.00125 mg/L	0.000115	9.19%
Na 589.592†	517335.3	64.04	mg/L	0.219	128.1 mg/L	0.44	0.34%
Na 330.237†	1599.3	64.96	mg/L	0.461	129.9 mg/L	0.92	0.71%
Ni 231.604†	296.9	0.1387	mg/L	0.00418	0.2774 mg/L	0.00837	3.02%
Pb 220.353†	852.5	0.1076	mg/L	0.00071	0.2152 mg/L	0.00143	0.66%
Sb 206.836†	78.2	0.01439	mg/L	0.002048	0.02879 mg/L	0.004097	14.23%
Se 196.026†	-76.9	-0.04225	mg/L	0.003073	-0.08450 mg/L	0.006146	7.27%
Si 288.158†	9810.8	7.502	mg/L	0.0635	15.00 mg/L	0.127	0.85%
Sn 189.927†	8.3	0.01251	mg/L	0.000274	0.02502 mg/L	0.000547	2.19%
Sr 421.552†	308655.8	0.5166	mg/L	0.00282	1.033 mg/L	0.0056	0.55%
Ti 334.903†	169497.0	7.038	mg/L	0.0145	14.08 mg/L	0.029	0.21%
Tl 190.801†	18.6	-0.00571	mg/L	0.000584	-0.01141 mg/L	0.001168	10.24%
V 292.402†	83509.2	0.3867	mg/L	0.00144	0.7734 mg/L	0.00288	0.37%
Zn 206.200†	1287.2	0.5272	mg/L	0.00525	1.054 mg/L	0.0105	1.00%

Sequence No.: 5
 Sample ID: VO66 ADUP SWC
 Analyst: EL
 Dilution: 2X Del

Autosampler Location: 66
 Date Collected: 11/2/2012 4:42:46 PM
 Data Type: Original

Nebulizer Parameters: VO66 ADUP SWC

Analyte	Back Pressure	Flow
All	232.0 kPa	0.55 L/min

Mean Data: VO66 ADUP SWC

Analyte	Mean Corrected		Calib. Units	Std.Dev.	Sample		Std.Dev.	RSD
	Intensity	Conc.			Conc.	Units		
ScA 357.253	2611697.8	102.2	%	0.60				0.58%
ScR 361.383	199653.8	103.1	%	0.61				0.59%
Ag 328.068†	-1252.7	0.00098	mg/L	0.000169	0.00196	mg/L	0.000337	17.19%
Al 308.215†	188429.4	134.2	mg/L	0.14	268.3	mg/L	0.28	0.10%
As 188.979†	90.0	0.05235	mg/L	0.001122	0.1047	mg/L	0.00224	2.14%
B 249.677†	232.6	0.1138	mg/L	0.00286	0.2276	mg/L	0.00571	2.51%
Ba 233.527†	3785.5	0.3882	mg/L	0.00063	0.7763	mg/L	0.00127	0.16%
Be 313.042†	701.7	0.00159	mg/L	0.000017	0.00318	mg/L	0.000034	1.05%
Ca 317.933†	351177.7	33.98	mg/L	0.069	67.97	mg/L	0.138	0.20%
Cd 228.802†	186.4	0.00225	mg/L	0.000090	0.00450	mg/L	0.000180	4.01%
Co 228.616†	5314.7	0.05031	mg/L	0.000473	0.1006	mg/L	0.00095	0.94%
Cr 267.716†	708.7	0.1644	mg/L	0.00098	0.3289	mg/L	0.00197	0.60%
Cu 324.752†	72716.2	0.2448	mg/L	0.00210	0.4895	mg/L	0.00420	0.86%
Fe 273.955†	197037.8	167.5	mg/L	0.84	334.9	mg/L	1.67	0.50%
K 766.490†	61499.8	17.43	mg/L	0.116	34.87	mg/L	0.233	0.67%
Mg 279.077†	50212.3	45.89	mg/L	0.060	91.78	mg/L	0.120	0.13%
Mn 257.610†	60833.7	1.635	mg/L	0.0003	3.271	mg/L	0.0007	0.02%
Mo 202.031†	-19.4	0.00105	mg/L	0.000198	0.00210	mg/L	0.000396	18.83%
Na 589.592†	509664.4	63.09	mg/L	0.069	126.2	mg/L	0.14	0.11%
Na 330.237†	1583.4	64.22	mg/L	0.129	128.4	mg/L	0.26	0.20%
Ni 231.604†	291.2	0.1360	mg/L	0.00192	0.2721	mg/L	0.00384	1.41%
Pb 220.353†	825.9	0.1030	mg/L	0.00032	0.2060	mg/L	0.00063	0.31%
Sb 206.836†	85.2	0.01597	mg/L	0.000965	0.03194	mg/L	0.001929	6.04%
Se 196.026†	-71.5	-0.03933	mg/L	0.003008	-0.07865	mg/L	0.006017	7.65%
Si 288.158†	8600.8	6.577	mg/L	0.0180	13.15	mg/L	0.036	0.27%
Sn 189.927†	12.2	0.01271	mg/L	0.000698	0.02542	mg/L	0.001396	5.49%
Sr 421.552†	299245.2	0.5008	mg/L	0.00320	1.002	mg/L	0.0064	0.64%
Ti 334.903†	156027.7	6.478	mg/L	0.0034	12.96	mg/L	0.007	0.05%
Tl 190.801†	14.4	-0.00626	mg/L	0.001322	-0.01251	mg/L	0.002645	21.13%
V 292.402†	80178.0	0.3711	mg/L	0.00371	0.7423	mg/L	0.00741	1.00%
Zn 206.200†	1254.0	0.5136	mg/L	0.00226	1.027	mg/L	0.0045	0.44%

Sequence No.: 6
 Sample ID: VO66 ASPK SWC
 Analyst: EL
 Dilution: 2X

Autosampler Location: 67
 Date Collected: 11/2/2012 4:48:36 PM
 Data Type: Original

Nebulizer Parameters: VO66 ASPK SWC

Analyte Back Pressure Flow
 All 231.0 kPa 0.55 L/min

Mean Data: VO66 ASPK SWC

Analyte	Mean Corrected		Calib. Units	Std.Dev.	Sample		RSD
	Intensity	Conc.			Conc.	Units	
ScA 357.253	2563826.1	100.4	%	1.45			1.44%
ScR 361.383	197830.9	102.2	%	0.24			0.24%
Ag 328.068†	144702.9	0.4884	mg/L	0.00180	0.9768	mg/L	0.37%
Al 308.215†	202775.7	144.4	mg/L	0.07	288.7	mg/L	0.05%
As 188.979†	4453.8	1.925	mg/L	0.0395	3.849	mg/L	2.05%
B 249.677†	257.5	0.1245	mg/L	0.00178	0.2491	mg/L	1.43%
Ba 233.527†	22564.8	2.353	mg/L	0.0093	4.705	mg/L	0.40%
Be 313.042†	129085.0	0.4953	mg/L	0.00167	0.9906	mg/L	0.34%
Ca 317.933†	467709.6	45.26	mg/L	0.133	90.52	mg/L	0.29%
Cd 228.802†	40320.0	0.4990	mg/L	0.00160	0.9980	mg/L	0.32%
Co 228.616†	43926.3	0.5119	mg/L	0.00090	1.024	mg/L	0.18%
Cr 267.716†	2788.1	0.6485	mg/L	0.00199	1.297	mg/L	0.31%
Cu 324.752†	237450.7	0.7721	mg/L	0.00114	1.544	mg/L	0.15%
Fe 273.955†	199034.0	169.2	mg/L	0.28	338.3	mg/L	0.17%
K 766.490†	99967.1	28.34	mg/L	0.017	56.68	mg/L	0.06%
Mg 279.077†	61151.4	55.91	mg/L	0.049	111.8	mg/L	0.09%
Mn 257.610†	78219.1	2.103	mg/L	0.0008	4.207	mg/L	0.04%
Mo 202.031†	-25.6	0.00068	mg/L	0.000203	0.00137	mg/L	29.79%
Na 589.592†	586419.0	72.59	mg/L	0.057	145.2	mg/L	0.08%
Na 330.237†	1812.9	73.25	mg/L	0.351	146.5	mg/L	0.48%
Ni 231.604†	1307.4	0.6103	mg/L	0.00220	1.221	mg/L	0.36%
Pb 220.353†	24180.3	1.889	mg/L	0.0407	3.778	mg/L	2.15%
Sb 206.836†	1132.7	0.3191	mg/L	0.00675	0.6381	mg/L	2.12%
Se 196.026†	3354.7	1.826	mg/L	0.0424	3.653	mg/L	2.32%
Si 288.158†	8462.4	6.475	mg/L	0.0365	12.95	mg/L	0.56%
Sn 189.927†	1.9	0.01384	mg/L	0.000469	0.02767	mg/L	3.39%
Sr 421.552†	617088.1	1.033	mg/L	0.0015	2.066	mg/L	0.15%
Ti 334.903†	166638.9	6.918	mg/L	0.0025	13.84	mg/L	0.04%
Tl 190.801†	6183.0	1.718	mg/L	0.0374	3.436	mg/L	2.18%
V 292.402†	179498.4	0.8586	mg/L	0.00170	1.717	mg/L	0.20%
Zn 206.200†	2419.5	0.9904	mg/L	0.00315	1.981	mg/L	0.32%

Sequence No.: 7

Sample ID: ~~VO66 APOST SWC~~

Analyst: EL

Dilution: 2X

Autosampler Location: 68

Date Collected: 11/2/2012 4:54:34 PM

Data Type: Original

Nebulizer Parameters: VO66 APOST SWC

Analyte	Back Pressure	Flow
All	232.0 kPa	0.55 L/min

Mean Data: VO66 APOST SWC

Analyte	Mean Corrected Intensity	Conc. Units	Calib. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2607430.2	102.1	%	0.43			0.42%
ScR 361.383	200468.6	103.5	%	0.22			0.21%
Ag 328.068†	148992.0	0.5026	mg/L	0.00234	1.005 mg/L	0.0047	0.47%
Al 308.215†	194544.6	138.5	mg/L	0.23	277.0 mg/L	0.45	0.16%
As 188.979†	4891.2	2.112	mg/L	0.0074	4.224 mg/L	0.0148	0.35%
B 249.677†	244.4	0.1179	mg/L	0.00062	0.2359 mg/L	0.00123	0.52%
Ba 233.527†	24080.2	2.511	mg/L	0.0164	5.023 mg/L	0.0328	0.65%
Be 313.042†	137496.2	0.5276	mg/L	0.00085	1.055 mg/L	0.0017	0.16%
Ca 317.933†	458442.3	44.36	mg/L	0.080	88.73 mg/L	0.159	0.18%
Cd 228.802†	43448.2	0.5376	mg/L	0.00080	1.075 mg/L	0.0016	0.15%
Co 228.616†	46924.8	0.5481	mg/L	0.00119	1.096 mg/L	0.0024	0.22%
Cr 267.716†	2966.4	0.6900	mg/L	0.00455	1.380 mg/L	0.0091	0.66%
Cu 324.752†	248730.9	0.8079	mg/L	0.00173	1.616 mg/L	0.0035	0.21%
Fe 273.955†	194046.8	164.9	mg/L	0.12	329.9 mg/L	0.25	0.07%
K 766.490†	102550.7	29.07	mg/L	0.091	58.14 mg/L	0.181	0.31%
Mg 279.077†	60739.9	55.53	mg/L	0.066	111.1 mg/L	0.13	0.12%
Mn 257.610†	78449.8	2.110	mg/L	0.0036	4.219 mg/L	0.0072	0.17%
Mo 202.031†	-21.0	0.00083	mg/L	0.000468	0.00165 mg/L	0.000936	56.62%
Na 589.592†	583410.5	72.22	mg/L	0.227	144.4 mg/L	0.45	0.31%
Na 330.237†	1801.2	72.75	mg/L	0.200	145.5 mg/L	0.40	0.27%
Ni 231.604†	1382.9	0.6464	mg/L	0.00533	1.293 mg/L	0.0107	0.82%
Pb 220.353†	26384.2	2.056	mg/L	0.0056	4.111 mg/L	0.0113	0.27%
Sb 206.836†	6696.9	1.964	mg/L	0.0034	3.928 mg/L	0.0069	0.17%
Se 196.026†	3748.5	2.041	mg/L	0.0034	4.082 mg/L	0.0069	0.17%
Si 288.158†	9469.2	7.244	mg/L	0.0270	14.49 mg/L	0.054	0.37%
Sn 189.927†	-1.6	0.01300	mg/L	0.000674	0.02601 mg/L	0.001348	5.18%
Sr 421.552†	625534.9	1.047	mg/L	0.0039	2.094 mg/L	0.0078	0.37%
Ti 334.903†	162723.4	6.756	mg/L	0.0094	13.51 mg/L	0.019	0.14%
Tl 190.801†	6934.2	1.928	mg/L	0.0058	3.856 mg/L	0.0115	0.30%
V 292.402†	189100.6	0.9063	mg/L	0.00275	1.813 mg/L	0.0055	0.30%
Zn 206.200†	2497.3	1.022	mg/L	0.0063	2.044 mg/L	0.0127	0.62%

Sequence No.: 8
 Sample ID: VO66 MB1SPK SWC
 Analyst: EL
 Dilution: 2X

Autosampler Location: 69
 Date Collected: 11/2/2012 5:00:32 PM
 Data Type: Original

Nebulizer Parameters: VO66 MB1SPK SWC

Analyte Back Pressure Flow
 All 232.0 kPa 0.55 L/min

Mean Data: VO66 MB1SPK SWC

Analyte	Mean Corrected		Calib. Units	Std.Dev.	Sample		Std.Dev.	RSD
	Intensity	Conc.			Conc.	Units		
ScA 357.253	2552139.9	99.91	%	0.515				0.52%
ScR 361.383	193130.9	99.75	%	0.697				0.70%
Ag 328.068†	153448.3	0.5124	mg/L	0.00464	1.025	mg/L	0.0093	0.91%
Al 308.215†	2996.2	2.126	mg/L	0.0156	4.251	mg/L	0.0312	0.73%
As 188.979†	4625.4	1.984	mg/L	0.0115	3.967	mg/L	0.0230	0.58%
B 249.677†	0.9	-0.00121	mg/L	0.001184	-0.00241	mg/L	0.002367	98.23%
Ba 233.527†	19666.8	2.057	mg/L	0.0146	4.115	mg/L	0.0292	0.71%
Be 313.042†	135031.6	0.5192	mg/L	0.00059	1.038	mg/L	0.0012	0.11%
Ca 317.933†	105944.2	10.25	mg/L	0.010	20.50	mg/L	0.020	0.10%
Cd 228.802†	42170.0	0.5219	mg/L	0.00265	1.044	mg/L	0.0053	0.51%
Co 228.616†	41962.3	0.5025	mg/L	0.00248	1.005	mg/L	0.0050	0.49%
Cr 267.716†	2246.5	0.5230	mg/L	0.00557	1.046	mg/L	0.0111	1.07%
Cu 324.752†	167076.4	0.5350	mg/L	0.00157	1.070	mg/L	0.0031	0.29%
Fe 273.955†	2514.9	2.137	mg/L	0.0162	4.274	mg/L	0.0325	0.76%
K 766.490†	39235.9	11.12	mg/L	0.005	22.24	mg/L	0.009	0.04%
Mg 279.077†	11755.0	10.76	mg/L	0.077	21.53	mg/L	0.154	0.71%
Mn 257.610†	19121.5	0.5148	mg/L	0.00346	1.030	mg/L	0.0069	0.67%
Mo 202.031†	19.5	0.00096	mg/L	0.000039	0.00192	mg/L	0.000078	4.04%
Na 589.592†	87466.4	10.83	mg/L	0.009	21.65	mg/L	0.019	0.09%
Na 330.237†	275.0	10.75	mg/L	0.259	21.50	mg/L	0.517	2.41%
Ni 231.604†	1091.1	0.5101	mg/L	0.00520	1.020	mg/L	0.0104	1.02%
Pb 220.353†	26145.8	1.996	mg/L	0.0112	3.993	mg/L	0.0224	0.56%
Sb 206.836†	7025.9	2.070	mg/L	0.0039	4.140	mg/L	0.0077	0.19%
Se 196.026†	3637.6	1.981	mg/L	0.0047	3.961	mg/L	0.0095	0.24%
Si 288.158†	2.7	0.00567	mg/L	0.003080	0.01133	mg/L	0.006159	54.34%
Sn 189.927†	-17.5	-0.00041	mg/L	0.000516	-0.00082	mg/L	0.001032	125.32%
Sr 421.552†	316220.2	0.5292	mg/L	0.00176	1.058	mg/L	0.0035	0.33%
Ti 334.903†	51.7	0.00152	mg/L	0.000263	0.00304	mg/L	0.000525	17.29%
Tl 190.801†	6993.1	1.955	mg/L	0.0055	3.911	mg/L	0.0111	0.28%
V 292.402†	106635.9	0.5238	mg/L	0.00141	1.048	mg/L	0.0028	0.27%
Zn 206.200†	1258.6	0.5144	mg/L	0.00432	1.029	mg/L	0.0086	0.84%

Sequence No.: 9
 Sample ID: VO66 F SWC
 Analyst: EL
 Dilution: 2X

Autosampler Location: 70
 Date Collected: 11/2/2012 5:06:35 PM
 Data Type: Original

Nebulizer Parameters: VO66 F SWC

Analyte Back Pressure Flow
 All 232.0 kPa 0.55 L/min

Mean Data: VO66 F SWC

Analyte	Mean Corrected		Calib. Units	Std.Dev.	Sample		Std.Dev.	RSD
	Intensity	Conc.			Conc.	Units		
ScA 357.253	2602156.9	101.9	%	0.31				0.30%
ScR 361.383	198528.5	102.5	%	1.32				1.29%
Ag 328.068†	-1238.5	0.00125	mg/L	0.000230	0.00249	mg/L	0.000460	18.46%
Al 308.215†	201117.8	143.2	mg/L	0.46	286.4	mg/L	0.91	0.32%
As 188.979†	91.3	0.05370	mg/L	0.000474	0.1074	mg/L	0.00095	0.88%
B 249.677†	210.4	0.1029	mg/L	0.00120	0.2058	mg/L	0.00241	1.17%
Ba 233.527†	4478.4	0.4603	mg/L	0.00612	0.9206	mg/L	0.01223	1.33%
Be 313.042†	765.9	0.00177	mg/L	0.000113	0.00355	mg/L	0.000227	6.39%
Ca 317.933†	366518.5	35.47	mg/L	0.126	70.94	mg/L	0.252	0.35%
Cd 228.802†	212.5	0.00257	mg/L	0.000068	0.00515	mg/L	0.000136	2.64%
Co 228.616†	5818.8	0.05558	mg/L	0.000214	0.1112	mg/L	0.00043	0.39%
Cr 267.716†	716.1	0.1661	mg/L	0.00187	0.3322	mg/L	0.00373	1.12%
Cu 324.752†	71605.1	0.2417	mg/L	0.00049	0.4835	mg/L	0.00098	0.20%
Fe 273.955†	205851.4	175.0	mg/L	0.40	349.9	mg/L	0.79	0.23%
K 766.490†	60781.8	17.23	mg/L	0.136	34.46	mg/L	0.271	0.79%
Mg 279.077†	51271.2	46.85	mg/L	0.101	93.71	mg/L	0.203	0.22%
Mn 257.610†	67034.3	1.802	mg/L	0.0065	3.604	mg/L	0.0130	0.36%
Mo 202.031†	-37.3	0.00017	mg/L	0.000064	0.00034	mg/L	0.000129	37.40%
Na 589.592†	502392.3	62.19	mg/L	0.409	124.4	mg/L	0.82	0.66%
Na 330.237†	1538.9	62.51	mg/L	1.187	125.0	mg/L	2.37	1.90%
Ni 231.604†	299.3	0.1398	mg/L	0.00180	0.2796	mg/L	0.00360	1.29%
Pb 220.353†	847.5	0.1075	mg/L	0.00059	0.2150	mg/L	0.00118	0.55%
Sb 206.836†	94.2	0.01847	mg/L	0.00196	0.03694	mg/L	0.003992	10.80%
Se 196.026†	-60.5	-0.03334	mg/L	0.005617	-0.06668	mg/L	0.011234	16.85%
Si 288.158†	10447.2	7.988	mg/L	0.0085	15.98	mg/L	0.017	0.11%
Sn 189.927†	2.1	0.01154	mg/L	0.001035	0.02308	mg/L	0.002070	8.97%
Sr 421.552†	309927.1	0.5187	mg/L	0.00188	1.037	mg/L	0.0038	0.36%
Ti 334.903†	165224.0	6.860	mg/L	0.0211	13.72	mg/L	0.042	0.31%
Tl 190.801†	20.1	-0.00535	mg/L	0.002387	-0.01069	mg/L	0.004775	44.66%
V 292.402†	84667.2	0.3920	mg/L	0.00106	0.7840	mg/L	0.00212	0.27%
Zn 206.200†	1283.1	0.5256	mg/L	0.00742	1.051	mg/L	0.0148	1.41%

Sequence No.: 10
 Sample ID: CRI
 Analyst: EL
 Dilution: 1X

Autosampler Location: 21
 Date Collected: 11/2/2012 5:12:26 PM
 Data Type: Original

Nebulizer Parameters: CRI

Analyte Back Pressure Flow
 All 231.0 kPa 0.55 L/min

Mean Data: CRI

Analyte	Mean Corrected		Calib. Units	Std.Dev.	Sample		RSD
	Intensity	Conc.			Conc.	Units	
ScA 357.253	2585490.4	101.2	%	0.39			0.39%
ScR 361.383	191869.5	99.10	%	2.116			2.13%
Ag 328.068†	896.9	0.00300	mg/L	0.000087	0.00300	mg/L	0.000087
Al 308.215†	94.3	0.06696	mg/L	0.010958	0.06696	mg/L	0.010958
As 188.979†	117.7	0.05048	mg/L	0.001786	0.05048	mg/L	0.001786
B 249.677†	36.1	0.01771	mg/L	0.003112	0.01771	mg/L	0.003112
Ba 233.527†	27.8	0.00290	mg/L	0.000353	0.00290	mg/L	0.000353
Be 313.042†	283.1	0.00108	mg/L	0.000088	0.00108	mg/L	0.000088
Ca 317.933†	548.5	0.05307	mg/L	0.001513	0.05307	mg/L	0.001513
Cd 228.802†	167.2	0.00197	mg/L	0.000042	0.00197	mg/L	0.000042
Co 228.616†	289.4	0.00346	mg/L	0.000049	0.00346	mg/L	0.000049
Cr 267.716†	23.7	0.00551	mg/L	0.001097	0.00551	mg/L	0.001097
Cu 324.752†	984.3	0.00315	mg/L	0.000086	0.00315	mg/L	0.000086
Fe 273.955†	58.0	0.04929	mg/L	0.000799	0.04929	mg/L	0.000799
K 766.490†	2295.7	0.6508	mg/L	0.04395	0.6508	mg/L	0.04395
Mg 279.077†	56.1	0.05134	mg/L	0.003302	0.05134	mg/L	0.003302
Mn 257.610†	32.2	0.00087	mg/L	0.000107	0.00087	mg/L	0.000107
Mo 202.031†	90.1	0.00530	mg/L	0.000220	0.00530	mg/L	0.000220
Na 589.592†	4905.2	0.6072	mg/L	0.01394	0.6072	mg/L	0.01394
Na 330.237†	21.2	0.8430	mg/L	0.29265	0.8430	mg/L	0.29265
Ni 231.604†	23.6	0.01105	mg/L	0.000462	0.01105	mg/L	0.000462
Pb 220.353†	252.7	0.01931	mg/L	0.000489	0.01931	mg/L	0.000489
Sb 206.836†	172.7	0.05108	mg/L	0.000611	0.05108	mg/L	0.000611
Se 196.026†	94.7	0.05158	mg/L	0.001571	0.05158	mg/L	0.001571
Si 288.158†	117.0	0.08940	mg/L	0.000140	0.08940	mg/L	0.000140
Sn 189.927†	55.7	0.00910	mg/L	0.000029	0.00910	mg/L	0.000029
Sr 421.552†	621.4	0.00104	mg/L	0.000141	0.00104	mg/L	0.000141
Ti 334.903†	133.9	0.00555	mg/L	0.001210	0.00555	mg/L	0.001210
Tl 190.801†	184.3	0.05166	mg/L	0.001589	0.05166	mg/L	0.001589
V 292.402†	639.9	0.00318	mg/L	0.000150	0.00318	mg/L	0.000150
Zn 206.200†	26.0	0.01063	mg/L	0.000347	0.01063	mg/L	0.000347

Sequence No.: 11
 Sample ID: ICSA
 Analyst: EL
 Dilution: 1X

Autosampler Location: 22
 Date Collected: 11/2/2012 5:22:36 PM
 Data Type: Original

Nebulizer Parameters: ICSA

Analyte Back Pressure Flow
 All 231.0 kPa 0.55 L/min

Mean Data: ICSA

Analyte	Mean Corrected			Std.Dev.	Sample		Std.Dev.	RSD
	Intensity	Conc.	Calib. Units		Conc.	Units		
ScA 357.253	2521838.7	98.72	%	0.749				0.76%
ScR 361.383	195932.4	101.2	%	0.48				0.47%
Ag 328.068†	-1728.3	-0.00054	mg/L	0.000315	-0.00054	mg/L	0.000315	58.46%
Al 308.215†	272755.6	194.2	mg/L	0.26	194.2	mg/L	0.26	0.13%
As 188.979†	-5.0	-0.00209	mg/L	0.001380	-0.00209	mg/L	0.001380	66.10%
B 249.677†	-15.7	-0.00772	mg/L	0.000871	-0.00772	mg/L	0.000871	11.28%
Ba 233.527†	69.6	-0.00152	mg/L	0.000444	-0.00152	mg/L	0.000444	29.21%
Be 313.042†	-10.1	-0.00008	mg/L	0.000002	-0.00008	mg/L	0.000002	2.93%
Ca 317.933†	950476.8	91.98	mg/L	0.057	91.98	mg/L	0.057	0.06%
Cd 228.802†	76.5	0.00096	mg/L	0.000060	0.00096	mg/L	0.000060	6.20%
Co 228.616†	137.3	-0.00056	mg/L	0.000066	-0.00056	mg/L	0.000066	11.71%
Cr 267.716†	13.0	0.00304	mg/L	0.000293	0.00304	mg/L	0.000293	9.64%
Cu 324.752†	-4928.8	0.00011	mg/L	0.000051	0.00011	mg/L	0.000051	44.19%
Fe 273.955†	223510.5	190.0	mg/L	0.09	190.0	mg/L	0.09	0.05%
K 766.490†	168.6	0.04780	mg/L	0.006801	0.04780	mg/L	0.006801	14.23%
Mg 279.077†	107004.4	97.88	mg/L	0.657	97.88	mg/L	0.657	0.67%
Mn 257.610†	13.3	-0.00098	mg/L	0.000146	-0.00098	mg/L	0.000146	14.93%
Mo 202.031†	-138.8	-0.00531	mg/L	0.000350	-0.00531	mg/L	0.000350	6.59%
Na 589.592†	255.2	0.03159	mg/L	0.002129	0.03159	mg/L	0.002129	6.74%
Na 330.237†	15.5	0.2142	mg/L	0.49807	0.2142	mg/L	0.49807	232.52%
Ni 231.604†	8.9	0.00418	mg/L	0.000169	0.00418	mg/L	0.000169	4.05%
Pb 220.353†	-717.9	0.00657	mg/L	0.000163	0.00657	mg/L	0.000163	2.48%
Sb 206.836†	130.3	0.02061	mg/L	0.002800	0.02061	mg/L	0.002800	13.58%
Se 196.026†	-92.2	-0.05023	mg/L	0.001994	-0.05023	mg/L	0.001994	3.97%
Si 288.158†	-7.4	0.00609	mg/L	0.003092	0.00609	mg/L	0.003092	50.74%
Sn 189.927†	-60.8	0.01200	mg/L	0.000693	0.01200	mg/L	0.000693	5.77%
Sr 421.552†	2405.4	0.00403	mg/L	0.000086	0.00403	mg/L	0.000086	2.13%
Ti 334.903†	157.0	0.00202	mg/L	0.000553	0.00202	mg/L	0.000553	27.42%
Tl 190.801†	-31.1	-0.00884	mg/L	0.002426	-0.00884	mg/L	0.002426	27.45%
V 292.402†	3371.1	-0.00164	mg/L	0.000277	-0.00164	mg/L	0.000277	16.85%
Zn 206.200†	-18.8	-0.00572	mg/L	0.000340	-0.00572	mg/L	0.000340	5.95%

Sequence No.: 12
 Sample ID: ICSAB
 Analyst: EL
 Dilution: 1X

Autosampler Location: 23
 Date Collected: 11/2/2012 5:28:39 PM
 Data Type: Original

Nebulizer Parameters: ICSAB

Analyte Back Pressure Flow
 All 231.0 kPa 0.55 L/min

Mean Data: ICSAB

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2492888.7	97.59	%	0.644				0.66%
ScR 361.383	197266.2	101.9	%	3.57				3.51%
Ag 328.068†	297723.9	0.9996	mg/L	0.00427	0.9996	mg/L	0.00427	0.43%
Al 308.215†	276832.8	197.1	mg/L	7.61	197.1	mg/L	7.61	3.86%
As 188.979†	2225.0	0.9541	mg/L	0.00869	0.9541	mg/L	0.00869	0.91%
B 249.677†	-5.8	-0.00587	mg/L	0.005936	-0.00587	mg/L	0.005936	101.17%
Ba 233.527†	9380.0	0.9721	mg/L	0.03340	0.9721	mg/L	0.03340	3.44%
Be 313.042†	247670.5	0.9523	mg/L	0.03588	0.9523	mg/L	0.03588	3.77%
Ca 317.933†	973155.3	94.17	mg/L	3.607	94.17	mg/L	3.607	3.83%
Cd 228.802†	78276.0	0.9752	mg/L	0.00141	0.9752	mg/L	0.00141	0.14%
Co 228.616†	75700.3	0.9052	mg/L	0.00242	0.9052	mg/L	0.00242	0.27%
Cr 267.716†	4104.5	0.9556	mg/L	0.03285	0.9556	mg/L	0.03285	3.44%
Cu 324.752†	317141.9	1.031	mg/L	0.0013	1.031	mg/L	0.0013	0.13%
Fe 273.955†	227542.6	193.4	mg/L	6.97	193.4	mg/L	6.97	3.61%
K 766.490†	148.7	0.04214	mg/L	0.015839	0.04214	mg/L	0.015839	37.58%
Mg 279.077†	110364.9	101.0	mg/L	3.87	101.0	mg/L	3.87	3.83%
Mn 257.610†	35277.3	0.9477	mg/L	0.03245	0.9477	mg/L	0.03245	3.42%
Mo 202.031†	-157.7	-0.00658	mg/L	0.000457	-0.00658	mg/L	0.000457	6.94%
Na 589.592†	715.0	0.08851	mg/L	0.016200	0.08851	mg/L	0.016200	18.30%
Na 330.237†	28.5	0.3821	mg/L	0.03110	0.3821	mg/L	0.03110	8.14%
Ni 231.604†	1975.3	0.9229	mg/L	0.03481	0.9229	mg/L	0.03481	3.77%
Pb 220.353†	11117.2	0.9114	mg/L	0.01067	0.9114	mg/L	0.01067	1.17%
Sb 206.836†	3521.5	1.009	mg/L	0.0086	1.009	mg/L	0.0086	0.85%
Se 196.026†	1630.3	0.8857	mg/L	0.00747	0.8857	mg/L	0.00747	0.84%
Si 288.158†	37.6	0.04513	mg/L	0.007126	0.04513	mg/L	0.007126	15.79%
Sn 189.927†	-59.7	0.01273	mg/L	0.001046	0.01273	mg/L	0.001046	8.22%
Sr 421.552†	2652.3	0.00444	mg/L	0.000169	0.00444	mg/L	0.000169	3.82%
Ti 334.903†	183.0	0.00277	mg/L	0.000462	0.00277	mg/L	0.000462	16.72%
Tl 190.801†	3183.0	0.8808	mg/L	0.00720	0.8808	mg/L	0.00720	0.82%
V 292.402†	203912.9	0.9832	mg/L	0.00066	0.9832	mg/L	0.00066	0.07%
Zn 206.200†	2193.0	0.8983	mg/L	0.03215	0.8983	mg/L	0.03215	3.58%

Sequence No.: 13
 Sample ID: CV
 Analyst: EL
 Dilution: 1X

Autosampler Location: 7
 Date Collected: 11/2/2012 5:34:28 PM
 Data Type: Original

Nebulizer Parameters: CV

Analyte Back Pressure Flow
 All 232.0 kPa 0.55 L/min

Mean Data: CV

Analyte	Mean Corrected Intensity	Calib. Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2567385.5	100.5 %	0.83			0.83%
ScR 361.383	192544.3	99.44 %	1.062			1.07%
Ag 328.068†	295868.4	0.9880 mg/L	0.00465	0.9880 mg/L	0.00465	0.47%
Al 308.215†	2941.4	2.053 mg/L	0.0338	2.053 mg/L	0.0338	1.64%
As 188.979†	4543.9	1.948 mg/L	0.0182	1.948 mg/L	0.0182	0.94%
B 249.677†	1973.0	0.9661 mg/L	0.00874	0.9661 mg/L	0.00874	0.90%
Ba 233.527†	9693.2	1.014 mg/L	0.0125	1.014 mg/L	0.0125	1.24%
Be 313.042†	252394.6	0.9704 mg/L	0.00188	0.9704 mg/L	0.00188	0.19%
Ca 317.933†	20451.2	1.979 mg/L	0.0229	1.979 mg/L	0.0229	1.16%
Cd 228.802†	81346.3	1.011 mg/L	0.0013	1.011 mg/L	0.0013	0.13%
Co 228.616†	81680.7	0.9776 mg/L	0.00225	0.9776 mg/L	0.00225	0.23%
Cr 267.716†	4264.7	0.9927 mg/L	0.01223	0.9927 mg/L	0.01223	1.23%
Cu 324.752†	334831.8	1.071 mg/L	0.0004	1.071 mg/L	0.0004	0.04%
Fe 273.955†	2446.5	2.079 mg/L	0.0185	2.079 mg/L	0.0185	0.89%
K 766.490†	75827.6	21.50 mg/L	0.060	21.50 mg/L	0.060	0.28%
Mg 279.077†	2288.7	2.099 mg/L	0.0247	2.099 mg/L	0.0247	1.18%
Mn 257.610†	37451.7	1.008 mg/L	0.0021	1.008 mg/L	0.0021	0.21%
Mo 202.031†	15912.1	0.9353 mg/L	0.00890	0.9353 mg/L	0.00890	0.95%
Na 589.592†	422063.1	52.24 mg/L	0.109	52.24 mg/L	0.109	0.21%
Na 330.237†	1311.5	52.21 mg/L	0.902	52.21 mg/L	0.902	1.73%
Ni 231.604†	2115.7	0.9888 mg/L	0.01564	0.9888 mg/L	0.01564	1.58%
Pb 220.353†	25040.6	1.912 mg/L	0.0204	1.912 mg/L	0.0204	1.07%
Sb 206.836†	6857.0	2.025 mg/L	0.0219	2.025 mg/L	0.0219	1.08%
Se 196.026†	3448.5	1.876 mg/L	0.0211	1.876 mg/L	0.0211	1.12%
Si 288.158†	2797.2	2.144 mg/L	0.0181	2.144 mg/L	0.0181	0.85%
Sn 189.927†	5435.5	0.8880 mg/L	0.01073	0.8880 mg/L	0.01073	1.21%
Sr 421.552†	610835.3	1.022 mg/L	0.0027	1.022 mg/L	0.0027	0.26%
Ti 334.903†	24537.8	1.018 mg/L	0.0026	1.018 mg/L	0.0026	0.26%
Tl 190.801†	6776.0	1.888 mg/L	0.0189	1.888 mg/L	0.0189	1.00%
V 292.402†	208839.8	1.030 mg/L	0.0026	1.030 mg/L	0.0026	0.25%
Zn 206.200†	2565.6	1.048 mg/L	0.0140	1.048 mg/L	0.0140	1.34%

Sequence No.: 14
 Sample ID: CB
 Analyst: EL
 Dilution: 1X

Autosampler Location: 1
 Date Collected: 11/2/2012 5:40:30 PM
 Data Type: Original

Nebulizer Parameters: CB

Analyte Back Pressure Flow
 All 231.0 kPa 0.55 L/min

Mean Data: CB

Analyte	Mean Corrected Intensity	Conc. Units	Calib. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2637877.6	103.3	%	0.76			0.74%
ScR 361.383	192683.3	99.52	%	0.910			0.91%
Ag 328.068†	152.0	0.00051	mg/L	0.000165	0.00051 mg/L	0.000165	32.57%
Al 308.215†	22.2	0.01577	mg/L	0.006428	0.01577 mg/L	0.006428	40.77%
As 188.979†	1.1	0.00047	mg/L	0.001621	0.00047 mg/L	0.001621	342.80%
B 249.677†	0.9	0.00046	mg/L	0.001705	0.00046 mg/L	0.001705	369.81%
Ba 233.527†	2.9	0.00031	mg/L	0.000357	0.00031 mg/L	0.000357	116.73%
Be 313.042†	26.7	0.00010	mg/L	0.000046	0.00010 mg/L	0.000046	44.91%
Ca 317.933†	-26.5	-0.00257	mg/L	0.002304	-0.00257 mg/L	0.002304	89.74%
Cd 228.802†	-2.9	-0.00004	mg/L	0.000056	-0.00004 mg/L	0.000056	149.91%
Co 228.616†	-3.5	-0.00004	mg/L	0.000044	-0.00004 mg/L	0.000044	100.73%
Cr 267.716†	-2.1	-0.00048	mg/L	0.000393	-0.00048 mg/L	0.000393	81.95%
Cu 324.752†	130.6	0.00042	mg/L	0.000118	0.00042 mg/L	0.000118	28.22%
Fe 273.955†	-6.4	-0.00545	mg/L	0.001266	-0.00545 mg/L	0.001266	23.23%
K 766.490†	236.4	0.06700	mg/L	0.013000	0.06700 mg/L	0.013000	19.40%
Mg 279.077†	-3.2	-0.00296	mg/L	0.007179	-0.00296 mg/L	0.007179	242.18%
Mn 257.610†	-3.9	-0.00010	mg/L	0.000101	-0.00010 mg/L	0.000101	96.95%
Mo 202.031†	6.1	0.00036	mg/L	0.000217	0.00036 mg/L	0.000217	60.03%
Na 589.592†	273.1	0.03381	mg/L	0.008896	0.03381 mg/L	0.008896	26.31%
Na 330.237†	-0.0	-0.00087	mg/L	0.614337	-0.00087 mg/L	0.614337	>999.9%
Ni 231.604†	0.7	0.00034	mg/L	0.001725	0.00034 mg/L	0.001725	507.70%
Pb 220.353†	-9.8	-0.00074	mg/L	0.000481	-0.00074 mg/L	0.000481	64.67%
Sb 206.836†	-6.3	-0.00186	mg/L	0.001043	-0.00186 mg/L	0.001043	56.20%
Se 196.026†	18.2	0.00993	mg/L	0.001448	0.00993 mg/L	0.001448	14.57%
Si 288.158†	-2.2	-0.00164	mg/L	0.004860	-0.00164 mg/L	0.004860	295.63%
Sn 189.927†	2.3	0.00038	mg/L	0.000354	0.00038 mg/L	0.000354	94.03%
Sr 421.552†	58.0	0.00010	mg/L	0.000109	0.00010 mg/L	0.000109	112.42%
Ti 334.903†	14.4	0.00060	mg/L	0.001570	0.00060 mg/L	0.001570	262.54%
Tl 190.801†	6.2	0.00173	mg/L	0.001790	0.00173 mg/L	0.001790	103.72%
V 292.402†	15.1	0.00007	mg/L	0.000148	0.00007 mg/L	0.000148	205.56%
Zn 206.200†	0.1	0.00004	mg/L	0.000409	0.00004 mg/L	0.000409	970.79%

Sequence No.: 15
 Sample ID: VP23 MB2 WMN
 Analyst: EL
 Dilution: 1X

Autosampler Location: 71
 Date Collected: 11/2/2012 5:46:29 PM
 Data Type: Original

Nebulizer Parameters: VP23 MB2 WMN

Analyte Back Pressure Flow
 All 232.0 kPa 0.55 L/min

Mean Data: VP23 MB2 WMN

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc. Units	Sample Std.Dev.	RSD
ScA 357.253	2612546.6	102.3	%	0.17			0.17%
ScR 361.383	222433.7	114.9	%	17.73			15.44%
Ag 328.068†	-35.1	-0.00012	mg/L	0.000089	-0.00012 mg/L	0.000089	75.58%
Al 308.215†	0.8	0.00055	mg/L	0.008622	0.00055 mg/L	0.008622	>999.9%
As 188.979†	3.5	0.00152	mg/L	0.001357	0.00152 mg/L	0.001357	89.46%
B 249.677†	8.2	0.00404	mg/L	0.008710	0.00404 mg/L	0.008710	215.58%
Ba 233.527†	-10.4	-0.00109	mg/L	0.001051	-0.00109 mg/L	0.001051	96.74%
Be 313.042†	-50.8	-0.00020	mg/L	0.000329	-0.00020 mg/L	0.000329	167.98%
Ca 317.933†	-5.0	-0.00049	mg/L	0.001462	-0.00049 mg/L	0.001462	299.71%
Cd 228.802†	1.1	0.00001	mg/L	0.000018	0.00001 mg/L	0.000018	192.86%
Co 228.616†	-10.3	-0.00012	mg/L	0.000045	-0.00012 mg/L	0.000045	36.27%
Cr 267.716†	-1.4	-0.00034	mg/L	0.000717	-0.00034 mg/L	0.000717	213.11%
Cu 324.752†	-401.5	-0.00129	mg/L	0.000110	-0.00129 mg/L	0.000110	8.56%
Fe 273.955†	-8.9	-0.00754	mg/L	0.003364	-0.00754 mg/L	0.003364	44.62%
K 766.490†	-100.1	-0.02838	mg/L	0.078126	-0.02838 mg/L	0.078126	275.24%
Mg 279.077†	17.3	0.01587	mg/L	0.018383	0.01587 mg/L	0.018383	115.84%
Mn 257.610†	-12.7	-0.00034	mg/L	0.000259	-0.00034 mg/L	0.000259	75.58%
Mo 202.031†	7.7	0.00045	mg/L	0.000188	0.00045 mg/L	0.000188	41.56%
Na 589.592†	-272.6	-0.03374	mg/L	0.006139	-0.03374 mg/L	0.006139	18.20%
Na 330.237†	-9.5	-0.3801	mg/L	0.64685	-0.3801 mg/L	0.64685	170.16%
Ni 231.604†	-3.3	-0.00154	mg/L	0.003001	-0.00154 mg/L	0.003001	194.98%
Pb 220.353†	-22.2	-0.00169	mg/L	0.000738	-0.00169 mg/L	0.000738	43.62%
Sb 206.836†	-5.8	-0.00171	mg/L	0.000734	-0.00171 mg/L	0.000734	43.00%
Se 196.026†	12.0	0.00657	mg/L	0.000916	0.00657 mg/L	0.000916	13.96%
Si 288.158†	-6.7	-0.00513	mg/L	0.001114	-0.00513 mg/L	0.001114	21.70%
Sn 189.927†	-3.7	-0.00060	mg/L	0.000435	-0.00060 mg/L	0.000435	72.00%
Sr 421.552†	-66.4	-0.00011	mg/L	0.000178	-0.00011 mg/L	0.000178	160.59%
Ti 334.903†	18.4	0.00076	mg/L	0.000493	0.00076 mg/L	0.000493	64.57%
Tl 190.801†	1.2	0.00034	mg/L	0.001767	0.00034 mg/L	0.001767	514.83%
V 292.402†	14.1	0.00007	mg/L	0.000154	0.00007 mg/L	0.000154	224.41%
Zn 206.200†	1.2	0.00051	mg/L	0.001714	0.00051 mg/L	0.001714	335.21%

Sequence No.: 16
 Sample ID: VP40 MB1 SWC
 Analyst: EL
 Dilution: 2X

Autosampler Location: 72
 Date Collected: 11/2/2012 5:52:30 PM
 Data Type: Original

Nebulizer Parameters: VP40 MB1 SWC

Analyte Back Pressure Flow
 All 231.0 kPa 0.55 L/min

Mean Data: VP40 MB1 SWC

Analyte	Mean Corrected Intensity	Conc. Units	Calib. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2546120.9	99.67 %	%	2.206			2.21%
ScR 361.383	182546.1	94.28 %	%	1.374			1.46%
Ag 328.068†	57.2	0.00019 mg/L	mg/L	0.000037	0.00038 mg/L	0.000074	19.47%
Al 308.215†	21.2	0.01511 mg/L	mg/L	0.004892	0.03021 mg/L	0.009784	32.38%
As 188.979†	1.4	0.00060 mg/L	mg/L	0.000746	0.00120 mg/L	0.001493	124.57%
B 249.677†	-11.3	-0.00553 mg/L	mg/L	0.001275	-0.01106 mg/L	0.002551	23.07%
Ba 233.527†	3.0	0.00031 mg/L	mg/L	0.000410	0.00062 mg/L	0.000821	132.99%
Be 313.042†	54.5	0.00021 mg/L	mg/L	0.000065	0.00042 mg/L	0.000129	30.75%
Ca 317.933†	125.8	0.01217 mg/L	mg/L	0.001106	0.02434 mg/L	0.002213	9.09%
Cd 228.802†	-0.0	0.00000 mg/L	mg/L	0.000105	0.00000 mg/L	0.000210	>999.9%
Co 228.616†	6.1	0.00007 mg/L	mg/L	0.000096	0.00014 mg/L	0.000192	133.08%
Cr 267.716†	-1.4	-0.00033 mg/L	mg/L	0.000523	-0.00066 mg/L	0.001046	157.41%
Cu 324.752†	1393.8	0.00446 mg/L	mg/L	0.000169	0.00892 mg/L	0.000338	3.79%
Fe 273.955†	-0.6	-0.00048 mg/L	mg/L	0.000493	-0.00095 mg/L	0.000986	103.29%
K 766.490†	323.0	0.09157 mg/L	mg/L	0.003440	0.1831 mg/L	0.00688	3.76%
Mg 279.077†	-12.8	-0.01176 mg/L	mg/L	0.002317	-0.02353 mg/L	0.004634	19.70%
Mn 257.610†	-14.0	-0.00038 mg/L	mg/L	0.000086	-0.00075 mg/L	0.000173	22.94%
Mo 202.031†	3.2	0.00019 mg/L	mg/L	0.000164	0.00038 mg/L	0.000329	86.57%
Na 589.592†	60.8	0.00753 mg/L	mg/L	0.008665	0.01505 mg/L	0.017329	115.11%
Na 330.237†	23.4	0.9302 mg/L	mg/L	0.18778	1.860 mg/L	0.3756	20.19%
Ni 231.604†	5.5	0.00256 mg/L	mg/L	0.001408	0.00513 mg/L	0.002817	54.92%
Pb 220.353†	-2.1	-0.00016 mg/L	mg/L	0.000456	-0.00033 mg/L	0.000912	279.98%
Sb 206.836†	-8.3	-0.00245 mg/L	mg/L	0.000388	-0.00490 mg/L	0.000776	15.85%
Se 196.026†	3.7	0.00202 mg/L	mg/L	0.002239	0.00405 mg/L	0.004478	110.62%
Si 288.158†	8.2	0.00623 mg/L	mg/L	0.003173	0.01245 mg/L	0.006347	50.96%
Sn 189.927†	2.6	0.00043 mg/L	mg/L	0.000673	0.00086 mg/L	0.001347	156.28%
Sr 421.552†	98.7	0.00017 mg/L	mg/L	0.000026	0.00033 mg/L	0.000053	15.97%
Ti 334.903†	9.4	0.00039 mg/L	mg/L	0.000480	0.00078 mg/L	0.000960	123.84%
Tl 190.801†	1.8	0.00051 mg/L	mg/L	0.001536	0.00102 mg/L	0.003072	302.50%
V 292.402†	18.7	0.00009 mg/L	mg/L	0.000121	0.00018 mg/L	0.000242	135.07%
Zn 206.200†	21.8	0.00892 mg/L	mg/L	0.000137	0.01784 mg/L	0.000273	1.53%

Sequence No.: 17
Sample ID: VP23 I WMN
Analyst: EL
Dilution: 1X

Autosampler Location: 73
Date Collected: 11/2/2012 5:58:32 PM
Data Type: Original

Nebulizer Parameters: VP23 I WMN

Analyte Back Pressure Flow
All 231.0 kPa 0.55 L/min

Mean Data: VP23 I WMN

Analyte	Mean Corrected Intensity	Conc. Units	Calib. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2575584.7	100.8	%	1.01			1.00%
ScR 361.383	201547.6	104.1	%	1.74			1.67%
Ag 328.068†	85.3	-0.00063	mg/L	0.000118	-0.00063 mg/L	0.000118	18.60%
Al 308.215†	13.1	0.00917	mg/L	0.005691	0.00917 mg/L	0.005691	62.09%
As 188.979†	5.8	0.00247	mg/L	0.001951	0.00247 mg/L	0.001951	78.98%
B 249.677†	58.3	0.02860	mg/L	0.001409	0.02860 mg/L	0.001409	4.92%
Ba 233.527†	325.3	0.03404	mg/L	0.001180	0.03404 mg/L	0.001180	3.47%
Be 313.042†	-1.7	-0.00001	mg/L	0.000101	-0.00001 mg/L	0.000101	893.78%
Ca 317.933†	820206.3	79.37	mg/L	0.962	79.37 mg/L	0.962	1.21%
Cd 228.802†	-14.3	-0.00018	mg/L	0.000027	-0.00018 mg/L	0.000027	14.95%
Co 228.616†	-11.7	-0.00016	mg/L	0.000083	-0.00016 mg/L	0.000083	50.86%
Cr 267.716†	15.6	0.00360	mg/L	0.000534	0.00360 mg/L	0.000534	14.82%
Cu 324.752†	-7.6	-0.00002	mg/L	0.000062	-0.00002 mg/L	0.000062	254.49%
Fe 273.955†	38.6	0.03283	mg/L	0.001796	0.03283 mg/L	0.001796	5.47%
K 766.490†	13605.8	3.857	mg/L	0.0889	3.857 mg/L	0.0889	2.31%
Mg 279.077†	52818.2	48.37	mg/L	0.707	48.37 mg/L	0.707	1.46%
Mn 257.610†	3096.7	0.08329	mg/L	0.000882	0.08329 mg/L	0.000882	1.06%
Mo 202.031†	57.7	0.00280	mg/L	0.000284	0.00280 mg/L	0.000284	10.14%
Na 589.592†	155094.2	19.20	mg/L	0.251	19.20 mg/L	0.251	1.31%
Na 330.237†	486.9	19.11	mg/L	0.410	19.11 mg/L	0.410	2.15%
Ni 231.604†	12.0	0.00561	mg/L	0.002795	0.00561 mg/L	0.002795	49.86%
Pb 220.353†	-49.2	-0.00172	mg/L	0.000484	-0.00172 mg/L	0.000484	28.25%
Sb 206.836†	-18.3	-0.00557	mg/L	0.000450	-0.00557 mg/L	0.000450	8.07%
Se 196.026†	26.0	0.01413	mg/L	0.001051	0.01413 mg/L	0.001051	7.44%
Si 288.158†	22551.7	17.24	mg/L	0.264	17.24 mg/L	0.264	1.53%
Sn 189.927†	-50.2	0.00986	mg/L	0.000730	0.00986 mg/L	0.000730	7.40%
Sr 421.552†	277099.9	0.4638	mg/L	0.00900	0.4638 mg/L	0.00900	1.94%
Ti 334.903†	159.6	0.00273	mg/L	0.000281	0.00273 mg/L	0.000281	10.28%
Tl 190.801†	-12.9	-0.00374	mg/L	0.001145	-0.00374 mg/L	0.001145	30.65%
V 292.402†	383.1	0.00191	mg/L	0.000226	0.00191 mg/L	0.000226	11.79%
Zn 206.200†	-3.8	0.00015	mg/L	0.000458	0.00015 mg/L	0.000458	303.60%

Sequence No.: 18
Sample ID: VP23 J WMN
Analyst: EL
Dilution: 1X

Autosampler Location: 74
Date Collected: 11/2/2012 6:04:50 PM
Data Type: Original

Nebulizer Parameters: VP23 J WMN

Analyte Back Pressure Flow
All 231.0 kPa 0.55 L/min

Mean Data: VP23 J WMN

Analyte	Mean Corrected Intensity	Calib. Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2639731.7	103.3 %	1.96			1.90%
ScR 361.383	205846.7	106.3 %	1.41			1.33%
Ag 328.068†	-1.0	-0.00020 mg/L	0.000141	-0.00020 mg/L	0.000141	69.15%
Al 308.215†	28.5	0.02025 mg/L	0.014778	0.02025 mg/L	0.014778	72.98%
As 188.979†	4.7	0.00200 mg/L	0.002036	0.00200 mg/L	0.002036	101.89%
B 249.677†	58.3	0.02861 mg/L	0.000718	0.02861 mg/L	0.000718	2.51%
Ba 233.527†	91.8	0.00961 mg/L	0.000478	0.00961 mg/L	0.000478	4.97%
Be 313.042†	-21.0	-0.00008 mg/L	0.000056	-0.00008 mg/L	0.000056	67.66%
Ca 317.933†	179874.4	17.41 mg/L	0.385	17.41 mg/L	0.385	2.21%
Cd 228.802†	-13.9	-0.00018 mg/L	0.000021	-0.00018 mg/L	0.000021	11.91%
Co 228.616†	-14.3	-0.00018 mg/L	0.000157	-0.00018 mg/L	0.000157	87.57%
Cr 267.716†	2.1	0.00049 mg/L	0.000642	0.00049 mg/L	0.000642	132.06%
Cu 324.752†	257.0	0.00083 mg/L	0.000141	0.00083 mg/L	0.000141	17.02%
Fe 273.955†	99.5	0.08455 mg/L	0.002983	0.08455 mg/L	0.002983	3.53%
K 766.490†	13249.2	3.756 mg/L	0.0906	3.756 mg/L	0.0906	2.41%
Mg 279.077†	10699.4	9.798 mg/L	0.2155	9.798 mg/L	0.2155	2.20%
Mn 257.610†	988.5	0.02659 mg/L	0.000382	0.02659 mg/L	0.000382	1.44%
Mo 202.031†	36.1	0.00200 mg/L	0.000236	0.00200 mg/L	0.000236	11.81%
Na 589.592†	63099.8	7.811 mg/L	0.1607	7.811 mg/L	0.1607	2.06%
Na 330.237†	194.5	7.697 mg/L	0.8053	7.697 mg/L	0.8053	10.46%
Ni 231.604†	-0.9	-0.00043 mg/L	0.001192	-0.00043 mg/L	0.001192	276.30%
Pb 220.353†	-38.4	-0.00248 mg/L	0.000896	-0.00248 mg/L	0.000896	36.16%
Sb 206.836†	-13.3	-0.00399 mg/L	0.000751	-0.00399 mg/L	0.000751	18.82%
Se 196.026†	11.5	0.00627 mg/L	0.004322	0.00627 mg/L	0.004322	68.97%
Si 288.158†	10774.9	8.234 mg/L	0.1848	8.234 mg/L	0.1848	2.24%
Sn 189.927†	-21.4	0.00044 mg/L	0.000275	0.00044 mg/L	0.000275	62.11%
Sr 421.552†	62792.2	0.1051 mg/L	0.00216	0.1051 mg/L	0.00216	2.05%
Ti 334.903†	61.8	0.00171 mg/L	0.000484	0.00171 mg/L	0.000484	28.31%
Tl 190.801†	0.5	0.00011 mg/L	0.000684	0.00011 mg/L	0.000684	618.90%
V 292.402†	115.8	0.00057 mg/L	0.000032	0.00057 mg/L	0.000032	5.65%
Zn 206.200†	1.1	0.00084 mg/L	0.000533	0.00084 mg/L	0.000533	63.25%

Sequence No.: 19
Sample ID: VP23 K WMN
Analyst: EL
Dilution: 1X

Autosampler Location: 75
Date Collected: 11/2/2012 6:10:51 PM
Data Type: Original

Nebulizer Parameters: VP23 K WMN

Analyte Back Pressure Flow
All 230.0 kPa 0.55 L/min

Mean Data: VP23 K WMN

Table with 8 columns: Analyte, Mean Corrected Intensity, Conc. Units, Calib. Units, Std.Dev., Sample Conc. Units, Std.Dev., RSD. Lists various elements like ScA, Ag, Al, As, B, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, K, Mg, Mn, Mo, Na, Ni, Pb, Sb, Se, Si, Sn, Sr, Ti, Tl, V, Zn with their respective values.

Sequence No.: 20
 Sample ID: VP23 L WMN
 Analyst: EL
 Dilution: 1X

Autosampler Location: 76
 Date Collected: 11/2/2012 6:16:53 PM
 Data Type: Original

WEL

Nebulizer Parameters: VP23 L WMN

Analyte Back Pressure Flow
 All 231.0 kPa 0.55 L/min

Mean Data: VP23 L WMN

Analyte	Mean Corrected		Calib. Units	Std.Dev.	Sample		Std.Dev.	RSD
	Intensity	Conc.			Conc.	Units		
ScA 357.253	2605053.7	102.0	%	0.98				0.96%
ScR 361.383	221721.6	114.5	%	12.79				11.17%
Ag 328.068†	27.4	-0.00062	mg/L	0.000135	-0.00062	mg/L	0.000135	21.82%
Al 308.215†	-2.6	-0.00195	mg/L	0.005213	-0.00195	mg/L	0.005213	266.91%
As 188.979†	-0.7	-0.00029	mg/L	0.002291	-0.00029	mg/L	0.002291	801.82%
B 249.677†	53.1	0.02605	mg/L	0.004350	0.02605	mg/L	0.004350	16.70%
Ba 233.527†	119.4	0.01249	mg/L	0.002048	0.01249	mg/L	0.002048	16.40%
Be 313.042†	-72.9	-0.00028	mg/L	0.000211	-0.00028	mg/L	0.000211	74.80%
Ca 317.933†	506244.5	48.99	mg/L	5.734	48.99	mg/L	5.734	11.70%
Cd 228.802†	-28.8	-0.00036	mg/L	0.000023	-0.00036	mg/L	0.000023	6.56%
Co 228.616†	9.4	0.00010	mg/L	0.000009	0.00010	mg/L	0.000009	8.47%
Cr 267.716†	8.9	0.00189	mg/L	0.001160	0.00189	mg/L	0.001160	61.35%
Cu 324.752†	-399.0	-0.00128	mg/L	0.000163	-0.00128	mg/L	0.000163	12.74%
Fe 273.955†	-5.6	-0.00474	mg/L	0.004586	-0.00474	mg/L	0.004586	96.80%
K 766.490†	10423.1	2.955	mg/L	0.4281	2.955	mg/L	0.4281	14.49%
Mg 279.077†	37748.2	34.57	mg/L	4.022	34.57	mg/L	4.022	11.64%
Mn 257.610†	29276.1	0.7874	mg/L	0.09248	0.7874	mg/L	0.09248	11.74%
Mo 202.031†	48.7	0.00244	mg/L	0.000125	0.00244	mg/L	0.000125	5.13%
Na 589.592†	85073.2	10.53	mg/L	1.244	10.53	mg/L	1.244	11.81%
Na 330.237†	266.1	10.33	mg/L	1.363	10.33	mg/L	1.363	13.19%
Ni 231.604†	14.3	0.00667	mg/L	0.003645	0.00667	mg/L	0.003645	54.68%
Pb 220.353†	-51.0	-0.00263	mg/L	0.000384	-0.00263	mg/L	0.000384	14.57%
Sb 206.836†	-20.5	-0.00617	mg/L	0.002010	-0.00617	mg/L	0.002010	32.55%
Se 196.026†	26.3	0.01429	mg/L	0.004522	0.01429	mg/L	0.004522	31.64%
Si 288.158†	23827.8	18.21	mg/L	2.131	18.21	mg/L	2.131	11.70%
Sn 189.927†	-39.8	0.00477	mg/L	0.000308	0.00477	mg/L	0.000308	6.45%
Sr 421.552†	136272.5	0.2281	mg/L	0.02721	0.2281	mg/L	0.02721	11.93%
Ti 334.903†	107.6	0.00206	mg/L	0.000631	0.00206	mg/L	0.000631	30.61%
Tl 190.801†	-12.9	-0.00458	mg/L	0.000242	-0.00458	mg/L	0.000242	5.29%
V 292.402†	51.5	0.00039	mg/L	0.000305	0.00039	mg/L	0.000305	77.98%
Zn 206.200†	586.6	0.2410	mg/L	0.02671	0.2410	mg/L	0.02671	11.08%

Sequence No.: 21

Autosampler Location: 77

Sample ID: VP23 HDUP WMN

Date Collected: 11/2/2012 6:22:55 PM

Analyst: EL

Data Type: Original

Dilution: 1X

Nebulizer Parameters: VP23 HDUP WMN

Analyte	Back Pressure	Flow
All	231.0 kPa	0.55 L/min

Mean Data: VP23 HDUP WMN

Analyte	Mean Corrected		Calib. Units	Std.Dev.	Sample		Std.Dev.	RSD
	Intensity	Conc.			Conc.	Units		
ScA 357.253	2588192.0	101.3	%	0.22				0.22%
ScR 361.383	210681.9	108.8	%	9.78				8.99%
Ag 328.068†	285.7	-0.00058	mg/L	0.000158	-0.00058	mg/L	0.000158	27.01%
Al 308.215†	7.4	0.00520	mg/L	0.006890	0.00520	mg/L	0.006890	132.54%
As 188.979†	4.0	0.00170	mg/L	0.001414	0.00170	mg/L	0.001414	83.20%
B 249.677†	124.9	0.06127	mg/L	0.002567	0.06127	mg/L	0.002567	4.19%
Ba 233.527†	363.1	0.03799	mg/L	0.003883	0.03799	mg/L	0.003883	10.22%
Be 313.042†	-34.8	-0.00014	mg/L	0.000216	-0.00014	mg/L	0.000216	157.05%
Ca 317.933†	608411.3	58.88	mg/L	5.790	58.88	mg/L	5.790	9.83%
Cd 228.802†	423.6	0.00529	mg/L	0.000028	0.00529	mg/L	0.000028	0.53%
Co 228.616†	407.8	0.00487	mg/L	0.000109	0.00487	mg/L	0.000109	2.25%
Cr 267.716†	7.4	0.00073	mg/L	0.001309	0.00073	mg/L	0.001309	178.75%
Cu 324.752†	197.9	0.00064	mg/L	0.000186	0.00064	mg/L	0.000186	29.19%
Fe 273.955†	53.8	0.04574	mg/L	0.003505	0.04574	mg/L	0.003505	7.66%
K 766.490†	11887.9	3.370	mg/L	0.4022	3.370	mg/L	0.4022	11.94%
Mg 279.077†	21249.2	19.46	mg/L	1.755	19.46	mg/L	1.755	9.02%
Mn 257.610†	168872.0	4.542	mg/L	0.4500	4.542	mg/L	0.4500	9.91%
Mo 202.031†	50.7	0.00274	mg/L	0.000194	0.00274	mg/L	0.000194	7.08%
Na 589.592†	97016.5	12.01	mg/L	1.179	12.01	mg/L	1.179	9.82%
Na 330.237†	312.1	12.22	mg/L	1.394	12.22	mg/L	1.394	11.42%
Ni 231.604†	10.0	0.00468	mg/L	0.003573	0.00468	mg/L	0.003573	76.32%
Pb 220.353†	-44.0	-0.00185	mg/L	0.000678	-0.00185	mg/L	0.000678	36.67%
Sb 206.836†	-9.1	-0.00279	mg/L	0.000398	-0.00279	mg/L	0.000398	14.29%
Se 196.026†	20.8	0.01133	mg/L	0.001720	0.01133	mg/L	0.001720	15.18%
Si 288.158†	11715.4	8.954	mg/L	0.8270	8.954	mg/L	0.8270	9.24%
Sn 189.927†	-41.8	0.00618	mg/L	0.001216	0.00618	mg/L	0.001216	19.66%
Sr 421.552†	256360.0	0.4290	mg/L	0.04098	0.4290	mg/L	0.04098	9.55%
Ti 334.903†	120.5	0.00211	mg/L	0.000207	0.00211	mg/L	0.000207	9.78%
Tl 190.801†	16.4	-0.00100	mg/L	0.002268	-0.00100	mg/L	0.002268	226.47%
V 292.402†	247.2	0.00189	mg/L	0.000137	0.00189	mg/L	0.000137	7.26%
Zn 206.200†	-4.7	-0.00064	mg/L	0.002287	-0.00064	mg/L	0.002287	356.71%

Sequence No.: 22
 Sample ID: VP23 H WMN
 Analyst: EL
 Dilution: 1X

Autosampler Location: 78
 Date Collected: 11/2/2012 6:29:15 PM
 Data Type: Original

Nebulizer Parameters: VP23 H WMN

Analyte	Back Pressure	Flow
All	231.0 kPa	0.55 L/min

Mean Data: VP23 H WMN

Analyte	Mean Corrected		Calib.	Std.Dev.	Sample		RSD
	Intensity	Conc. Units			Conc. Units	Std.Dev.	
ScA 357.253	2534216.4	99.21 %	%	1.096			1.10%
ScR 361.383	194419.4	100.4 %	%	1.05			1.04%
Ag 328.068†	385.7	-0.00041	mg/L	0.000217	-0.00041	mg/L	0.000217 53.29%
Al 308.215†	19.6	0.01384	mg/L	0.003577	0.01384	mg/L	0.003577 25.85%
As 188.979†	6.4	0.00277	mg/L	0.001498	0.00277	mg/L	0.001498 54.12%
B 249.677†	125.4	0.06148	mg/L	0.001604	0.06148	mg/L	0.001604 2.61%
Ba 233.527†	412.0	0.04310	mg/L	0.000990	0.04310	mg/L	0.000990 2.30%
Be 313.042†	7.7	0.00003	mg/L	0.000033	0.00003	mg/L	0.000033 123.94%
Ca 317.933†	670523.7	64.89	mg/L	0.649	64.89	mg/L	0.649 1.00%
Cd 228.802†	446.5	0.00557	mg/L	0.000074	0.00557	mg/L	0.000074 1.33%
Co 228.616†	426.5	0.00509	mg/L	0.000151	0.00509	mg/L	0.000151 2.96%
Cr 267.716†	12.0	0.00170	mg/L	0.000692	0.00170	mg/L	0.000692 40.67%
Cu 324.752†	239.5	0.00077	mg/L	0.000107	0.00077	mg/L	0.000107 13.84%
Fe 273.955†	60.2	0.05120	mg/L	0.001368	0.05120	mg/L	0.001368 2.67%
K 766.490†	13011.0	3.688	mg/L	0.0141	3.688	mg/L	0.0141 0.38%
Mg 279.077†	23231.0	21.27	mg/L	0.263	21.27	mg/L	0.263 1.23%
Mn 257.610†	186244.5	5.009	mg/L	0.0402	5.009	mg/L	0.0402 0.80%
Mo 202.031†	45.1	0.00239	mg/L	0.000428	0.00239	mg/L	0.000428 17.88%
Na 589.592†	105195.6	13.02	mg/L	0.071	13.02	mg/L	0.071 0.55%
Na 330.237†	347.8	13.61	mg/L	0.250	13.61	mg/L	0.250 1.83%
Ni 231.604†	18.9	0.00881	mg/L	0.000345	0.00881	mg/L	0.000345 3.92%
Pb 220.353†	-39.8	-0.00137	mg/L	0.000450	-0.00137	mg/L	0.000450 32.87%
Sb 206.836†	-0.5	-0.00028	mg/L	0.001230	-0.00028	mg/L	0.001230 433.82%
Se 196.026†	15.1	0.00820	mg/L	0.004279	0.00820	mg/L	0.004279 52.16%
Si 288.158†	12802.6	9.785	mg/L	0.0722	9.785	mg/L	0.0722 0.74%
Sn 189.927†	-43.7	0.00719	mg/L	0.000447	0.00719	mg/L	0.000447 6.22%
Sr 421.552†	282455.5	0.4727	mg/L	0.00435	0.4727	mg/L	0.00435 0.92%
Ti 334.903†	126.4	0.00207	mg/L	0.000414	0.00207	mg/L	0.000414 20.02%
Tl 190.801†	13.1	-0.00250	mg/L	0.000352	-0.00250	mg/L	0.000352 14.07%
V 292.402†	249.5	0.00197	mg/L	0.000188	0.00197	mg/L	0.000188 9.56%
Zn 206.200†	-9.9	-0.00267	mg/L	0.000569	-0.00267	mg/L	0.000569 21.32%

Sequence No.: 23
 Sample ID: VP23 HSPK WMN
 Analyst: EL
 Dilution: 1X

Autosampler Location: 79
 Date Collected: 11/2/2012 6:35:34 PM
 Data Type: Original

Nebulizer Parameters: VP23 HSPK WMN

Analyte Back Pressure Flow
 All 231.0 kPa 0.55 L/min

Mean Data: VP23 HSPK WMN

Analyte	Mean Corrected		Calib. Units	Std.Dev.	Sample		RSD
	Intensity	Conc.			Conc.	Units	
ScA 357.253	2531380.1	99.10	%	0.182			0.18%
ScR 361.383	192474.3	99.41	%	0.505			0.51%
Ag 328.068†	148667.7	0.4948	mg/L	0.00632	0.4948	mg/L	0.00632
Al 308.215†	3376.6	2.395	mg/L	0.0126	2.395	mg/L	0.0126
As 188.979†	5486.7	2.353	mg/L	0.0125	2.353	mg/L	0.0125
B 249.677†	128.0	0.06098	mg/L	0.003128	0.06098	mg/L	0.003128
Ba 233.527†	22561.0	2.360	mg/L	0.0121	2.360	mg/L	0.0121
Be 313.042†	152275.4	0.5855	mg/L	0.00264	0.5855	mg/L	0.00264
Ca 317.933†	791804.7	76.62	mg/L	0.333	76.62	mg/L	0.333
Cd 228.802†	48197.0	0.5963	mg/L	0.00066	0.5963	mg/L	0.00066
Co 228.616†	45587.0	0.5459	mg/L	0.00093	0.5459	mg/L	0.00093
Cr 267.716†	2553.5	0.5934	mg/L	0.00441	0.5934	mg/L	0.00441
Cu 324.752†	171572.5	0.5494	mg/L	0.00125	0.5494	mg/L	0.00125
Fe 273.955†	2915.2	2.477	mg/L	0.0130	2.477	mg/L	0.0130
K 766.490†	57650.0	16.34	mg/L	0.085	16.34	mg/L	0.085
Mg 279.077†	36244.1	33.19	mg/L	0.147	33.19	mg/L	0.147
Mn 257.610†	207011.6	5.568	mg/L	0.0237	5.568	mg/L	0.0237
Mo 202.031†	50.9	0.00253	mg/L	0.000466	0.00253	mg/L	0.000466
Na 589.592†	202727.6	25.09	mg/L	0.053	25.09	mg/L	0.053
Na 330.237†	647.2	25.31	mg/L	0.366	25.31	mg/L	0.366
Ni 231.604†	1200.2	0.5599	mg/L	0.00472	0.5599	mg/L	0.00472
Pb 220.353†	28302.3	2.163	mg/L	0.0150	2.163	mg/L	0.0150
Sb 206.836†	15.3	-0.00442	mg/L	0.001485	-0.00442	mg/L	0.001485
Se 196.026†	4577.0	2.492	mg/L	0.0222	2.492	mg/L	0.0222
Si 288.158†	12752.0	9.750	mg/L	0.0505	9.750	mg/L	0.0505
Sn 189.927†	-50.0	0.00895	mg/L	0.000471	0.00895	mg/L	0.000471
Sr 421.552†	634676.9	1.062	mg/L	0.0067	1.062	mg/L	0.0067
Ti 334.903†	151.1	0.00238	mg/L	0.000327	0.00238	mg/L	0.000327
Tl 190.801†	8000.5	2.231	mg/L	0.0166	2.231	mg/L	0.0166
V 292.402†	122368.7	0.6018	mg/L	0.00151	0.6018	mg/L	0.00151
Zn 206.200†	1384.6	0.5678	mg/L	0.00130	0.5678	mg/L	0.00130

Sequence No.: 24

Autosampler Location: 80

Sample ID: VP23 MB2SPK WMN

Date Collected: 11/2/2012 6:41:29 PM

Analyst: EL

Data Type: Original

Dilution: 1X

EL

Nebulizer Parameters: VP23 MB2SPK WMN

Analyte	Back Pressure	Flow
All	231.0 kPa	0.55 L/min

Mean Data: VP23 MB2SPK WMN

Analyte	Mean Corrected		Calib. Units	Std.Dev.	Sample		Std.Dev.	RSD
	Intensity	Conc.			Conc.	Units		
ScA 357.253	2588972.2	101.3	%	0.50				0.49%
ScR 361.383	195722.5	101.1	%	1.20				1.18%
Ag 328.068†	101947.5	0.3404	mg/L	0.00646	0.3404	mg/L	0.00646	1.90%
Al 308.215†	3341.4	2.370	mg/L	0.0264	2.370	mg/L	0.0264	1.11%
As 188.979†	5231.3	2.243	mg/L	0.0218	2.243	mg/L	0.0218	0.97%
B 249.677†	-0.9	-0.00230	mg/L	0.001125	-0.00230	mg/L	0.001125	49.00%
Ba 233.527†	22202.9	2.323	mg/L	0.0257	2.323	mg/L	0.0257	1.11%
Be 313.042†	150462.9	0.5786	mg/L	0.00052	0.5786	mg/L	0.00052	0.09%
Ca 317.933†	120159.6	11.63	mg/L	0.023	11.63	mg/L	0.023	0.20%
Cd 228.802†	48145.7	0.5959	mg/L	0.00610	0.5959	mg/L	0.00610	1.02%
Co 228.616†	46937.1	0.5621	mg/L	0.00759	0.5621	mg/L	0.00759	1.35%
Cr 267.716†	2550.5	0.5938	mg/L	0.00581	0.5938	mg/L	0.00581	0.98%
Cu 324.752†	177660.2	0.5689	mg/L	0.00741	0.5689	mg/L	0.00741	1.30%
Fe 273.955†	2818.1	2.395	mg/L	0.0258	2.395	mg/L	0.0258	1.08%
K 766.490†	44607.9	12.65	mg/L	0.031	12.65	mg/L	0.031	0.24%
Mg 279.077†	13293.7	12.17	mg/L	0.130	12.17	mg/L	0.130	1.07%
Mn 257.610†	21360.9	0.5751	mg/L	0.00609	0.5751	mg/L	0.00609	1.06%
Mo 202.031†	18.3	0.00086	mg/L	0.000152	0.00086	mg/L	0.000152	17.70%
Na 589.592†	98310.6	12.17	mg/L	0.029	12.17	mg/L	0.029	0.24%
Na 330.237†	311.5	12.17	mg/L	0.051	12.17	mg/L	0.051	0.42%
Ni 231.604†	1244.3	0.5804	mg/L	0.00589	0.5804	mg/L	0.00589	1.01%
Pb 220.353†	29629.9	2.262	mg/L	0.0317	2.262	mg/L	0.0317	1.40%
Sb 206.836†	13.3	-0.00498	mg/L	0.000960	-0.00498	mg/L	0.000960	19.26%
Se 196.026†	4398.8	2.395	mg/L	0.0192	2.395	mg/L	0.0192	0.80%
Si 288.158†	-1.9	0.00265	mg/L	0.000305	0.00265	mg/L	0.000305	11.51%
Sn 189.927†	-12.8	0.00067	mg/L	0.000776	0.00067	mg/L	0.000776	115.39%
Sr 421.552†	354012.0	0.5925	mg/L	0.00223	0.5925	mg/L	0.00223	0.38%
Ti 334.903†	38.7	0.00089	mg/L	0.000235	0.00089	mg/L	0.000235	26.27%
Tl 190.801†	8202.0	2.294	mg/L	0.0216	2.294	mg/L	0.0216	0.94%
V 292.402†	119940.6	0.5892	mg/L	0.00898	0.5892	mg/L	0.00898	1.52%
Zn 206.200†	1461.2	0.5978	mg/L	0.00755	0.5978	mg/L	0.00755	1.26%

Sequence No.: 25
 Sample ID: CV 7
 Analyst: EL
 Dilution: 1X

Autosampler Location: 7
 Date Collected: 11/2/2012 6:47:33 PM
 Data Type: Original

Nebulizer Parameters: CV

Analyte	Back Pressure	Flow
All	232.0 kPa	0.55 L/min

Mean Data: CV

Analyte	Mean Corrected		Calib. Units	Std.Dev.	Sample		RSD
	Intensity	Conc.			Conc.	Units	
ScA 357.253	2600835.1	101.8	%	0.20			0.20%
ScR 361.383	198073.3	102.3	%	0.73			0.71%
Ag 328.068†	289426.0	0.9665	mg/L	0.00413	0.9665	mg/L	0.43%
Al 308.215†	2879.8	2.010	mg/L	0.0173	2.010	mg/L	0.86%
As 188.979†	4478.4	1.920	mg/L	0.0044	1.920	mg/L	0.23%
B 249.677†	1956.2	0.9579	mg/L	0.01281	0.9579	mg/L	1.34%
Ba 233.527†	9636.4	1.008	mg/L	0.0100	1.008	mg/L	0.99%
Be 313.042†	251174.5	0.9658	mg/L	0.00049	0.9658	mg/L	0.05%
Ca 317.933†	20391.9	1.973	mg/L	0.0224	1.973	mg/L	1.13%
Cd 228.802†	79758.1	0.9915	mg/L	0.00440	0.9915	mg/L	0.44%
Co 228.616†	80127.3	0.9590	mg/L	0.00268	0.9590	mg/L	0.28%
Cr 267.716†	4232.2	0.9851	mg/L	0.01176	0.9851	mg/L	1.19%
Cu 324.752†	328371.3	1.051	mg/L	0.0009	1.051	mg/L	0.09%
Fe 273.955†	2435.4	2.069	mg/L	0.0229	2.069	mg/L	1.11%
K 766.490†	74399.4	21.09	mg/L	0.072	21.09	mg/L	0.34%
Mg 279.077†	2289.8	2.100	mg/L	0.0136	2.100	mg/L	0.65%
Mn 257.610†	37157.3	0.9998	mg/L	0.00217	0.9998	mg/L	0.22%
Mo 202.031†	15612.3	0.9177	mg/L	0.00089	0.9177	mg/L	0.10%
Na 589.592†	411888.3	50.98	mg/L	0.237	50.98	mg/L	0.47%
Na 330.237†	1288.8	51.30	mg/L	0.617	51.30	mg/L	1.20%
Ni 231.604†	2118.7	0.9902	mg/L	0.00994	0.9902	mg/L	1.00%
Pb 220.353†	24691.1	1.886	mg/L	0.0029	1.886	mg/L	0.15%
Sb 206.836†	6754.3	1.994	mg/L	0.0042	1.994	mg/L	0.21%
Se 196.026†	3420.1	1.861	mg/L	0.0031	1.861	mg/L	0.17%
Si 288.158†	2758.4	2.114	mg/L	0.0173	2.114	mg/L	0.82%
Sn 189.927†	5372.8	0.8777	mg/L	0.00213	0.8777	mg/L	0.24%
Sr 421.552†	606335.0	1.015	mg/L	0.0031	1.015	mg/L	0.31%
Ti 334.903†	24239.3	1.005	mg/L	0.0024	1.005	mg/L	0.24%
Tl 190.801†	6679.7	1.862	mg/L	0.0041	1.862	mg/L	0.22%
V 292.402†	204239.8	1.007	mg/L	0.0019	1.007	mg/L	0.19%
Zn 206.200†	2580.5	1.054	mg/L	0.0122	1.054	mg/L	1.15%

Sequence No.: 26
 Sample ID: CB7
 Analyst: EL
 Dilution: 1X

Autosampler Location: 1
 Date Collected: 11/2/2012 6:53:37 PM
 Data Type: Original

Nebulizer Parameters: CB

Analyte Back Pressure Flow
 All 233.0 kPa 0.55 L/min

Mean Data: CB

Analyte	Mean Corrected		Calib. Units	Std.Dev.	Sample		Std.Dev.	RSD
	Intensity	Conc.			Conc.	Units		
ScA 357.253	2642190.4	103.4	%	0.46				0.44%
ScR 361.383	193868.4	100.1	%	0.81				0.81%
Ag 328.068†	118.9	0.00040	mg/L	0.000136	0.00040	mg/L	0.000136	34.36%
Al 308.215†	-1.6	-0.00112	mg/L	0.010653	-0.00112	mg/L	0.010653	953.22%
As 188.979†	5.7	0.00243	mg/L	0.000579	0.00243	mg/L	0.000579	23.79%
B 249.677†	4.0	0.00194	mg/L	0.001517	0.00194	mg/L	0.001517	78.20%
Ba 233.527†	-7.0	-0.00073	mg/L	0.000288	-0.00073	mg/L	0.000288	39.60%
Be 313.042†	26.5	0.00010	mg/L	0.000055	0.00010	mg/L	0.000055	54.26%
Ca 317.933†	-10.8	-0.00104	mg/L	0.001961	-0.00104	mg/L	0.001961	188.14%
Cd 228.802†	-3.8	-0.00005	mg/L	0.000084	-0.00005	mg/L	0.000084	155.21%
Co 228.616†	2.8	0.00003	mg/L	0.000094	0.00003	mg/L	0.000094	281.49%
Cr 267.716†	-0.6	-0.00014	mg/L	0.000461	-0.00014	mg/L	0.000461	320.20%
Cu 324.752†	276.8	0.00089	mg/L	0.000047	0.00089	mg/L	0.000047	5.26%
Fe 273.955†	-7.2	-0.00616	mg/L	0.002293	-0.00616	mg/L	0.002293	37.21%
K 766.490†	253.8	0.07193	mg/L	0.010300	0.07193	mg/L	0.010300	14.32%
Mg 279.077†	-5.1	-0.00469	mg/L	0.003011	-0.00469	mg/L	0.003011	64.17%
Mn 257.610†	3.7	0.00010	mg/L	0.000022	0.00010	mg/L	0.000022	22.30%
Mo 202.031†	5.9	0.00035	mg/L	0.000153	0.00035	mg/L	0.000153	44.21%
Na 589.592†	292.4	0.03619	mg/L	0.008531	0.03619	mg/L	0.008531	23.57%
Na 330.237†	3.6	0.1455	mg/L	0.16253	0.1455	mg/L	0.16253	111.70%
Ni 231.604†	-2.7	-0.00124	mg/L	0.002510	-0.00124	mg/L	0.002510	202.05%
Pb 220.353†	-4.4	-0.00034	mg/L	0.000301	-0.00034	mg/L	0.000301	89.18%
Sb 206.836†	-8.4	-0.00249	mg/L	0.000378	-0.00249	mg/L	0.000378	15.22%
Se 196.026†	7.3	0.00398	mg/L	0.001877	0.00398	mg/L	0.001877	47.16%
Si 288.158†	-0.8	-0.00063	mg/L	0.001538	-0.00063	mg/L	0.001538	242.80%
Sn 189.927†	5.0	0.00081	mg/L	0.000411	0.00081	mg/L	0.000411	50.41%
Sr 421.552†	-27.6	-0.00005	mg/L	0.000035	-0.00005	mg/L	0.000035	75.96%
Ti 334.903†	5.7	0.00024	mg/L	0.000247	0.00024	mg/L	0.000247	104.33%
Tl 190.801†	2.6	0.00074	mg/L	0.000518	0.00074	mg/L	0.000518	70.27%
V 292.402†	5.0	0.00003	mg/L	0.000083	0.00003	mg/L	0.000083	324.22%
Zn 206.200†	1.7	0.00070	mg/L	0.000749	0.00070	mg/L	0.000749	107.38%

End PKG

Mercury Analysis Log

Analyst: D.H.

Date: 10-30-12

Instrument: 2-ET-82

Page: 1 of 5

ARI Sample ID	Prep Code	Dilution	QC Data (ppb)	Comments
STD 0.0	EXIM	1X		
" 0.1				
" 0.5				
" 1.0				
" 2.0				
" 5.0				
" 10.0				
ICV			8.09	BQ-N-CLP %R=101 ✓
ICB			-0.03	✓
CCV1			4.11	%R=103 ✓
CCB1			-0.02	✓
CBA			0.11	✓
VP40 MB1			-0.00	✓
" MB1SPK			2.00	%R=101 ✓
" A			0.44	
" ADP			0.44	RPD=3.51 ✓
" ASPK			1.88	%R=124 ✓
" B				
" C				
VP41 A				
" B				
CCV2			4.08	%R=102 ✓
CCB2			-0.00	✓
VP41 C				
" D				
" E				
VP87 MB1			0.00	✓
" MB1SPK			2.33	%R=100 ✓
" A			0.15	
" ADP			0.15	✓

Chemical/Reagent ID:
10% SnCl₂: MP237A

14% NH₂OH/NaCl: MP2360

Standard ID:
Standard: 2987-12

ICV/CCV: 5L-16

Mercury Analysis Log

Analyst: DM
Instrument: CETAC

Date: 10-30-12
Page: 2 of 5

ARI Sample ID	Prep Code	Dilution	QC Data (ppb)	Comments
V039 AEPK	Smm	1x	1.19	70R=104 ✓
" B				
" C				
2.13			4.04	70R=101 ✓
CCB			-0.00	
V009 D				
" E				
CCV-1			4.03	70R=101 ✓
CCB-1			-0.00	END CLIP ✓
V100	MBR		-0.00	
" MBSEPK			2.01	70R=101 ✓
" D				
V104	MBI		0.00	
" MBSEPK			2.02	70R=101 ✓
" A			0.21	
" ADUP			0.20	
" ASPK			1.23	70R=101 ✓
CCV			4.05	70R=101 ✓
CCB			-0.01	
STD 0.0	TRM			
" 0.1				
" 0.5				
" 1.0				
" 2.0				
" 5.0				
" 10.0				
ICV			1.01	70R=101 ✓
ICB			-0.03	
CCV			4.00	70R=101 ✓
CCB			-0.01	

Chemical/Reagent ID:
10% SnCl₂: MS2374

14% NH₂OH/NaCl: MS220

Standard ID:
Standard: 2957-12 (5mm)
2957-11 (1mm)

ICV/CCV: 2.15

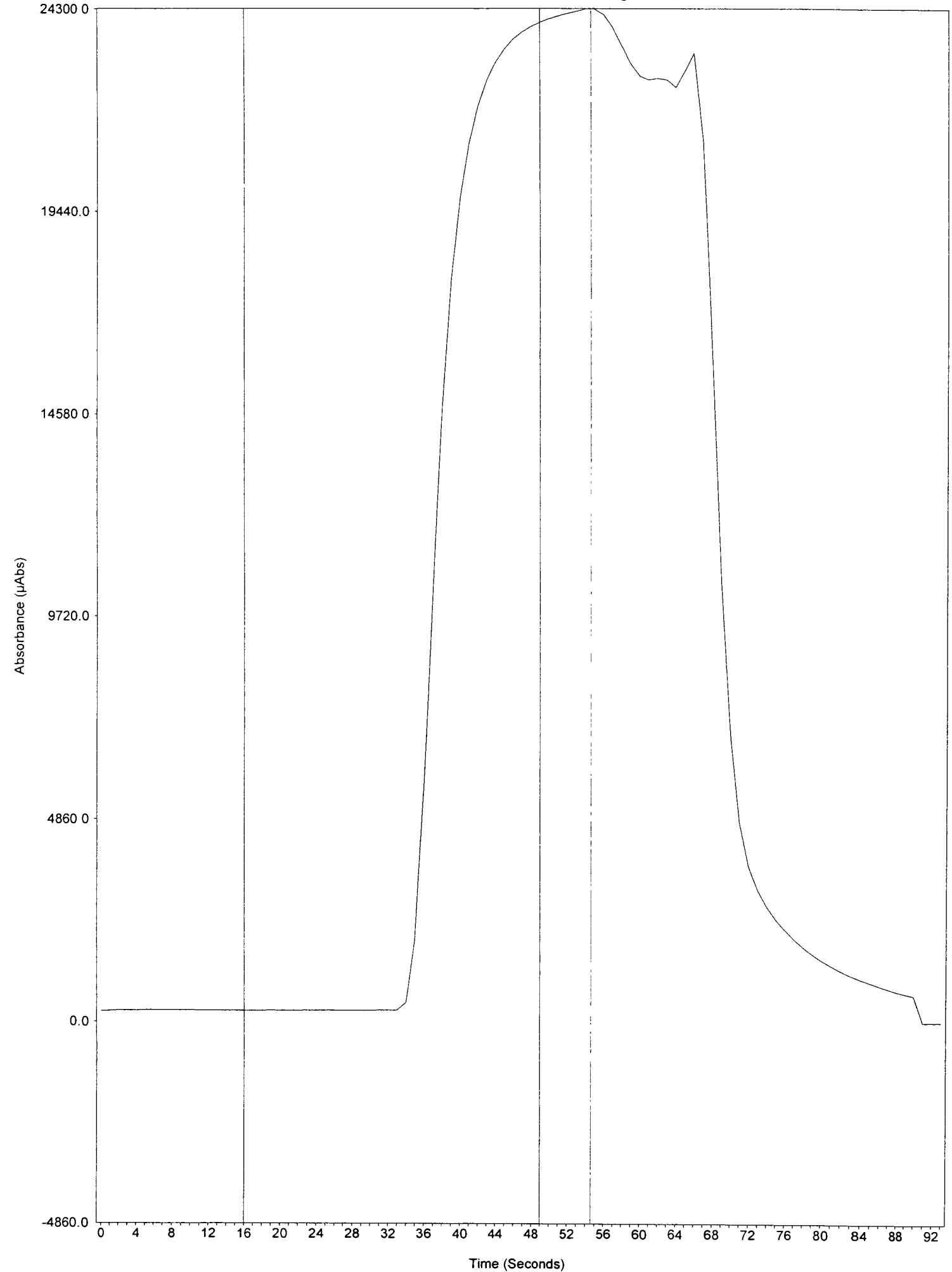
Metals Data Review Checklist

Method: ICP ICP-MS GFA CVA

Analysis Date: 10-30-12

	Analyst 10-30 DM	Peer At 10-31	Comment
Logbook:			
Analyst, Date, Method info	✓	✓	
Sample ID's	✓	/	
Standard/QC solution ID's recorded	✓	✓	
Prep codes	✓	✓	
Dilution factors	✓	/	
Crossouts/Corrections/Deletions	✓	/	
Calibration:			
Blank & Standard intensities	✓	✓	
Standard deviations	✓	✓	
Curve fit	✓	/	
Calibration Verification:			
ICV/CCV	✓	✓	
ICB/CCB	✓	/	
Samples:			
RSD's & SD's	✓	✓	
Internal Standards	-	✓	
Carry-over	-	/	
Method QC:			
CRI/CRA	✓	✓	
ICSA/ICSAB	-	-	
Post Spikes/Serial Dilutions	-	-	
Analytic Spikes	-	-	
Matrix QC:			
SRM/LCS	✓	✓	
Matrix Spikes	✓	/	
Matrix Duplicates	✓	/	
Method Blanks	✓	/	
Data Distribution:			
Requested elements/isotope identified	✓	/	
Correct samples identified for distribution	✓	/	
Raw data match distributed data	✓	/	
Data filename correct	✓	/	
Necessary Analysts Notes and CAP's	-	-	

25,401.4105 1 - 1



Analyst
 Date Started Tuesday, October 30, 2012, 10:34:21
 Worksheet ARI 10ppb CALIB
 Comment

A

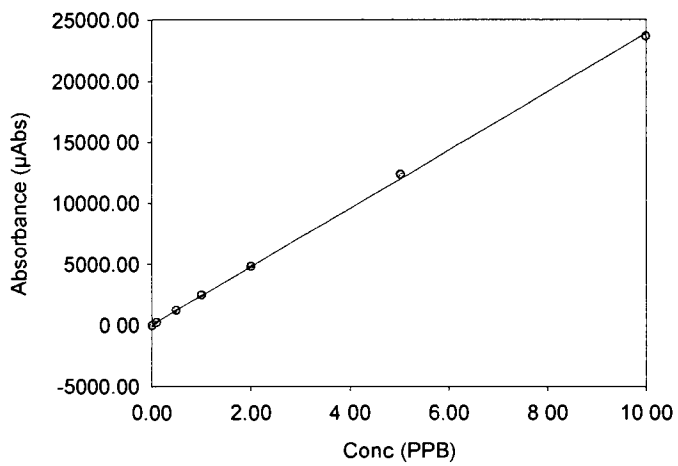
Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. μ Abs	Dilution	Flags
Std Tube 6	30-Oct-2012, 10.34	10.00	0.45	23900.00	1.00	

Information about this calibration could not be retrieved from the Master File.

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. μ Abs	Dilution	Flags
Calibration Zero	30-Oct-2012, 10:38	0.00	6.60	-15.50	1.00	
Standard #1	30-Oct-2012, 10:40	0.10	0.98	245.00	1.00	
Standard #2	30-Oct-2012, 10:41	0.50	0.86	1200.00	1.00	
Standard #3	30-Oct-2012, 10:43	1.00	0.44	2460.00	1.00	
Standard #4	30-Oct-2012, 10:44	2.00	0.48	4830.00	1.00	
Standard #5	30-Oct-2012, 10:46	5.00	0.56	12400.00	1.00	
Standard #6	30-Oct-2012, 10:48	10.00	0.52	23700.00	1.00	

Smm

Calibration Data



Int. Slope 0.000
 2392.762
 Correlation 0.99973

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. μ Abs	Dilution	Flags
ICV	30-Oct-2012, 10.52	8.09	0.54	19400.00	1.00	
ICB	30-Oct-2012, 10.53	-0.03	1.28	-75.30	1.00	

Bg's CLP

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. μ Abs	Dilution	Flags
QC Standard	30-Oct-2012, 10:55	4.11	0.42	9830.00	1.00	

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. μ Abs	Dilution	Flags
QC Blank	30-Oct-2012, 10:56	-0.02	4.97	-38.10	1.00	

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. μ Abs	Dilution	Flags
CRA	30-Oct-2012, 10:58	0.11	1.37	264.00	1.00	
VP40 MB1 SMM	30-Oct-2012, 11:00	-0.00	45.90	-2.87	1.00	
VP40 MB1SPK SMM	30-Oct-2012, 11:01	2.02	0.51	4820.00	1.00	
VP40 A SMM	30-Oct-2012, 11:03	0.64	0.41	1530.00	1.00	
VP40 ADUP SMM	30-Oct-2012, 11:04	0.66	0.31	1590.00	1.00	
VP40 ASPK SMM	30-Oct-2012, 11:06	1.88	0.39	4500.00	1.00	
VP40 B SMM	30-Oct-2012, 11:08	0.34	0.63	821.00	1.00	
VP40 C SMM	30-Oct-2012, 11:09	0.74	0.52	1770.00	1.00	
VP41 A SMM	30-Oct-2012, 11:11	0.09	1.01	205.00	1.00	
VP41 B SMM	30-Oct-2012, 11:13	0.20	0.21	485.00	1.00	

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. μ Abs	Dilution	Flags
QC Standard	30-Oct-2012, 11:14	4.08	0.46	9770.00	1.00	

Analyst
 Date Started Tuesday, October 30, 2012, 11:16:21
 Worksheet ARI 10ppb CALIB
 Comment

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. µAbs	Dilution	Flags
QC Blank	30-Oct-2012, 11:16	-0.00	22.00	-9.66	1.00	

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. µAbs	Dilution	Flags
VP41 C SMM	30-Oct-2012, 11:17	0.04	2.32	93.80	1.00	
VP41 D SMM	30-Oct-2012, 11:19	0.26	0.34	622.00	1.00	
VP41 E SMM	30-Oct-2012, 11:21	1.00	0.65	2400.00	1.00	
VO89 MB1 SMM	30-Oct-2012, 11:22	0.00	44.60	2.91	1.00	
VO89 MB1SPK SMM	30-Oct-2012, 11:24	2.00	0.66	4800.00	1.00	
VO89 A SMM	30-Oct-2012, 11:25	0.15	0.63	351.00	1.00	
VO89 ADUP SMM	30-Oct-2012, 11:27	0.15	0.70	358.00	1.00	
VO89 ASPK SMM	30-Oct-2012, 11:29	1.19	0.67	2840.00	1.00	
VO89 B SMM	30-Oct-2012, 11:30	0.12	0.66	279.00	1.00	
VO89 C SMM	30-Oct-2012, 11:32	0.10	1.06	247.00	1.00	

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. µAbs	Dilution	Flags
QC Standard	30-Oct-2012, 11:34	4.04	0.74	9670.00	1.00	

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. µAbs	Dilution	Flags
QC Blank	30-Oct-2012, 11:35	-0.00	21.30	-6.50	1.00	

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. µAbs	Dilution	Flags
VO89 D SMM	30-Oct-2012, 11:37	0.08	0.97	179.00	1.00	
VO89 E SMM	30-Oct-2012, 11:39	0.09	0.59	227.00	1.00	

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. µAbs	Dilution	Flags
QC Standard	30-Oct-2012, 11:40	4.03	0.63	9630.00	1.00	

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. µAbs	Dilution	Flags
QC Blank	30-Oct-2012, 11:42	-0.00	32.10	-9.00	1.00	END CLP

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. µAbs	Dilution	Flags
VP00 MB2 SMM	30-Oct-2012, 11:44	-0.00	58.70	-3.23	1.00	
VP00 MB2SPK SMM	30-Oct-2012, 11:45	2.01	0.46	4800.00	1.00	
VP00 D SMM	30-Oct-2012, 11:47	0.15	1.01	369.00	1.00	
VP64 MB1 SMM	30-Oct-2012, 11:48	0.00	189.00	0.85	1.00	
VP64 MB1SPK SMM	30-Oct-2012, 11:50	2.02	0.49	4830.00	1.00	
VP64 A SMM	30-Oct-2012, 11:52	0.21	0.60	511.00	1.00	
VP64 ADUP SMM	30-Oct-2012, 11:53	0.20	0.50	471.00	1.00	
VP64 ASPK SMM	30-Oct-2012, 11:55	1.28	0.65	3060.00	1.00	

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. µAbs	Dilution	Flags
QC Standard	30-Oct-2012, 11:56	4.05	0.49	9680.00	1.00	

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. µAbs	Dilution	Flags
QC Blank	30-Oct-2012, 11:58	-0.01	24.40	-13.40	1.00	

[Handwritten signature]

Analyst
Date Created: Thursday, July 13, 2000
Worksheet: ARI 10ppb CALIB
Comment

Sip Duration (Sec.): 30
Rinse Duration (Sec.): 60
Read Delay: 49
Integration Time/Replicate: 1.40
of Replicates: 4
of Repeats: 1
Baseline Correction Enabled: True
Baseline Point 1 Start Time: 10
Baseline Point 1 End Time: 16
2-Point Baseline Corr. Enabled: False
Baseline Point 2 Start Time:
Baseline Point 2 End Time:

Gas Flow (ml/min): 180

Calibration Algorithm: Linear, Zero Intercept
Recalibration Frequency: 0
Reslope Frequency: 0
Reslope Standard: 5
Calibration Standard #1 Conc.: 0.10 PPB
Calibration Standard #2 Conc.: 0.50 PPB
Calibration Standard #3 Conc.: 1.00 PPB
Calibration Standard #4 Conc.: 2.00 PPB
Calibration Standard #5 Conc.: 5.00 PPB
Calibration Standard #6 Conc.: 10.00 PPB

QC Enabled: True
QC-RSD Enabled: True
Limit Condition & Error Action: If %RSD > 5.0%, if μ Abs. > 1500, Flag and Continue

QC-Std Enabled: True
Limit Condition & Error Action: If outside 80% .. 120%, Stop

QC-Blank Enabled: True
Limit Condition & Error Action: If outside -100 .. 100, Stop



Mercury Standard Prep Log

Digested 20.0 mL

Prep Code: TWM
Analyst: NB
Bath Temp: 90°C

Start Time: 1158

Instrument: CETAC
Date: 10-26-12
End Time: 1358

Standard ID	Stock ID	Volume Added (mL)	Final Volume (mL)	Standard Conc. (µg/L)	Number Made
STD0	—	0.00	100.0	0.0	1
STD1	2987-11	0.01	↓	0.1	1
STD2	↓	0.05	↓	0.5	1
STD3	↓	0.10	↓	1.0	1
STD4	↓	0.20	↓	2.0	1
STD5	↓	0.50	↓	5.0	1
STD6	↓	1.00	↓	10.0	1
CRA	↓	0.01	↓	0.1	1
ICB/CCB	—	0.00	↓	0.0	1
ICV/LCS	56-18	0.16	↓	8.0	1
CCV	↓	0.08	100.0	4.0	1

Chemical/Reagent ID:

HNO₃: I7628 H₂SO₄: I7677 HCl: —
5% K₂S₂O₈: MP235i 5% KMnO₄: MP2376

Prep Code: SMM
Analyst: NB
Bath Temp: 93°C

Start Time: 1325

Instrument: CETAC
Date: 10-26-12
End Time: 1355

Standard ID	Stock ID	Volume Added (mL)	Final Volume (mL)	Standard Conc. (µg/L)	Number Made
STD0	—	0.00	50.0	0.0	3
STD1	2987-12	0.01	↓	0.1	2
STD2	↓	0.05	↓	0.5	2
STD3	↓	0.10	↓	1.0	2
STD4	↓	0.20	↓	2.0	2
STD5	↓	0.50	↓	5.0	2
STD6	↓	1.00	↓	10.0	2
CRA	↓	0.01	↓	0.1	1
ICB/CCB	—	0.00	↓	0.0	3
ICV/LCS	56-18	0.08	↓	8.0	2
CCV	↓	0.04	50.0	4.0	3

Chemical/Reagent ID:

HNO₃: I7628 H₂SO₄: I7677 HCl: —
5% K₂S₂O₈: MP2375 5% KMnO₄: MP2376



Mercury Digestion Log

Prep Code: SMM

Matrix: SOIL

Analyst: NB

Date: 10-29-12

Bath Temp: 92°C

Start Time: 1342

End Time: 1412

ARI Sample ID	Sample Bottle #	pH<2	Initial Weight (g) Volume (mL)	Final Volume (mL)	# KMnO ₄ Aliquots	CLP	Comments
VP40 A	7	-	0.246	50.0	11-06 1	YES	} - Batch
" ADAP	7	-	0.247		1		
" ASPK	7	-	0.244		1		
" B	7	-	0.272		1		
" C	7	-	0.233		1		
" MBI	-	-	-		1		
" MBISPK	-	-	-		1		
VP41 A	7	-	0.204		11-06 1		
" B	7	-	0.244		1		
" C	7	-	0.276		1		
" D	7	-	0.266	↓	1		
" E	7	-	0.295	50.0	1	↓	
NB 10-29-12							

Chemical/Reagent ID:

HNO₃: I7628

H₂SO₄: I7677

HCl:

5% K₂S₂O₈: MP2375

5% KMnO₄: MP2376

Digest Tube Lot: 1205258

Table of Contents: ARI Job VP51

Client: Anchor QEA LLC

Project: Central Waterfront Shoreline Inves.

	Page From:	Page To:
Inventory Sheet		
Cover Letter	<u>1</u>	<u>1</u>
Chain of Custody Documentation	<u>2</u>	<u>5</u>
Case Narrative, Data Qualifiers, Control Limits	<u>6</u>	<u>19</u>
Volatile Analysis		
Report and Summary QC Forms	<u>20</u>	<u>60</u>
TPHD Analysis		
Report and Summary QC Forms	<u>61</u>	<u>107</u>
TPHG Analysis		
Report and Summary QC Forms	<u>108</u>	<u>151</u>
Metals Analysis		
Report and Summary QC Forms	<u>152</u>	<u>180</u>
Total Solids		
Report and Summary QC Forms	<u>181</u>	<u>187</u>
<i>METALS RAW DATA</i>	<u>188</u>	<u>317</u>

 BC
Signature

November-09-2012
Date



Analytical Resources, Incorporated

Analytical Chemists and Consultants

November 12, 2012

Ben Howard
Anchor QEA
720 Olive Way, Suite 1900
Seattle, WA 98101

**RE: Client Project: Central Waterfront Shoreline Investigation
ARI Job Nos.: VP51**

Dear Cindy:

Please find enclosed the Chain of Custody records (COCs), sample receipt documentation, and the final data package for samples from the project referenced above.

Sample receipt and details regarding these analyses are discussed in the Case Narrative.

An electronic copy of this package will remain on file with ARI. Should you have any questions or problems, please feel free to contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

A handwritten signature in black ink, appearing to read "Cheronne Oreiro", written over a faint circular stamp.

Cheronne Oreiro
Project Manager
(206) 695-6214
cheronneo@arilabs.com
www.arilabs.com

cc: eFile VP51

Enclosures

Chain of Custody Documentation

ARI Job ID: VP51

Chain of Custody Record & Laboratory Analysis Request



Analytical Resources, Incorporated
 Analytical Chemists and Consultants
 4611 South 134th Place, Suite 100
 Tukwila, WA 98168
 206-695-6200 206-695-6201 (fax)

Page: 1 of 2
 Date: 10/26/2012
 No. of Coolers: _____
 Cooler Temps: _____
 Ice Present? _____

ARI Assigned Number: VFS1
 Turn-around Requested: Standard
 ARI Client Company: Anchor DEA
 Phone: 360-733-4311
 Client Contact: Ben Howard
 Client Project Name: Central Waterfront Shoreline Investigation (CWSI)
 Client Project #: _____
 Samplers: BH SA

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested				Notes/Comments
					BTEX	TPH-G	TPH-DX (WISGC)	PM Metals	
CWSI-07-2-4	10/26/2012	0838	Soil	8	X	X	X	X	
CWSI-07-7-10	10/26/2012	0842		1				X	
CWSI-05-2-4		0938		8	X	X	X		
CWSI-05-7-9		0945		8	X	X	X		
CWSI-05-12-14		0951		8	X	X	X		
CWSI-05-16-18		0957		1				X	
CWSI-06-4-6		1102		1				X	
CWSI-06-8-10		1104		8	X	X	X		
CWSI-06-12-14		1111		8	X	X	X		
CWSI-06-16-18		1122		1				X	

Comments/Special Instructions: TPH-DX with silica gel cleanup (SGC)

Relinquished by:	Received by:
(Signature) <i>[Signature]</i>	(Signature) _____
Printed Name: Ben Howard	Printed Name: _____
Company: Anchor DEA	Company: _____
Date & Time: 10/26/2012 / 1330	Date & Time: 10-27-12 / 10:17

Limits of Liability: ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: UPS1 Turn-around Requested: Standard Page: 2 of 2

ARI Client Company: Anchor O&B Phone: _____ Date: 10/26/2012 Ice Present? Y

Client Contact: Ben Howard No. of Coolers: 1 Cooler Temps: LZ

Client Project Name: Central Waterfront Shoreline Investigation

Client Project #: _____ Samplers: BLR / SPA

Sample ID	Date	Time	Matrix	No Containers
<u>CWS1-TB-02</u>	<u>10/26/12</u>	<u>1320</u>	<u>Water</u>	<u>2</u>
 	 	 	 	
 	 	 	 	
 	 	 	 	
 	 	 	 	
 	 	 	 	
 	 	 	 	
 	 	 	 	
 	 	 	 	
 	 	 	 	

Analysis Requested		Notes/Comments	
<u>BTEX</u>	<u>THF</u>	<u> </u>	<u> </u>
<u>X</u>	<u>X</u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>

Comments/Special Instructions: _____

Relinquished by: (Signature) [Signature] Received by: (Signature) _____

Printed Name: Bombardier Printed Name: _____

Company: Anchor O&B Company: _____

Date & Time: 10/26/2012 / 1330 Date & Time: _____

Limits of Liability: ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.



Cooler Receipt Form

ARI Client Ancho
 COC No(s): _____ (NA)
 Assigned ARI Job No. VP51

Project Name: Central water front
 Delivered by FedEx UPS Courier Hand Delivered Other: _____
 Tracking No. 7939 4483 6437 NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler? YES NO
 Were custody papers included with the cooler? YES NO
 Were custody papers properly filled out (ink, signed, etc.) YES NO
 Temperature of Cooler(s) (°C) (recommended 2 0-6 0 °C for chemistry) 2.2
 If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 908 77956

Cooler Accepted by: JS Date: 10-27-12 Time: _____
Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? YES NO
 What kind of packing material was used? Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: _____
 Was sufficient ice used (if appropriate)? NA YES NO
 Were all bottles sealed in individual plastic bags? YES NO
 Did all bottles arrive in good condition (unbroken)? YES NO
 Were all bottle labels complete and legible? YES NO
 Did the number of containers listed on COC match with the number of containers received? YES NO JS
 Did all bottle labels and tags agree with custody papers? YES NO
 Were all bottles used correct for the requested analyses? YES NO
 Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs) NA YES NO
 Were all VOC vials free of air bubbles? NA YES NO
 Was sufficient amount of sample sent in each bottle? YES NO
 Date VOC Trip Blank was made at ARI: _____ (NA)
 Was Sample Split by ARI: NA YES Date/Time _____ Equipment _____ Split by _____

Samples Logged by: JS Date: 10-27-12 Time: 1045
**** Notify Project Manager of discrepancies or concerns ****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:
CW 51-06-8-10- 4 vials not 5

By JS Date: 10-27-12

			Small → "sm"
			Peabubbles → "pb"
			Large → "lg"
			Headspace → "hs"

Case Narrative, Data Qualifiers, Control Limits

ARI Job ID: VP51



Case Narrative

Client: Anchor QEA
Project: Central Waterfront Shoreline Investigation
ARI Job No.: VP51

Sample receipt

Ten soil samples and a trip blank were received on October 27, 2012 under ARI job VP51. The cooler temperature measured by IR thermometer following ARI SOP was 2.2°C. Select samples were archived upon receipt. For further details regarding sample receipt, please refer to the Cooler Receipt Form.

BETX by SW8260C

The samples were analyzed within the method recommended holding times.

Initial and continuing calibrations were within method requirements for requested compounds.

The internal standard area of d4-1,4-Dichlorobenzene fell outside the control limits low for sample **CWSI-06-08-10**. The sample was re-analyzed and all internal standard areas were within control limits. No further corrective action was taken.

The surrogate percent recoveries Bromofluorobenzene and d4-1,2-Dichlorobenzene were outside the control limits high for sample **CWSI-06-8-10**. The sample was re-analyzed and surrogate percent recoveries were within control limits. No further corrective action was taken.

The method blanks were clean at the reporting limits. The LCS and LCSD percent recoveries were within control limits.

Acid/Silica Cleaned NWTPH-Dx

The samples and associated laboratory QC were extracted and analyzed within the method recommended holding times.

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits.

The method blank was clean at the reporting limits. The LCS percent recovery was within control limits.



The matrix spike and matrix spike duplicate percent recoveries were within advisory control limits.

NWTPH-Gx

The samples were analyzed within the method recommended holding times.

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits.

The method blank was clean at the reporting limit. The LCS and LCSD percent recoveries were within control limits.

Metals by SW6010C/7471A

The samples and associated laboratory QC were digested and analyzed within method recommended holding times.

The fourth continuing calibration verification (CCV) on 11/1/12 was outside the control limits high for zinc. No sample results were associated with this CCV. No corrective action was taken.

The method blanks were clean at the reporting limits. The LCS percent recoveries were within control limits.

The matrix spike percent recoveries of antimony, copper, and zinc were outside the control limits for sample **CWSI-07-2-4**. Post digestion spikes were performed and recoveries were within control limits. All relevant data have been flagged with an "N" qualifier on the Form V. No further corrective action was taken.

The duplicate RPD of zinc was outside the control limit for sample **CWSI-07-2-4**. All relevant data have been flagged with a "*" qualifier on the Form VI. No further corrective action was taken.

Sample ID Cross Reference Report



ARI Job No: VP51
Client: Anchor QEA LLC
Project Event: N/A
Project Name: Central Waterfront Shoreline Inves.

Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1. CWSI-07-2-4	VP51A	12-21314	Soil	10/26/12 08:38	10/27/12 10:13
2. CWSI-05-2-4	VP51B	12-21315	Soil	10/26/12 09:38	10/27/12 10:13
3. CWSI-05-7-9	VP51C	12-21316	Soil	10/26/12 09:45	10/27/12 10:13
4. CWSI-05-12-14	VP51D	12-21317	Soil	10/26/12 09:51	10/27/12 10:13
5. CWSI-06-8-10	VP51E	12-21318	Soil	10/26/12 11:04	10/27/12 10:13
6. CWSI-06-12-14	VP51F	12-21319	Soil	10/26/12 11:11	10/27/12 10:13
7. CWSI-07-7-10	VP51G	12-21320	Soil	10/26/12 08:42	10/27/12 10:13
8. CWSI-05-16-18	VP51H	12-21321	Soil	10/26/12 09:57	10/27/12 10:13
9. CWSI-06-4-6	VP51I	12-21322	Soil	10/26/12 11:02	10/27/12 10:13
10. CWSI-06-16-18	VP51J	12-21323	Soil	10/26/12 11:22	10/27/12 10:13
11. CWSI-TB-02	VP51K	12-21324	Water	10/26/12	10/27/12 10:13



Data Reporting Qualifiers

Effective 2/14/2011

Inorganic Data

- U Indicates that the target analyte was not detected at the reported concentration
- * Duplicate RPD is not within established control limits
- B Reported value is less than the CRDL but \geq the Reporting Limit
- N Matrix Spike recovery not within established control limits
- NA Not Applicable, analyte not spiked
- H The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible
- L Analyte concentration is ≤ 5 times the Reporting Limit and the replicate control limit defaults to ± 1 RL instead of the normal 20% RPD

Organic Data

- U Indicates that the target analyte was not detected at the reported concentration
- * Flagged value is not within established control limits
- B Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.
- J Estimated concentration when the value is less than ARI's established reporting limits
- D The spiked compound was not detected due to sample extract dilution
- E Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.
- Q Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria ($< 20\%$ RSD, $< 20\%$ Drift or minimum RRF).



- S Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte
- NA The flagged analyte was not analyzed for
- NR Spiked compound recovery is not reported due to chromatographic interference
- NS The flagged analyte was not spiked into the sample
- M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses
- M2 The sample contains PCB congeners that do not match any standard Aroclor pattern. The PCBs are identified and quantified as the Aroclor whose pattern most closely matches that of the sample. The reported value is an estimate.
- N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"
- Y The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.
- EMPC Estimated Maximum Possible Concentration (EMPC) defined in EPA Statement of Work DLM02.2 as a value "calculated for 2,3,7,8-substituted isomers for which the quantitation and /or confirmation ion(s) has signal to noise in excess of 2.5, but does not meet identification criteria" **(Dioxin/Furan analysis only)**
- C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column
- P The analyte was detected on both chromatographic columns but the quantified values differ by $\geq 40\%$ RPD with no obvious chromatographic interference
- X Analyte signal includes interference from polychlorinated diphenyl ethers. **(Dioxin/Furan analysis only)**
- Z Analyte signal includes interference from the sample matrix or perfluorokerosene ions. **(Dioxin/Furan analysis only)**



Geotechnical Data

- A The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.
- F Samples were frozen prior to particle size determination
- SM Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations
- SS Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis
- W Weight of sample in some pipette aliquots was below the level required for accurate weighting



DL¹ LOD¹, LOQ¹ and Control Limits Summary VOA Analysis of Soil (EPA Method 8260C)					
Analyte	DL^{1,5} µg/kg	LOD¹ µg/kg	LOQ¹ µg/kg	LCS Recovery^{2,4}	Replicate RPD³
Dichlorodifluoromethane	0.207	0.5	1.0	67 – 142	≤ 40
Chloromethane	0.263	0.5	1.0	65 – 129	≤ 40
Vinyl Chloride	0.235	0.5	1.0	74 – 134	≤ 40
Bromomethane	0.187	0.5	1.0	40 – 172	≤ 40
Chloroethane	0.462	0.5	1.0	53 – 154	≤ 40
Trichlorofluoromethane	0.266	0.5	1.0	57 – 161	≤ 40
Acrolein*	3.809	25	50.0	60 – 130	≤ 40
Acetone*	0.482	2.5	5.0	48 – 132	≤ 40
1,1,2-Trichloro-1,2,2-Trifluoroethane	0.287	1.0	2.0	72 – 142	≤ 40
1,1-Dichloroethene	0.336	0.5	1.0	73 – 138	≤ 40
Bromoethane	0.440	1.0	2.0	74 – 132	≤ 40
Iodomethane (Methyl Iodide)	0.215	0.5	1.0	34 – 181	≤ 40
Methylene Chloride	0.635	1.0	2.0	61 – 128	≤ 40
Carbon Disulfide	0.559	1.0	1.0	72 – 146	≤ 40
Acrylonitrile	1.026	2.5	5.0	59 – 124	≤ 40
Methyl-t-butyl ether (MTBE)	0.231	0.5	1.0	68 – 124	≤ 40
trans-1,2-Dichloroethene	0.266	0.5	1.0	73 – 131	≤ 40
Vinyl Acetate	0.381	2.5	5.0	54 – 138	≤ 40
1,1-Dichloroethane	0.203	0.5	1.0	65 – 139	≤ 40
2-Butanone*	0.513	2.5	5.0	64 – 120	≤ 40
2,2-Dichloropropane	0.292	0.5	1.0	77 – 137	≤ 40
cis-1,2-Dichloroethene	0.240	0.5	1.0	75 – 124	≤ 40
Chloroform	0.234	0.5	1.0	75 – 126	≤ 40
Bromochloromethane	0.323	0.5	1.0	69 – 133	≤ 40
1,1,1-Trichloroethane	0.226	0.5	1.0	78 – 133	≤ 40
1,1-Dichloropropene	0.312	0.5	1.0	80 – 123	≤ 40
Carbon Tetrachloride	0.213	0.5	1.0	76 – 136	≤ 40
1,2-Dichloroethane	0.191	0.5	1.0	77 – 120	≤ 40
Benzene	0.296	0.5	1.0	80 – 120	≤ 40
Trichloroethene	0.212	0.5	1.0	80 – 120	≤ 40
1,2-Dichloropropane	0.162	0.5	1.0	74 – 120	≤ 40
Bromodichloromethane	0.254	0.5	1.0	80 – 122	≤ 40
Dibromomethane	0.147	0.5	1.0	80 – 120	≤ 40



DL¹ LOD¹, LOQ¹ and Control Limits Summary VOA Analysis of Soil (EPA Method 8260C)					
Analyte	DL^{1,5} µg/kg	LOD¹ µg/kg	LOQ¹ µg/kg	LCS Recovery² %	Replicate RPD³
2-Chloroethyl Vinyl Ether	0.276	2.5	5.0	20 – 157	≤ 40
4-Methyl-2-Pentanone*	0.420	2.5	5.0	70 – 124	≤ 40
cis-1,3-Dichloropropene	0.226	0.5	1.0	80 – 124	≤ 40
Toluene	0.151	0.5	1.0	78 – 120	≤ 40
trans-1,3-Dichloropropene	0.216	0.5	1.0	80 – 126	≤ 40
1,1,2-Trichloroethane	0.286	0.5	1.0	77 – 120	≤ 40
1,2-Dibromoethane (Ethylene Dibromide)	0.176	0.5	1.0	79 – 120	≤ 40
2-Hexanone*	0.439	2.5	5.0	62 – 128	≤ 40
1,3-Dichloropropane	0.209	0.5	1.0	77 – 120	≤ 40
Tetrachloroethene	0.257	0.5	1.0	76 – 131	≤ 40
Dibromochloromethane	0.266	0.5	1.0	77 – 123	≤ 40
Chlorobenzene	0.219	0.5	1.0	80 – 120	≤ 40
1,1,1,2-Tetrachloroethane	0.233	0.5	1.0	80 – 120	≤ 40
Ethyl Benzene	0.202	0.5	1.0	80 – 120	≤ 40
m,p-Xylene	0.392	0.5	1.0	80 – 123	≤ 40
o-Xylene	0.224	0.5	1.0	80 – 120	≤ 40
Styrene	0.138	0.5	1.0	80 – 122	≤ 40
Bromoform	0.297	0.5	1.0	63 – 120	≤ 40
Isopropyl Benzene	0.233	0.5	1.0	77 – 127	≤ 40
1,1,1,2-Tetrachloroethane	0.253	0.5	1.0	71 – 120	≤ 40
1,2,3-Trichloropropane	0.517	1.0	2.0	75 – 120	≤ 40
trans-1,4-Dichloro-2-Butene	0.437	2.5	5.0	62 – 127	≤ 40
n-Propyl Benzene	0.272	0.5	1.0	76 – 126	≤ 40
Bromobenzene	0.153	0.5	1.0	75 – 120	≤ 40
1,3,5-Trimethylbenzene	0.254	0.5	1.0	77 – 126	≤ 40
2-Chlorotoluene	0.300	0.5	1.0	76 – 120	≤ 40
4-Chlorotoluene	0.277	0.5	1.0	75 – 121	≤ 40
t-Butylbenzene	0.306	0.5	1.0	77 – 125	≤ 40
1,2,4-Trimethylbenzene	0.230	0.5	1.0	77 – 125	≤ 40
s-Butylbenzene	0.240	0.5	1.0	77 – 127	≤ 40
4-Isopropyl Toluene	0.236	0.5	1.0	78 – 131	≤ 40
1,3-Dichlorobenzene	0.227	0.5	1.0	76 – 120	≤ 40
1,4-Dichlorobenzene	0.232	0.5	1.0	75 – 120	≤ 40



DL ¹ LOD ¹ , LOQ ¹ and Control Limits Summary VOA Analysis of Soil (EPA Method 8260C)					
Analyte	DL ^{1,5} µg/kg	LOD ¹ µg/kg	LOQ ¹ µg/kg	LCS Recovery ² %	Replicate RPD ³
n-Butylbenzene	0.262	0.5	1.0	75 – 134	≤ 40
1,2-Dichlorobenzene	0.293	0.5	1.0	77 – 120	≤ 40
1,2-Dibromo-3-Chloropropane	0.586	2.5	5.0	61 – 128	≤ 40
1,2,4-Trichlorobenzene	0.332	2.5	5.0	75 – 130	≤ 40
Hexachloro-1,3-Butadiene	0.410	2.5	5.0	72 – 135	≤ 40
Naphthalene	0.429	2.5	5.0	71 – 122	≤ 40
1,2,3-Trichlorobenzene	0.305	2.5	5.0	76 – 122	≤ 40
Surrogate Standards			MB / LCS	Samples	RPD
1,2-Dichloroethane-d ₄			80 – 122	80 – 149	≤ 40
1,2-Dichlorobenzene-d ₄			80 – 120	80 – 120	≤ 40
Toluene-d ₈			80 – 120	77 – 120	≤ 40
4-Bromofluorobenzene			80 – 120	80 – 120	≤ 40

(1) Detection Limit (DL), Limit of Detection (LOD) and Limit of Quantitation (LOQ) are defined in ARI SOP 1018S

(2) Control limits calculated using all data from 1/1/12 through 5/31/12.

(3) Relative Percent Difference between analytes in replicate analyzes. If C_O and C_D are the concentrations of the original and duplicate respectively then

$$RPD = \frac{|C_O - C_D|}{\frac{C_O + C_D}{2}} \times 100$$

(4) Highlighted control limits (**bold font**) are adjusted from the calculated values to reflect that:

- a. ARI does not use control limits < 10 for the lower limit or < 100 for the upper limit or
- b. Control limits for analytes with no separate preparation procedure are adjusted to reflect the minimum uncertainty in the calibration of the instrument allowed by the referenced analytical method.

(5) MDL study QD19 – 3/8/10



Quality Control Criteria
Total Petroleum Hydrocarbons
(Diesel & Motor Oil)

Analysis Code	Analyte ⁵	DL ¹ ppm	LOD ¹ ppm	LOQ ² ppm	Spike % Recovery Control Limits ³			RPD ⁴
					LCS	MB/LCS Surrogate	Sample Surrogate	
HCIWVX	NWTPH-HCID – Water Samples	--	--	0.50 ⁷	--	--	50-150	≤ 40
HCISVX	NWTPH-HCID – Solid Samples	--	--	50 ⁷	--	--	50-150	
Aqueous Samples – No Extract Clean-up – Separatory Funnel Extraction – 500 to 1.0 mL								
DIESWI	DRO – NWTPH-Dext (C ₁₂ -C ₂₄)	0.022	0.05	0.1	64-112	50-150	50-150	≤ 40
AK2WSI	DRO – AK102 (C ₁₀ -C ₂₅)	0.022	0.05	0.1	75-125 ⁶	60-120	50-150	
OILWSI	RRO – NWTPH-Dext (C ₂₄ -C ₃₈)	0.044	0.1	0.2	60 – 130 ⁸	50-150	50-150	
AK3WSI	RRO – AK103 (C ₂₅ -C ₃₆)	0.030 ⁹	0.1	0.2	60-120 ⁶	60-120	50-150	
Aqueous Samples – With Acid and/or Silica Gel Clean-up – Separatory Funnel Extraction – 500 to 1.0 mL								
DIESWI	DRO – NWTPH-Dext (C ₁₂ -C ₂₄)	0.039	0.05	0.1	61-104	50-150	50-150	≤ 40
AK2WSI	DRO – AK102 (C ₁₀ -C ₂₅)	0.042	0.05	0.1	75-125 ⁶	60-120	50-150	
OILWSI	RRO – NWTPH-Dext (C ₂₄ -C ₃₈)	0.010	0.1	0.2	60 – 130 ⁸	50-150	50-150	
AK3WSI	RRO – AK103 (C ₂₅ -C ₃₆)	0.030 ⁸	0.1	0.2	60-120 ⁶	60-120	50-150	
Solid Matrix Samples – No Extract Clean-up – Microwave Extraction – 10 g to 1 mL								
DIESMI	DRO – NWTPH-Dext (C ₁₂ -C ₂₄)	1.35	2.5	5	62-119	50-150	50-150	≤ 40
DIESMI	DRO – NWTPH-Dext Jet A	2.22 ¹¹	2.5	5	60 – 130 ⁸	50-150	50-150	
AK2SMI	DRO – AK102 (C ₁₀ -C ₂₅)	2.43	2.5	5	75-125 ⁶	60-120	50-150	
OILSMI	RRO – NWTPH-Dext (C ₂₄ -C ₃₈)	2.48	5	10	60 – 130 ⁸	50-150	50-150	
AK3SMI	RRO – AK103 (C ₂₅ -C ₃₆)	0.665 ⁹	5	10	60-120 ⁶	60-120	50-150	
Solid Matrix Samples – With Acid and/or Silica Gel Clean-up – Microwave Extraction – 10 g to 1 mL								
DIESMI	DRO – NWTPH-Dext (C ₁₂ -C ₂₄)	1.28	2.5	5	60-108	50-150	50-150	≤ 40
AK2SMI	DRO – AK102 (C ₁₀ -C ₂₅)	2.06	2.5	5	75-125 ⁶	60-120	50-150	
OILSMI	RRO – NWTPH-Dext (C ₂₄ -C ₃₈)	1.57	5	10	60 – 130 ⁸	50-150	50-150	
AK3SMI	RRO – AK103 (C ₂₅ -C ₃₆)	0.665 ¹⁰	5	10	60-120 ⁶	60-120	50-150	

(1) DL (Detection Limit) and LOD (Limit of Detection) as defined in ARI SOP 1018S.

(2) Limit of Quantitation as defined in ARI SOP 1018S. The spike concentration used to determine the DL and the concentration of the lowest standard used to calibrate the GC-FID instrument.

(3) All surrogate recovery limits are specified in the published methods (AK102, AK103 & NWTPH-Dext). The surrogate standard is *o*-Terphenyl.

(4) Acceptance criteria for the relative percent difference (RPD) between analytes in replicate analyzes. If C_O and C_D are the concentrations of the original and duplicate respectively then

$$RPD = \frac{|C_o - C_d|}{\frac{C_o + C_d}{2}} \times 100$$

(5) DRO = Diesel Range Organics and RRO = Residual Range Organics as defined in the methods referenced in footnote 3.

(6) Method specified LCS acceptance limits.

(7) Method specified reporting limits

(8) Default LCS control limits pending calculation of historic limits

(9) MDL study QD55 completed 2/12/10

(10) MDL study QD35 completed 1/29/10

(11) LOD Study UI44 completed 2/28/12



Quality Control Criteria Gasoline and BTEX

Method	Analyte	DL ¹	LOD ¹	LOQ ¹	Spike % Recovery Control Limits			RPD ³
					LCS	MB/LCS Surrogate	Sample Surrogate	
Aqueous Samples 5 mL purge volume (DL, LOD & LOQ values in µg/L (ppb) for BTEX and mg/L (ppm) for gasoline								
NWTPH-G	Toluene – Naphthalene	0.057	0.125	0.25	80 – 120	--	--	≤ 40
8015B	2-methylpentane – 1,2,4-Trimethylbenzene	0.031	0.125	0.25	80 – 120	--	--	
WA-TPH-G	Toluene – nC ₁₂)	0.087	0.125	0.25	80 – 120	--	--	
AK-101	nC ₆ – nC ₁₂	0.032	0.050	0.10	80 – 120	--	--	
	Trifluorotoluene (TFT)	--	--	--	--	80 - 120	80 – 120	
	Bromobenzene	--	--	--	--	80 - 120	80 – 120	
8021B	Benzene	0.094	0.5	1.0	76 – 120	--	--	≤ 40
8021B	Toluene	0.113	0.5	1.0	77 – 122	--	--	
8021B	Ethylbenzene	0.117	0.5	1.0	68 – 120	--	--	
8021B	m/p-Xylene	0.265	1.0	2.0	75 – 120	--	--	
8021B	o-Xylene	0.136	0.5	1.0	75 – 121	--	--	
	Trifluorotoluene (TFT)	--	--	--	--	80 – 120	80 - 120	
	Bromobenzene	--	--	--	--	80 – 120	77 - 120	
Solid Samples - (DL, LOD & LOQ values in µg/kg (ppb) for BTEX and mg/kg (ppm) for gasoline								
NWTPH-G	Toluene – Naphthalene	1.66	2.5	5	80 – 120	--	--	≤ 40
8015B	2-methylpentane – 1,2,4-Trimethylbenzene	1.57	2.5	5	80 – 120	--	--	
WA-TPH-G	Toluene – nC ₁₂)	1.54	2.5	5	80 – 120	--	--	
AK-101	nC ₆ – nC ₁₂	1.84	2.5	5	80 – 127	--	--	
	Trifluorotoluene (TFT)	--	--	--	--	80 - 120	65-128	
	Bromobenzene	--	--	--	--	80 - 120	52-149	
8021B	Benzene	4.59	12.5	25	78 – 120	--	--	≤ 40
8021B	Toluene	7.13	12.5	25	80 – 120	--	--	
8021B	Ethylbenzene	4.98	12.5	25	73 – 120	--	--	
8021B	m/p-Xylene	11.9	25.0	50	79 – 120	--	--	
8021B	o-Xylene	6.23	12.5	25	80 – 120	--	--	
	Trifluorotoluene (TFT)	--	--	--	--	80 - 120	69 – 126	
	Bromobenzene	--	--	--	--	80 - 120	49 – 143	

(1) Detection Limit (DL), Limit of Detection (LOD) and Limit of Quantitation (LOQ) as defined in ARI SOP 1018S.

(2) Highlighted control limits (bold font) are adjusted from the calculated values as follows:

a) Highlighted control limits (**bold font**) adjusted to demonstrate that ARI does not use control limits < 10 for the lower limit or < 100 for the upper limit.

b) Control limits for analytes with no separate preparation procedure are adjusted to reflect the minimum uncertainty in the calibration of the instrument allowed by the referenced analytical method.

(3) Acceptance criteria for the relative percent difference (RPD) between analytes in replicate analyzes. If C_O and C_D are the concentrations of the original and duplicate respectively then

$$RPD = \frac{|C_O - C_D|}{\frac{C_O + C_D}{2}} \times 100$$

(4) Default control limits pending sufficient data to calculate historic limits.



Quality Control Parameters for Metals Analysis-ICP-OES 200.7/6010C

Analyte	Aqueous Samples ²			Spike Recovery		RPD ⁵	Solids ³	Tissue ⁴
	DL ¹ µg/L	LOD ¹ µg/L	LOQ ¹ µg/L	Matrix Spike	LCS		LOQ mg/kg	LOQ mg/kg
Aluminum	7.57	25	50	75 – 125	80 – 120	≤ 20	5.0	1.0
Antimony	6.28	25	50	75 – 125	80 – 120	≤ 20	5.0	1.0
Arsenic	3.33	25	50	75 – 125	80 – 120	≤ 20	5.0	1.0
Barium	1.33	1.5	3.0	75 – 125	80 – 120	≤ 20	0.3	0.06
Beryllium	0.16	0.5	1.0	75 – 125	80 – 120	≤ 20	0.1	0.02
Boron	7.39	10	20	75 – 125	80 – 120	≤ 20	2.0	0.4
Cadmium	0.18	0.5	2.0	75 – 125	80 – 120	≤ 20	0.2	0.04
Calcium	11.27	25	50	75 – 125	80 – 120	≤ 20	5.0	1.0
Chromium	1.24	2.5	5.0	75 – 125	80 – 120	≤ 20	0.5	0.1
Cobalt	0.27	1.5	3.0	75 – 125	80 – 120	≤ 20	0.3	0.06
Copper	0.92	1.0	2.0	75 – 125	80 – 120	≤ 20	0.2	0.04
Iron	7.50	25	50	75 – 125	80 – 120	≤ 20	5.0	1.0
Lead	1.55	10	20	75 – 125	80 – 120	≤ 20	2.0	0.4
Magnesium	9.61	25	50	75 – 125	80 – 120	≤ 20	5.0	1.0
Manganese	0.28	0.5	1.0	75 – 125	80 – 120	≤ 20	0.1	0.02
Molybdenum	0.79	2.5	5.0	75 – 125	80 – 120	≤ 20	0.5	0.1
Nickel	3.86	5.0	10	75 – 125	80 – 120	≤ 20	1.0	0.2
Potassium	65.70	250	500	75 – 125	80 – 120	≤ 20	50	10
Selenium	4.99	25	50	75 – 125	80 – 120	≤ 20	5.0	1.0
Silicon	8.17	30	60	75 – 125	80 – 120	≤ 20	(6)	(6)
Silver	0.43	1.5	3.0	75 – 125	80 – 120	≤ 20	0.3	0.06
Sodium	11.35	250	500	75 – 125	80 – 120	≤ 20	50	10
Strontium	0.09	1.0	1.0	75 – 125	80 – 120	≤ 20	0.1	0.02
Thallium	3.10	25	50	75 – 125	80 – 120	≤ 20	5.0	1.0
Tin	1.41	5.0	10	75 – 125	80 – 120	≤ 20	1.0	0.2
Titanium	2.11	2.5	5.0	75 – 125	80 – 120	≤ 20	0.5	0.01
Vanadium	0.27	1.5	3.0	75 – 125	80 – 120	≤ 20	0.3	0.06
Zinc	1.45	5.0	10	75 – 125	80 – 120	≤ 20	1.0	0.2

(1) Detection Limit (DL), Limit of Detection Limit (LOD) and Limit of Quantitation (LOQ) as defined in ARI SOP 1018S

(2) 50 mL sample and 50 mL final volume

(3) Solids LOQ based on 100% solids using 1.0 g sample with 100 mL final volume.

(4) Tissue is reported on an "as received" (wet weight) basis using 2.5 g sample with 50 mL final volume.

(5) Relative Percent Difference between analytes in replicate analyzes. If C_O and C_D are the concentrations of the

original and duplicate respectively then

$$RPD = \frac{|C_O - C_D|}{\frac{C_O + C_D}{2}} \times 100$$

(6) ARI does not analyze for Silicon in solids or tissue samples



Quality Control Parameters for Mercury Analysis using CVAA						
	Aqueous Samples²			Spike Recovery		RPD⁵
	DL¹ µg/L	LOD¹ µg/L	LOQ¹ µg/L	Matrix Spike	LCS	
Mercury	0.0069	0.05	0.10²	75 – 125	80 – 120	≤ 20
Mercury (low level)	0.0026	0.01	0.02²	75 – 125	80 – 120	≤ 20
	Soil / Sediment Samples			Spike Recovery		RPD⁵
	DL¹ mg/kg	LOD¹ mg/kg	LOQ¹ mg/kg	Matrix Spike	LCS	
Mercury	0.0021	0.0125	0.025 ³	75 – 125	80 – 120	≤ 20
	Tissue Samples			Spike Recovery		RPD⁵
	DL¹ mg/kg	LOD¹ mg/kg	LOQ¹ mg/kg	Matrix Spike	LCS	
Mercury	0.0021	0.0125	0.005 ⁴	75 – 125	80 – 120	≤ 20

(1) Detection Limit (DL), Limit of Detection Limit (LOD) and Limit of Quantitation (LOQ) as defined in ARI SOP 1018S

(2) 20 mL sample with 20 mL final volume

(3) 0.2 g sample with 50 mL final volume assuming 100% dry weight. Soil and sediment are reported on a dry weight basis.

(4) Tissue LOQ is 0.005 mg/kg as received (wet weight) based on 1 g sample with 50 mL final volume.

(5) Relative Percent Difference between analytes in replicate analyzes. If C_O and C_D are the concentrations of the original and duplicate respectively then

$$RPD = \frac{|C_o - C_D|}{\frac{C_o + C_D}{2}} \times 100$$

**Volatile Analysis
Report and Summary QC Forms**

ARI Job ID: VP51

ORGANICS ANALYSIS DATA SHEET

Volatiles by Purge & Trap GC/MS-Method SW8260C

Sample ID: CWSI-07-2-4

Page 1 of 1

SAMPLE

Lab Sample ID: VP51A

QC Report No: VP51-Anchor QEA LLC

LIMS ID: 12-21314

Project: Central Waterfront Shoreline Inves.

Matrix: Soil

Data Release Authorized: *[Signature]*

Date Sampled: 10/26/12

Reported: 11/08/12

Date Received: 10/27/12

Instrument/Analyst: NT5/PAB

Sample Amount: 4.30 g-dry-wt

Date Analyzed: 11/02/12 17:03

Purge Volume: 5.0 mL

Moisture: 20.4%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.2	2.7	
108-88-3	Toluene	1.2	2.8	
100-41-4	Ethylbenzene	1.2	< 1.2	U
179601-23-1	m,p-Xylene	1.2	1.1	J
95-47-6	o-Xylene	1.2	< 1.2	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	110%
d8-Toluene	101%
Bromofluorobenzene	97.1%
d4-1,2-Dichlorobenzene	90.5%

ORGANICS ANALYSIS DATA SHEET

Volatiles by Purge & Trap GC/MS-Method SW8260C

Sample ID: CWSI-05-2-4

Page 1 of 1

SAMPLE

Lab Sample ID: VP51B

QC Report No: VP51-Anchor QEA LLC

LIMS ID: 12-21315

Project: Central Waterfront Shoreline Inves.

Matrix: Soil

Data Release Authorized: *B*

Date Sampled: 10/26/12

Reported: 11/08/12

Date Received: 10/27/12

Instrument/Analyst: NT5/PAB

Sample Amount: 3.82 g-dry-wt

Date Analyzed: 11/02/12 17:26

Purge Volume: 5.0 mL

Moisture: 16.5%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.3	1.6	
108-88-3	Toluene	1.3	1.3	J
100-41-4	Ethylbenzene	1.3	< 1.3	U
179601-23-1	m,p-Xylene	1.3	< 1.3	U
95-47-6	o-Xylene	1.3	< 1.3	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	112%
d8-Toluene	101%
Bromofluorobenzene	100%
d4-1,2-Dichlorobenzene	91.8%

ORGANICS ANALYSIS DATA SHEET

Volatiles by Purge & Trap GC/MS-Method SW8260C

Sample ID: CWSI-05-7-9

Page 1 of 1

SAMPLE

Lab Sample ID: VP51C

QC Report No: VP51-Anchor QEA LLC

LIMS ID: 12-21316

Project: Central Waterfront Shoreline Inves.

Matrix: Soil

Data Release Authorized: *B*

Date Sampled: 10/26/12

Reported: 11/08/12

Date Received: 10/27/12

Instrument/Analyst: NT5/PAB

Sample Amount: 3.31 g-dry-wt

Date Analyzed: 11/02/12 17:49

Purge Volume: 5.0 mL

Moisture: 24.0%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.5	< 1.5	U
108-88-3	Toluene	1.5	< 1.5	U
100-41-4	Ethylbenzene	1.5	< 1.5	U
179601-23-1	m,p-Xylene	1.5	< 1.5	U
95-47-6	o-Xylene	1.5	< 1.5	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	112%
d8-Toluene	100%
Bromofluorobenzene	96.7%
d4-1,2-Dichlorobenzene	91.4%

ORGANICS ANALYSIS DATA SHEET

Volatiles by Purge & Trap GC/MS-Method SW8260C

**Sample ID: CWSI-05-12-14
SAMPLE**

Page 1 of 1

Lab Sample ID: VP51D

QC Report No: VP51-Anchor QEA LLC

LIMS ID: 12-21317

Project: Central Waterfront Shoreline Inves.

Matrix: Soil

Data Release Authorized: *B*

Date Sampled: 10/26/12

Reported: 11/08/12

Date Received: 10/27/12

Instrument/Analyst: NT5/PAB

Sample Amount: 4.12 g-dry-wt

Date Analyzed: 11/02/12 18:12

Purge Volume: 5.0 mL

Moisture: 19.1%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.2	63	
108-88-3	Toluene	1.2	11	
100-41-4	Ethylbenzene	1.2	7.5	
179601-23-1	m,p-Xylene	1.2	29	
95-47-6	o-Xylene	1.2	5.4	

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	111%
d8-Toluene	112%
Bromofluorobenzene	97.2%
d4-1,2-Dichlorobenzene	91.2%

ORGANICS ANALYSIS DATA SHEET

Volatiles by Purge & Trap GC/MS-Method SW8260C

Sample ID: CWSI-06-8-10

Page 1 of 1

SAMPLE


Lab Sample ID: VP51E

QC Report No: VP51-Anchor QEA LLC

LIMS ID: 12-21318

Project: Central Waterfront Shoreline Inves.

Matrix: Soil

Data Release Authorized: 

Date Sampled: 10/26/12

Reported: 11/08/12

Date Received: 10/27/12

Instrument/Analyst: NT5/PAB

Sample Amount: 2.04 g-dry-wt

Date Analyzed: 11/02/12 18:34

Purge Volume: 5.0 mL

Moisture: 38.6%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	2.4	< 2.4	U
108-88-3	Toluene	3.5	< 3.5	Y
100-41-4	Ethylbenzene	2.4	< 2.4	U
179601-23-1	m,p-Xylene	2.4	< 2.4	U
95-47-6	o-Xylene	2.4	< 2.4	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	102%
d8-Toluene	101%
Bromofluorobenzene	150%
d4-1,2-Dichlorobenzene	149%

ORGANICS ANALYSIS DATA SHEET

Volatiles by Purge & Trap GC/MS-Method SW8260C

Sample ID: CWSI-06-8-10

Page 1 of 1

REANALYSIS


Lab Sample ID: VP51E

QC Report No: VP51-Anchor QEA LLC

LIMS ID: 12-21318

Project: Central Waterfront Shoreline Inves.

Matrix: Soil

Data Release Authorized: 

Date Sampled: 10/26/12

Reported: 11/08/12

Date Received: 10/27/12

Instrument/Analyst: NT5/PAB

Sample Amount: 37.1 mg-dry-wt

Date Analyzed: 11/05/12 16:54

Purge Volume: 5.0 mL

Moisture: 38.6%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	140	< 140	U
108-88-3	Toluene	140	< 140	U
100-41-4	Ethylbenzene	140	< 140	U
179601-23-1	m,p-Xylene	140	< 140	U
95-47-6	o-Xylene	140	< 140	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	99.1%
d8-Toluene	100%
Bromofluorobenzene	103%
d4-1,2-Dichlorobenzene	90.0%

Results corrected for soil moisture content per Section 11.10.5 of EPA Method 8000C.

ORGANICS ANALYSIS DATA SHEET

Volatiles by Purge & Trap GC/MS-Method SW8260C

Sample ID: CWSI-06-12-14

Page 1 of 1

SAMPLE


Lab Sample ID: VP51F

QC Report No: VP51-Anchor QEA LLC

LIMS ID: 12-21319

Project: Central Waterfront Shoreline Inves.

Matrix: Soil

Data Release Authorized: 

Date Sampled: 10/26/12

Reported: 11/08/12

Date Received: 10/27/12

Instrument/Analyst: NT5/PAB

Sample Amount: 4.44 g-dry-wt

Date Analyzed: 11/02/12 18:57

Purge Volume: 5.0 mL

Moisture: 20.3%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.1	3.0	
108-88-3	Toluene	1.1	1.3	M
100-41-4	Ethylbenzene	1.1	1.8	
179601-23-1	m,p-Xylene	1.1	3.0	
95-47-6	o-Xylene	1.1	0.5	J

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	121%
d8-Toluene	119%
Bromofluorobenzene	104%
d4-1,2-Dichlorobenzene	89.1%

ORGANICS ANALYSIS DATA SHEET

Volatiles by Purge & Trap GC/MS-Method SW8260C

**Sample ID: CWSI-TB-02
SAMPLE**

Page 1 of 1


Lab Sample ID: VP51K

QC Report No: VP51-Anchor QEA LLC

LIMS ID: 12-21324

Project: Central Waterfront Shoreline Inves.

Matrix: Water

Data Release Authorized: 

Date Sampled: 10/26/12

Reported: 11/08/12

Date Received: 10/27/12

Instrument/Analyst: NT5/PAB

Sample Amount: 5.00 mL

Date Analyzed: 11/02/12 16:41

Purge Volume: 5.0 mL

CAS Number	Analyte	LOQ	Result	Q
71-43-2	Benzene	1.0	< 1.0	U
108-88-3	Toluene	1.0	< 1.0	U
100-41-4	Ethylbenzene	1.0	< 1.0	U
179601-23-1	m,p-Xylene	2.0	< 2.0	U
95-47-6	o-Xylene	1.0	< 1.0	U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	102%
d8-Toluene	100%
Bromofluorobenzene	101%
d4-1,2-Dichlorobenzene	88.8%

VOA SURROGATE RECOVERY SUMMARY



Matrix: Soil

QC Report No: VP51-Anchor QEA LLC
 Project: Central Waterfront Shoreline Inves.

ARI ID	Client ID	Level	DCE	TOL	BFB	DCB	TOT OUT
VP51A	CWSI-07-2-4	Low	110%	101%	97.1%	90.5%	0
VP51B	CWSI-05-2-4	Low	112%	101%	100%	91.8%	0
VP51C	CWSI-05-7-9	Low	112%	100%	96.7%	91.4%	0
VP51D	CWSI-05-12-14	Low	111%	112%	97.2%	91.2%	0
MB-110512A	Method Blank	Med	98.8%	101%	99.3%	89.7%	0
LCS-110512A	Lab Control	Med	98.5%	99.5%	100%	90.2%	0
LCSD-110512A	Lab Control Dup	Med	96.3%	99.9%	99.5%	88.7%	0
VP51E	CWSI-06-8-10	Low	102%	101%	150%*	149%*	2
VP51ERE	CWSI-06-8-10	Med	99.1%	100%	103%	90.0%	0
MB-110212A	Method Blank	Low	101%	101%	99.5%	89.0%	0
LCS-110212A	Lab Control	Low	100%	100%	101%	88.8%	0
LCSD-110212A	Lab Control Dup	Low	101%	100%	99.5%	89.4%	0
VP51F	CWSI-06-12-14	Low	121%	119%	104%	89.1%	0

LCS/MB LIMITS

QC LIMITS

SW8260C	LCS/MB LIMITS		QC LIMITS	
	Low	Med	Low	Med
(DCE) = d4-1,2-Dichloroethane	80-122	76-120	80-149	69-120
(TOL) = d8-Toluene	80-120	80-120	77-120	80-120
(BFB) = Bromofluorobenzene	80-120	80-120	80-120	76-128
(DCB) = d4-1,2-Dichlorobenzene	80-120	80-120	80-120	80-120

Log Number Range: 12-21314 to 12-21319

VOA SURROGATE RECOVERY SUMMARY



Matrix: Water

QC Report No: VP51-Anchor QEA LLC
 Project: Central Waterfront Shoreline Inves.

ARI ID	Client ID	PV	DCE	TOL	BFB	DCB	TOT OUT
MB-110212A	Method Blank	5	101%	101%	99.5%	89.0%	0
LCS-110212A	Lab Control	5	100%	100%	101%	88.8%	0
LCSD-110212A	Lab Control Dup	5	101%	100%	99.5%	89.4%	0
VP51K	CWSI-TB-02	5	102%	100%	101%	88.8%	0

LCS/MB LIMITS

QC LIMITS

SW8260C
 (DCE) = d4-1,2-Dichloroethane
 (TOL) = d8-Toluene
 (BFB) = Bromofluorobenzene
 (DCB) = d4-1,2-Dichlorobenzene

80-122
 80-120
 80-120
 80-120

80-125
 80-120
 80-120
 80-120

Prep Method: SW5030B
 Log Number Range: 12-21324 to 12-21324

ORGANICS ANALYSIS DATA SHEET

Volatiles by Purge & Trap GC/MS-Method SW8260C

Sample ID: LCS-110212A

Page 1 of 1

LAB CONTROL SAMPLE

Lab Sample ID: LCS-110212A

QC Report No: VP51-Anchor QEA LLC

LIMS ID: 12-21319

Project: Central Waterfront Shoreline Inves.

Matrix: Soil

Data Release Authorized: *AB*

Date Sampled: NA

Reported: 11/08/12

Date Received: NA

Instrument/Analyst LCS: NT5/PAB

Sample Amount LCS: 5.00 g-dry-wt

LCS: NT5/PAB

LCS: 5.00 g-dry-wt

Date Analyzed LCS: 11/02/12 14:01

Purge Volume LCS: 5.0 mL

LCS: 11/02/12 14:24

LCS: 5.0 mL

Moisture: NA

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCS	LCS	Spike Added-LCS	LCS Recovery	RPD
Benzene	49.3	50.0	98.6%	52.8	50.0	106%	6.9%	
Toluene	48.3	50.0	96.6%	51.9	50.0	104%	7.2%	
Ethylbenzene	51.6	50.0	103%	55.4	50.0	111%	7.1%	
m,p-Xylene	109	100	109%	118	100	118%	7.9%	
o-Xylene	50.2	50.0	100%	53.6	50.0	107%	6.6%	

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCS	LCS
d4-1,2-Dichloroethane	100%	101%	
d8-Toluene	100%	100%	
Bromofluorobenzene	101%	99.5%	
d4-1,2-Dichlorobenzene	88.8%	89.4%	

ORGANICS ANALYSIS DATA SHEET

Volatiles by Purge & Trap GC/MS-Method SW8260C
Page 1 of 1

Sample ID: LCS-110212A
LAB CONTROL SAMPLE

Lab Sample ID: LCS-110212A
LIMS ID: 12-21324
Matrix: Water
Data Release Authorized: *B*
Reported: 11/08/12

QC Report No: VP51-Anchor QEA LLC
Project: Central Waterfront Shoreline Inves.
Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: NT5/PAB
LCS: NT5/PAB
Date Analyzed LCS: 11/02/12 14:01
LCS: 11/02/12 14:24

Sample Amount LCS: 5.00 mL
LCS: 5.00 mL
Purge Volume LCS: 5.0 mL
LCS: 5.0 mL

Analyte	LCS	Spike		LCSD	Spike		RPD
		Added-LCS	Recovery		Added-LCS	Recovery	
Benzene	49.3	50.0	98.6%	52.8	50.0	106%	6.9%
Toluene	48.3	50.0	96.6%	51.9	50.0	104%	7.2%
Ethylbenzene	51.6	50.0	103%	55.4	50.0	111%	7.1%
m,p-Xylene	109	100	109%	118	100	118%	7.9%
o-Xylene	50.2	50.0	100%	53.6	50.0	107%	6.6%

Reported in µg/L (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	100%	101%
d8-Toluene	100%	100%
Bromofluorobenzene	101%	99.5%
d4-1,2-Dichlorobenzene	88.8%	89.4%

ORGANICS ANALYSIS DATA SHEET

Volatiles by Purge & Trap GC/MS-Method SW8260C
Page 1 of 1

Sample ID: LCS-110512A
LAB CONTROL SAMPLE

Lab Sample ID: LCS-110512A
LIMS ID: 12-21318
Matrix: Soil
Data Release Authorized: *[Signature]*
Reported: 11/08/12

QC Report No: VP51-Anchor QEA LLC
Project: Central Waterfront Shoreline Inves.
Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: NT5/PAB
LCS: NT5/PAB
Date Analyzed LCS: 11/05/12 13:06
LCS: 11/05/12 14:36

Sample Amount LCS: 100 mg-dry-wt
LCS: 100 mg-dry-wt
Purge Volume LCS: 5.0 mL
LCS: 5.0 mL
Moisture: NA

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCS	LCS	Spike Added-LCS	LCS Recovery	RPD
Benzene	2470	2500	98.8%	2480	2500	99.2%	0.4%	
Toluene	2420	2500	96.8%	2440	2500	97.6%	0.8%	
Ethylbenzene	2580	2500	103%	2620	2500	105%	1.5%	
m,p-Xylene	5480	5000	110%	5580	5000	112%	1.8%	
o-Xylene	2540	2500	102%	2550	2500	102%	0.4%	

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCS
d4-1,2-Dichloroethane	98.5%	96.3%
d8-Toluene	99.5%	99.9%
Bromofluorobenzene	100%	99.5%
d4-1,2-Dichlorobenzene	90.2%	88.7%

4A
VOLATILE METHOD BLANK SUMMARY

Method Blank ID.

MB1102

Lab Name: ANALYTICAL RESOURCES INC

Client: ANCHOR QEA LLC

ARI Job No: VP51

Project: CENTRAL WATERFRONT SHOR

Lab File ID: MB1102

Lab Sample ID: MB1102

Date Analyzed: 11/02/12

Time Analyzed: 1447

Instrument ID: NT5

Heated Purge: (Y/N) Y

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
	=====	=====	=====	=====
01	LCS1102	LCS1102	LCS1102A	1401
02	LCS1102	LCS1102	LCS1102B	1424
03	CWSI-TB-02	VP51K	VP51K	1641
04	CWSI-07-2-4	VP51A	VP51A	1703
05	CWSI-05-2-4	VP51B	VP51B	1726
06	CWSI-05-7-9	VP51C	VP51C	1749
07	CWSI-05-12-1	VP51D	VP51D	1812
08	CWSI-06-8-10	VP51E	VP51E	1834
09	CWSI-06-12-1	VP51F	VP51F	1857
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

COMMENTS:

ORGANICS ANALYSIS DATA SHEET

Volatiles by Purge & Trap GC/MS-Method SW8260C

Sample ID: MB-110212A

METHOD BLANK

Page 1 of 1


Lab Sample ID: MB-110212A

QC Report No: VP51-Anchor QEA LLC

LIMS ID: 12-21324

Project: Central Waterfront Shoreline Inves.

Matrix: Water

Data Release Authorized: 

Date Sampled: NA

Reported: 11/08/12

Date Received: NA

Instrument/Analyst: NT5/PAB

Sample Amount: 5.00 mL

Date Analyzed: 11/02/12 14:47

Purge Volume: 5.0 mL

CAS Number	Analyte	LOQ	Result	Q
71-43-2	Benzene	1.0	< 1.0	U
108-88-3	Toluene	1.0	< 1.0	U
100-41-4	Ethylbenzene	1.0	< 1.0	U
179601-23-1	m,p-Xylene	2.0	< 2.0	U
95-47-6	o-Xylene	1.0	< 1.0	U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	101%
d8-Toluene	101%
Bromofluorobenzene	99.5%
d4-1,2-Dichlorobenzene	89.0%

ORGANICS ANALYSIS DATA SHEET

Volatiles by Purge & Trap GC/MS-Method SW8260C

Sample ID: MB-110212A

Page 1 of 1

METHOD BLANK

Lab Sample ID: MB-110212A

QC Report No: VP51-Anchor QEA LLC

LIMS ID: 12-21319

Project: Central Waterfront Shoreline Inves.

Matrix: Soil

Data Release Authorized: *AS*

Date Sampled: NA

Reported: 11/08/12

Date Received: NA

Instrument/Analyst: NT5/PAB

Sample Amount: 5.00 g-dry-wt

Date Analyzed: 11/02/12 14:47

Purge Volume: 5.0 mL

Moisture: NA

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.0	< 1.0	U
108-88-3	Toluene	1.0	< 1.0	U
100-41-4	Ethylbenzene	1.0	< 1.0	U
179601-23-1	m,p-Xylene	1.0	< 1.0	U
95-47-6	o-Xylene	1.0	< 1.0	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	101%
d8-Toluene	101%
Bromofluorobenzene	99.5%
d4-1,2-Dichlorobenzene	89.0%

4A
VOLATILE METHOD BLANK SUMMARY

Method Blank ID.

MB1105

Lab Name: ANALYTICAL RESOURCES INC

Client: ANCHOR QEA LLC

ARI Job No: VP51

Project: CENTRAL WATERFRONT SHOR

Lab File ID: MB1105M

Lab Sample ID: MB1105

Date Analyzed: 11/05/12

Time Analyzed: 1608

Instrument ID: NT5

Heated Purge: (Y/N) Y

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
	-----	-----	-----	-----
01	LCS1105	LCS1105	LCS1105A	1306
02	LCS1105	LCS1105	LCS1105B	1436
03	CWSI-06-8-10	VP51E	VP51E2	1654
04				
05				
06				
07				
08				
09				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

COMMENTS:

ORGANICS ANALYSIS DATA SHEET

Volatiles by Purge & Trap GC/MS-Method SW8260C

Sample ID: MB-110512A

METHOD BLANK

Page 1 of 1


Lab Sample ID: MB-110512A

QC Report No: VP51-Anchor QEA LLC

LIMS ID: 12-21318

Project: Central Waterfront Shoreline Inves.

Matrix: Soil

Data Release Authorized: 

Date Sampled: NA

Reported: 11/08/12

Date Received: NA

Instrument/Analyst: NT5/PAB

Sample Amount: 100 mg-dry-wt

Date Analyzed: 11/05/12 16:08

Purge Volume: 5.0 mL

Moisture: NA

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	50	< 50	U
108-88-3	Toluene	50	< 50	U
100-41-4	Ethylbenzene	50	< 50	U
179601-23-1	m,p-Xylene	50	< 50	U
95-47-6	o-Xylene	50	< 50	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	98.8%
d8-Toluene	101%
Bromofluorobenzene	99.3%
d4-1,2-Dichlorobenzene	89.7%

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ANALYTICAL RESOURCES INC Contract: ANCHOR QEA LLC
 Lab Code: ARI Case No.: CENTRAL WATERFRONT SHORELINE SDG No.: VP51
 Lab File ID: BFB11021 BFB Injection Date: 11/02/12
 Instrument ID: NT5 BFB Injection Time: 0822
 GC Column: RTXVMS ID: 0.18 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	20.2
75	30.0 - 66.0% of mass 95	45.9
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.5
173	Less than 2.0% of mass 174	0.4 (0.5)1
174	50.0 - 101.0% of mass 95	76.8
175	4.0 - 9.0% of mass 174	5.6 (7.3)1
176	95.0 - 101.0% of mass 174	74.4 (96.8)1
177	5.0 - 9.0% of mass 176	5.2 (7.0)2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD1	IC1102	0011102	11/02/12	0915
02	VSTD2	IC1102	0021102	11/02/12	0938
03	VSTD5	IC1102	0051102	11/02/12	1001
04	VSTD10	IC1102	0101102	11/02/12	1023
05	VSTD50	IC1102	0501102	11/02/12	1046
06	VSTD100	IC1102	1001102	11/02/12	1109
07	VSTD125	IC1102	1251102	11/02/12	1132
08	VSTD150	IC1102	1501102	11/02/12	1221
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ANALYTICAL RESOURCES INC Contract: ANCHOR QEA LLC
 Lab Code: ARI Case No.: CENTRAL WATERFRONT SHORELINE SDG No.: VP51
 Lab File ID: BFB11021 BFB Injection Date: 11/02/12
 Instrument ID: NT5 BFB Injection Time: 0822
 GC Column: RTXVMS ID: 0.18 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	20.2
75	30.0 - 66.0% of mass 95	45.9
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.5
173	Less than 2.0% of mass 174	0.4 (0.5)1
174	50.0 - 101.0% of mass 95	76.8
175	4.0 - 9.0% of mass 174	5.6 (7.3)1
176	95.0 - 101.0% of mass 174	74.4 (96.8)1
177	5.0 - 9.0% of mass 176	5.2 (7.0)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD50	CC1102	CC1102	11/02/12	1338
02	LCS1102	LCS1102	LCS1102A	11/02/12	1401
03	LCS1102	LCS1102	LCS1102B	11/02/12	1424
04	MB1102	MB1102	MB1102	11/02/12	1447
05	CWSI-TB-02	VP51K	VP51K	11/02/12	1641
06	CWSI-07-2-4	VP51A	VP51A	11/02/12	1703
07	CWSI-05-2-4	VP51B	VP51B	11/02/12	1726
08	CWSI-05-7-9	VP51C	VP51C	11/02/12	1749
09	CWSI-05-12-14	VP51D	VP51D	11/02/12	1812
10	CWSI-06-8-10	VP51E	VP51E	11/02/12	1834
11	CWSI-06-12-14	VP51F	VP51F	11/02/12	1857
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ANALYTICAL RESOURCES INC Contract: ANCHOR QEA LLC
 Lab Code: ARI Case No.: CENTRAL WATERFRONT SHORELINE SDG No.: VP51
 Lab File ID: BFB1105 BFB Injection Date: 11/05/12
 Instrument ID: NT5 BFB Injection Time: 1128
 GC Column: RTXVMS ID: 0.18 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	19.8
75	30.0 - 66.0% of mass 95	46.0
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.7
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 101.0% of mass 95	76.8
175	4.0 - 9.0% of mass 174	5.4 (7.1)1
176	95.0 - 101.0% of mass 174	75.3 (98.0)1
177	5.0 - 9.0% of mass 176	5.2 (6.9)2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD50	CC1105	CC1105	11/05/12	1203
02	LCS1105	LCS1105	LCS1105A	11/05/12	1306
03	LCS1105	LCS1105	LCS1105B	11/05/12	1436
04	MB1105	MB1105	MB1105M	11/05/12	1608
05	CWSI-06-8-10	VP51E	VP51E2	11/05/12	1654
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC

Client: ANCHOR QEA LLC

ARI Job No: VP51

Project: CENTRAL WATERFRONT SHORELINE

Instrument ID: NT5

Calibration Date: 11/02/12

LAB FILE ID: RF1: 0011102

RF2: 0021102

RF5: 0051102

RF10: 0101102

RF50: 0501102

COMPOUND	RF1	RF2	RF5	RF10	RF50
Chloromethane	1.158	1.273	1.264	1.167	1.096
Vinyl Chloride	1.176	1.211	1.263	1.278	1.130
Bromomethane	0.567	0.610	0.554	0.542	0.428
Chloroethane	0.810	0.695	0.519	0.638	0.473
Trichlorofluoromethane	1.107	0.975	0.804	0.958	0.679
Acrolein	0.146	0.158	0.158	0.166	0.156
1,1,1-Trichloroethane	0.775	0.762	0.784	0.762	0.638
Acetone	0.294	0.246	0.227	0.221	0.206
1,1-Dichloroethene	0.748	0.801	0.799	0.531	0.689
Bromoethane	0.535	0.563	0.558	0.574	0.489
Iodomethane	0.556	0.539	0.519	0.540	0.686
Methylene Chloride		0.984	0.912	0.935	0.783
Acrylonitrile	0.287	0.321	0.314	0.335	0.311
Carbon Disulfide	3.102	2.975	2.792	1.729	2.411
Trans-1,2-Dichloroethene	0.874	0.896	0.887	0.934	0.779
Vinyl Acetate	1.295	1.442	1.389	1.491	1.339
1,1-Dichloroethane	1.720	1.829	1.773	1.876	1.558
2-Butanone	0.083	0.092	0.087	0.093	0.090
2,2-Dichloropropane	1.402	1.421	1.419	1.465	1.224
Cis-1,2-Dichloroethene	1.001	0.978	0.943	0.990	0.828
Chloroform	1.479	1.515	1.586	1.632	1.404
Bromochloromethane	0.428	0.433	0.436	0.457	0.402
1,1,1-Trichloroethane	1.352	1.390	1.392	1.432	1.217
1,1-Dichloropropene	0.516	0.522	0.525	0.530	0.451
Carbon Tetrachloride	0.454	0.466	0.440	0.460	0.396
1,2-Dichloroethane	0.454	0.465	0.458	0.474	0.420
Benzene	1.563	1.586	1.590	1.614	1.377
Trichloroethene	0.362	0.382	0.364	0.383	0.328
1,2-Dichloropropane	0.409	0.416	0.412	0.434	0.379
Bromodichloromethane	0.454	0.454	0.455	0.466	0.416
Dibromomethane	0.162	0.188	0.188	0.192	0.174
2-Chloroethyl Vinyl Ether	0.139	0.154	0.165	0.173	0.169
4-Methyl-2-Pentanone	0.115	0.138	0.140	0.144	0.143
Cis 1,3-dichloropropene	0.553	0.582	0.588	0.601	0.545
Toluene	1.080	1.036	1.018	1.017	0.864
Trans 1,3-Dichloropropene	0.483	0.501	0.509	0.529	0.486
2-Hexanone	0.157	0.176	0.179	0.184	0.185

FORM VI VOA

VP51 : 00042

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC

Client: ANCHOR QEA LLC

ARI Job No: VP51

Project: CENTRAL WATERFRONT SHORELINE

Instrument ID: NT5

Calibration Date: 11/02/12

LAB FILE ID: RF1: 0011102

RF2: 0021102

RF5: 0051102

RF10: 0101102

RF50: 0501102

COMPOUND	RF1	RF2	RF5	RF10	RF50
1,1,2-Trichloroethane	0.282	0.274	0.281	0.287	0.264
1,3-Dichloropropane	0.383	0.395	0.402	0.417	0.387
Tetrachloroethene	0.324	0.321	0.308	0.312	0.262
Chlorodibromomethane	0.222	0.242	0.238	0.248	0.231
1,2-Dibromoethane	0.235	0.254	0.272	0.268	0.252
Chlorobenzene	0.794	0.791	0.787	0.804	0.692
Ethyl Benzene	1.417	1.423	1.417	1.470	1.238
1,1,1,2-Tetrachloroethane	0.249	0.256	0.257	0.272	0.238
m,p-xylene	0.525	0.534	0.523	0.544	0.463
o-Xylene	0.502	0.491	0.494	0.516	0.453
Styrene	0.775	0.799	0.823	0.859	0.769
Bromoform	0.264	0.285	0.277	0.287	0.277
1,1,2,2-Tetrachloroethane	0.457	0.477	0.465	0.483	0.458
1,2,3-Trichloropropane	0.129	0.137	0.135	0.146	0.137
Trans-1,4-Dichloro 2-Butene	0.157	0.163	0.171	0.169	0.169
N-Propyl Benzene	2.836	2.779	2.751	2.866	2.411
Bromobenzene	0.551	0.556	0.547	0.563	0.498
Isopropyl Benzene	2.238	2.242	2.229	2.350	2.023
2-Chloro Toluene	1.771	1.657	1.628	1.697	1.472
4-Chloro Toluene	1.771	1.689	1.691	1.764	1.525
T-Butyl Benzene	1.637	1.626	1.645	1.726	1.498
1,3,5-Trimethyl Benzene	1.886	1.842	1.883	1.946	1.712
1,2,4-Trimethylbenzene	1.892	1.850	1.875	1.964	1.699
S-Butyl Benzene	2.523	2.536	2.464	2.583	2.210
4-Isopropyl Toluene	2.011	1.987	2.007	2.093	1.830
1,3-Dichlorobenzene	1.151	1.082	1.049	1.084	0.954
1,4-Dichlorobenzene	1.229	1.140	1.098	1.110	0.969
N-Butyl Benzene	2.007	1.969	1.951	2.049	1.732
1,2-Dichlorobenzene	1.062	1.032	1.012	1.033	0.914
1,2-Dibromo 3-Chloropropane	0.079	0.086	0.086	0.084	0.085
1,2,4-Trichlorobenzene	0.864	0.750	0.732	0.754	0.682
Hexachloro 1,3-Butadiene	0.504	0.468	0.471	0.479	0.404
Naphthalene	1.624	1.522	1.513	1.561	1.526
1,2,3-Trichlorobenzene	0.772	0.690	0.684	0.697	0.642
Dichlorodifluoromethane	0.771	0.765	0.779	0.816	0.742
Methyl tert butyl ether	2.235	2.321	2.318	2.492	2.226

FORM VI VOA

VP51 00043

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC

Client: ANCHOR QEA LLC

ARI Job No: VP51

Project: CENTRAL WATERFRONT SHORELINE

Instrument ID: NT5

Calibration Date: 11/02/12

LAB FILE ID: RF1: 0011102

RF2: 0021102

RF5: 0051102

RF10: 0101102

RF50: 0501102

COMPOUND	RF1	RF2	RF5	RF10	RF50
d4-1,2-Dichloroethane	0.777	0.801	0.794	0.796	0.795
d8-Toluene	1.410	1.418	1.406	1.401	1.408
4-Bromofluorobenzene	0.556	0.556	0.562	0.559	0.560
d4-1,2-Dichlorobenzene	0.950	0.939	0.925	0.928	0.940
Dibromofluoromethane	0.803	0.812	0.808	0.816	0.814

FORM VI VOA

VP51 00044

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC

Client: ANCHOR QEA LLC

ARI Job No: VP51

Project: CENTRAL WATERFRONT SHORELINE

Instrument ID: NT5

Calibration Date: 11/02/12

LAB FILE ID: RF100: 1001102

RF125: 1251102

RF150: 1501102

COMPOUND	RF100	RF125	RF150
Chloromethane	1.222	1.228	1.415
Vinyl Chloride	1.311	1.328	1.479
Bromomethane	0.489	0.512	0.561
Chloroethane	0.743	0.755	0.836
Trichlorofluoromethane	1.129	1.187	
Acrolein	0.171	0.112	
1,1,2-Trichloro-2,2-Trifluoroethane	0.486	0.503	0.637
Acetone	0.218	0.216	0.179
1,1-Dichloroethene	0.522	0.544	0.667
Bromoethane	0.545	0.341	0.406
Iodomethane	0.503	0.516	0.638
Methylene Chloride	0.891	0.900	0.736
Acrylonitrile	0.347	0.355	0.322
Carbon Disulfide	1.703		
Trans-1,2-Dichloroethene	0.928	0.946	1.034
Vinyl Acetate	1.541	1.596	1.524
1,1-Dichloroethane	1.867	1.909	2.039
2-Butanone	0.096	0.100	0.092
2,2-Dichloropropane	1.459	1.466	1.672
Cis-1,2-Dichloroethene	0.976	1.001	1.104
Chloroform	1.610	1.645	1.734
Bromochloromethane	0.456	0.468	0.473
1,1,1-Trichloroethane	1.450	1.487	1.625
1,1-Dichloropropene	0.535	0.546	0.620
Carbon Tetrachloride	0.472	0.480	0.536
1,2-Dichloroethane	0.472	0.477	0.475
Benzene	1.576	1.588	1.690
Trichloroethene	0.386	0.393	0.435
1,2-Dichloropropane	0.438	0.447	0.466
Bromodichloromethane	0.478	0.485	0.502
Dibromomethane	0.194	0.198	0.196
2-Chloroethyl Vinyl Ether	0.193	0.201	0.193
4-Methyl-2-Pentanone	0.152	0.156	0.141
Cis 1,3-dichloropropene	0.625	0.633	0.658
Toluene	0.992	0.996	1.050
Trans 1,3-Dichloropropene	0.545	0.554	0.558
2-Hexanone	0.191	0.198	0.182

FORM VI VOA

VP51 · 00045

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC

Client: ANCHOR QEA LLC

ARI Job No: VP51

Project: CENTRAL WATERFRONT SHORELINE

Instrument ID: NT5

Calibration Date: 11/02/12

LAB FILE ID: RF100: 1001102

RF125: 1251102

RF150: 1501102

COMPOUND	RF100	RF125	RF150
1,1,2-Trichloroethane	0.296	0.303	0.297
1,3-Dichloropropane	0.427	0.441	0.437
Tetrachloroethene	0.310	0.315	0.368
Chlorodibromomethane	0.259	0.267	0.270
1,2-Dibromoethane	0.284	0.291	0.280
Chlorobenzene	0.777	0.790	0.842
Ethyl Benzene	1.371	1.330	1.314
1,1,1,2-Tetrachloroethane	0.264	0.254	0.234
m,p-xylene	0.428	0.344	
o-Xylene	0.515	0.522	0.525
Styrene	0.819	0.674	0.451
Bromoform	0.308	0.396	0.385
1,1,2,2-Tetrachloroethane	0.501	0.685	
1,2,3-Trichloropropane	0.150	0.203	0.204
Trans-1,4-Dichloro 2-Butene	0.169	0.148	0.100
N-Propyl Benzene	2.761	3.593	
Bromobenzene	0.578	0.796	
Isopropyl Benzene	2.367	3.154	
2-Chloro Toluene	1.706	2.252	
4-Chloro Toluene	1.690	1.714	1.846
T-Butyl Benzene	1.757	2.313	
1,3,5-Trimethyl Benzene	1.951	2.259	2.232
1,2,4-Trimethylbenzene	1.916	2.088	2.069
S-Butyl Benzene	2.474	2.499	2.631
4-Isopropyl Toluene	2.080	2.528	
1,3-Dichlorobenzene	1.024	1.094	1.374
1,4-Dichlorobenzene	1.015	1.044	1.278
N-Butyl Benzene	2.008	2.617	
1,2-Dichlorobenzene	1.007	1.310	
1,2-Dibromo 3-Chloropropane	0.091	0.131	
1,2,4-Trichlorobenzene	0.753	1.030	
Hexachloro 1,3-Butadiene	0.464	0.639	
Naphthalene	1.658	2.318	
1,2,3-Trichlorobenzene	0.704	0.977	
Dichlorodifluoromethane	0.883	0.882	0.980
Methyl tert butyl ether	2.522	2.601	2.553

FORM VI VOA

VP51 : 00046

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC

Client: ANCHOR QEA LLC

ARI Job No: VP51

Project: CENTRAL WATERFRONT SHORELINE

Instrument ID: NT5

Calibration Date: 11/02/12

LAB FILE ID: RF100: 1001102 RF125: 1251102 RF150: 1501102

COMPOUND	RF100	RF125	RF150
d4-1,2-Dichloroethane	0.790	0.800	0.772
d8-Toluene	1.412	1.398	1.395
4-Bromofluorobenzene	0.561	0.560	0.551
d4-1,2-Dichlorobenzene	0.951	1.235	1.489
Dibromofluoromethane	0.813	0.815	0.815

FORM VI VOA

VP51 : 00047

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC

Client: ANCHOR QEA LLC

ARI Job No: VP51

Project: CENTRAL WATERFRONT SHORELINE

Instrument ID: NT5

Calibration Date: 11/02/12

COMPOUND	CURVE TYPE	AVE RF	%RSD OR R ²
Chloromethane	AVRG	1.228	7.8
Vinyl Chloride	AVRG	1.272	8.4
Bromomethane	AVRG	0.533	10.5
Chloroethane	AVRG	0.684	19.3
Trichlorofluoromethane	AVRG	0.977	18.8
Acrolein	AVRG	0.152	12.7
1,1,1-Trichloroethane	AVRG	0.668	18.3
Acetone	AVRG	0.226	14.9
1,1-Dichloroethene	AVRG	0.663	17.8
Bromoethane	AVRG	0.501	16.9
Iodomethane	AVRG	0.562	11.5
Methylene Chloride	AVRG	0.877	9.9
Acrylonitrile	AVRG	0.324	6.6
Carbon Disulfide	2ORDR		0.9930
Trans-1,2-Dichloroethene	AVRG	0.910	8.0
Vinyl Acetate	AVRG	1.452	7.2
1,1-Dichloroethane	AVRG	1.821	7.8
2-Butanone	AVRG	0.092	5.8
2,2-Dichloropropane	AVRG	1.441	8.5
Cis-1,2-Dichloroethene	AVRG	0.978	7.8
Chloroform	AVRG	1.576	6.6
Bromochloromethane	AVRG	0.444	5.4
1,1,1-Trichloroethane	AVRG	1.418	8.2
1,1-Dichloropropene	AVRG	0.531	8.7
Carbon Tetrachloride	AVRG	0.463	8.4
1,2-Dichloroethane	AVRG	0.462	4.1
Benzene	AVRG	1.573	5.6
Trichloroethene	AVRG	0.379	8.0
1,2-Dichloropropane	AVRG	0.425	6.3
Bromodichloromethane	AVRG	0.464	5.6
Dibromomethane	AVRG	0.187	6.7
2-Chloroethyl Vinyl Ether	AVRG	0.173	12.3
4-Methyl-2-Pentanone	AVRG	0.141	8.6
Cis 1,3-dichloropropene	AVRG	0.598	6.5
Toluene	AVRG	1.007	6.4
Trans 1,3-Dichloropropene	AVRG	0.521	5.8
2-Hexanone	AVRG	0.181	6.6

<- Indicates value outside QC limits:
(%RSD < 20% or R² > 0.990)

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC

Client: ANCHOR QEA LLC

ARI Job No: VP51

Project: CENTRAL WATERFRONT SHORELINE

Instrument ID: NT5

Calibration Date: 11/02/12

COMPOUND	CURVE TYPE	AVE RF	%RSD OR R ²
1,1,2-Trichloroethane	AVRG	0.285	4.5
1,3-Dichloropropane	AVRG	0.411	5.5
Tetrachloroethene	AVRG	0.315	9.2
Chlorodibromomethane	AVRG	0.247	6.8
1,2-Dibromoethane	AVRG	0.267	6.9
Chlorobenzene	AVRG	0.785	5.4
Ethyl Benzene	AVRG	1.372	5.5
1,1,1,2-Tetrachloroethane	AVRG	0.253	5.0
m,p-xylene	AVRG	0.480	15.3
o-Xylene	AVRG	0.502	4.6
Styrene	AVRG	0.746	17.6
Bromoform	AVRG	0.310	16.6
1,1,2,2-Tetrachloroethane	AVRG	0.504	16.2
1,2,3-Trichloropropane	AVRG	0.155	19.7
Trans-1,4-Dichloro 2-Butene	AVRG	0.156	15.3
N-Propyl Benzene	AVRG	2.857	12.5
Bromobenzene	AVRG	0.584	16.6
Isopropyl Benzene	AVRG	2.372	15.3
2-Chloro Toluene	AVRG	1.740	14.0
4-Chloro Toluene	AVRG	1.712	5.4
T-Butyl Benzene	AVRG	1.743	15.2
1,3,5-Trimethyl Benzene	AVRG	1.964	9.6
1,2,4-Trimethylbenzene	AVRG	1.919	6.5
S-Butyl Benzene	AVRG	2.490	5.1
4-Isopropyl Toluene	AVRG	2.076	10.4
1,3-Dichlorobenzene	AVRG	1.102	11.3
1,4-Dichlorobenzene	AVRG	1.110	9.4
N-Butyl Benzene	AVRG	2.048	13.3
1,2-Dichlorobenzene	AVRG	1.053	11.6
1,2-Dibromo 3-Chloropropane	AVRG	0.092	19.3
1,2,4-Trichlorobenzene	AVRG	0.795	14.7
Hexachloro 1,3-Butadiene	AVRG	0.490	14.8
Naphthalene	AVRG	1.675	17.3
1,2,3-Trichlorobenzene	AVRG	0.738	15.2
Dichlorodifluoromethane	AVRG	0.827	9.8
Methyl tert butyl ether	AVRG	2.408	6.2

<- Indicates value outside QC limits:
(%RSD < 20% or R² > 0.990)

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC

Client: ANCHOR QEA LLC

ARI Job No: VP51

Project: CENTRAL WATERFRONT SHORELINE

Instrument ID: NT5

Calibration Date: 11/02/12

COMPOUND	CURVE TYPE	AVE RF	%RSD OR R ²
d4-1,2-Dichloroethane	AVRG	0.790	1.4
d8-Toluene	AVRG	1.406	0.5
4-Bromofluorobenzene	AVRG	0.558	0.7
d4-1,2-Dichlorobenzene	AVRG	1.044	19.9
Dibromofluoromethane	AVRG	0.812	0.6

<- Indicates value outside QC limits:
(%RSD < 20% or R² > 0.990)

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC

Client: ANCHOR QEA LLC

ARI Job No: VP51

Project: CENTRAL WATERFRONT SHORELIN

Instrument ID: NT5

Cont. Calib. Date: 11/02/12

Init. Calib. Date: 11/02/12

Cont. Calib. Time: 1338

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
Chloromethane	1.228	1.2951	0.100	AVRG	5.5
Vinyl Chloride	1.272	1.3513	0.010	AVRG	6.2
Bromomethane	0.533	0.5485	0.010	AVRG	2.9
Chloroethane	0.684	0.7836	0.010	AVRG	14.6
Trichlorofluoromethane	0.977	1.2473	0.010	AVRG	27.7
Acrolein	0.152	0.1530	0.010	AVRG	0.6
112Trichloro122Trifluoroetha Acetone	0.668	0.6141	0.010	AVRG	-8.1
0.226	0.2111	0.010	AVRG	-6.6	
1,1-Dichloroethene	0.663	0.6421	0.010	AVRG	-3.2
Bromoethane	0.501	0.4708	0.010	AVRG	-6.0
Iodomethane	0.562	0.5570	0.010	AVRG	-0.9
Methylene Chloride	0.877	0.8828	0.010	AVRG	0.7
Acrylonitrile	0.324	0.3111	0.010	AVRG	-4.0
Carbon Disulfide	50.000	48.361	0.010	2ORDR	-3.3
Trans-1,2-Dichloroethene	0.910	0.9265	0.010	AVRG	1.8
Vinyl Acetate	1.452	1.5149	0.010	AVRG	4.3
1,1-Dichloroethane	1.821	1.8174	0.100	AVRG	-0.2
2-Butanone	0.092	0.0941	0.010	AVRG	2.3
2,2-Dichloropropane	1.441	1.5144	0.010	AVRG	5.1
Cis-1,2-Dichloroethene	0.978	0.9874	0.010	AVRG	1.0
Chloroform	1.576	1.6105	0.010	AVRG	2.2
Bromochloromethane	0.444	0.4483	0.010	AVRG	1.0
1,1,1-Trichloroethane	1.418	1.4682	0.010	AVRG	3.5
1,1-Dichloropropene	0.531	0.5559	0.010	AVRG	4.7
Carbon Tetrachloride	0.463	0.4810	0.010	AVRG	3.9
1,2-Dichloroethane	0.462	0.4614	0.010	AVRG	-0.1
Benzene	1.573	1.6188	0.010	AVRG	2.9
Trichloroethene	0.379	0.3963	0.010	AVRG	4.6
1,2-Dichloropropane	0.425	0.4340	0.010	AVRG	2.1
Bromodichloromethane	0.464	0.4713	0.010	AVRG	1.6
Dibromomethane	0.186	0.1897	0.010	AVRG	2.0
2-Chloroethyl Vinyl Ether	0.173	0.1792	0.010	AVRG	3.6
4-Methyl-2-Pentanone	0.141	0.1459	0.010	AVRG	3.5
Cis 1,3-dichloropropene	0.598	0.6211	0.010	AVRG	3.9
Toluene	1.007	1.0236	0.010	AVRG	1.6
Trans 1,3-Dichloropropene	0.521	0.5369	0.010	AVRG	3.0
2-Hexanone	0.182	0.1891	0.010	AVRG	3.9

<-

<- Exceeds QC limit of 20% D
* RF less than minimum RF

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC

Client: ANCHOR QEA LLC

ARI Job No: VP51

Project: CENTRAL WATERFRONT SHORELIN

Instrument ID: NT5

Cont. Calib. Date: 11/02/12

Init. Calib. Date: 11/02/12

Cont. Calib. Time: 1338

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
1,1,2-Trichloroethane	0.286	0.2897	0.010	AVRG	1.3
1,3-Dichloropropane	0.411	0.4180	0.010	AVRG	1.7
Tetrachloroethene	0.315	0.3292	0.010	AVRG	4.5
Chlorodibromomethane	0.247	0.2504	0.010	AVRG	1.4
1,2-Dibromoethane	0.267	0.2714	0.010	AVRG	1.6
Chlorobenzene	0.785	0.8047	0.300	AVRG	2.5
Ethyl Benzene	1.372	1.4793	0.010	AVRG	7.8
1,1,1,2-Tetrachloroethane	0.253	0.2699	0.010	AVRG	6.7
m,p-xylene	0.480	0.5543	0.010	AVRG	15.5
o-Xylene	0.502	0.5284	0.010	AVRG	5.2
Styrene	0.746	0.8898	0.010	AVRG	19.3
Bromoform	0.310	0.2950	0.100	AVRG	-4.8
1,1,2,2-Tetrachloroethane	0.504	0.4878	0.300	AVRG	-3.2
1,2,3-Trichloropropane	0.155	0.1427	0.010	AVRG	-7.9
Trans-1,4-Dichloro 2-Butene	0.156	0.1711	0.010	AVRG	9.7
N-Propyl Benzene	2.857	2.9916	0.010	AVRG	4.7
Bromobenzene	0.584	0.5733	0.010	AVRG	-1.8
Isopropyl Benzene	2.372	2.4846	0.010	AVRG	4.7
2-Chloro Toluene	1.740	1.7737	0.010	AVRG	1.9
4-Chloro Toluene	1.711	1.8535	0.010	AVRG	8.3
T-Butyl Benzene	1.743	1.8106	0.010	AVRG	3.9
1,3,5-Trimethyl Benzene	1.964	2.0750	0.010	AVRG	5.6
1,2,4-Trimethylbenzene	1.919	2.0480	0.010	AVRG	6.7
S-Butyl Benzene	2.490	2.7346	0.010	AVRG	9.8
4-Isopropyl Toluene	2.076	2.2716	0.010	AVRG	9.4
1,3-Dichlorobenzene	1.102	1.1331	0.010	AVRG	2.8
1,4-Dichlorobenzene	1.110	1.1555	0.010	AVRG	4.1
N-Butyl Benzene	2.048	2.2338	0.010	AVRG	9.1
1,2-Dichlorobenzene	1.053	1.0450	0.010	AVRG	-0.8
1,2-Dibromo 3-Chloropropane	0.092	0.0870	0.010	AVRG	-5.4
1,2,4-Trichlorobenzene	0.795	0.8207	0.010	AVRG	3.2
Hexachloro 1,3-Butadiene	0.490	0.5054	0.010	AVRG	3.1
Naphthalene	1.674	1.6180	0.010	AVRG	-3.3
1,2,3-Trichlorobenzene	0.738	0.7297	0.010	AVRG	-1.1
Dichlorodifluoromethane	0.827	0.9137	0.010	AVRG	10.5
Methyl tert butyl ether	2.408	2.3913	0.010	AVRG	-0.7

<- Exceeds QC limit of 20% D

* RF less than minimum RF

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC

Client: ANCHOR QEA LLC

ARI Job No: VP51

Project: CENTRAL WATERFRONT SHORELIN

Instrument ID: NT5

Cont. Calib. Date: 11/02/12

Init. Calib. Date: 11/02/12

Cont. Calib. Time: 1338

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
d4-1,2-Dichloroethane	0.791	0.7890	0.010	AVRG	-0.2
d8-Toluene	1.406	1.4118	0.010	AVRG	0.4
4-Bromofluorobenzene	0.558	0.5582	0.010	AVRG	0.0
d4-1,2-Dichlorobenzene	1.045	0.9320	0.010	AVRG	-10.8
Dibromofluoromethane	0.812	0.8173	0.010	AVRG	0.6

<- Exceeds QC limit of 20% D

* RF less than minimum RF

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC

Client: ANCHOR QEA LLC

ARI Job No: VP51

Project: CENTRAL WATERFRONT SHORELIN

Instrument ID: NT5

Cont. Calib. Date: 11/05/12

Init. Calib. Date: 11/02/12

Cont. Calib. Time: 1203

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
Chloromethane	1.228	1.1867	0.100	AVRG	-3.4
Vinyl Chloride	1.272	1.2592	0.010	AVRG	-1.0
Bromomethane	0.533	0.2137	0.010	AVRG	-59.9 <-
Chloroethane	0.684	0.7482	0.010	AVRG	9.4
Trichlorofluoromethane	0.977	1.0667	0.010	AVRG	9.2
Acrolein	0.152	0.1531	0.010	AVRG	0.7
1,1,2-Trichloro-1,2,2-Trifluoroethane	0.668	0.7647	0.010	AVRG	14.5
Acetone	0.226	0.2014	0.010	AVRG	-10.9
1,1-Dichloroethene	0.663	0.7951	0.010	AVRG	19.9
Bromoethane	0.501	0.5723	0.010	AVRG	14.2
Iodomethane	0.562	0.6641	0.010	AVRG	18.2
Methylene Chloride	0.877	0.9829	0.010	AVRG	12.1
Acrylonitrile	0.324	0.3182	0.010	AVRG	-1.8
Carbon Disulfide	50.000	71.760	0.010	2ORDR	43.5 <-
Trans-1,2-Dichloroethene	0.910	0.8927	0.010	AVRG	-1.9
Vinyl Acetate	1.452	1.4587	0.010	AVRG	0.5
1,1-Dichloroethane	1.821	1.8237	0.100	AVRG	0.1
2-Butanone	0.092	0.0895	0.010	AVRG	-2.7
2,2-Dichloropropane	1.441	1.4804	0.010	AVRG	2.7
Cis-1,2-Dichloroethene	0.978	1.0534	0.010	AVRG	7.7
Chloroform	1.576	1.5865	0.010	AVRG	0.7
Bromochloromethane	0.444	0.4352	0.010	AVRG	-2.0
1,1,1-Trichloroethane	1.418	1.4607	0.010	AVRG	3.0
1,1-Dichloropropene	0.531	0.5475	0.010	AVRG	3.1
Carbon Tetrachloride	0.463	0.4840	0.010	AVRG	4.5
1,2-Dichloroethane	0.462	0.4475	0.010	AVRG	-3.1
Benzene	1.573	1.5994	0.010	AVRG	1.7
Trichloroethene	0.379	0.3827	0.010	AVRG	1.0
1,2-Dichloropropane	0.425	0.4325	0.010	AVRG	1.8
Bromodichloromethane	0.464	0.4638	0.010	AVRG	-0.0
Dibromomethane	0.186	0.1860	0.010	AVRG	0.0
2-Chloroethyl Vinyl Ether	0.173	0.1812	0.010	AVRG	4.7
4-Methyl-2-Pentanone	0.141	0.1444	0.010	AVRG	2.4
Cis 1,3-dichloropropene	0.598	0.6115	0.010	AVRG	2.2
Toluene	1.007	1.0041	0.010	AVRG	-0.3
Trans 1,3-Dichloropropene	0.521	0.5325	0.010	AVRG	2.2
2-Hexanone	0.182	0.1860	0.010	AVRG	2.2

<- Exceeds QC limit of 20% D

* RF less than minimum RF

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC

Client: ANCHOR QEA LLC

ARI Job No: VP51

Project: CENTRAL WATERFRONT SHORELIN

Instrument ID: NT5

Cont. Calib. Date: 11/05/12

Init. Calib. Date: 11/02/12

Cont. Calib. Time: 1203

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
=====	=====	=====	=====	=====	=====
1,1,2-Trichloroethane	0.286	0.2838	0.010	AVRG	-0.8
1,3-Dichloropropane	0.411	0.4106	0.010	AVRG	-0.1
Tetrachloroethene	0.315	0.3195	0.010	AVRG	1.4
Chlorodibromomethane	0.247	0.2503	0.010	AVRG	1.3
1,2-Dibromoethane	0.267	0.2664	0.010	AVRG	-0.2
Chlorobenzene	0.785	0.7848	0.300	AVRG	-0.0
Ethyl Benzene	1.372	1.4547	0.010	AVRG	6.0
1,1,1,2-Tetrachloroethane	0.253	0.2700	0.010	AVRG	6.7
m,p-xylene	0.480	0.5412	0.010	AVRG	12.8
o-Xylene	0.502	0.5189	0.010	AVRG	3.4
Styrene	0.746	0.8640	0.010	AVRG	15.8
Bromoform	0.310	0.3033	0.100	AVRG	-2.2
1,1,2,2-Tetrachloroethane	0.504	0.4808	0.300	AVRG	-4.6
1,2,3-Trichloropropane	0.155	0.1403	0.010	AVRG	-9.5
Trans-1,4-Dichloro 2-Butene	0.156	0.1764	0.010	AVRG	13.1
N-Propyl Benzene	2.857	2.8601	0.010	AVRG	0.1
Bromobenzene	0.584	0.5610	0.010	AVRG	-3.9
Isopropyl Benzene	2.372	2.4042	0.010	AVRG	1.4
2-Chloro Toluene	1.740	1.7025	0.010	AVRG	-2.2
4-Chloro Toluene	1.711	1.7679	0.010	AVRG	3.3
T-Butyl Benzene	1.743	1.7542	0.010	AVRG	0.6
1,3,5-Trimethyl Benzene	1.964	1.9872	0.010	AVRG	1.2
1,2,4-Trimethylbenzene	1.919	1.9648	0.010	AVRG	2.4
S-Butyl Benzene	2.490	2.6119	0.010	AVRG	4.9
4-Isopropyl Toluene	2.076	2.1704	0.010	AVRG	4.5
1,3-Dichlorobenzene	1.102	1.0815	0.010	AVRG	-1.9
1,4-Dichlorobenzene	1.110	1.0957	0.010	AVRG	-1.3
N-Butyl Benzene	2.048	2.0742	0.010	AVRG	1.3
1,2-Dichlorobenzene	1.053	1.0051	0.010	AVRG	-4.5
1,2-Dibromo 3-Chloropropane	0.092	0.0858	0.010	AVRG	-6.7
1,2,4-Trichlorobenzene	0.795	0.7550	0.010	AVRG	-5.0
Hexachloro 1,3-Butadiene	0.490	0.4676	0.010	AVRG	-4.6
Naphthalene	1.674	1.5699	0.010	AVRG	-6.2
1,2,3-Trichlorobenzene	0.738	0.6822	0.010	AVRG	-7.6
Dichlorodifluoromethane	0.827	0.8284	0.010	AVRG	0.2
Methyl tert butyl ether	2.408	2.3148	0.010	AVRG	-3.9
=====	=====	=====	=====	=====	=====

<- Exceeds QC limit of 20% D

* RF less than minimum RF

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC

Client: ANCHOR QEA LLC

ARI Job No: VP51

Project: CENTRAL WATERFRONT SHORELIN

Instrument ID: NT5

Cont. Calib. Date: 11/05/12

Init. Calib. Date: 11/02/12

Cont. Calib. Time: 1203

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
=====	=====	=====	=====	=====	=====
d4-1,2-Dichloroethane_____	0.791	0.7611	0.010	AVRG	-3.8
d8-Toluene_____	1.406	1.4122	0.010	AVRG	0.4
4-Bromofluorobenzene_____	0.558	0.5573	0.010	AVRG	-0.1
d4-1,2-Dichlorobenzene_____	1.045	0.9325	0.010	AVRG	-10.8
Dibromofluoromethane_____	0.812	0.8111	0.010	AVRG	-0.1

<- Exceeds QC limit of 20% D

* RF less than minimum RF

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC

Client: ANCHOR QEA LLC

ARI Job No: VP51

Project: CENTRAL WATERFRONT SHORELINE

Ical Midpoint ID: 0101102

Ical Date: 11/02/12

Instrument ID: NT5

Project Run Date: 11/02/12

	IS1 (PFB) AREA #	RT #	IS2 (DFB) AREA #	RT #	IS3 (CLB) AREA #	RT #
ICAL MIDPT	293734	4.68	765758	5.13	983387	7.62
UPPER LIMIT	587468	5.18	1531516	5.63	1966774	8.12
LOWER LIMIT	146867	4.18	382879	4.63	491694	7.12
Sample ID						
01 LCS1102	294287	4.68	765414	5.14	984714	7.62
02 LCS1102	283938	4.68	739193	5.14	952999	7.62
03 MB1102	278856	4.68	726018	5.14	940927	7.62
04 CWSI-TB-02	284847	4.68	748516	5.14	973688	7.62
05 CWSI-07-2-4	256827	4.68	673256	5.13	873312	7.62
06 CWSI-05-2-4	278684	4.68	730508	5.14	962640	7.62
07 CWSI-05-7-9	280409	4.68	739585	5.13	950969	7.62
08 CWSI-05-12-1	281448	4.69	729804	5.14	832262	7.62
09 CWSI-06-8-10	276926	4.68	668827	5.14	683580	7.63
10 CWSI-06-12-1	287718	4.68	754573	5.14	901804	7.62
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						

IS1 (PFB) = Pentafluorobenzene
 IS2 (DFB) = 1,4-Difluorobenzene
 IS3 (CLB) = d5-Chlorobenzene

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
 AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Ical midpoint
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Ical midpoint

* Values outside of QC limits.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC

Client: ANCHOR QEA LLC

ARI Job No: VP51

Project: CENTRAL WATERFRONT SHORELINE

Ical Midpoint ID: 0101102

Ical Date: 11/02/12

Instrument ID: NT5

Project Run Date: 11/02/12

	IS4 (DCB) AREA #	RT #	AREA #	RT #	AREA #	RT #
=====	=====	=====	=====	=====	=====	=====
ICAL MIDPT	562086	9.69				
UPPER LIMIT	1124172	10.19				
LOWER LIMIT	281043	9.19				
=====	=====	=====	=====	=====	=====	=====
Sample ID						
=====	=====	=====	=====	=====	=====	=====
01 LCS1102	569213	9.69				
02 LCS1102	537023	9.69				
03 MB1102	533296	9.69				
04 CWSI-TB-02	561472	9.69				
05 CWSI-07-2-4	450160	9.69				
06 CWSI-05-2-4	527283	9.69				
07 CWSI-05-7-9	483414	9.69				
08 CWSI-05-12-1	322661	9.69				
09 CWSI-06-8-10	78415*	9.72				
10 CWSI-06-12-1	525896	9.69				
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						

IS4 (DCB) = d4-1,4-Dichlorobenzene

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
 AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Ical midpoint
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Ical midpoint

* Values outside of QC limits.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC

Client: ANCHOR QEA LLC

ARI Job No: VP51

Project: CENTRAL WATERFRONT SHORELINE

Ical Midpoint ID: 0101102

Ical Date: 11/02/12

Instrument ID: NT5

Project Run Date: 11/05/12

	IS1 (PFB) AREA #	RT #	IS2 (DFB) AREA #	RT #	IS3 (CLB) AREA #	RT #
=====	=====	=====	=====	=====	=====	=====
ICAL MIDPT	293734	4.68	765758	5.13	983387	7.62
UPPER LIMIT	587468	5.18	1531516	5.63	1966774	8.12
LOWER LIMIT	146867	4.18	382879	4.63	491694	7.12
=====	=====	=====	=====	=====	=====	=====
Sample ID						
=====	=====	=====	=====	=====	=====	=====
01 LCS1105	295485	4.68	763457	5.13	973464	7.62
02 LCS1105	299921	4.68	773381	5.13	991464	7.62
03 MB1105	286649	4.68	740082	5.13	955513	7.62
04 CWSI-06-8-10	284710	4.68	748582	5.14	967066	7.62
05						
06						
07						
08						
09						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						

IS1 (PFB) = Pentafluorobenzene
 IS2 (DFB) = 1,4-Difluorobenzene
 IS3 (CLB) = d5-Chlorobenzene

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
 AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Ical midpoint
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Ical midpoint

* Values outside of QC limits.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC

Client: ANCHOR QEA LLC

ARI Job No: VP51

Project: CENTRAL WATERFRONT SHORELINE

Ical Midpoint ID: 0101102

Ical Date: 11/02/12

Instrument ID: NT5

Project Run Date: 11/05/12

	IS4 (DCB)					
	AREA #	RT #	AREA #	RT #	AREA #	RT #
=====	=====	=====	=====	=====	=====	=====
ICAL MIDPT	562086	9.69				
UPPER LIMIT	1124172	10.19				
LOWER LIMIT	281043	9.19				
=====	=====	=====	=====	=====	=====	=====
Sample ID						
=====	=====	=====	=====	=====	=====	=====
01 LCS1105	550396	9.69				
02 LCS1105	572171	9.70				
03 MB1105	528209	9.69				
04 CWSI-06-8-10	544595	9.69				
05						
06						
07						
08						
09						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						

IS4 (DCB) = d4-1,4-Dichlorobenzene

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
 AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Ical midpoint
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Ical midpoint

* Values outside of QC limits.

**TPHD Analysis
Report and Summary QC Forms**

ARI Job ID: VP51

**ORGANICS ANALYSIS DATA SHEET
TOTAL DIESEL RANGE HYDROCARBONS**

NWTPHD by GC/FID-Silica and Acid Cleaned
Extraction Method: SW3546
Page 1 of 1

QC Report No: VP51-Anchor QEA LLC
Project: Central Waterfront Shoreline In

Matrix: Soil
Data Release Authorized: *[Signature]*
Reported: 11/07/12

ARI ID	Sample ID	Extraction Date	Analysis Date	EFV DL	Range/Surrogate	RL	Result
VP51A	CWSI-07-2-4	11/02/12	11/05/12	1.00	Diesel Range	6.0	230
12-21314	HC ID: DIESEL/MOTOR OIL		FID4A	1.0	Motor Oil Range o-Terphenyl	12	220 101%
MB-110212	Method Blank	11/02/12	11/05/12	1.00	Diesel Range	5.0	< 5.0 U
12-21315	HC ID: ---		FID4A	1.0	Motor Oil Range o-Terphenyl	10	< 10 U 95.3%
VP51B	CWSI-05-2-4	11/02/12	11/05/12	1.00	Diesel Range	5.7	69
12-21315	HC ID: DRO/MOTOR OIL		FID4A	1.0	Motor Oil Range o-Terphenyl	11	130 84.0%
VP51C	CWSI-05-7-9	11/02/12	11/05/12	1.00	Diesel Range	5.9	200
12-21316	HC ID: DIESEL/MOTOR OIL		FID4A	1.0	Motor Oil Range o-Terphenyl	12	250 78.1%
VP51D	CWSI-05-12-14	11/02/12	11/06/12	1.00	Diesel Range	29	420
12-21317	HC ID: DRO/RRO		FID4A	5.0	Motor Oil Range o-Terphenyl	58	590 84.4%
VP51E	CWSI-06-8-10	11/02/12	11/06/12	1.00	Diesel Range	76	1300
12-21318	HC ID: DRO/RRO		FID4A	10	Motor Oil Range o-Terphenyl	150	640 71.8%
VP51F	CWSI-06-12-14	11/02/12	11/05/12	1.00	Diesel Range	5.5	240
12-21319	HC ID: DRO/RRO		FID4A	1.0	Motor Oil Range o-Terphenyl	11	330 85.8%

Reported in mg/kg (ppm)

EFV-Effective Final Volume in mL.
DL-Dilution of extract prior to analysis.
RL-Reporting limit.

Diesel range quantitation on total peaks in the range from C12 to C24.
Motor Oil range quantitation on total peaks in the range from C24 to C38.
HC ID: DRO/RRO indicate results of organics or additional hydrocarbons in ranges are not identifiable.

Analytical Resources Inc.
TPH Quantitation Report

Data file: /chem3/fid4a.i/20121105.b/1105a007.d
Method: /chem3/fid4a.i/20121105.b/ftphfid4a.m
Instrument: fid4a.i
Operator: JR/VTS
Report Date: 11/07/2012
Macro: 01-NOV-2012
Calibration Dates: Gas:28-SEP-2012 Diesel:01-NOV-2012 M.Oil:09-OCT-2012

ARI ID: VP51MBS1
Client ID: VP51MBS1
Injection: 05-NOV-2012 16:58
Dilution Factor: 1

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc
Toluene	1.225	0.003	4242	4708	WATPHG	(Tol-C12)	102341	5.53
C8	1.471	0.006	679	1052	WATPHD	(C12-C24)	311845	21.43
C10	3.119	0.005	664	727	WATPHM	(C24-C38)	156731	<u>11.92</u>
C12	4.018	-0.010	623	766	AK102	(C10-C25)	350561	20.44
C14	4.707	-0.003	1114	584	AK103	(C25-C36)	131909	14.33
C16	5.301	0.003	3532	6624				
C18	5.853	-0.005	2211	1609				
C20	6.421	0.000	1738	2982	JET-A	(C10-C18)	240465	44.40
C22	6.972	0.002	1533	1423				
C24	7.490	-0.003	1117	2787				
C25	7.756	0.012	1428	3729				
C26	7.982	-0.003	1061	2489				
C28	8.441	-0.002	1834	1676				
C32	9.245	-0.014	1964	3529				
C34	9.657	0.018	754	473				
Filter Peak	11.361	-0.001	1445	1401	CREOSOT	(C12-C22)	282576	140.44 M
C36	10.027	0.023	1031	2502				
C38	10.357	-0.003	1005	1276				
C40	10.710	0.002	1317	3924				
o-terph	5.993	-0.002	1116390	825758				
Triacon Surr	8.866	-0.011	862186	801248	NAS DIES	(C10-C24)	344457	20.13

Range Times: NW Diesel (4.028 - 7.493) AK102 (3.11 - 7.74) Jet A (3.11 - 5.86)
NW M.Oil (7.49 - 10.36) AK103 (7.74 - 10.00) OR Diesel (3.11 - 8.44)

Surrogate	Area	Amount	%Rec
o-Terphenyl	825758	42.9	95.3
Triacontane	801248	42.5	94.4

Handwritten: 11/06/12
11/07/12

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	19248.4	01-NOV-2012
Triacon Surr	18864.5	09-OCT-2012
Gas	18517.9	28-SEP-2012
Diesel	14554.0	01-NOV-2012
Motor Oil	13149.3	09-OCT-2012
AK102	17149.0	01-NOV-2012
AK103	9202.1	25-SEP-2012
JetA	5416.5	11-AUG-2012
NAS Diesel	17108.0	01-NOV-2012
Creosote	2012.1	01-NOV-2011

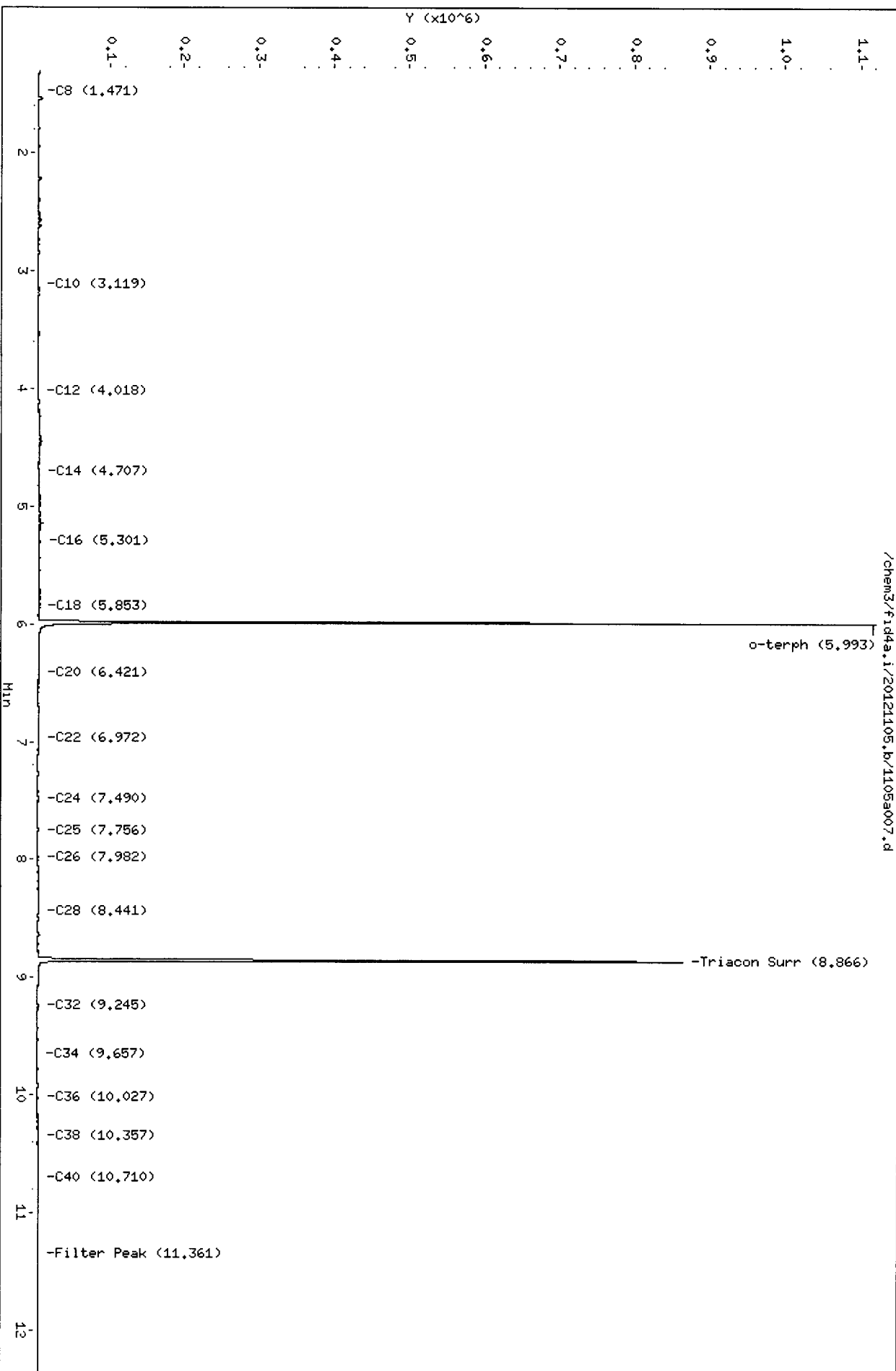
Data File: /chem3/fid4a.1/20121105.b/1105av07.d
Date: 05-NOV-2012 16:58
Client ID: VP51HBS1
Sample Info: VP51HBS1

Instrument: fid4a.1

Page 1

Column phase: RTX-1

Operator: JR/VTS
Column diameter: 0.25



VP51HBS1 : 000001

Analytical Resources Inc.
TPH Quantitation Report

Data file: /chem3/fid4a.i/20121105.b/1105a009.d

ARI ID: VP51A

Method: /chem3/fid4a.i/20121105.b/ftphfid4a.m

Client ID: CWSI-07-2-4

Instrument: fid4a.i

Injection: 05-NOV-2012 17:41

Operator: JR/VTS

Report Date: 11/07/2012

Dilution Factor: 1

Macro: 01-NOV-2012

Calibration Dates: Gas:28-SEP-2012 Diesel:01-NOV-2012 M.Oil:09-OCT-2012

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc
Toluene	1.224	0.002	24985	19487	WATPHG (Tol-C12)		683625	36.92
C8	1.457	-0.007	3027	4742	WATPHD (C12-C24)		27532064	1891.72
C10	3.113	0.000	13370	11203	WATPHM (C24-C38)		24532547	1865.70
C12	4.025	-0.002	39263	42794	AK102 (C10-C25)		29452598	1717.45
C14	4.706	-0.004	69520	57140	AK103 (C25-C36)		22268847	2419.98
C16	5.294	-0.005	122296	153126				
C18	5.853	-0.005	107300	117611				
C20	6.423	0.003	365353	283774	JET-A (C10-C18)		5885605	1086.61
C22	6.970	0.000	318290	510408				
C24	7.499	0.006	1093058	2338430				
C25	7.750	0.006	175568	219329				
C26	7.984	-0.001	168043	254449				
C28	8.446	0.003	191905	259602				
C32	9.256	-0.003	134472	121307				
C34	9.649	0.010	112678	210567				
Filter Peak	11.360	-0.002	4081	2853	CREOSOT (C12-C22)		19125427	9505.07 M
C36	10.002	-0.002	62543	59816				
C38	10.369	0.010	30919	10921				
C40	10.714	0.006	13035	16179				
o-terph	5.999	0.004	916907	876848				
Triacon Surr	8.872	-0.005	762976	701503	NAS DIES (C10-C24)		28054088	1639.82

Range Times: NW Diesel (4.028 - 7.493) AK102 (3.11 - 7.74) Jet A (3.11 - 5.86)
NW M.Oil (7.49 - 10.36) AK103 (7.74 - 10.00) OR Diesel (3.11 - 8.44)

M 11/07/12

Surrogate	Area	Amount	%Rec
o-Terphenyl	876848	45.6	101.2 M
Triacontane	701503	37.2	82.6 M

M Indicates the peak was manually integrated

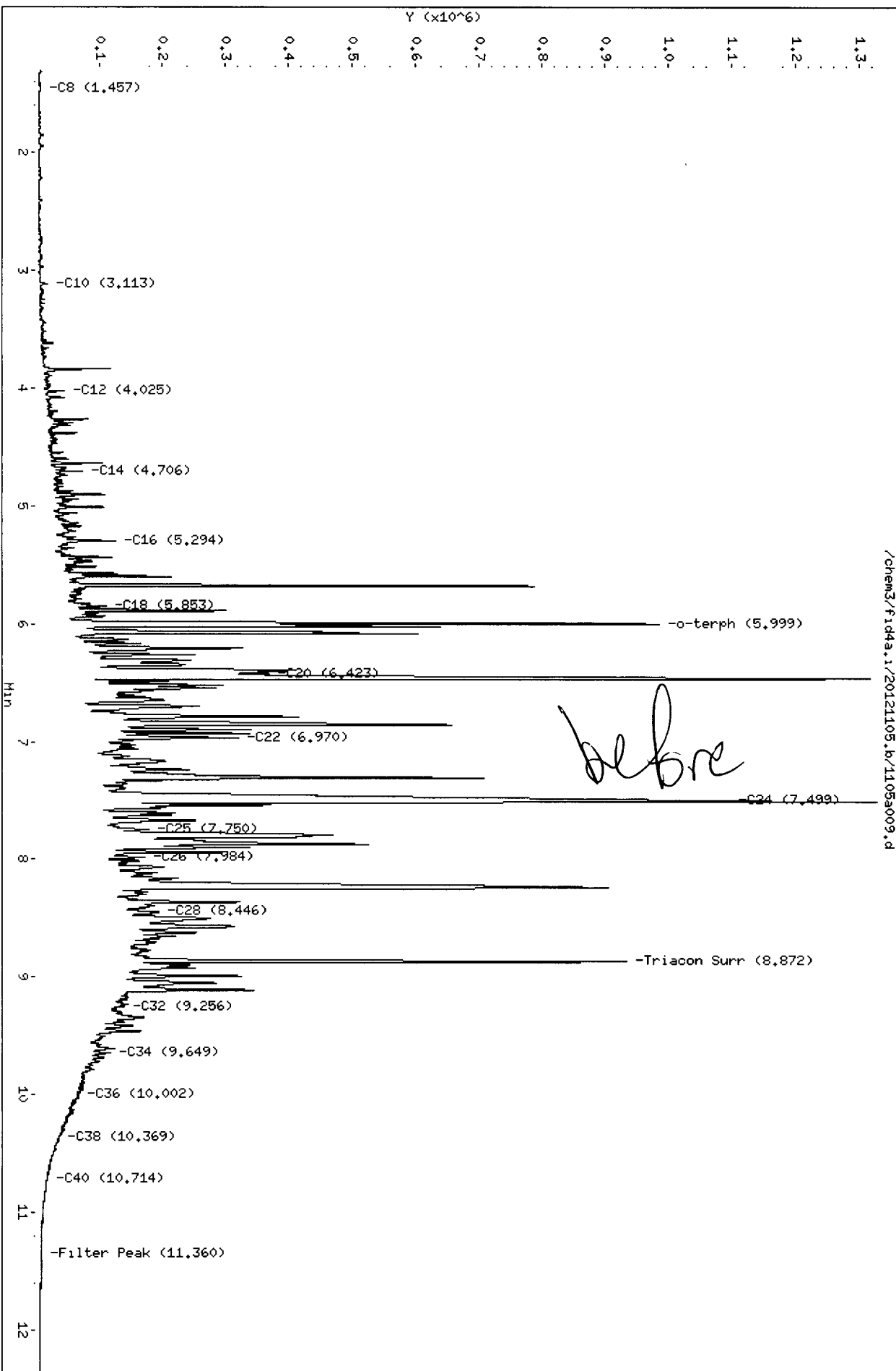
Analyte	RF	Curve Date
o-Terph Surr	19248.4	01-NOV-2012
Triacon Surr	18864.5	09-OCT-2012
Gas	18517.9	28-SEP-2012
Diesel	14554.0	01-NOV-2012
Motor Oil	13149.3	09-OCT-2012
AK102	17149.0	01-NOV-2012
AK103	9202.1	25-SEP-2012
JetA	5416.5	11-AUG-2012
NAS Diesel	17108.0	01-NOV-2012
Creosote	2012.1	01-NOV-2011

Data File: /chem3/fid4a.i/20121105.b/1105a009.d
Date: 05-NOV-2012 17:41
Client ID: CMSI-07-2-4
Sample Info: VP51A

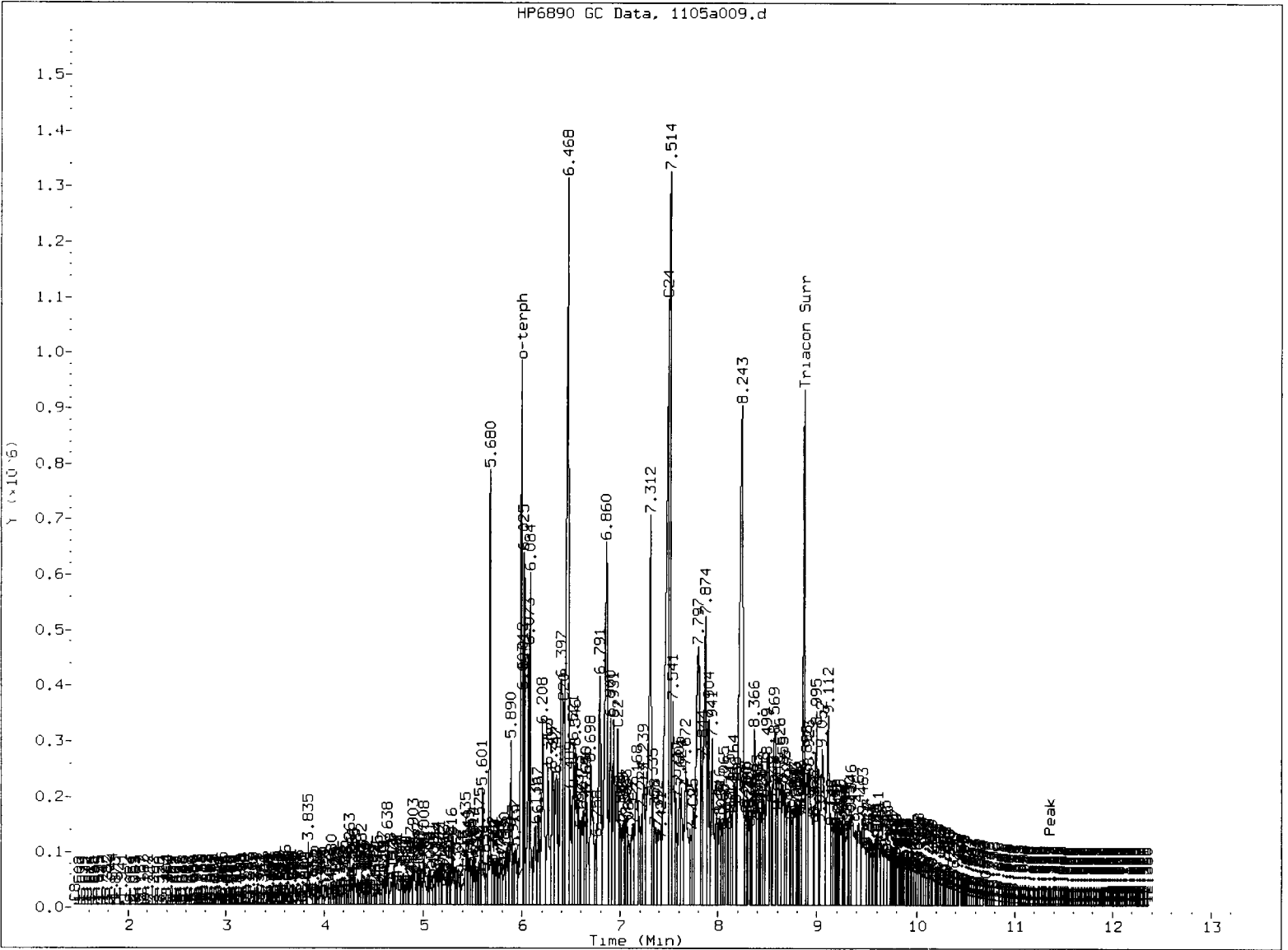
Column phase: RTX-1

Instrument: fid4a.1
Operator: JR/VTS
Column diameter: 0.25

/chem3/fid4a.i/20121105.b/1105a009.d



1105009



MANUAL INTEGRATION

- 1. Baseline correction
- 3. Peak not found
- 5. Skipped surrogate

Analyst: m

Date: 11/07/12

Analytical Resources Inc.
TPH Quantitation Report

Data file: /chem3/fid4a.i/20121105.b/1105a010.d

ARI ID: VP51B

Method: /chem3/fid4a.i/20121105.b/ftphfid4a.m

Client ID: CWSI-05-2-4

Instrument: fid4a.i

Injection: 05-NOV-2012 18:02

Operator: JR/VTS

Report Date: 11/07/2012

Dilution Factor: 1

Macro: 01-NOV-2012

Calibration Dates: Gas:28-SEP-2012 Diesel:01-NOV-2012 M.Oil:09-OCT-2012

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc
Toluene	1.224	0.002	38862	31320	WATPHG	(Tol-C12)	478792	25.86
C8	1.457	-0.008	3369	5391	WATPHD	(C12-C24)	8831200	<u>606.79</u>
C10	3.116	0.002	8221	8622	WATPHM	(C24-C38)	15040056	<u>1143.79</u>
C12	4.028	0.000	20081	24118	AK102	(C10-C25)	9997847	583.00
C14	4.709	-0.002	25871	29176	AK103	(C25-C36)	13658356	1484.27
C16	5.294	-0.005	30719	43725				
C18	5.854	-0.004	42965	71263				
C20	6.415	-0.006	70197	78752	JET-A	(C10-C18)	2403480	443.73
C22	6.963	-0.007	95887	113145				
C24	7.489	-0.004	122660	216959				
C25	7.740	-0.004	133530	211597				
C26	7.983	-0.002	132380	248684				
C28	8.440	-0.002	162672	272938				
C32	9.244	-0.016	89688	148789				
C34	9.640	0.001	53284	102875				
Filter Peak	11.363	0.000	2982	2275	CREOSOT	(C12-C22)	5958110	2961.10 M
C36	10.000	-0.004	37864	14581				
C38	10.368	0.008	18975	13738				
C40	10.704	-0.004	8140	11338				
o-terph	5.993	-0.002	974585	727224				
Triacon Surr	8.867	-0.010	817724	808950	NAS DIES	(C10-C24)	9139951	534.25

Range Times: NW Diesel (4.028 - 7.493) AK102 (3.11 - 7.74) Jet A (3.11 - 5.86)
 NW M.Oil (7.49 - 10.36) AK103 (7.74 - 10.00) OR Diesel (3.11 - 8.44)

Surrogate	Area	Amount	%Rec
o-Terphenyl	727224	37.8	84.0 M
Triacontane	808950	42.9	95.3 M

Handwritten signature
11/07/12

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	19248.4	01-NOV-2012
Triacon Surr	18864.5	09-OCT-2012
Gas	18517.9	28-SEP-2012
Diesel	14554.0	01-NOV-2012
Motor Oil	13149.3	09-OCT-2012
AK102	17149.0	01-NOV-2012
AK103	9202.1	25-SEP-2012
JetA	5416.5	11-AUG-2012
NAS Diesel	17108.0	01-NOV-2012
Creosote	2012.1	01-NOV-2011

Data File: /chem3/fid4a.i/20121105.b/1105a010.d

Date: 05-NOV-2012 18:02

Client ID: CMSI-05-2-4

Sample Info: VPSIB

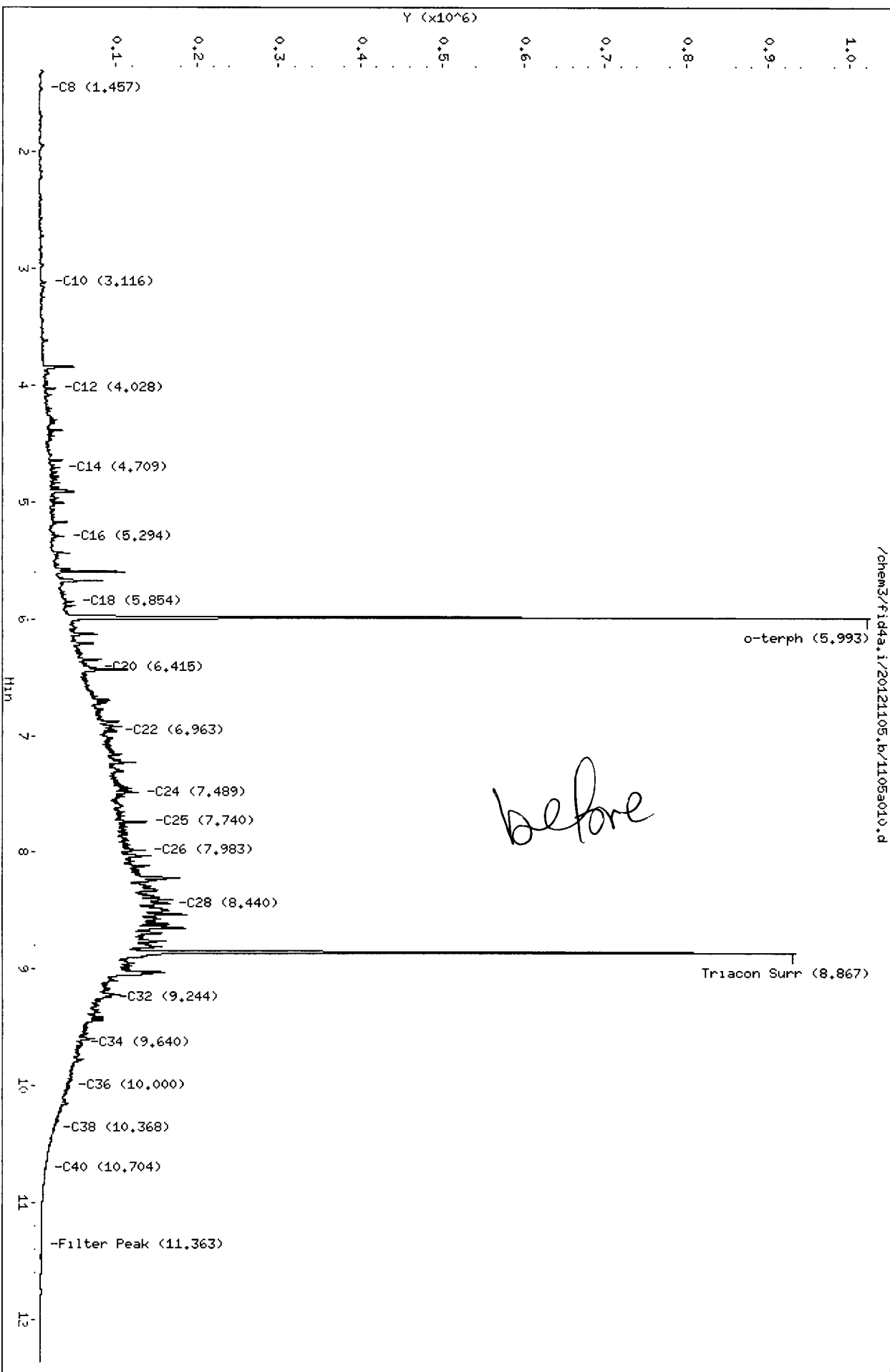
Column phase: RTX-1

Instrument: fid4a.i

Operator: JR/VTS

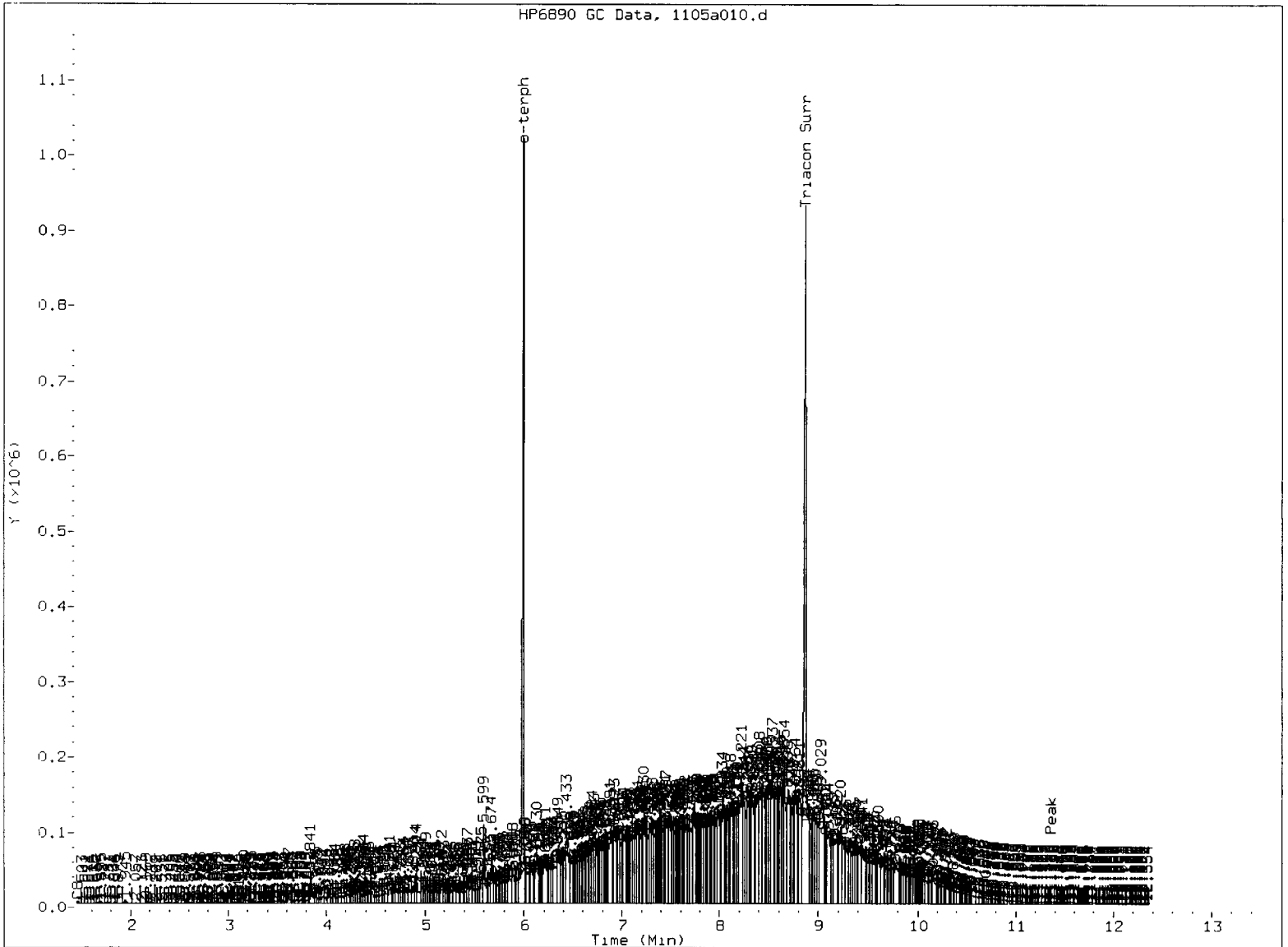
Column diameter: 0.25

Page 1



000000

HP6890 GC Data, 1105a010.d



MANUAL INTEGRATION

- 1. Baseline correction
- 3. Peak not found
- 5) Skipped surrogate

Analyst: *JP*

Date: 11/07/12

Analytical Resources Inc.
TPH Quantitation Report

Data file: /chem3/fid4a.i/20121105.b/1105a013.d

ARI ID: VP51C

Method: /chem3/fid4a.i/20121105.b/ftphfid4a.m

Client ID: CWSI-05-7-9

Instrument: fid4a.i

Injection: 05-NOV-2012 19:07

Operator: JR/VTS

Report Date: 11/07/2012

Dilution Factor: 1

Macro: 01-NOV-2012

Calibration Dates: Gas:28-SEP-2012 Diesel:01-NOV-2012 M.Oil:09-OCT-2012

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc
Toluene	1.232	0.010	41419	32804	WATPHG (Tol-C12)		984677	53.17
C8	1.472	0.007	8763	13146	WATPHD (C12-C24)		24090158	1655.23
C10	3.116	0.003	35227	28106	WATPHM (C24-C38)		27551471	2095.29
C12	4.026	-0.001	45632	45569	AK102 (C10-C25)		26269569	1531.84
C14	4.707	-0.004	90463	78356	AK103 (C25-C36)		24558985	2668.85
C16	5.296	-0.003	130021	235572				
C18	5.858	0.000	164632	260878				
C20	6.421	0.000	199072	316479	JET-A (C10-C18)		8852787	1634.41
C22	6.973	0.003	192432	218659				
C24	7.493	0.000	202869	305667				
C25	7.747	0.003	212004	308114				
C26	7.988	0.003	207000	138563				
C28	8.440	-0.002	280728	393304				
C32	9.268	0.009	191116	360141				
C34	9.631	-0.008	161811	341970				
Filter Peak	11.362	0.000	5051	8518	CREOSOT (C12-C22)		18704389	9295.82 M
C36	9.988	-0.016	107078	214795				
C38	10.366	0.007	53483	78268				
C40	10.719	0.011	20264	10935				
o-terph	5.998	0.003	915015	676515				
Triacon Surr	8.881	0.004	849631	723558	NAS DIES (C10-C24)		24676761	1442.41

Range Times: NW Diesel (4.028 - 7.493) AK102 (3.11 - 7.74) Jet A (3.11 - 5.86)
 NW M.Oil (7.49 - 10.36) AK103 (7.74 - 10.00) OR Diesel (3.11 - 8.44)

Handwritten signature
11/07/12

Surrogate	Area	Amount	%Rec
o-Terphenyl	676515	35.1	78.1 M
Triacontane	723558	38.4	85.2 M

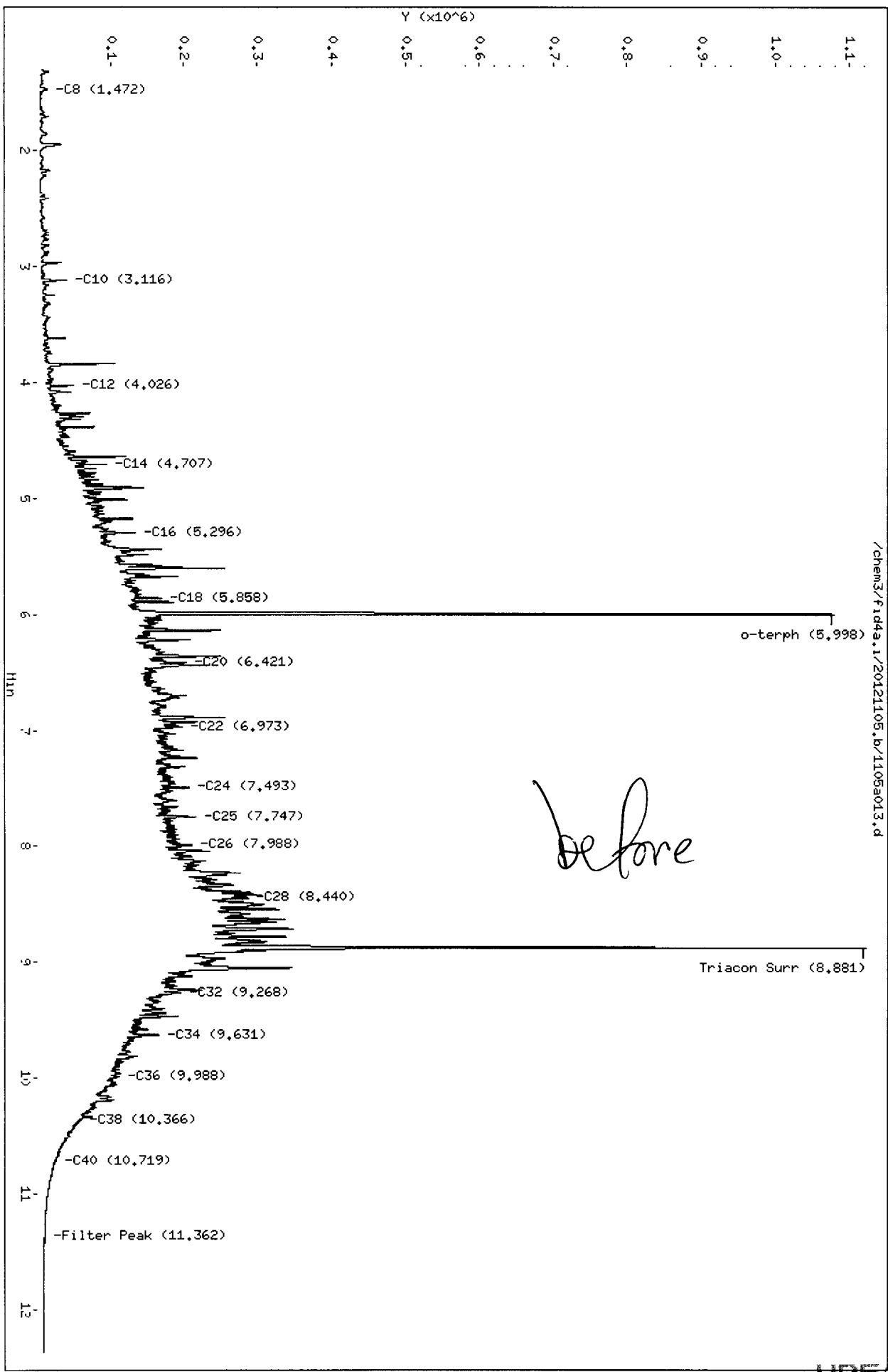
M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	19248.4	01-NOV-2012
Triacon Surr	18864.5	09-OCT-2012
Gas	18517.9	28-SEP-2012
Diesel	14554.0	01-NOV-2012
Motor Oil	13149.3	09-OCT-2012
AK102	17149.0	01-NOV-2012
AK103	9202.1	25-SEP-2012
JetA	5416.5	11-AUG-2012
NAS Diesel	17108.0	01-NOV-2012
Creosote	2012.1	01-NOV-2011

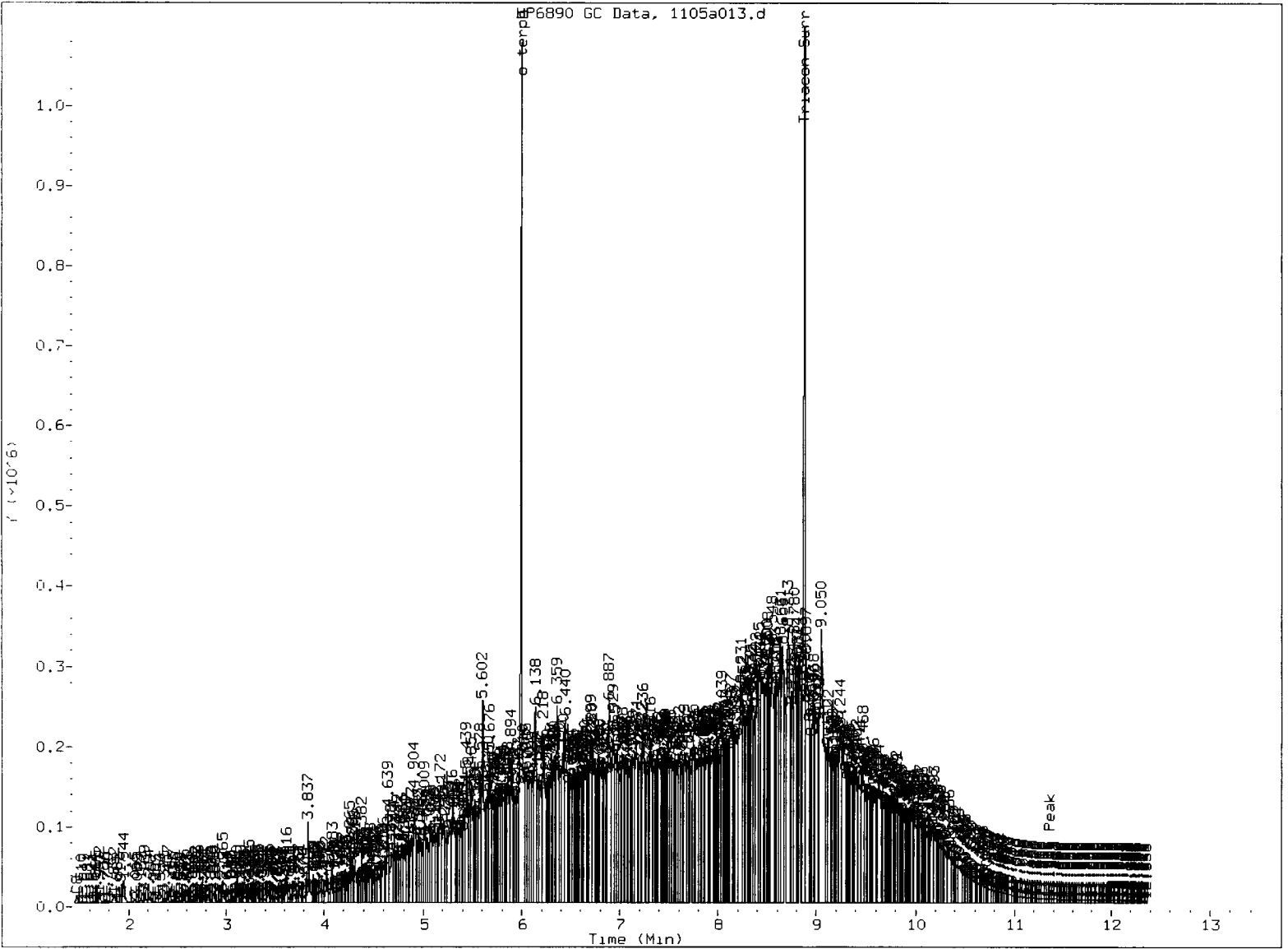
Data File: /chem3/f1d4a.1/20121105.b/1105a013.d
Date : 05-NOV-2012 19:07
Client ID: CMSI-05-7-9
Sample Info: VP51C

Column phase: RTX-1

Instrument: f1d4a.1
Operator: JR/NTS
Column diameter: 0.25



00070000



MANUAL INTEGRATION

- 1. Baseline correction
- 3. Peak not found
- 5. Skipped surrogate

Analyst: *R*

Date: 11/07/12

Analytical Resources Inc.
TPH Quantitation Report

Data file: /chem3/fid4a.i/20121106.b/1106a006.d
Method: /chem3/fid4a.i/20121105.b/ftphfid4a.m
Instrument: fid4a.i
Operator: JR/VTS
Report Date: 11/07/2012
Macro: 01-NOV-2012
Calibration Dates: Gas:28-SEP-2012 Diesel:01-NOV-2012 M.Oil:09-OCT-2012

ARI ID: VP51D
Client ID: CWSI-05-12-14
Injection: 06-NOV-2012 12:58
Dilution Factor: 5

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc
Toluene	1.218	-0.004	37470	39865	WATPHG	(Tol-C12)	1720781	92.93
C8	1.450	-0.014	50845	45390	WATPHD	(C12-C24)	10654445	732.06
C10	3.117	0.003	23195	16145	WATPHM	(C24-C38)	13343480	1014.77
C12	4.026	-0.002	19716	26625	AK102	(C10-C25)	12279092	716.02
C14	4.711	0.000	31617	40036	AK103	(C25-C36)	12048589	1309.33
C16	5.294	-0.005	40009	58044				
C18	5.854	-0.004	54639	83434				
C20	6.416	-0.005	70024	47459	JET-A	(C10-C18)	4679466	863.93
C22	6.967	-0.003	79472	142582				
C24	7.487	-0.005	95258	112562				
C25	7.741	-0.003	95773	154843				
C26	7.985	-0.001	98109	75826				
C28	8.444	0.002	132892	190486				
C32	9.265	0.006	87301	146290				
C34	9.635	-0.004	65530	124357				
Filter Peak	11.348	-0.015	2559	4747	CREOSOT	(C12-C22)	8145033	4047.97 M
C36	9.997	-0.007	39543	40529				
C38	10.368	0.008	22045	7329				
C40	10.705	-0.003	10079	14205				
o-terph	5.988	-0.007	246000	146343				
Triacon Surr	8.867	-0.010	245792	178112	NAS DIES	(C10-C24)	11551627	675.22

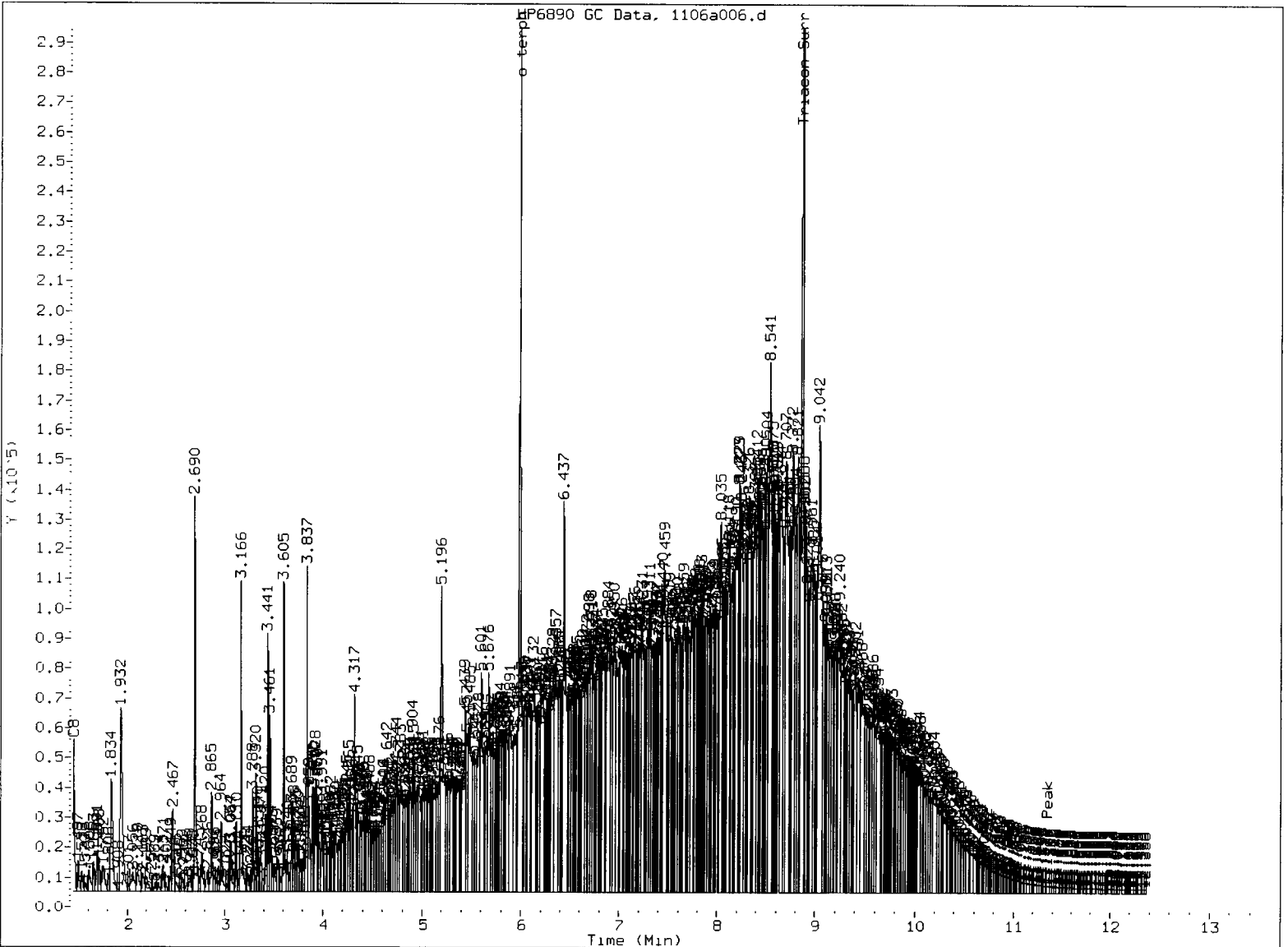
Range Times: NW Diesel (4.028 - 7.493) AK102 (3.11 - 7.74) Jet A (3.11 - 5.86)
NW M.Oil (7.49 - 10.36) AK103 (7.74 - 10.00) OR Diesel (3.11 - 8.44)

Surrogate	Area	Amount	%Rec
o-Terphenyl	146343	7.6	84.5 M
Triacontane	178112	9.4	104.9 M

JR 11/07/12

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	19248.4	01-NOV-2012
Triacon Surr	18864.5	09-OCT-2012
Gas	18517.9	28-SEP-2012
Diesel	14554.0	01-NOV-2012
Motor Oil	13149.3	09-OCT-2012
AK102	17149.0	01-NOV-2012
AK103	9202.1	25-SEP-2012
JetA	5416.5	11-AUG-2012
NAS Diesel	17108.0	01-NOV-2012
Creosote	2012.1	01-NOV-2011



MANUAL INTEGRATION

- 1. Baseline correction
- 3. Peak not found
- 5. Skipped surrogate

Analyst: JA

Date: 11/07/12

Analytical Resources Inc.
TPH Quantitation Report

Data file: /chem3/fid4a.i/20121106.b/1106a007.d ARI ID: VP51E
 Method: /chem3/fid4a.i/20121105.b/ftphfid4a.m Client ID: CWSI-06-8-10
 Instrument: fid4a.i Injection: 06-NOV-2012 13:20
 Operator: JR/VTS
 Report Date: 11/07/2012 Dilution Factor: 10
 Macro: 01-NOV-2012
 Calibration Dates: Gas:28-SEP-2012 Diesel:01-NOV-2012 M.Oil:09-OCT-2012

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc
Toluene	1.221	0.000	3319	2452	WATPHG	(Tol-C12)	2204280	119.04
C8	1.467	0.003	10050	9937	WATPHD	(C12-C24)	12261364	842.47
C10	3.116	0.003	26650	26120	WATPHM	(C24-C38)	5573427	423.86
C12	4.023	-0.005	53895	65205	AK102	(C10-C25)	14183437	827.07
C14	4.710	0.000	68209	60542	AK103	(C25-C36)	5022743	545.83
C16	5.298	-0.001	81211	103882				
C18	5.854	-0.003	74537	100480				
C20	6.427	0.007	55183	56067	JET-A	(C10-C18)	9334055	1723.27
C22	6.963	-0.007	43737	89119				
C24	7.487	-0.005	41080	51077				
C25	7.735	-0.008	41098	53477				
C26	7.979	-0.006	41747	78928				
C28	8.437	-0.006	55452	93224				
C32	9.248	-0.012	35696	45437				
C34	9.644	0.005	22495	5768				
Filter Peak	11.374	0.012	1858	2726	CREOSOT	(C12-C22)	11097053	5515.08 M
C36	9.997	-0.006	18856	22782				
C38	10.353	-0.007	11371	18805				
C40	10.721	0.014	4789	4319				
o-terph	8.853	2.858	85629	62219				
Triacon Surr	8.853	-0.023	85629	62219	NAS DIES	(C10-C24)	13910318	813.09

Range Times: NW Diesel(4.028 - 7.493) AK102(3.11 - 7.74) Jet A(3.11 - 5.86)
 NW M.Oil(7.49 - 10.36) AK103(7.74 - 10.00) OR Diesel(3.11 - 8.44)

Surrogate	Area	Amount	%Rec
o-Terphenyl	62219	3.2	71.8 M
Triacotane	62219	3.3	73.3 M

JR 11/07/12

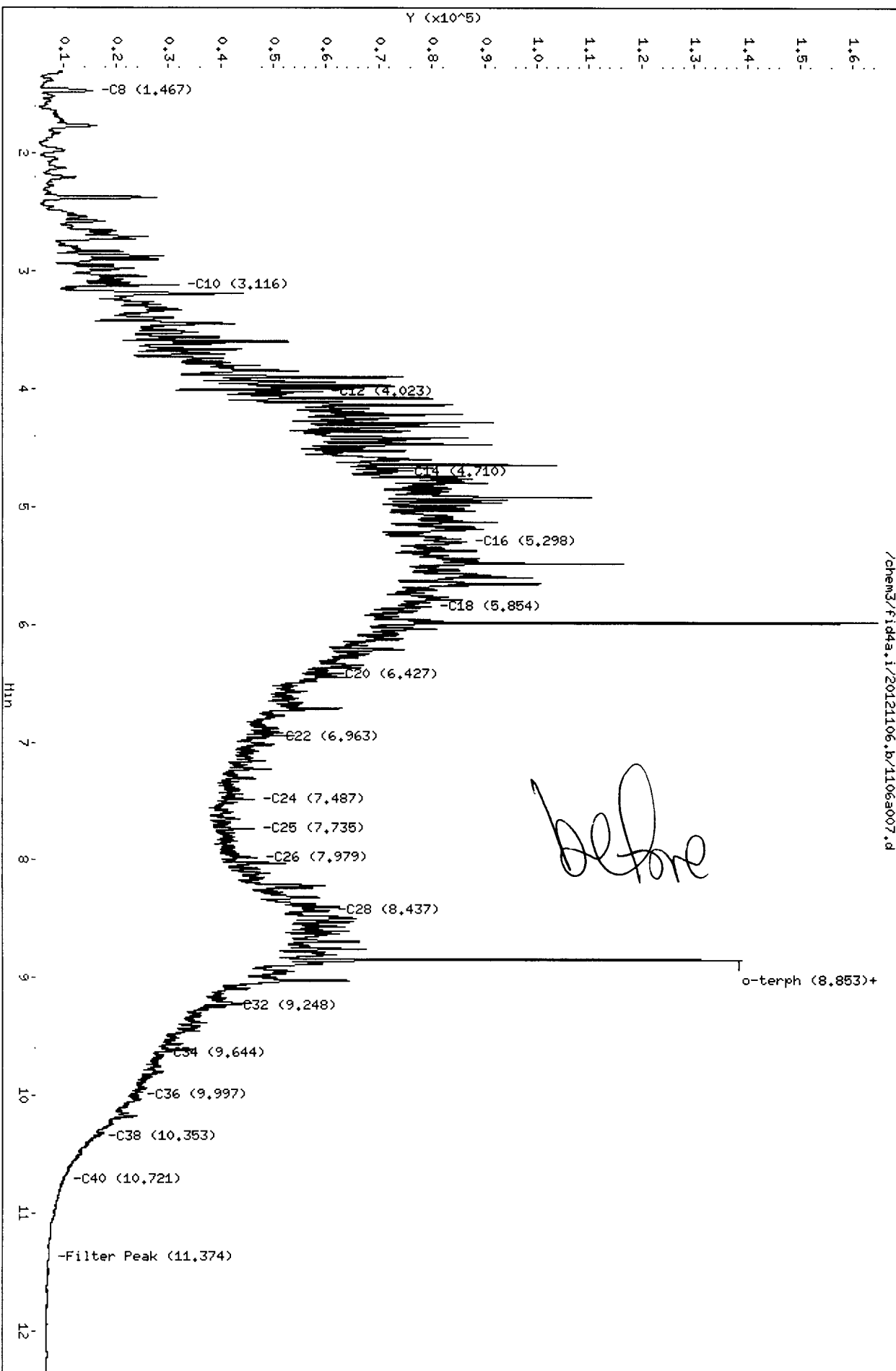
M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	19248.4	01-NOV-2012
Triacon Surr	18864.5	09-OCT-2012
Gas	18517.9	28-SEP-2012
Diesel	14554.0	01-NOV-2012
Motor Oil	13149.3	09-OCT-2012
AK102	17149.0	01-NOV-2012
AK103	9202.1	25-SEP-2012
JetA	5416.5	11-AUG-2012
NAS Diesel	17108.0	01-NOV-2012
Creosote	2012.1	01-NOV-2011

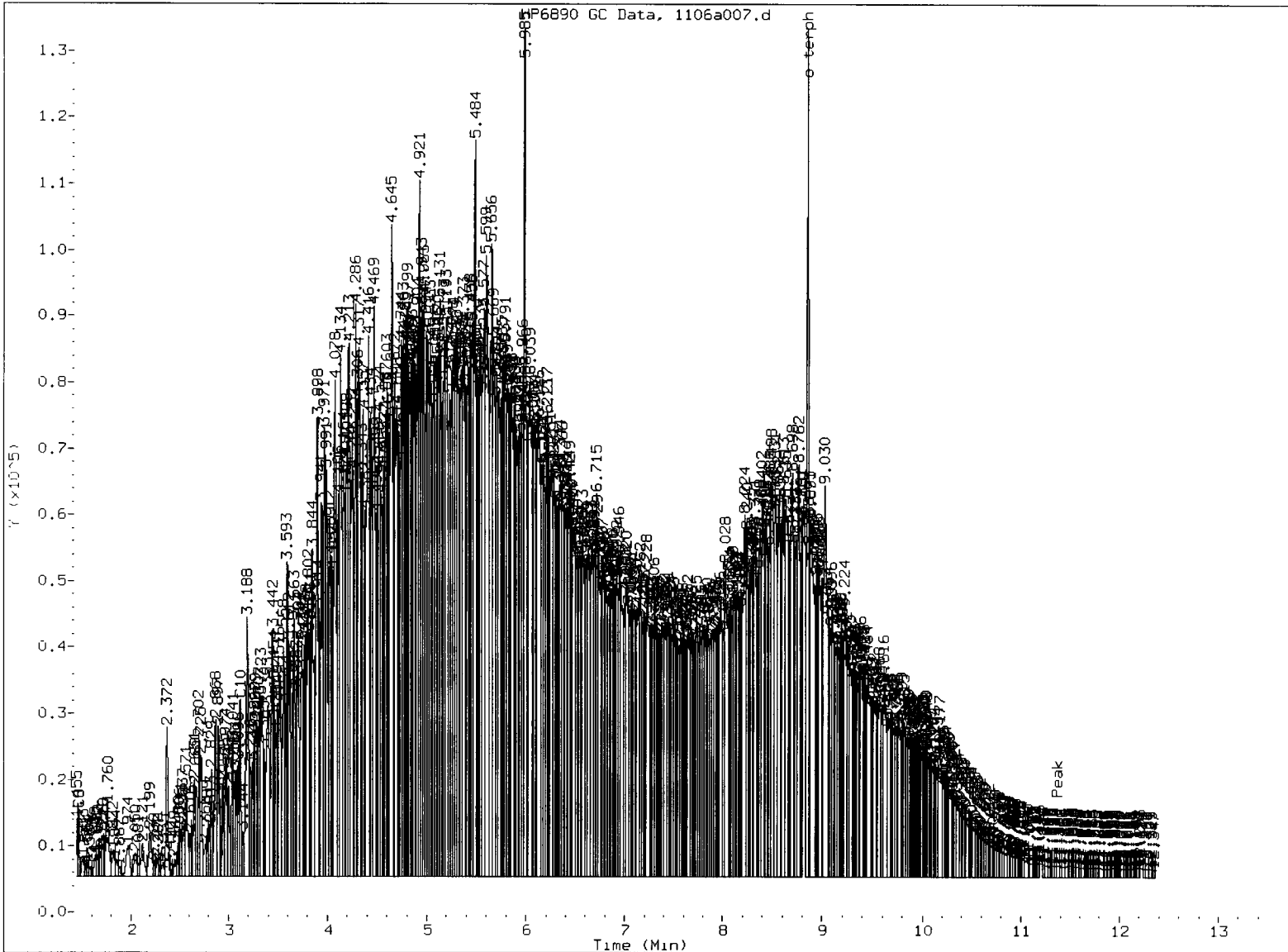
Data File: /chem3/fid4a.1/20121106.b/1106a007.d
Date : 06-NOV-2012 13:20
Client ID: CMSI-06-8-10
Sample Info: VP51E,10

Column phase: RTX-1

Instrument: fid4a.1
Operator: JR/VTS
Column diameter: 0.25



VP51E 00070



MANUAL INTEGRATION

- 1. Baseline correction
- 3. Peak not found
- 5. Skipped surrogate

Analyst: *n*

Date: 11/09/12

Analytical Resources Inc.
TPH Quantitation Report

Data file: /chem3/fid4a.i/20121105.b/1105a016.d
Method: /chem3/fid4a.i/20121105.b/ftphfid4a.m
Instrument: fid4a.i
Operator: JR/VTS
Report Date: 11/07/2012
Macro: 01-NOV-2012
Calibration Dates: Gas:28-SEP-2012 Diesel:01-NOV-2012 M.Oil:09-OCT-2012

ARI ID: VP51F
Client ID: CWSI-06-12-14
Injection: 05-NOV-2012 20:12

Dilution Factor: 1

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc
Toluene	1.223	0.001	75149	40399	WATPHG	(Tol-C12)	3477122	187.77
C8	1.454	-0.011	61562	64054	WATPHD	(C12-C24)	32270659	2217.31
C10	3.115	0.002	40503	32815	WATPHM	(C24-C38)	38984770	<u>2964.79</u>
C12	4.024	-0.004	47766	61620	AK102	(C10-C25)	35967905	2097.38
C14	4.708	-0.002	71114	75594	AK103	(C25-C36)	35741292	3884.05
C16	5.296	-0.002	109946	119907				
C18	5.856	-0.001	175275	250956				
C20	6.411	-0.009	234038	394481	JET-A	(C10-C18)	11437828	2111.67
C22	6.980	0.010	249990	202208				
C24	7.489	-0.004	272833	80158				
C25	7.752	0.008	283259	254414				
C26	7.987	0.002	294508	383100				
C28	8.449	0.007	390893	204714				
C32	9.256	-0.003	240703	410124				
C34	9.634	-0.005	144905	85974				
Filter Peak	11.366	0.004	5644	5924	CREOSOT	(C12-C22)	23990500	11922.94 M
C36	9.999	-0.004	106752	136816				
C38	10.364	0.005	43777	68703				
C40	10.706	-0.002	15229	14990				
o-terph	5.999	0.004	965024	743195				
Triacon Surr	8.880	0.004	814220	735275	NAS DIES	(C10-C24)	33980210	1986.22

Range Times: NW Diesel(4.028 - 7.493) AK102(3.11 - 7.74) Jet A(3.11 - 5.86)
NW M.Oil(7.49 - 10.36) AK103(7.74 - 10.00) OR Diesel(3.11 - 8.44)

Surrogate	Area	Amount	%Rec
o-Terphenyl	743195	38.6	85.8 M
Triacontane	735275	39.0	86.6 M

R 11/07/12

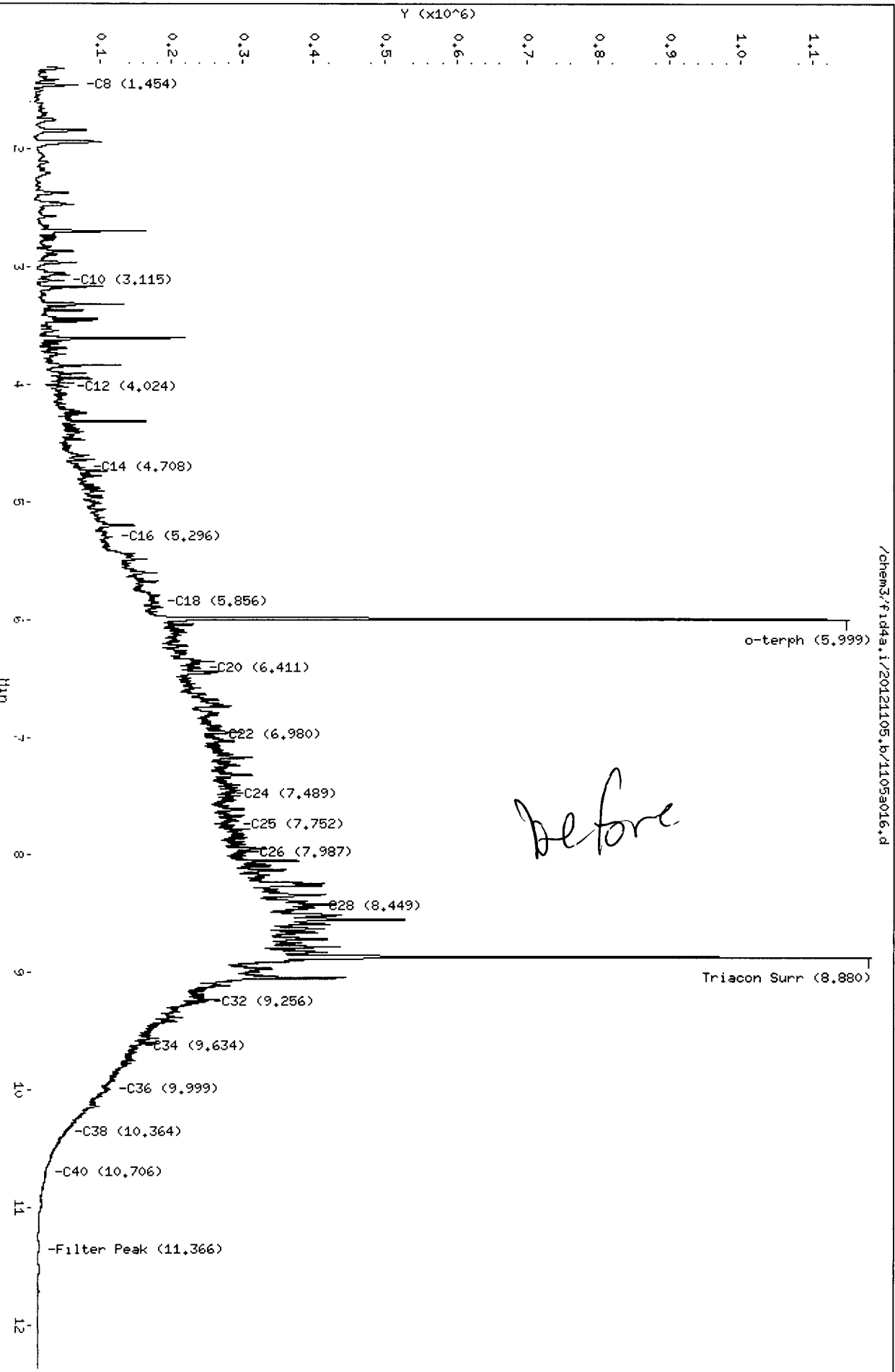
M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	19248.4	01-NOV-2012
Triacon Surr	18864.5	09-OCT-2012
Gas	18517.9	28-SEP-2012
Diesel	14554.0	01-NOV-2012
Motor Oil	13149.3	09-OCT-2012
AK102	17149.0	01-NOV-2012
AK103	9202.1	25-SEP-2012
JetA	5416.5	11-AUG-2012
NAS Diesel	17108.0	01-NOV-2012
Creosote	2012.1	01-NOV-2011

Data File: /chem3/fid4a.i/20121105.b/1105a016.d
Date : 05-NOV-2012 20:12
Client ID: CMSI-06-12-14
Sample Info: VP51F

Column phase: RTX-1

Instrument: fid4a.1
Operator: JR/VTS
Column diameter: 0.25



1105a016.d

CLEANED TPHD SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: VP51-Anchor QEA LLC
Project: Central Waterfront Shoreline Inves.

<u>Client ID</u>	<u>OTER</u>	<u>TOT OUT</u>
CWSI-07-2-4	101%	0
MB-110212	95.3%	0
LCS-110212	95.7%	0
CWSI-05-2-4	84.0%	0
CWSI-05-2-4 MS	75.1%	0
CWSI-05-2-4 MSD	83.5%	0
CWSI-05-7-9	78.1%	0
CWSI-05-12-14	84.4%	0
CWSI-06-8-10	71.8%	0
CWSI-06-12-14	85.8%	0

LCS/MB LIMITS QC LIMITS

(OTER) = o-Terphenyl

(50-150)

(50-150)

Prep Method: SW3546
Log Number Range: 12-21314 to 12-21319

ORGANICS ANALYSIS DATA SHEET

NWTPHD by GC/FID-Silica and Acid Cleaned

Page 1 of 1

Sample ID: CWSI-05-2-4

MS/MSD

Lab Sample ID: VP51B

LIMS ID: 12-21315

Matrix: Soil

Data Release Authorized: *[Signature]*

Reported: 11/07/12

QC Report No: VP51-Anchor QEA LLC

Project: Central Waterfront Shoreline Inves.

Date Sampled: 10/26/12

Date Received: 10/27/12

Date Extracted MS/MSD: 11/02/12

Sample Amount MS: 8.78 g-dry-wt

MSD: 8.49 g-dry-wt

Date Analyzed MS: 11/05/12 18:24

Final Extract Volume MS: 1.0 mL

MSD: 11/05/12 18:46

MSD: 1.0 mL

Instrument/Analyst MS: FID/JGR

Dilution Factor MS: 1.0

MSD: FID/JGR

MSD: 1.0

Percent Moisture: 18.7%

Range	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Diesel	69	173	171	60.8%	187	177	66.7%	7.8%

TPHD Surrogate Recovery

	MS	MSD
o-Terphenyl	75.1%	83.5%

Results reported in mg/kg

RPD calculated using sample concentrations per SW846.

Analytical Resources Inc.
TPH Quantitation Report

Data file: /chem3/fid4a.i/20121105.b/1105a011.d
Method: /chem3/fid4a.i/20121105.b/ftphfid4a.m
Instrument: fid4a.i
Operator: JR/VTS
Report Date: 11/07/2012
Macro: 01-NOV-2012
Calibration Dates: Gas:28-SEP-2012 Diesel:01-NOV-2012 M.Oil:09-OCT-2012

ARI ID: VP51BMS
Client ID: CWSI-05-2-4 MS
Injection: 05-NOV-2012 18:24
Dilution Factor: 1

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc
Toluene	1.224	0.002	35317	25306	WATPHG	(Tol-C12)	3975170	214.67
C8	1.457	-0.008	7192	10424	WATPHD	(C12-C24)	22124647	1520.18
C10	3.111	-0.003	121116	84236	WATPHM	(C24-C38)	12331937	937.84
C12	4.025	-0.002	216399	193074	AK102	(C10-C25)	25688692	1497.97
C14	4.708	-0.003	341055	237732	AK103	(C25-C36)	11064573	1202.40
C16	5.297	-0.001	503787	436965				
C18	5.859	0.001	415485	432976				
C20	6.420	-0.001	326367	329607	JET-A	(C10-C18)	14887551	2748.56
C22	6.968	-0.002	213346	240035				
C24	7.488	-0.004	136229	214798				
C25	7.739	-0.004	122438	170927				
C26	7.980	-0.005	106412	177274				
C28	8.438	-0.004	126203	228046				
C32	9.260	0.000	70181	135697				
C34	9.628	-0.011	53297	72136				
Filter Peak	11.344	-0.018	2593	7129	CREOSOT	(C12-C22)	19191237	9537.78 M
C36	10.010	0.006	30351	19567				
C38	10.351	-0.009	19138	27448				
C40	10.722	0.014	7379	4067				
o-terph	5.994	-0.001	904445	650253				
Triacon Surr	8.871	-0.006	691479	656003	NAS DIES	(C10-C24)	24883588	1454.50

Range Times: NW Diesel (4.028 - 7.493) AK102 (3.11 - 7.74) Jet A (3.11 - 5.86)
NW M.Oil (7.49 - 10.36) AK103 (7.74 - 10.00) OR Diesel (3.11 - 8.44)

Surrogate	Area	Amount	%Rec
o-Terphenyl	650253	33.8	75.1 M
Triacontane	656003	34.8	77.3 M

Handwritten signature and date: 11/07/12

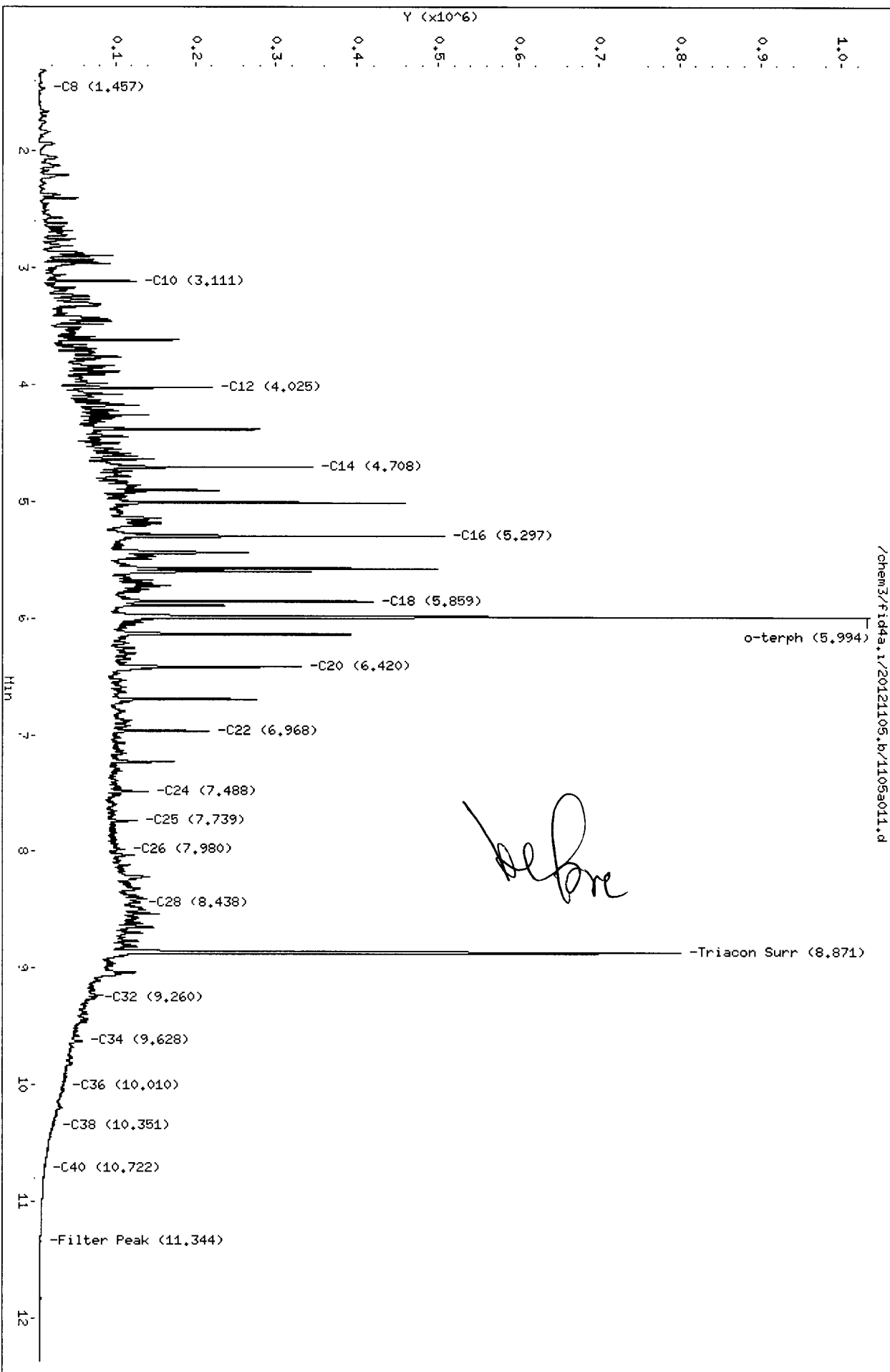
M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	19248.4	01-NOV-2012
Triacon Surr	18864.5	09-OCT-2012
Gas	18517.9	28-SEP-2012
Diesel	14554.0	01-NOV-2012
Motor Oil	13149.3	09-OCT-2012
AK102	17149.0	01-NOV-2012
AK103	9202.1	25-SEP-2012
JetA	5416.5	11-AUG-2012
NAS Diesel	17108.0	01-NOV-2012
Creosote	2012.1	01-NOV-2011

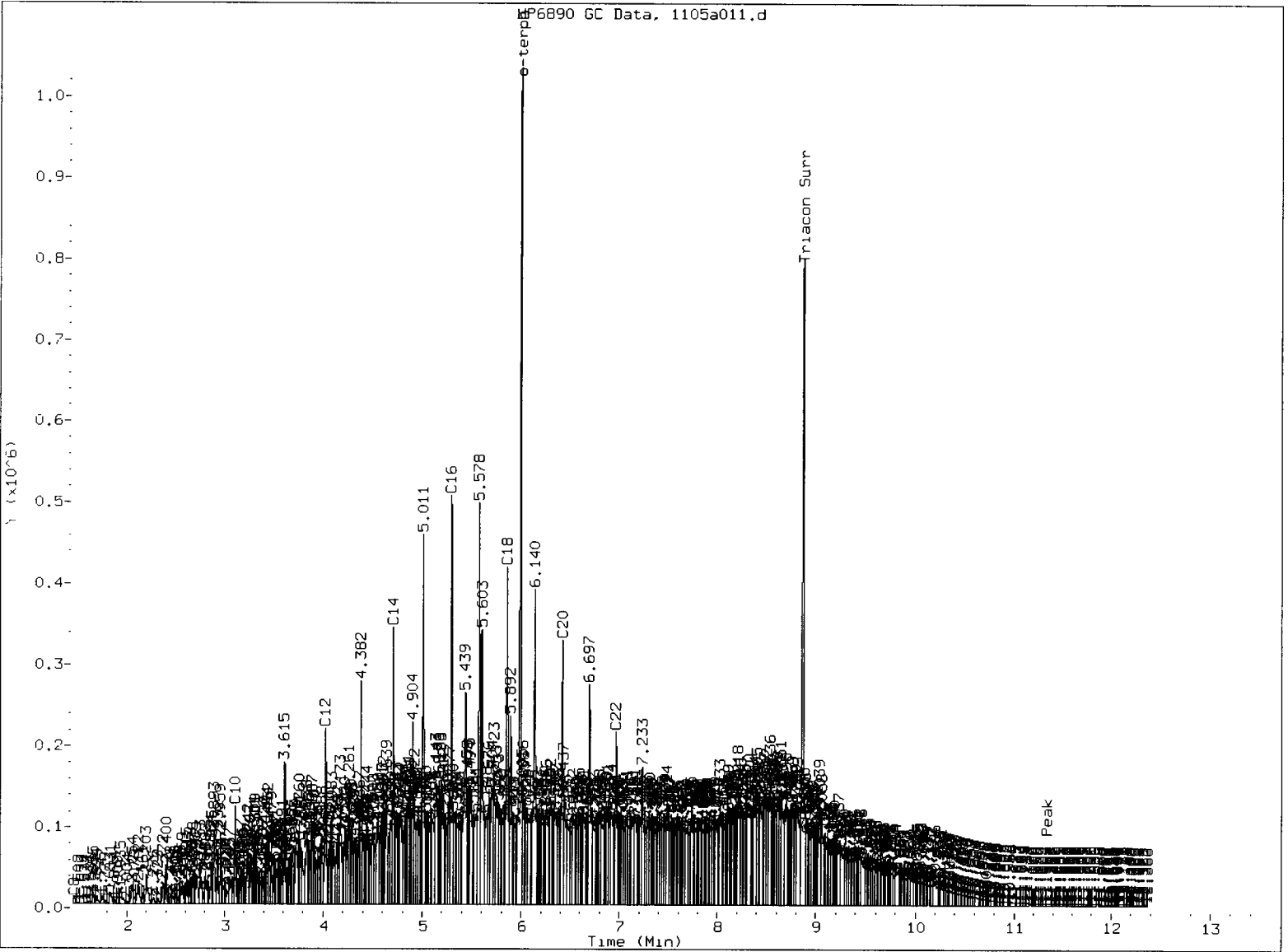
Data File: /chem3/f1d4a.1/20121105.b/1105a011.d
Date: 05-NOV-2012 18:24
Client ID: CMSI-05-2-4 MS
Sample Info: VPS1BMS

Column phase: RTX-1

Instrument: f1d4a.1
Operator: JR/VTS
Column diameter: 0.25



000000 : 000000



MANUAL INTEGRATION

- 1. Baseline correction
- 3. Peak not found
- 5. Skimmed surrogate

Analyst: *je*

Date: 11/07/12

Analytical Resources Inc.
TPH Quantitation Report

Data file: /chem3/fid4a.i/20121105.b/1105a012.d

ARI ID: VP51BMSD

Method: /chem3/fid4a.i/20121105.b/ftphfid4a.m

Client ID: CWSI-05-2-4 MSD

Instrument: fid4a.i

Injection: 05-NOV-2012 18:46

Operator: JR/VTS

Report Date: 11/07/2012

Dilution Factor: 1

Macro: 01-NOV-2012

Calibration Dates: Gas:28-SEP-2012 Diesel:01-NOV-2012 M.Oil:09-OCT-2012

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc
Toluene	1.224	0.002	33056	27442	WATPHG	(Tol-C12)	4363940	235.66
C8	1.466	0.001	11524	15770	WATPHD	(C12-C24)	23110875	<u>1587.94</u>
C10	3.113	-0.001	136086	97223	WATPHM	(C24-C38)	10601986	806.28
C12	4.028	0.000	241099	213283	AK102	(C10-C25)	26865403	1566.59
C14	4.709	-0.001	378545	258977	AK103	(C25-C36)	9456306	1027.63
C16	5.299	0.000	560978	477831				
C18	5.859	0.001	462274	486959				
C20	6.422	0.001	349267	324360	JET-A	(C10-C18)	16330301	3014.92
C22	6.968	-0.002	222263	215777				
C24	7.492	-0.001	125582	197965				
C25	7.740	-0.004	110719	132167				
C26	7.983	-0.002	95769	221026				
C28	8.441	-0.002	110398	170873				
C32	9.258	-0.002	63037	109250				
C34	9.626	-0.013	46739	112820				
Filter Peak	11.359	-0.003	2245	1281	CREOSOT	(C12-C22)	20407058	10142.02 M
C36	10.015	0.011	26230	14432				
C38	10.367	0.007	15477	15266				
C40	10.694	-0.013	7198	10398				
o-terph	5.997	0.002	923852	723448				
Triacon Surr	8.873	-0.004	780012	740186	NAS DIES	(C10-C24)	26125891	1527.12

Range Times: NW Diesel (4.028 - 7.493) AK102 (3.11 - 7.74) Jet A (3.11 - 5.86)
NW M.Oil (7.49 - 10.36) AK103 (7.74 - 10.00) OR Diesel (3.11 - 8.44)

Surrogate	Area	Amount	%Rec
o-Terphenyl	723448	37.6	83.5 M
Triacontane	740186	39.2	87.2 M

JR 11/07/12

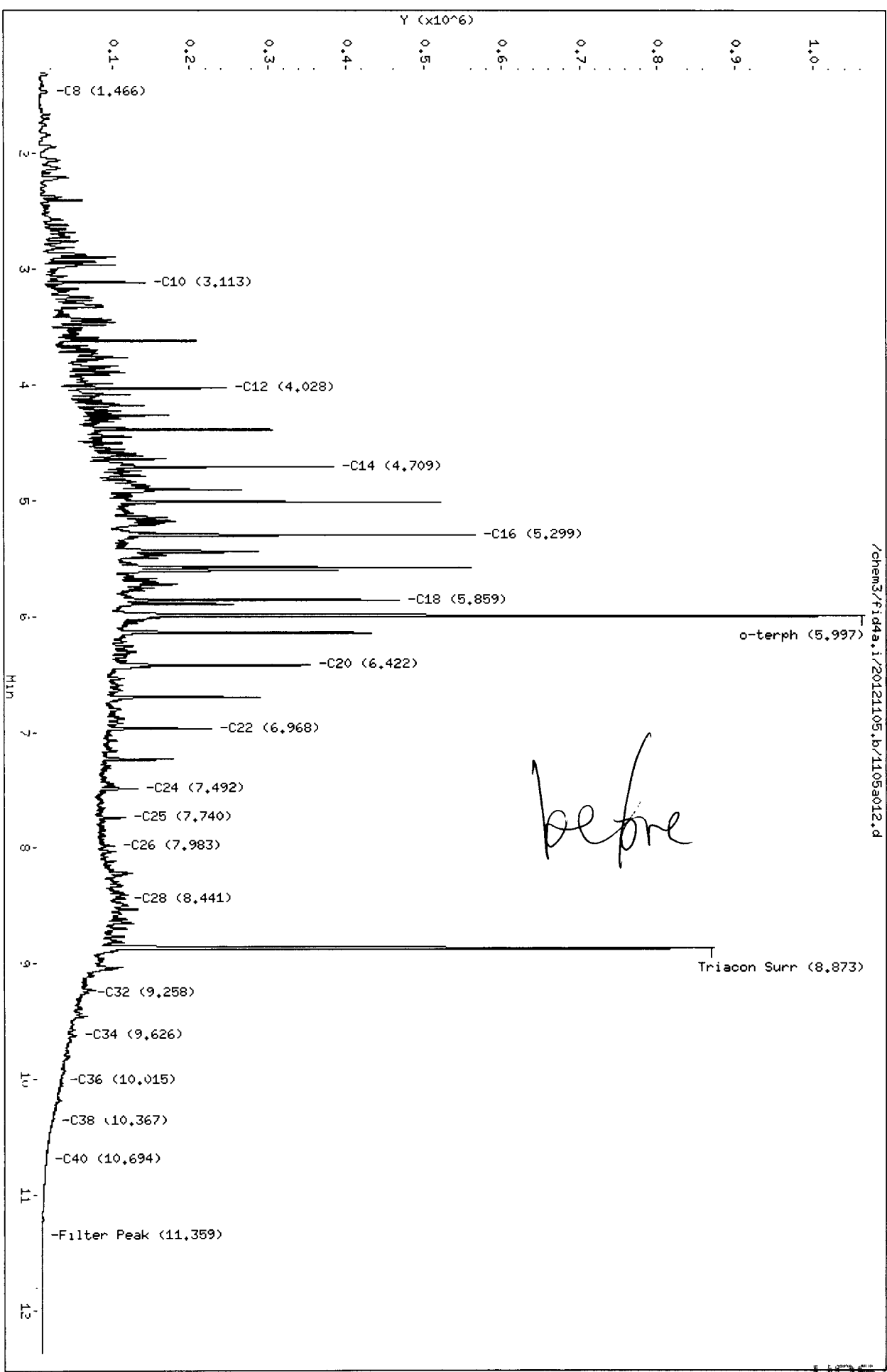
M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	19248.4	01-NOV-2012
Triacon Surr	18864.5	09-OCT-2012
Gas	18517.9	28-SEP-2012
Diesel	14554.0	01-NOV-2012
Motor Oil	13149.3	09-OCT-2012
AK102	17149.0	01-NOV-2012
AK103	9202.1	25-SEP-2012
JetA	5416.5	11-AUG-2012
NAS Diesel	17108.0	01-NOV-2012
Creosote	2012.1	01-NOV-2011

Data File: /chem3/f1d4a.i/20121105.b/1105a012.d
Date : 05-NOV-2012 18:46
Client ID: CMSI-05-2-4 MSD
Sample Info: VP51BMSD

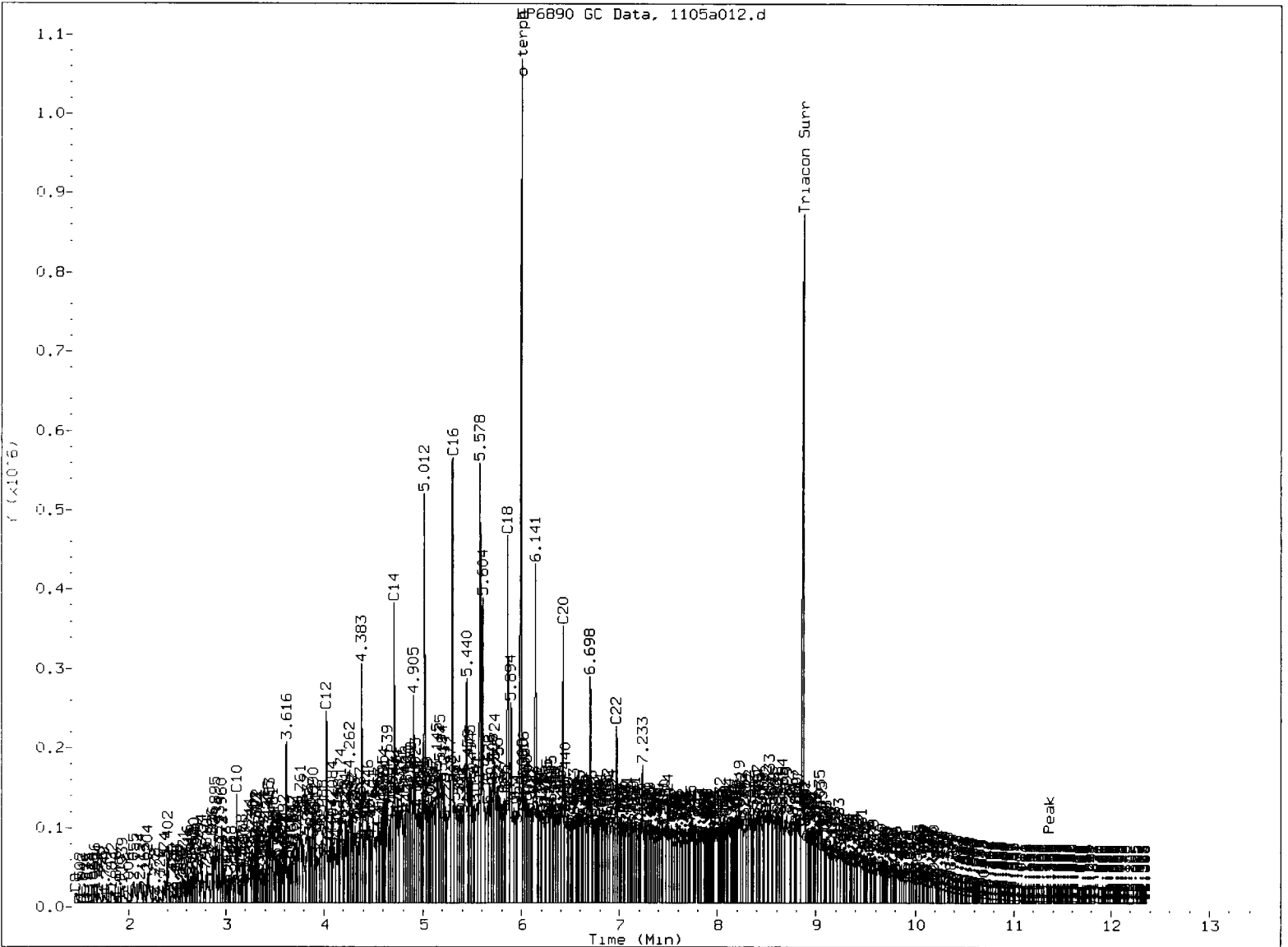
Column phase: RTX-1

Instrument: f1d4a.i
Operator: JR/VTS
Column diameter: 0.25



/chem3/f1d4a.i/20121105.b/1105a012.d

VP51BMSD



MANUAL INTEGRATION

- 1. Baseline correction
- 3. Peak not found
- 5. Skimmed surrogate

Analyst:

Date: 11/07/12

ORGANICS ANALYSIS DATA SHEET

NWTPHD by GC/FID-Silica and Acid Cleaned

Page 1 of 1

Sample ID: LCS-110212

LAB CONTROL

Lab Sample ID: LCS-110212

LIMS ID: 12-21315

Matrix: Soil

Data Release Authorized: *AB*

Reported: 11/07/12

QC Report No: VP51-Anchor QEA LLC

Project: Central Waterfront Shoreline Inves.

Date Sampled: 10/26/12

Date Received: 10/27/12

Date Extracted: 11/02/12

Date Analyzed: 11/05/12 17:19

Instrument/Analyst: FID/JGR

Sample Amount: 10.0 g

Final Extract Volume: 1.0 mL

Dilution Factor: 1.0

Range	Lab Control	Spike Added	Recovery
Diesel	126	150	84.0%

TPHD Surrogate Recovery

o-Terphenyl	95.7%
-------------	-------

Results reported in mg/kg

Analytical Resources Inc.
TPH Quantitation Report

Data file: /chem3/fid4a.i/20121105.b/1105a008.d
Method: /chem3/fid4a.i/20121105.b/ftphfid4a.m
Instrument: fid4a.i
Operator: JR/VTS
Report Date: 11/07/2012
Macro: 01-NOV-2012
Calibration Dates: Gas:28-SEP-2012 Diesel:01-NOV-2012 M.Oil:09-OCT-2012

ARI ID: VP51LCSS1
Client ID: VP51LCSS1
Injection: 05-NOV-2012 17:19
Dilution Factor: 1

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc
Toluene	1.233	0.011	6426	8264	WATPHG	(Tol-C12)	4274364	230.82
C8	1.469	0.005	5533	8356	WATPHD	(C12-C24)	18376839	<u>1262.67</u>
C10	3.113	-0.001	125967	91815	WATPHM	(C24-C38)	251662	<u>19.14</u>
C12	4.026	-0.002	247487	208219	AK102	(C10-C25)	21441676	<u>1250.32</u>
C14	4.707	-0.003	412149	266689	AK103	(C25-C36)	187150	20.34
C16	5.298	0.000	611211	503927				
C18	5.858	0.000	496357	477063				
C20	6.418	-0.002	355971	395111	JET-A	(C10-C18)	15858403	2927.80
C22	6.964	-0.006	180009	157387				
C24	7.485	-0.007	45059	46176				
C25	7.736	-0.008	19364	28026				
C26	7.978	-0.007	8069	13233				
C28	8.434	-0.008	2503	2444				
C32	9.248	-0.011	1737	3313				
C34	9.651	0.012	407	249				
Filter Peak	11.370	0.008	954	757	CREOSOT	(C12-C22)	17728047	8810.59 M
C36	10.003	-0.001	456	424				
C38	10.353	-0.006	513	313				
C40	10.702	-0.005	855	1946				
o-terph	5.996	0.001	1066569	829116				
Triacon Surr	8.867	-0.009	848067	822440	NAS DIES	(C10-C24)	21387863	1250.17

Range Times: NW Diesel (4.028 - 7.493) AK102 (3.11 - 7.74) Jet A (3.11 - 5.86)
NW M.Oil (7.49 - 10.36) AK103 (7.74 - 10.00) OR Diesel (3.11 - 8.44)

Surrogate	Area	Amount	%Rec
o-Terphenyl	829116	43.1	95.7 M
Triacontane	822440	43.6	96.9

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	19248.4	01-NOV-2012
Triacon Surr	18864.5	09-OCT-2012
Gas	18517.9	28-SEP-2012
Diesel	14554.0	01-NOV-2012
Motor Oil	13149.3	09-OCT-2012
AK102	17149.0	01-NOV-2012
AK103	9202.1	25-SEP-2012
JetA	5416.5	11-AUG-2012
NAS Diesel	17108.0	01-NOV-2012
Creosote	2012.1	01-NOV-2011

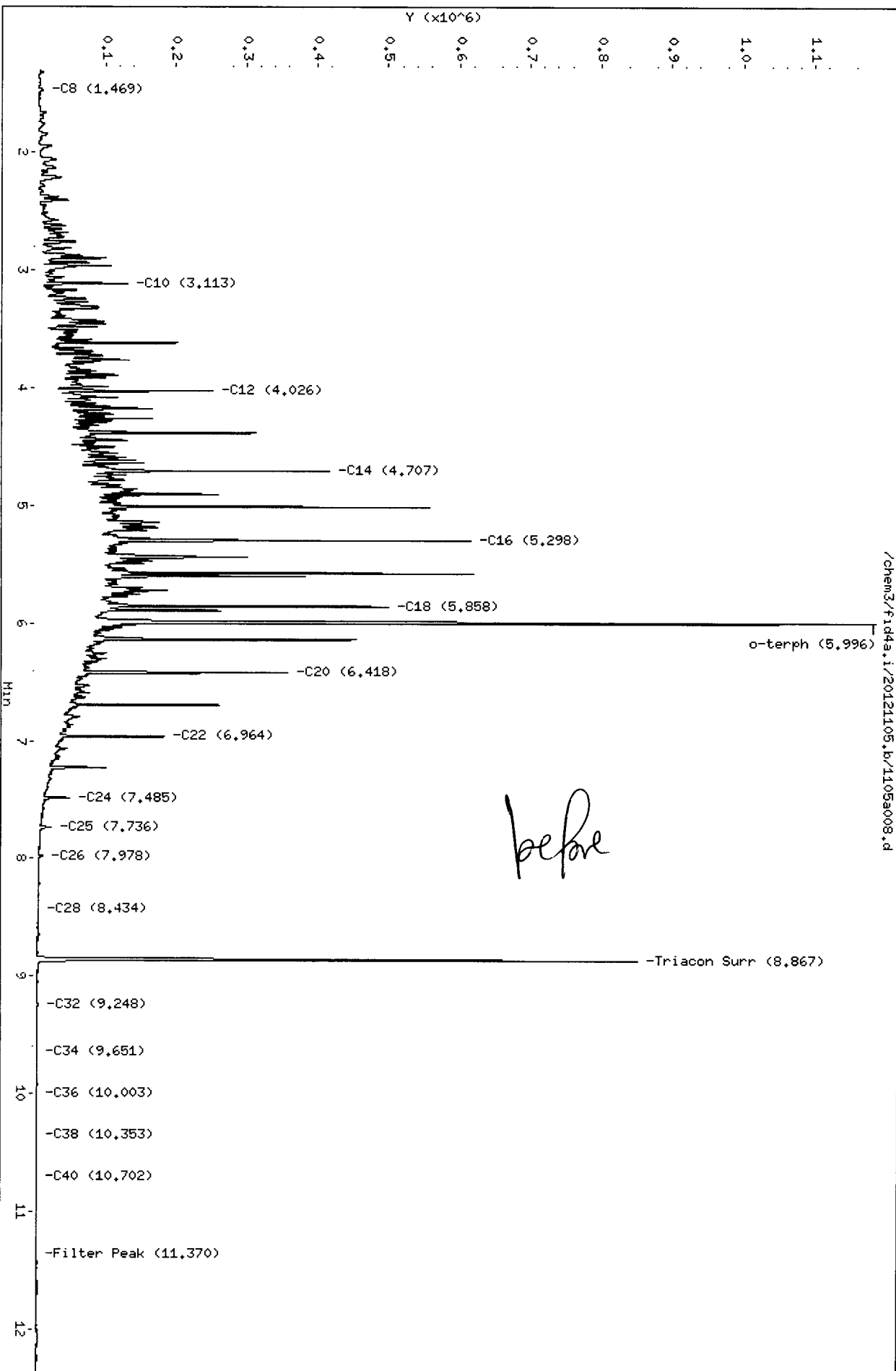
Handwritten: 11/07/12
11/06/12
11/07/12

Data File: /chem3/fid4a.1/20121105.b/1105a008.d
Date : 05-NOV-2012 17:19
Client ID: VP5ILC5S1
Sample Info: VP5ILC5S1

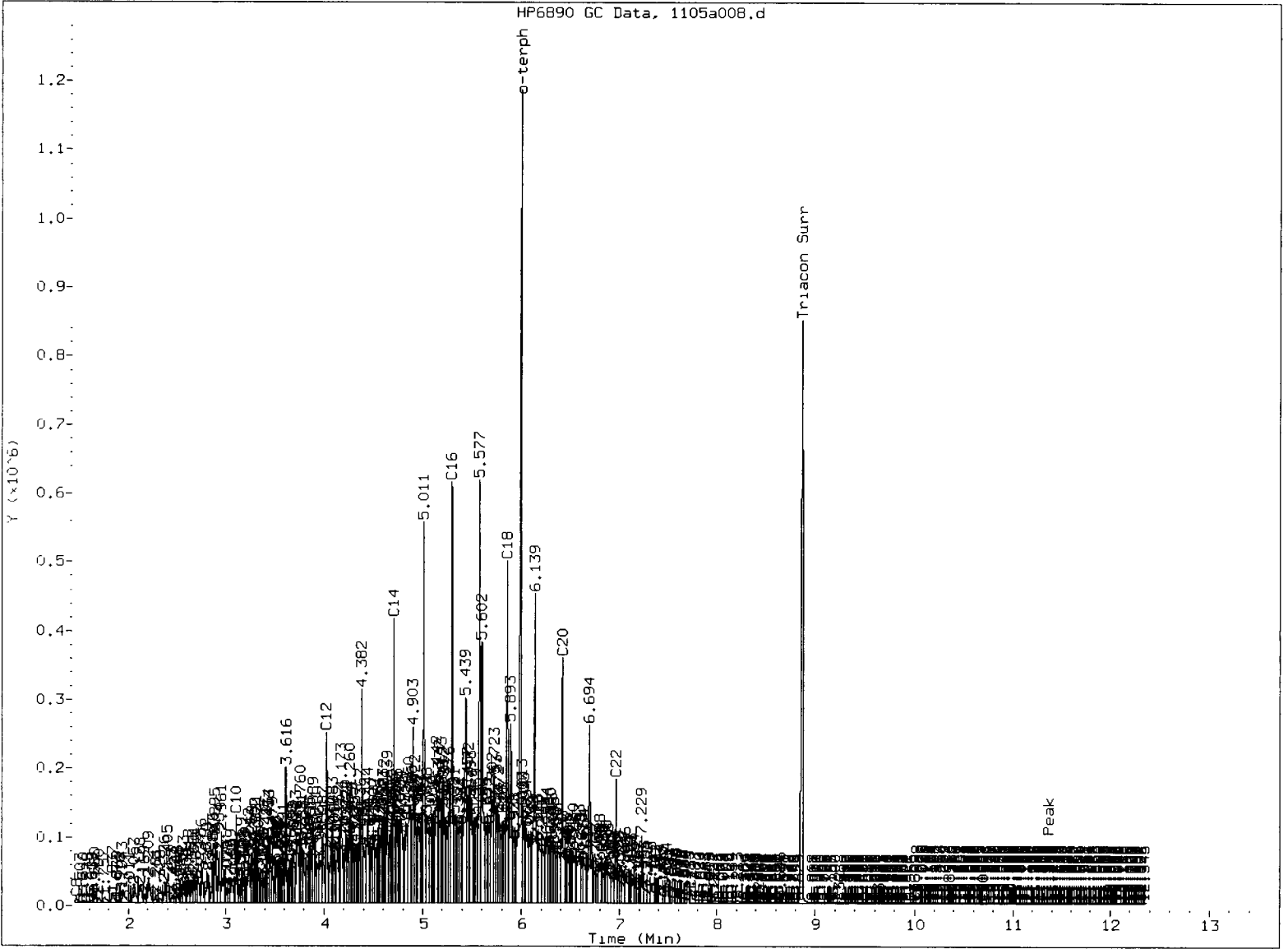
Column phase: RTX-1

Instrument: fid4a.1
Operator: JR/VTS
Column diameter: 0.25

Page 1



VP5ILC5S1



MANUAL INTEGRATION

- 1. Baseline correction
- 3. Peak not found
- 5. Skipped surrogate

Analyst: *JA*

Date: 11/07/12

TOTAL DIESEL RANGE HYDROCARBONS-EXTRACTION REPORT

Matrix: Soil
Date Received: 10/27/12

ARI Job: VP51
Project: Central Waterfront Shoreline Inves.

ARI ID	Client ID	Client Amt	Final Vol	Basis	Prep Date
12-21314-VP51A	CWSI-07-2-4	8.29 g	1.00 mL	D	11/02/12
12-21315-110212MB1	Method Blank	10.0 g	1.00 mL	-	11/02/12
12-21315-110212LCS1	Lab Control	10.0 g	1.00 mL	-	11/02/12
12-21315-VP51B	CWSI-05-2-4	8.81 g	1.00 mL	D	11/02/12
12-21315-VP51BMS	CWSI-05-2-4	8.78 g	1.00 mL	D	11/02/12
12-21315-VP51BMSD	CWSI-05-2-4	8.49 g	1.00 mL	D	11/02/12
12-21316-VP51C	CWSI-05-7-9	8.42 g	1.00 mL	D	11/02/12
12-21317-VP51D	CWSI-05-12-14	8.63 g	1.00 mL	D	11/02/12
12-21318-VP51E	CWSI-06-8-10	6.59 g	1.00 mL	D	11/02/12
12-21319-VP51F	CWSI-06-12-14	9.06 g	1.00 mL	D	11/02/12

4
TPH METHOD BLANK SUMMARY

BLANK NO.

VP51MBS1

Lab Name: ANALYTICAL RESOURCES INC

Client: ANCHOR QEA

SDG No.: VP51

Project No.: CENTRAL WATERFRONT

Date Extracted: 11/02/12

Matrix: SOLID

Date Analyzed : 11/05/12

Instrument ID : FID4A

Time Analyzed : 1658

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED
	=====	=====	=====
01	VP51LCSS1	VP51LCSS1	11/05/12
02	CWSI-07-2-4	VP51A	11/05/12
03	CWSI-05-2-4	VP51B	11/05/12
04	CWSI-05-2-4	VP51BMS	11/05/12
05	CWSI-05-2-4	VP51BMSD	11/05/12
06	CWSI-05-7-9	VP51C	11/05/12
07	CWSI-05-12-1	VP51D	11/05/12
08	CWSI-06-8-10	VP51E	11/05/12
09	CWSI-06-12-1	VP51F	11/05/12
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			

6a
DIESEL INITIAL CALIBRATION

Lab Name: ANALYTICAL RESOURCES, INC.

Client: ANCHOR QEA

Instrument: FID4A.I

Project: CENTRAL WATERFRONT

Calibration Date: 01-NOV-2012

SDG No.: VP51

Diesel Range	RF1 50	RF2 100	RF3 250	RF4 500	RF5 1000	RF6 2500	Ave RF	%RSD
WA Diesel	14835	14667	14497	14275	14357	14695	14554	1.5
AK Diesel	17417	17332	17061	16807	16947	17333	17149	1.4
OR Diesel	17505	17411	17139	16890	17028	17414	17231	1.4
Cal Diesel	17377	17286	17020	16768	16913	17284	17108	1.4
o-Terph	18978	19305	19172	19105	19228	19702	19248	1.3

<- Indicates %RSD outside limits
Surrogate areas are not included in Diesel RF calculation.

Quant Ranges : WA Diesel C12-C24 (4.030-7.497)
 AK Diesel C10-C25 (3.115-7.747)
 OR Diesel C10-C28 (3.115-8.446)
 Cal Diesel C10-C24 (3.115-7.497)

Calibration Files Analysis Time

1101a004.d	01-NOV-2012 10:56
1101a005.d	01-NOV-2012 11:18
1101a006.d	01-NOV-2012 11:41
1101a007.d	01-NOV-2012 12:03
1101a008.d	01-NOV-2012 12:25
1101a009.d	01-NOV-2012 12:47

6a
DIESEL INITIAL CALIBRATION

Lab Name: ANALYTICAL RESOURCES, INC.

Client: ANCHOR QEA

Instrument: FID4A.I

Project: CENTRAL WATERFRONT

Calibration Date: 09-OCT-2012

SDG No.: VP51

Diesel Range	RF1 50	RF2 100	RF3 250	RF4 500	RF5 1000	RF6 2500	Ave RF	%RSD
WA Diesel	14743	14970	15029	15131	15112	14318	14884	2.1
AK Diesel	17121	17406	17777	17971	17971	17038	17547	2.4
OR Diesel	17380	17516	17857	18051	18057	17112	17662	2.2
Cal Diesel	17073	17357	17737	17938	17925	16999	17505	2.4
o-Terph	17312	18709	19255	19961	19309	18483	18838	4.8

<- Indicates %RSD outside limits
Surrogate areas are not included in Diesel RF calculation.

Quant Ranges : WA Diesel C12-C24 (4.074-7.548)
 AK Diesel C10-C25 (3.170-7.798)
 OR Diesel C10-C28 (3.170-8.498)
 Cal Diesel C10-C24 (3.170-7.548)

Calibration Files Analysis Time

1009a020.d	09-OCT-2012 18:27
1009a021.d	09-OCT-2012 18:49
1009a022.d	09-OCT-2012 19:10
1009a023.d	09-OCT-2012 19:31
1009a024.d	09-OCT-2012 19:52
1009a025.d	09-OCT-2012 20:13

7a
DIESEL CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC.

Client: ANCHOR QEA

ICal Date: 01-NOV-2012

Project: CENTRAL WATERFRONT

CCal Date: 05-NOV-2012

SDG No.: VP51

Analysis Time: 15:50

Lab ID: DIESEL#1

Instrument: FID4A.I

Lab File Name: 1105a004.d

Diesel Range	Area*	CalcAmnt	NomAmnt	% D
WADies(C12-C24)	3430223	235.7	250	-5.7
AK102 (C10-C25)	4020077	234.4	250	-6.2
NASDies(C10-C24)	4011286	234.5	250	-6.2
Terphenyl	805875	41.9	45	-7.0

* Surrogate areas are subtracted from range areas
<- Indicates a %D outside QC limits

7a
MOTOR OIL CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC. Client: ANCHOR QEA
 ICal Date: 09-OCT-2012 Project: CENTRAL WATERFRONT
 CCal Date: 05-NOV-2012 SDG No.: VP51
 Analysis Time: 16:12 Lab ID: MOIL#1
 Instrument: FID4A.I Lab File Name: 1105a005.d

M.oil Range	Area*	CalcAmnt	NomAmnt	% D
WAMoil (C24-C38)	6003702	456.6	500	-8.7
AK103 (C25-C36)	5275774	573.3	500	14.7
OR MOIL (C28-C40)	4553195	602.9	500	20.6
CRUDE (Tol-C40)	6960264	921.6	500	84.3
n-Triacontane	811913	43.0	45	-4.4

* Surrogate areas are subtracted from range areas
 <- Indicates a %D outside QC limits

7a
DIESEL CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC. Client: ANCHOR QEA
ICal Date: 01-NOV-2012 Project: CENTRAL WATERFRONT
CCal Date: 05-NOV-2012 SDG No.: VP51
Analysis Time: 20:33 Lab ID: DIESEL#2
Instrument: FID4A.I Lab File Name: 1105a017.d

Diesel Range	Area*	CalcAmt	NomAmt	% D
WADies (C12-C24)	3489930	239.8	250	-4.1
AK102 (C10-C25)	4093014	238.7	250	-4.5
NASDies (C10-C24)	4082224	238.6	250	-4.6
Terphenyl	827702	43.0	45	-4.4

* Surrogate areas are subtracted from range areas
<- Indicates a %D outside QC limits

7a
MOTOR OIL CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC. Client: ANCHOR QEA
 ICal Date: 09-OCT-2012 Project: CENTRAL WATERFRONT
 CCal Date: 05-NOV-2012 SDG No.: VP51
 Analysis Time: 20:55 Lab ID: MOIL#2
 Instrument: FID4A.I Lab File Name: 1105a018.d

M.oil Range	Area*	CalcAmnt	NomAmnt	% D
WAMoil (C24-C38)	6277257	477.4	500	-4.5
AK103 (C25-C36)	5529176	600.9	500	20.2
OR MOIL (C28-C40)	4763898	630.7	500	26.1
CRUDE (Tol-C40)	7277668	963.6	500	92.7
n-Triacontane	855681	45.4	45	0.8

* Surrogate areas are subtracted from range areas
 <- Indicates a %D outside QC limits

7a
DIESEL CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC.

Client: ANCHOR QEA

ICal Date: 01-NOV-2012

Project: CENTRAL WATERFRONT

CCal Date: 06-NOV-2012

SDG No.: VP51

Analysis Time: 12:13

Lab ID: DIESEL#1

Instrument: FID4A.I

Lab File Name: 1106a004.d

Diesel Range	Area*	CalcAmnt	NomAmnt	% D
WADies (C12-C24)	3206474	220.3	250	-11.9
AK102 (C10-C25)	3759438	219.2	250	-12.3
NASDies (C10-C24)	3750088	219.2	250	-12.3
Terphenyl	749099	38.9	45	-13.5

* Surrogate areas are subtracted from range areas
<- Indicates a %D outside QC limits

7a
MOTOR OIL CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC. Client: ANCHOR QEA
 ICal Date: 09-OCT-2012 Project: CENTRAL WATERFRONT
 CCal Date: 06-NOV-2012 SDG No.: VP51
 Analysis Time: 12:35 Lab ID: MOIL#1
 Instrument: FID4A.I Lab File Name: 1106a005.d

M.oil Range	Area*	CalcAmnt	NomAmnt	% D
WAMoil (C24-C38)	5992486	455.7	500	-8.9
AK103 (C25-C36)	5309098	576.9	500	15.4
OR MOIL (C28-C40)	4481214	593.3	500	18.7
CRUDE (Tol-C40)	6949182	920.1	500	84.0
n-Triacontane	819157	43.4	45	-3.5

* Surrogate areas are subtracted from range areas
 <- Indicates a %D outside QC limits

7a
DIESEL CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC.

Client: ANCHOR QEA

ICal Date: 01-NOV-2012

Project: CENTRAL WATERFRONT

CCal Date: 06-NOV-2012

SDG No.: VP51

Analysis Time: 13:42

Lab ID: DIESEL#2

Instrument: FID4A.I

Lab File Name: 1106a008.d

Diesel Range	Area*	CalcAmnt	NomAmnt	% D
WADies (C12-C24)	3295884	226.5	250	-9.4
AK102 (C10-C25)	3828006	223.2	250	-10.7
NASDies (C10-C24)	3817746	223.2	250	-10.7
Terphenyl	742617	38.6	45	-14.3

* Surrogate areas are subtracted from range areas
<- Indicates a %D outside QC limits

7a
MOTOR OIL CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC. Client: ANCHOR QEA
 ICal Date: 09-OCT-2012 Project: CENTRAL WATERFRONT
 CCal Date: 06-NOV-2012 SDG No.: VP51
 Analysis Time: 14:05 Lab ID: MOIL#2
 Instrument: FID4A.I Lab File Name: 1106a009.d

M.oil Range	Area*	CalcAmnt	NomAmnt	% D
WAMoil (C24-C38)	5902048	448.8	500	-10.2
AK103 (C25-C36)	5241246	569.6	500	13.9
OR MOIL (C28-C40)	4416184	584.7	500	16.9
CRUDE (Tol-C40)	6872211	909.9	500	82.0
n-Triacontane	821851	43.6	45	-3.2

* Surrogate areas are subtracted from range areas
 <- Indicates a %D outside QC limits

8
TPH ANALYTICAL SEQUENCE

Lab Name: ANALYTICAL RESOURCES INC

Client: ANCHOR QEA

SDG No.: VP51

Project: CENTRAL WATERFRONT

Instrument ID: FID4A

GC Column: RTX-1

THE ANALYTICAL SEQUENCE OF BLANKS, SAMPLES, AND STANDARDS,
IS GIVEN BELOW:

SURROGATE RT FROM DAILY STANDARD						
		TERPH: 6.00		TRIAc: 8.88		
CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TERPH RT #	TRIAc RT #	
=====	=====	=====	=====	=====	=====	=====
01	RT	RT	11/05/12	1506	6.00	8.88
02	IB	IB	11/05/12	1528	5.99	8.87
03	DIESEL#1	DIESEL#1	11/05/12	1550	5.99	8.86
04	MOIL#1	MOIL#1	11/05/12	1612	5.99	8.87
05	ZZZZZ	ZZZZZ	11/05/12	1636	6.00	8.87
06	VP51MBS1	VP51MBS1	11/05/12	1658	5.99	8.87
07	VP51LCSS1	VP51LCSS1	11/05/12	1719	6.00	8.87
08	CWSI-07-2-4	VP51A	11/05/12	1741	6.00	8.87
09	CWSI-05-2-4	VP51B	11/05/12	1802	5.99	8.87
10	CWSI-05-2-4	VP51BMS	11/05/12	1824	5.99	8.87
11	CWSI-05-2-4	VP51BMSD	11/05/12	1846	6.00	8.87
12	CWSI-05-7-9	VP51C	11/05/12	1907	6.00	8.88
13	CWSI-05-12-1	VP51D	11/05/12	1929	6.01	8.90
14	CWSI-06-8-10	VP51E	11/05/12	1950	6.01	8.89
15	CWSI-06-12-1	VP51F	11/05/12	2012	6.00	8.88
16	DIESEL#2	DIESEL#2	11/05/12	2033	5.99	8.89
17	MOIL#2	MOIL#2	11/05/12	2055	5.99	8.87
18	RT	RT	11/06/12	1129	6.00	8.88
19	IB	IB	11/06/12	1151	6.00	8.87
20	DIESEL#1	DIESEL#1	11/06/12	1213	5.99	8.86
21	MOIL#1	MOIL#1	11/06/12	1235	5.99	8.87
22	CWSI-05-12-1	VP51D	11/06/12	1258	5.99	8.89
23	CWSI-06-8-10	VP51E	11/06/12	1320	5.99	8.87
24	DIESEL#2	DIESEL#2	11/06/12	1342	6.00	8.86
25	MOIL#2	MOIL#2	11/06/12	1405	5.99	8.87

TERPH = o-terph

TRIAc = Triacon Surr

QC LIMITS

(+/- 0.05 MINUTES)

(+/- 0.05 MINUTES)

* Values outside of QC limits.

**TPHG Analysis
Report and Summary QC Forms**

ARI Job ID: VP51

ORGANICS ANALYSIS DATA SHEET

TPHG by Method NWTPHG

Matrix: Soil

QC Report No: VP51-Anchor QEA LLC

Project: Central Waterfront Shoreline Inves.

Event: NA

Data Release Authorized: *AS*

Date Sampled: 10/26/12

Reported: 11/07/12

Date Received: 10/27/12

ARI ID	Client ID	Analysis Date	Basis	Range	Result
MB-103112 12-21314	Method Blank	10/31/12 PID2	Dry	Gasoline HC ID Trifluorotoluene Bromobenzene	< 5.0 U --- 97.5% 96.7%
VP51A 12-21314	CWSI-07-2-4	10/31/12 PID2	Dry	Gasoline HC ID Trifluorotoluene Bromobenzene	< 7.3 U --- 91.6% 93.5%
VP51B 12-21315	CWSI-05-2-4	10/31/12 PID2	Dry	Gasoline HC ID Trifluorotoluene Bromobenzene	24 GRO 98.4% 98.7%
VP51C 12-21316	CWSI-05-7-9	10/31/12 PID2	Dry	Gasoline HC ID Trifluorotoluene Bromobenzene	< 7.6 U --- 96.1% 97.3%
VP51D 12-21317	CWSI-05-12-14	10/31/12 PID2	Dry	Gasoline HC ID Trifluorotoluene Bromobenzene	160 GRO 104% 99.4%
VP51E 12-21318	CWSI-06-8-10	10/31/12 PID2	Dry	Gasoline HC ID Trifluorotoluene Bromobenzene	1300 GRO 96.3% 80.2%
VP51F 12-21319	CWSI-06-12-14	10/31/12 PID2	Dry	Gasoline HC ID Trifluorotoluene Bromobenzene	62 GRO 96.2% 100%

Gasoline values reported in mg/kg (ppm)

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

GAS: Indicates the presence of gasoline or weathered gasoline.

GRO: Positive result that does not match an identifiable gasoline pattern.

Results corrected for soil moisture content per Section 11.10.5 of EPA Method 8000C.

ORGANICS ANALYSIS DATA SHEET

TPHG by Method NWTPHG

Matrix: Water

QC Report No: VP51-Anchor QEA LLC

Project: Central Waterfront Shoreline Inves.

Event: NA

Date Sampled: 10/26/12

Date Received: 10/27/12

Data Release Authorized: *AS*

Reported: 11/07/12

ARI ID	Client ID	Analysis Date	DL	Range	Result
VP51K 12-21324	CWSI-TB-02	10/31/12 PID2	1.0	Gasoline HC ID Trifluorotoluene Bromobenzene	< 0.25 U --- 98.8% 95.7%

Gasoline values reported in mg/L (ppm)

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

GAS: Indicates the presence of gasoline or weathered gasoline.

GRO: Positive result that does not match an identifiable gasoline pattern.

Analytical Resources Inc.
 BETX/Gas Quantitation Report

Data file 1: /chem3/pid2.i/103112-1.b/1031a006.d
 Data file 2: /chem3/pid2.i/103112-2.b/1031a006.d
 Method: /chem3/pid2.i/103112-2.b/PIDB.m
 Instrument: pid2.i
 Gas Ical Date: 20-OCT-2012
 BETX Ical Date: 20-OCT-2012

ARI ID: MB1031
 Client ID:
 Injection Date: 31-OCT-2012 12:03
 Matrix: WATER
 Dilution Factor: 1.000

FID Surrogates

RT	Shift	Height	Area	%Rec	Compound
7.203	-0.003	3614	46537	97.5	TFT(Surr)
14.803	-0.005	2009	20957	96.7	BB(Surr)

PETROLEUM HYDROCARBONS (FID)

Method	Range	RF	Total Area*	Amount
WATPHG	Tol-C12 (9.07 to 17.58)	391690	1	0.000
8015C	2MP-TMB (3.74 to 15.74)	825102	1	0.000
AK101	nC6-nC10 (4.19 to 14.47)	660003	0	0.000
NWTPHG	Tol-Nap (9.07 to 18.59)	406475	1	0.000

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area
 Range marker RT's are set by daily RT standard

Jew
11/1/12

PID Surrogates

RT	Shift	Response	%Rec	Compound
7.228	-0.004	13215	92.6	TFT(Surr)
14.821	-0.005	18200	90.3	BB(Surr)

SW8021B (PID)

RT	Shift	Response	Amount	Compound
ND	---	---	---	Benzene
ND	---	---	---	Toluene
ND	---	---	---	Ethylbenzene
ND	---	---	---	M/P-Xylene
ND	---	---	---	O-Xylene
ND	---	---	---	MTBE

A Indicates Peak Area was used for quantitation instead of Height
 N Indicates peak was manually integrated

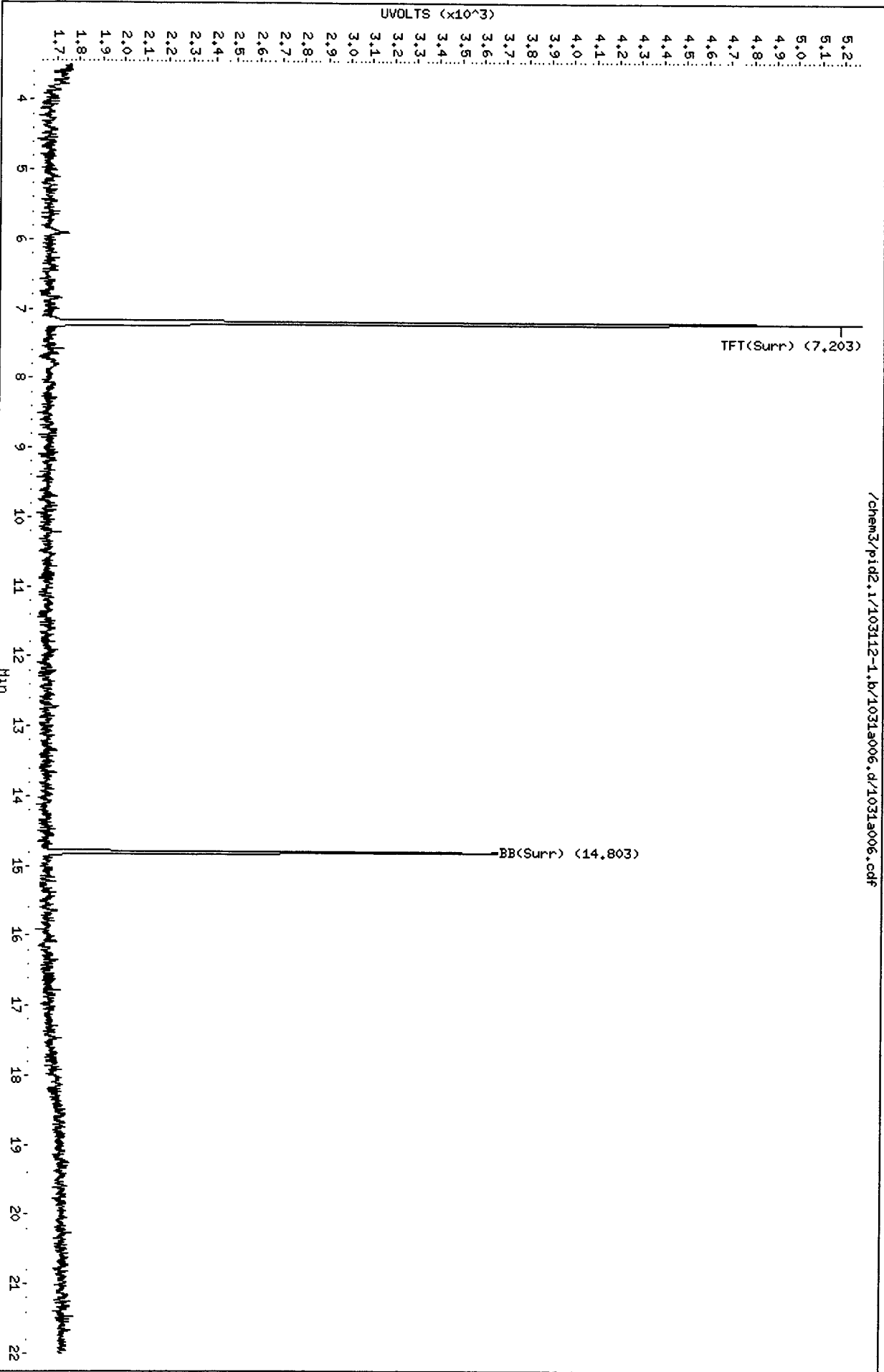
Data File: /chem3/pid2.1/103112-1.b/1031a006.d
Date: 31-OCT-2012 12:03

Client ID:
Sample Info: MB1031

Column phase: RTX 502-2 FID

Instrument: pid2.1

Operator: JM
Column diameter: 0.18



103112-1

Analytical Resources Inc.
 BETX/Gas Quantitation Report

PC
 11/7/12

Data file 1: /chem3/pid2.i/103112-1.b/1031a013.d
 Data file 2: /chem3/pid2.i/103112-2.b/1031a013.d
 Method: /chem3/pid2.i/103112-2.b/PIDB.m
 Instrument: pid2.i
 Gas Ical Date: 20-OCT-2012
 BETX Ical Date: 20-OCT-2012

ARI ID: VP51A
 Client ID: CWSI-07-2-4
 Injection Date: 31-OCT-2012 15:20
 Matrix: SOIL
 Dilution Factor: 1.000

FID Surrogates

RT	Shift	Height	Area	%Rec	Compound
--	-----	-----	-----	-----	-----
7.205	-0.001	3393	43490	91.6	TFT(Surr)
14.803	-0.005	1943	18859	93.5	BB(Surr)

PETROLEUM HYDROCARBONS (FID)

Method	Range	RF	Total Area*	Amount
WATPHG	Tol-C12 (9.07 to 17.58)	391690	0	0.000
8015C	2MP-TMB (3.74 to 15.74)	825102	0	0.000
AK101	nC6-nC10 (4.19 to 14.47)	660003	0	0.000
NWTPHG	Tol-Nap (9.07 to 18.59)	406475	0	0.000

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area
 Range marker RT's are set by daily RT standard

PID Surrogates

RT	Shift	Response	%Rec	Compound
--	-----	-----	-----	-----
7.231	-0.001	12704	89.0	TFT(Surr)
14.821	-0.004	17407	86.4	BB(Surr)

SW8021B (PID)

RT	Shift	Response	Amount	Compound
ND	---	---	---	Benzene
ND	---	---	---	Toluene
ND	---	---	---	Ethylbenzene
ND	---	---	---	M/P-Xylene
ND	---	---	---	O-Xylene
ND	---	---	---	MTBE

A Indicates Peak Area was used for quantitation instead of Height
 N Indicates peak was manually integrated

Data File: /chem3/pid2.i/103112-1.b/1031a013.d

Date: 31-OCT-2012 15:20

Client ID: CMSI-07-2-4

Sample Info: VP51A

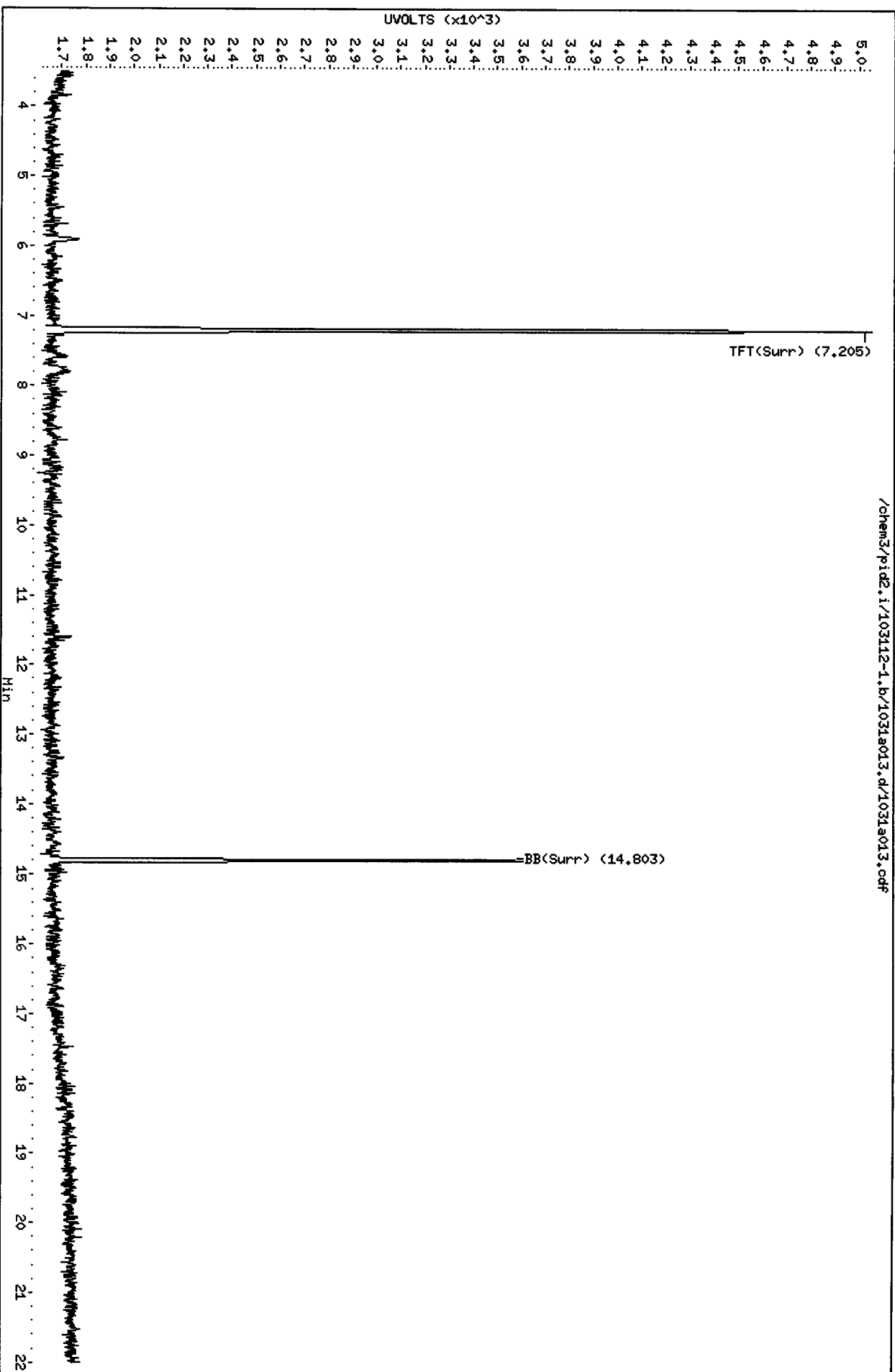
Column phase: RTX 502-2 FID

Page 1

Instrument: pid2.i

Operator: JM

Column diameter: 0.18



RC
11/7/12

Analytical Resources Inc.
BETX/Gas Quantitation Report

Data file 1: /chem3/pid2.i/103112-1.b/1031a014.d
Data file 2: /chem3/pid2.i/103112-2.b/1031a014.d
Method: /chem3/pid2.i/103112-2.b/PIDB.m
Instrument: pid2.i
Gas Ical Date: 20-OCT-2012
BETX Ical Date: 20-OCT-2012

ARI ID: VP51B
Client ID: CWSI-05-2-4
Injection Date: 31-OCT-2012 15:48
Matrix: SOIL
Dilution Factor: 1.000

FID Surrogates

RT	Shift	Height	Area	%Rec	Compound
--	----	-----	----	----	-----
7.207	0.000	3648	45608	98.4	TFT(Surr)
14.804	-0.004	2050	21186	98.7	BB(Surr)

PETROLEUM HYDROCARBONS (FID)

Method	Range	RF	Total Area*	Amount
WATPHG	Tol-C12 (9.07 to 17.58)	391690	119668	0.306
8015C	2MP-TMB (3.74 to 15.74)	825102	94318	0.114
AK101	nC6-nC10 (4.19 to 14.47)	660003	94317	0.143
NWTPHG	Tol-Nap (9.07 to 18.59)	406475	119668	0.294 <i>GRD</i>

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area
Range marker RT's are set by daily RT standard

PID Surrogates

RT	Shift	Response	%Rec	Compound
--	----	-----	----	-----
7.231	0.000	13477	94.4	TFT(Surr)
14.822	-0.004	18953	94.1	BB(Surr)

SW8021B (PID)

RT	Shift	Response	Amount	Compound
ND	---	---	---	Benzene
9.186	-0.005	174	0.28	Toluene
ND	---	---	---	Ethylbenzene
ND	---	---	---	M/P-Xylene
ND	---	---	---	O-Xylene
ND	---	---	---	MTBE

A Indicates Peak Area was used for quantitation instead of Height

N Indicates peak was manually integrated

Data File: /chem3/pid2.i/103112-1.b/1031a014.d

Date: 31-OCT-2012 15:48

Client ID: CMSI-05-2-4

Sample Info: VP51B

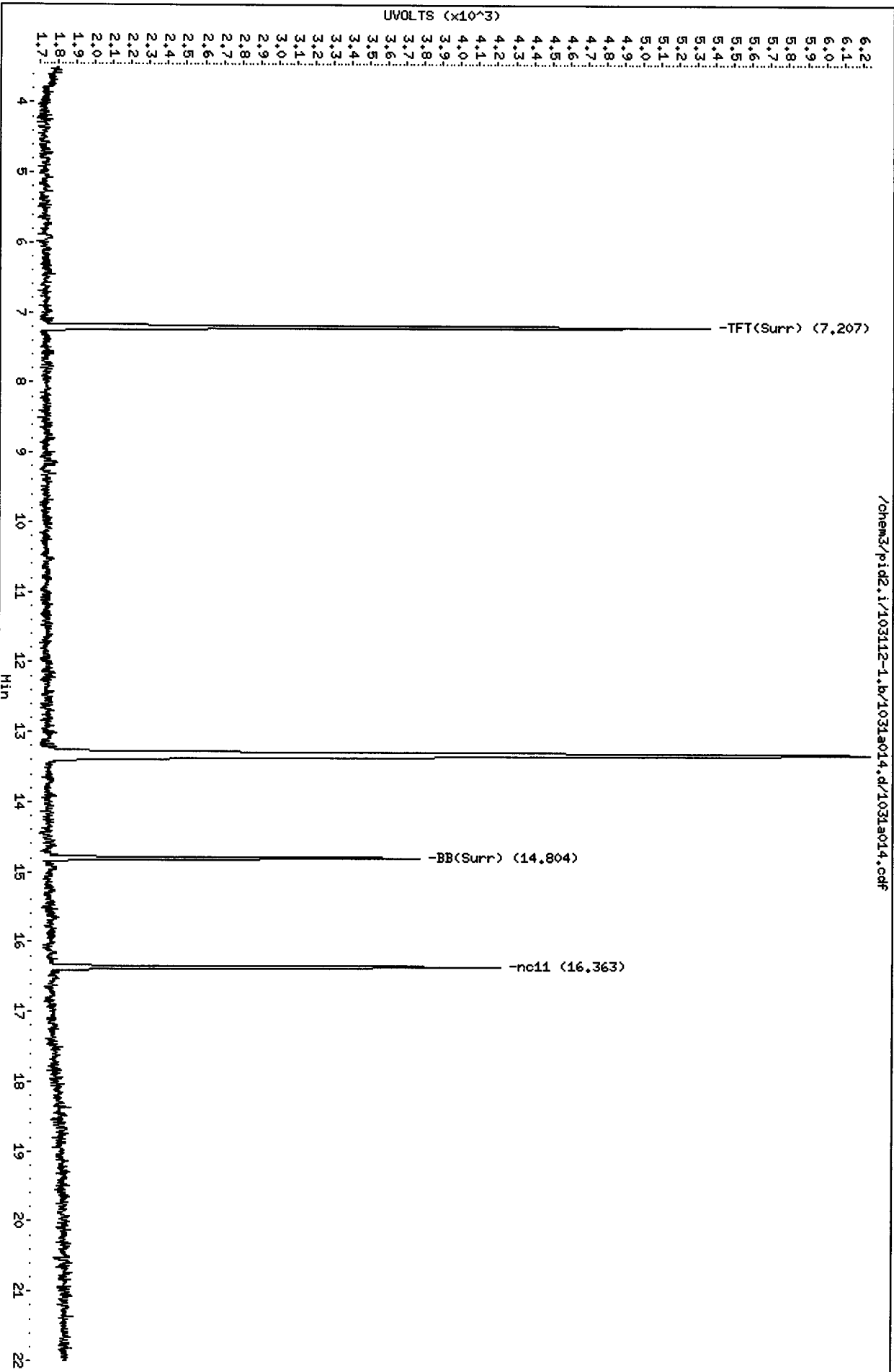
Column phase: RTX 502-2 FID

Instrument: pid2.i

Operator: JM

Column diameter: 0.18

Page 1



/chem3/pid2.i/103112-1.b/1031a014.d/1031a014.cdf

PC
11/7/12

Analytical Resources Inc.
BETX/Gas Quantitation Report

Data file 1: /chem3/pid2.i/103112-1.b/1031a015.d
Data file 2: /chem3/pid2.i/103112-2.b/1031a015.d
Method: /chem3/pid2.i/103112-2.b/PIDB.m
Instrument: pid2.i
Gas Ical Date: 20-OCT-2012
BETX Ical Date: 20-OCT-2012

ARI ID: VP51C
Client ID: CWSI-05-7-9
Injection Date: 31-OCT-2012 16:16
Matrix: SOIL
Dilution Factor: 1.000

FID Surrogates

RT	Shift	Height	Area	%Rec	Compound
--	-----	-----	----	----	-----
7.207	0.000	3561	44535	96.1	TFT(Surr)
14.804	-0.004	2021	20965	97.3	BB(Surr)

PETROLEUM HYDROCARBONS (FID)

Method	Range	RF	Total Area*	Amount
WATPHG	Tol-C12 (9.07 to 17.58)	391690	4994	0.013
8015C	2MP-TMB (3.74 to 15.74)	825102	10684	0.013
AK101	nC6-nC10 (4.19 to 14.47)	660003	10684	0.016
NWTPHG	Tol-Nap (9.07 to 18.59)	406475	4994	0.012

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area
Range marker RT's are set by daily RT standard

PID Surrogates

RT	Shift	Response	%Rec	Compound
--	-----	-----	----	-----
7.231	0.000	13400	93.9	TFT(Surr)
14.822	-0.004	18373	91.2	BB(Surr)

SW8021B (PID)

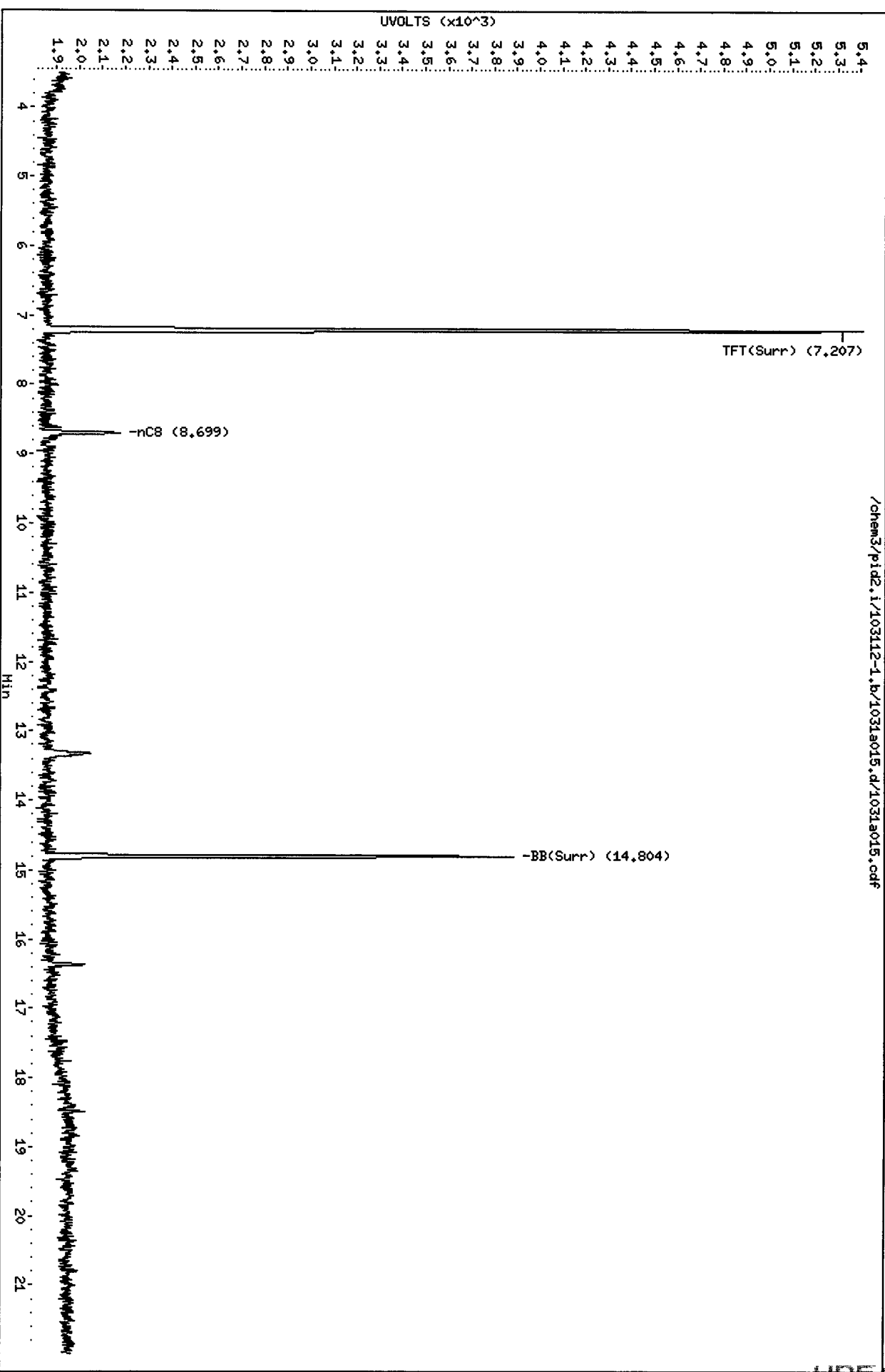
RT	Shift	Response	Amount	Compound
--	-----	-----	-----	-----
ND	---	---	---	Benzene
ND	---	---	---	Toluene
ND	---	---	---	Ethylbenzene
ND	---	---	---	M/P-Xylene
ND	---	---	---	O-Xylene
ND	---	---	---	MTBE

A Indicates Peak Area was used for quantitation instead of Height
N Indicates peak was manually integrated

Data File: /chem3/pid2.i/103112-1.b/1031a015.d
Date: 31-OCT-2012 16:16
Client ID: CMSI-05-7-9
Sample Info: VP51C

Column phase: RTX 502-2 FID

Instrument: pid2.i
Operator: JM
Column diameter: 0.18



/chem3/pid2.i/103112-1.b/1031a015.d/1031a015.cdf

Analytical Resources Inc.
 BETX/Gas Quantitation Report

RC
11/7/12

Data file 1: /chem3/pid2.i/103112-1.b/1031a016.d
 Data file 2: /chem3/pid2.i/103112-2.b/1031a016.d
 Method: /chem3/pid2.i/103112-2.b/PIDB.m
 Instrument: pid2.i
 Gas Ical Date: 20-OCT-2012
 BETX Ical Date: 20-OCT-2012

ARI ID: VP51D
 Client ID: CWSI-05-12-14
 Injection Date: 31-OCT-2012 16:44
 Matrix: SOIL
 Dilution Factor: 1.000

FID Surrogates

RT	Shift	Height	Area	%Rec	Compound
--	-----	-----	----	----	-----
7.207	0.000	3853	61383	104.0	TFT(Surr)
14.804	-0.004	2065	22312	99.4	BB(Surr)

PETROLEUM HYDROCARBONS (FID)

Method	Range	RF	Total Area*	Amount
WATPHG	Tol-C12 (9.07 to 17.58)	391690	662226	1.691 M
8015C	2MP-TMB (3.74 to 15.74)	825102	785131	0.952 M
AK101	nC6-nC10 (4.19 to 14.47)	660003	688882	1.044 M
NWTPHG	Tol-Nap (9.07 to 18.59)	406475	916961	2.256 M <i>GR</i>

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area
 Range marker RT's are set by daily RT standard

PID Surrogates

RT	Shift	Response	%Rec	Compound
--	-----	-----	----	-----
7.231	0.000	14218	99.6	TFT(Surr)
14.822	-0.004	20254	100.5	BB(Surr)

SW8021B (PID)

RT	Shift	Response	Amount	Compound
--	-----	-----	-----	-----
6.437	-0.001	2221	2.19	Benzene
9.175	-0.016	1296	2.07	Toluene
ND	---	---	---	Ethylbenzene
12.181	-0.009	1269	2.34	M/P-Xylene
13.081	-0.014	431	0.97	O-Xylene
4.097	-0.017	426	1.11	MTBE

A Indicates Peak Area was used for quantitation instead of Height

N Indicates peak was manually integrated

Data File: /chem3/pid2.i/103112-1.b/1031a016.d

Date: 31-OCT-2012 16:44

Client ID: CMSI-05-12-14

Sample Info: VP51D

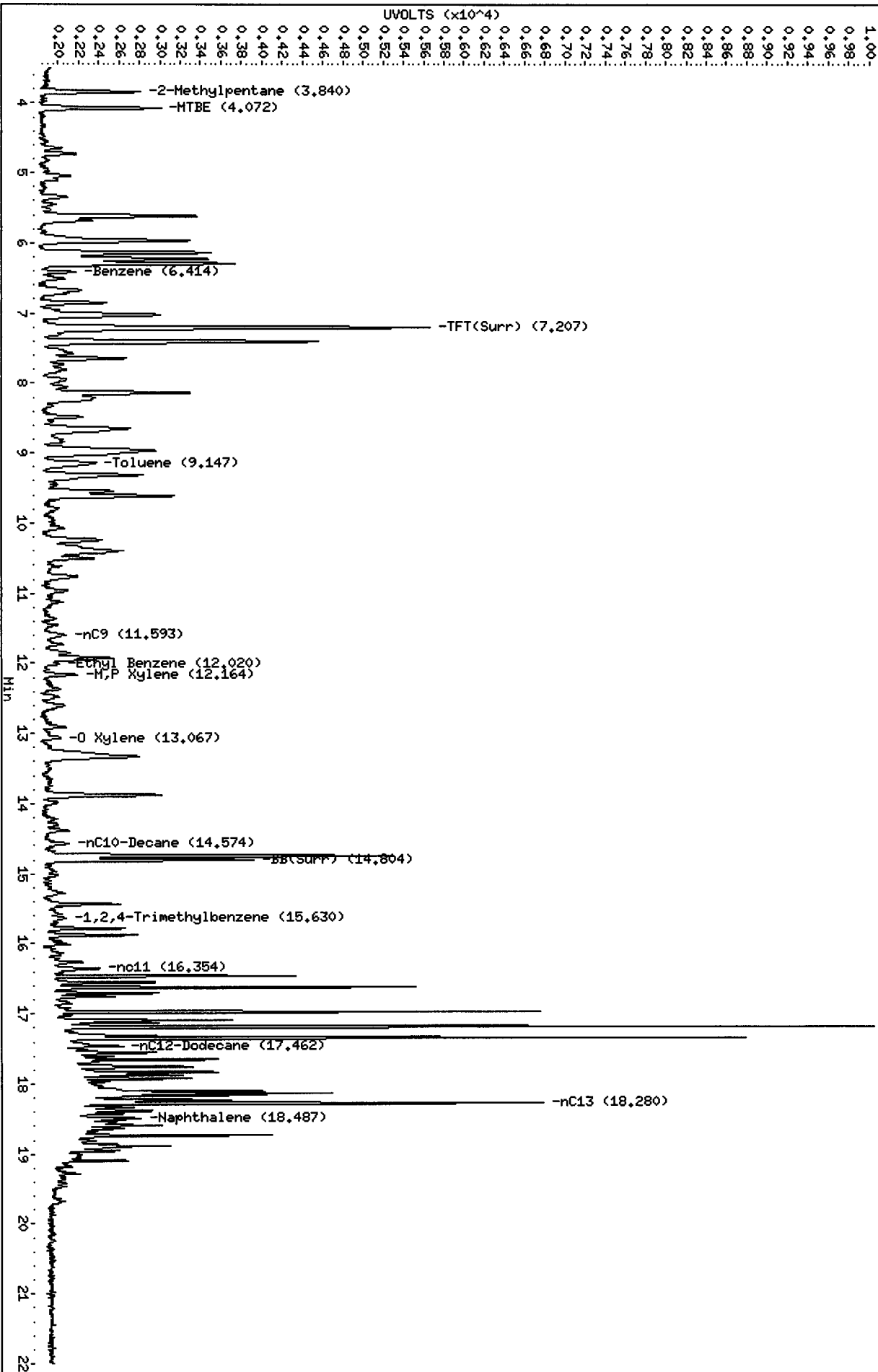
Column phase: RTX 502-2 FID

Instrument: pid2.i

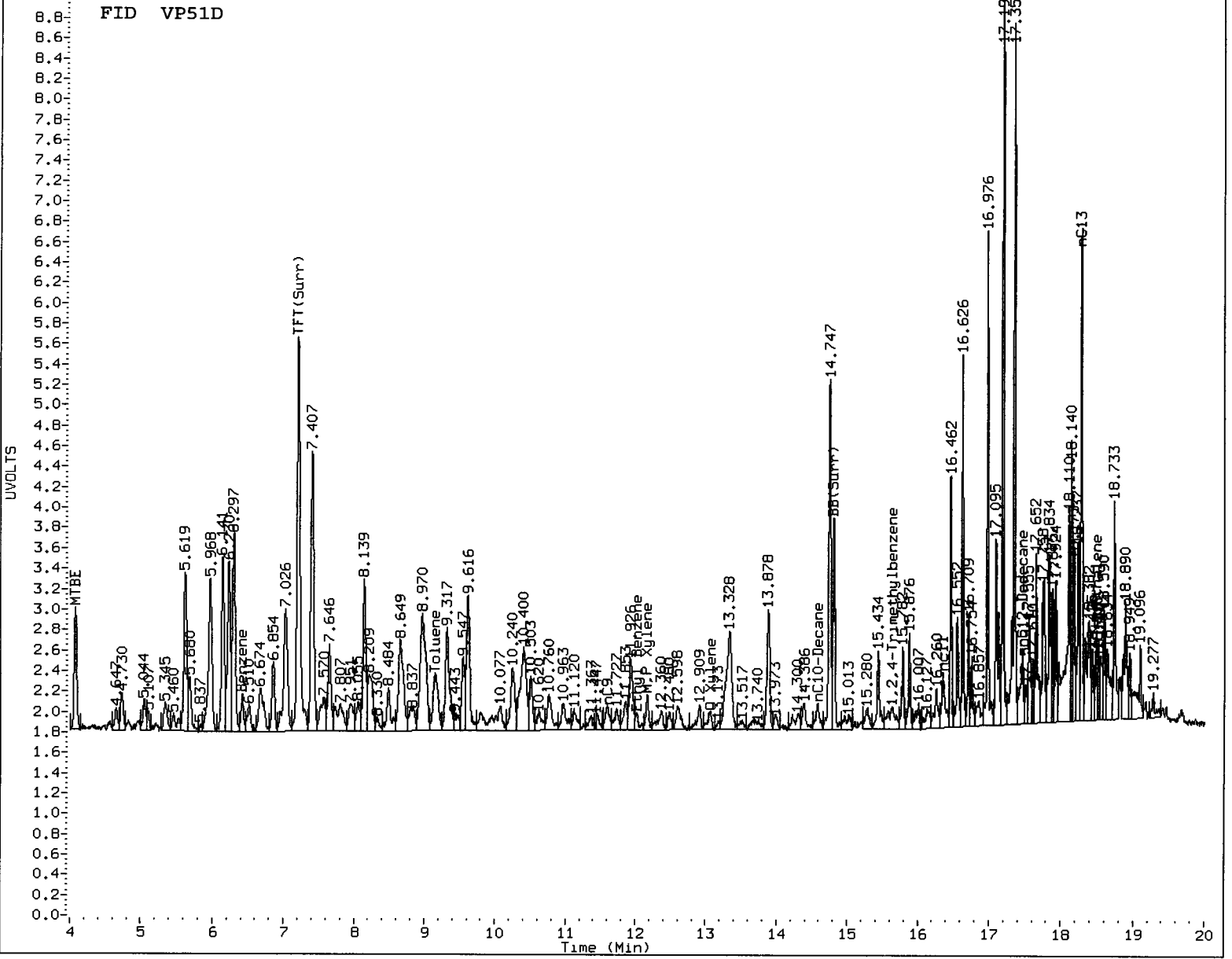
Operator: JM

Column diameter: 0.18

/chem3/pid2.i/103112-1.b/1031a016.d/1031a016.cdf



500 400 300 200 100



MANUAL INTEGRATION

- 1. Baseline correction
- 2. Poor chromatography
- 3. Peak not found
- 4. Totals calculation

5. Other _____

Analyst: YC

Date: 4/7/02

Analytical Resources Inc.
 BETX/Gas Quantitation Report

MC
11/7/12

Data file 1: /chem3/pid2.i/103112-1.b/1031a017.d
 Data file 2: /chem3/pid2.i/103112-2.b/1031a017.d
 Method: /chem3/pid2.i/103112-2.b/PIDB.m
 Instrument: pid2.i
 Gas Ical Date: 20-OCT-2012
 BETX Ical Date: 20-OCT-2012

ARI ID: VP51E
 Client ID: CWSI-06-8-10
 Injection Date: 31-OCT-2012 17:12
 Matrix: SOIL
 Dilution Factor: 1.000

FID Surrogates

RT	Shift	Height	Area	%Rec	Compound
--	-----	-----	----	----	-----
7.205	-0.001	3569	54509	96.3	TFT(Surr)
14.803	0.000	1666	14972	80.2	BB(Surr)

PETROLEUM HYDROCARBONS (FID)

Method	Range	RF	Total Area*	Amount
WATPHG	Tol-C12 (9.07 to 17.57)	391690	2301346	5.875 M
8015C	2MP-TMB (3.74 to 15.74)	825102	1806581	2.190 M
AK101	nC6-nC10 (4.19 to 14.46)	660003	1347299	2.041 M
NWTPHG	Tol-Nap (9.07 to 18.58)	406475	2656832	6.536 M <i>GRU</i>

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area
 Range marker RT's are set by daily RT standard

PID Surrogates

RT	Shift	Response	%Rec	Compound
--	-----	-----	----	-----
7.230	-0.002	13928	97.6	TFT(Surr)
14.822	-0.003	22934	113.8	BB(Surr)

SW8021B (PID)

RT	Shift	Response	Amount	Compound
--	-----	-----	----	-----
ND	---	---	---	Benzene
9.200	0.009	1515	2.42	Toluene
ND	---	---	---	Ethylbenzene
12.192	0.002	771	1.42	M/P-Xylene
13.086	-0.008	1297	2.91	O-Xylene
ND	---	---	---	MTBE

A Indicates Peak Area was used for quantitation instead of Height

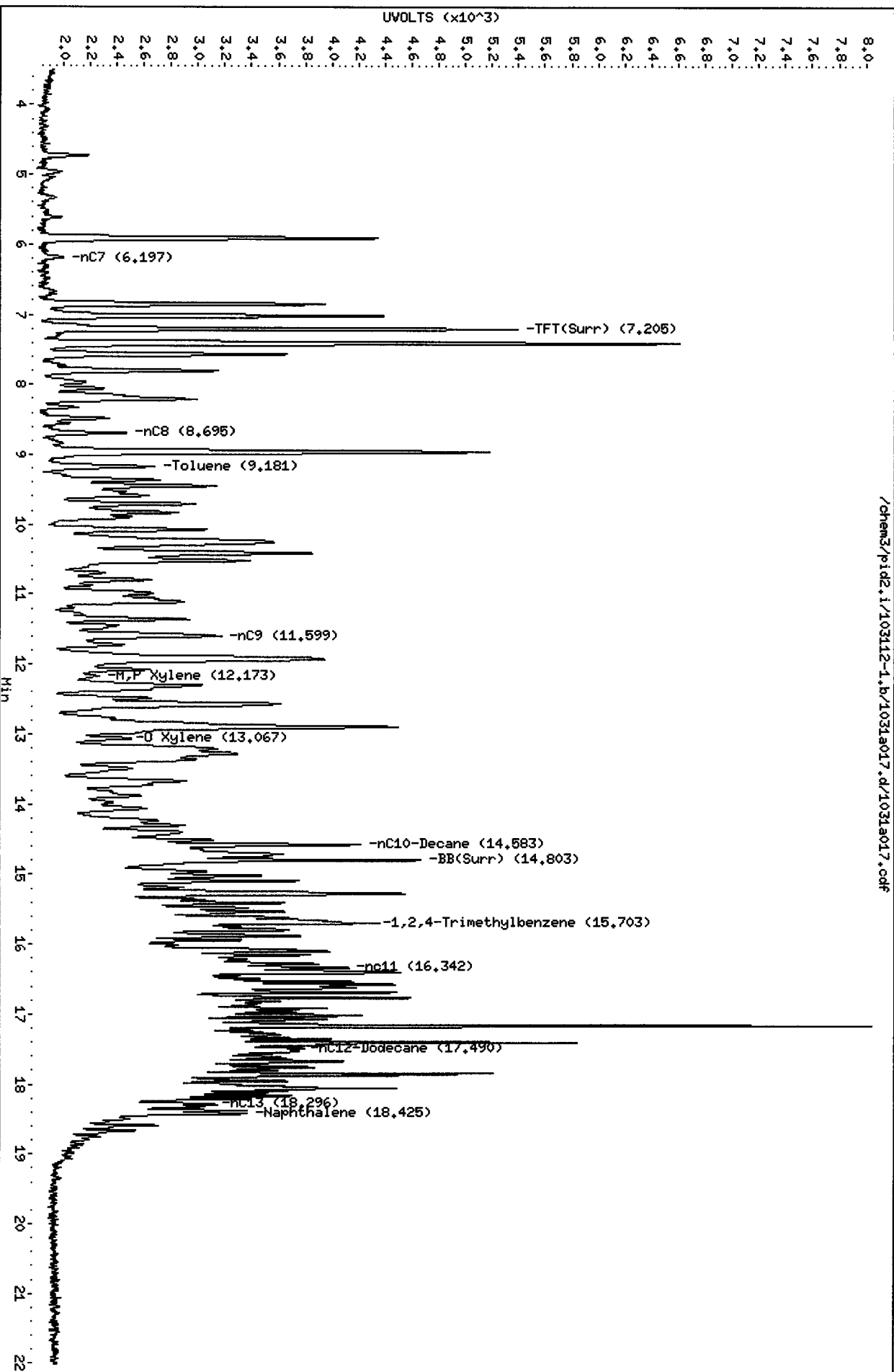
N Indicates peak was manually integrated

Data File: /chem3/pid2.i/103112-1.b/1031a017.d
Date: 31-OCT-2012 17:12
Client ID: QMSI-06-8-10
Sample Info: VPSLE

Column phase: RTX 502-2 FID

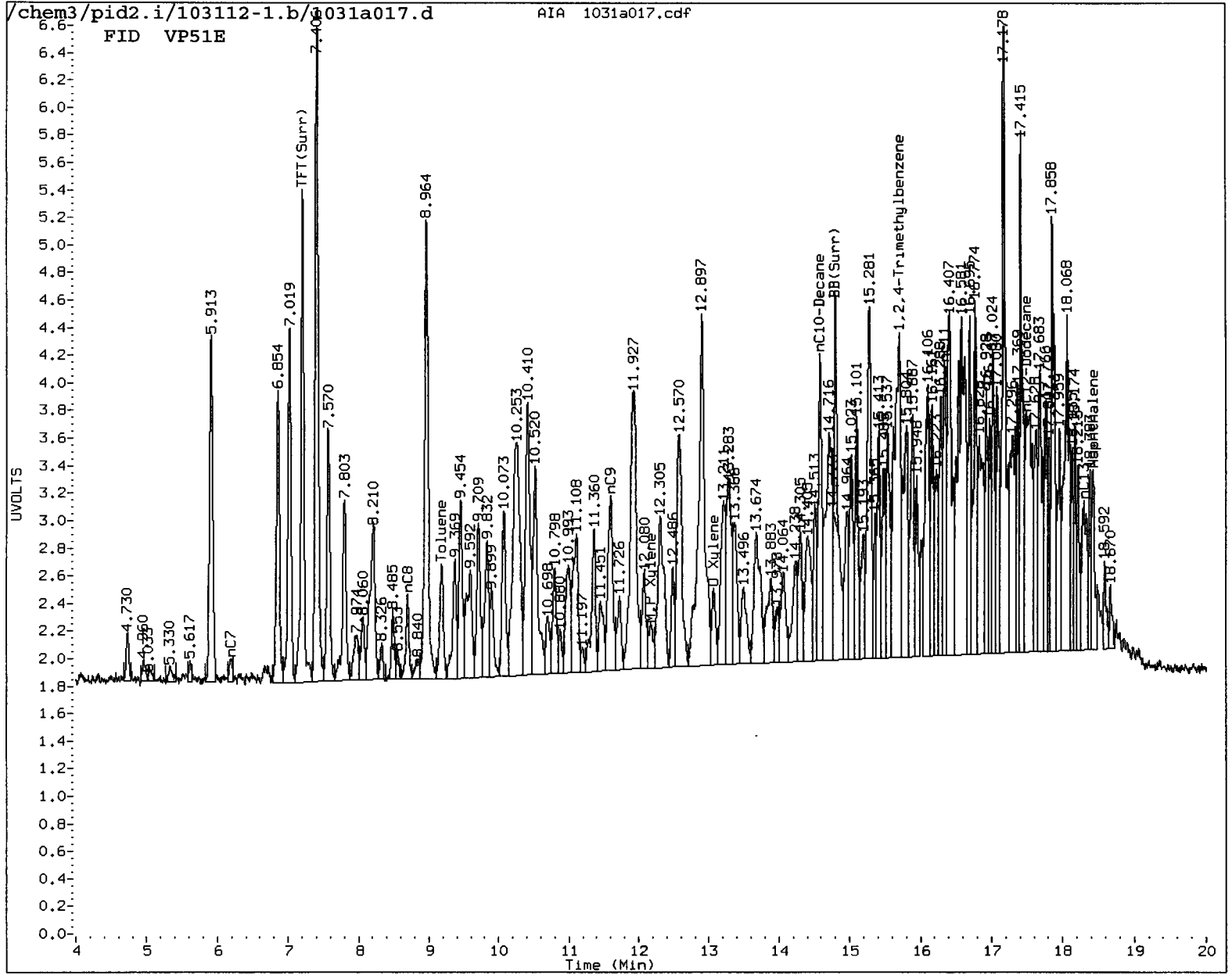
Instrument: pid2.i
Operator: JM
Column diameter: 0.18

Page 1



/chem3/pid2.i/103112-1.b/1031a017.d/1031a017.cdf

01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22



MANUAL INTEGRATION

- 1. Baseline correction
- 2. Poor chromatography
- 3. Peak not found
- 4. Totals calculation

5. Other _____

Analyst: VC Date: 2/17/12

Analytical Resources Inc.
 BETX/Gas Quantitation Report

AG
11/7/12

Data file 1: /chem3/pid2.i/103112-1.b/1031a018.d
 Data file 2: /chem3/pid2.i/103112-2.b/1031a018.d
 Method: /chem3/pid2.i/103112-2.b/PIDB.m
 Instrument: pid2.i
 Gas Ical Date: 20-OCT-2012
 BETX Ical Date: 20-OCT-2012

ARI ID: VP51F
 Client ID: CWSI-06-12-14
 Injection Date: 31-OCT-2012 17:40
 Matrix: SOIL
 Dilution Factor: 1.000

FID Surrogates

RT	Shift	Height	Area	%Rec	Compound
--	-----	-----	----	----	-----
7.206	-0.001	3564	49087	96.2	TFT(Surr)
14.803	-0.005	2088	23018	100.5	BB(Surr)

PETROLEUM HYDROCARBONS (FID)

Method	Range	RF	Total Area*	Amount
WATPHG	Tol-C12 (9.07 to 17.58)	391690	335264	0.856 M
8015C	2MP-TMB (3.74 to 15.74)	825102	443861	0.538 M
AK101	nC6-nC10 (4.19 to 14.47)	660003	391540	0.593 M
NWTPHG	Tol-Nap (9.07 to 18.59)	406475	385994	0.950 M <i>h/26</i>

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area
 Range marker RT's are set by daily RT standard

PID Surrogates

RT	Shift	Response	%Rec	Compound
--	-----	-----	----	-----
7.230	-0.001	13665	95.7	TFT(Surr)
14.821	-0.005	19159	95.1	BB(Surr)

SW8021B (PID)

RT	Shift	Response	Amount	Compound
--	-----	-----	----	-----
6.437	-0.001	1012	1.00	Benzene
9.187	-0.004	744	1.19	Toluene
12.023	-0.009	435	0.80	Ethylbenzene
12.180	-0.009	518	0.96	M/P-Xylene
13.080	-0.014	447	1.00	O-Xylene
ND	---	---	---	MTBE

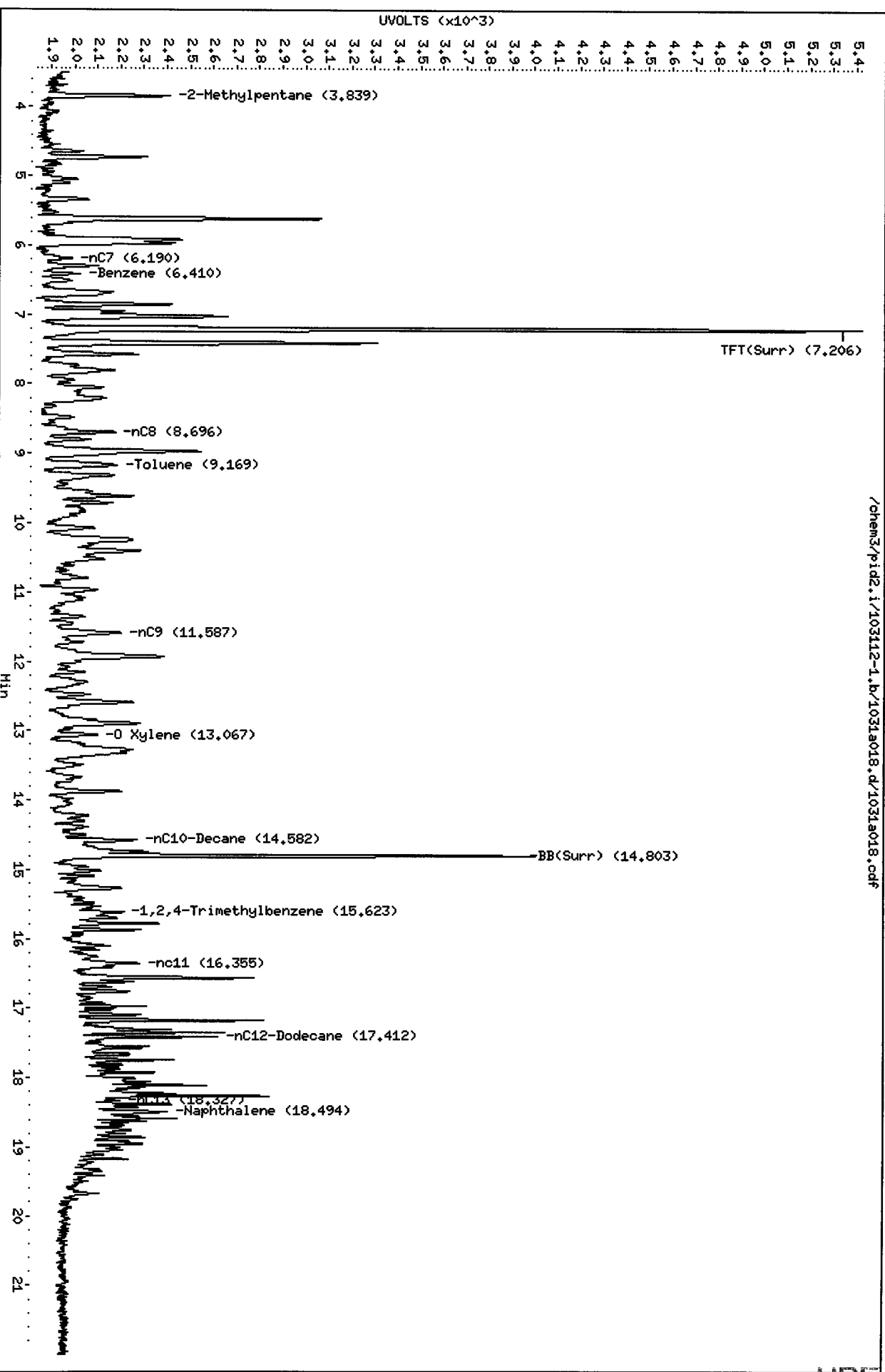
A Indicates Peak Area was used for quantitation instead of Height
 N Indicates peak was manually integrated

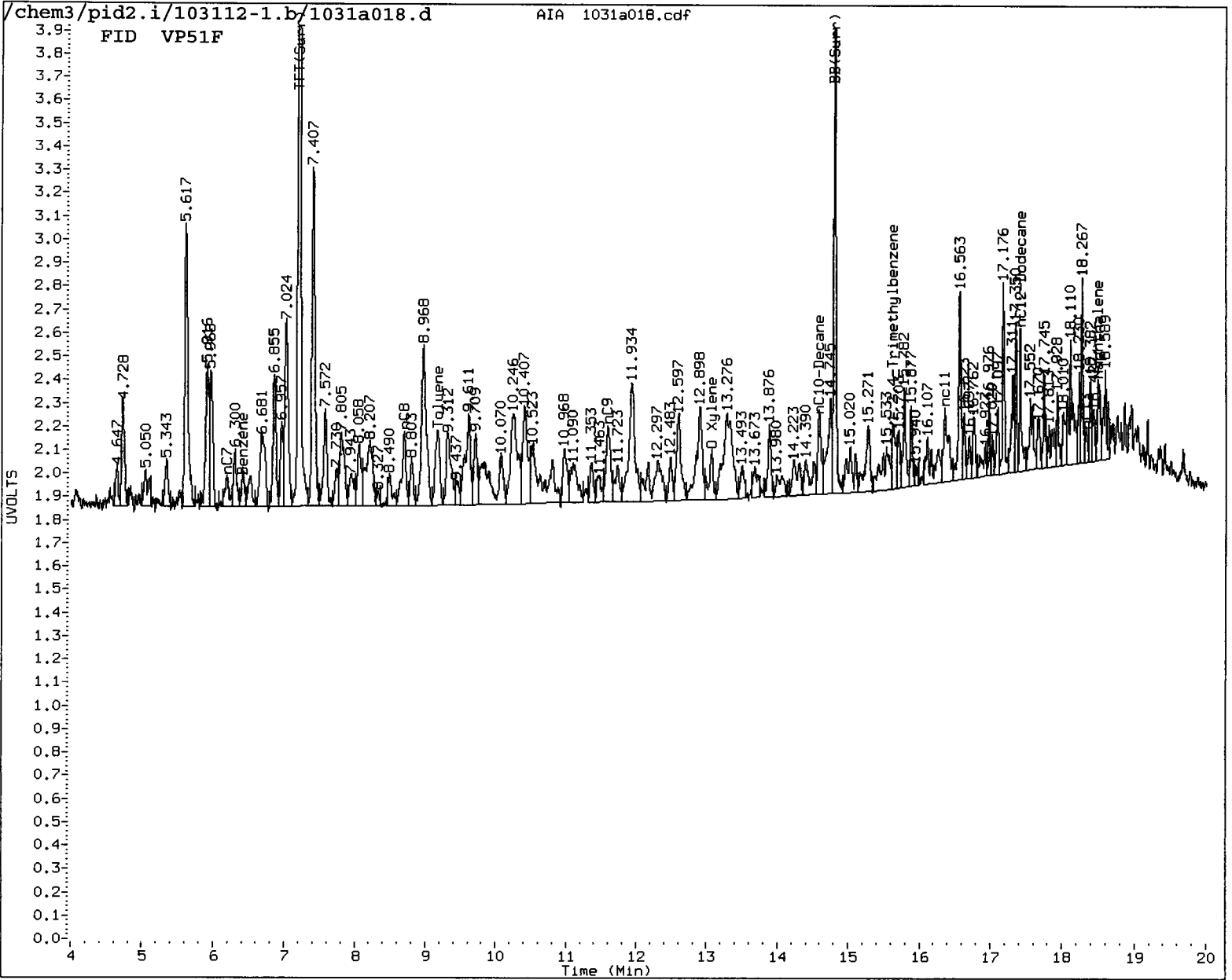
Data File: /chem3/pid2.i/103112-1.b/1031a018.d
Date: 31-OCT-2012 17:40
Client ID: OMSI-06-12-14
Sample Info: VP51F

Column phase: RTX 502-2 FID

Instrument: pid2.i
Operator: JM
Column diameter: 0.18

/chem3/pid2.i/103112-1.b/1031a018.d/1031a018.cdf





MANUAL INTEGRATION

- 1. Baseline correction
- 2. Poor chromatography
- 3. Peak not found
- 4. Totals calculation
- 5. Other _____

Analyst: PC Date: 11/7/12

Analytical Resources Inc.
 BETX/Gas Quantitation Report

PC
 11/7/12

Data file 1: /chem3/pid2.i/103112-1.b/1031a007.d
 Data file 2: /chem3/pid2.i/103112-2.b/1031a007.d
 Method: /chem3/pid2.i/103112-2.b/PIDB.m
 Instrument: pid2.i
 Gas Ical Date: 20-OCT-2012
 BETX Ical Date: 20-OCT-2012

ARI ID: VP51K
 Client ID: CWSI-TB-02
 Injection Date: 31-OCT-2012 12:32
 Matrix: WATER
 Dilution Factor: 1.000

FID Surrogates

RT	Shift	Height	Area	%Rec	Compound
--	-----	-----	----	----	-----
7.204	-0.003	3660	45506	98.8	TFT(Surr)
14.803	-0.005	1989	20476	95.7	BB(Surr)

PETROLEUM HYDROCARBONS (FID)

Method	Range	RF	Total Area*	Amount
WATPHG	Tol-C12 (9.07 to 17.58)	391690	0	0.000
8015C	2MP-TMB (3.74 to 15.74)	825102	1	0.000
AK101	nC6-nC10 (4.19 to 14.47)	660003	1	0.000
NWTPHG	Tol-Nap (9.07 to 18.59)	406475	0	0.000

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area
 Range marker RT's are set by daily RT standard

PID Surrogates

RT	Shift	Response	%Rec	Compound
--	-----	-----	----	-----
7.229	-0.002	13399	93.9	TFT(Surr)
14.822	-0.004	17660	87.6	BB(Surr)

SW8021B (PID)

RT	Shift	Response	Amount	Compound
--	-----	-----	----	-----
ND	---	---	---	Benzene
ND	---	---	---	Toluene
ND	---	---	---	Ethylbenzene
ND	---	---	---	M/P-Xylene
ND	---	---	---	O-Xylene
ND	---	---	---	MTBE

A Indicates Peak Area was used for quantitation instead of Height

N Indicates peak was manually integrated

Data File: /chem3/pid2.i/103112-1.b/1031a007.d

Date: 31-OCT-2012 12:32

Client ID: CMSI-TB-02

Sample Info: VP51K

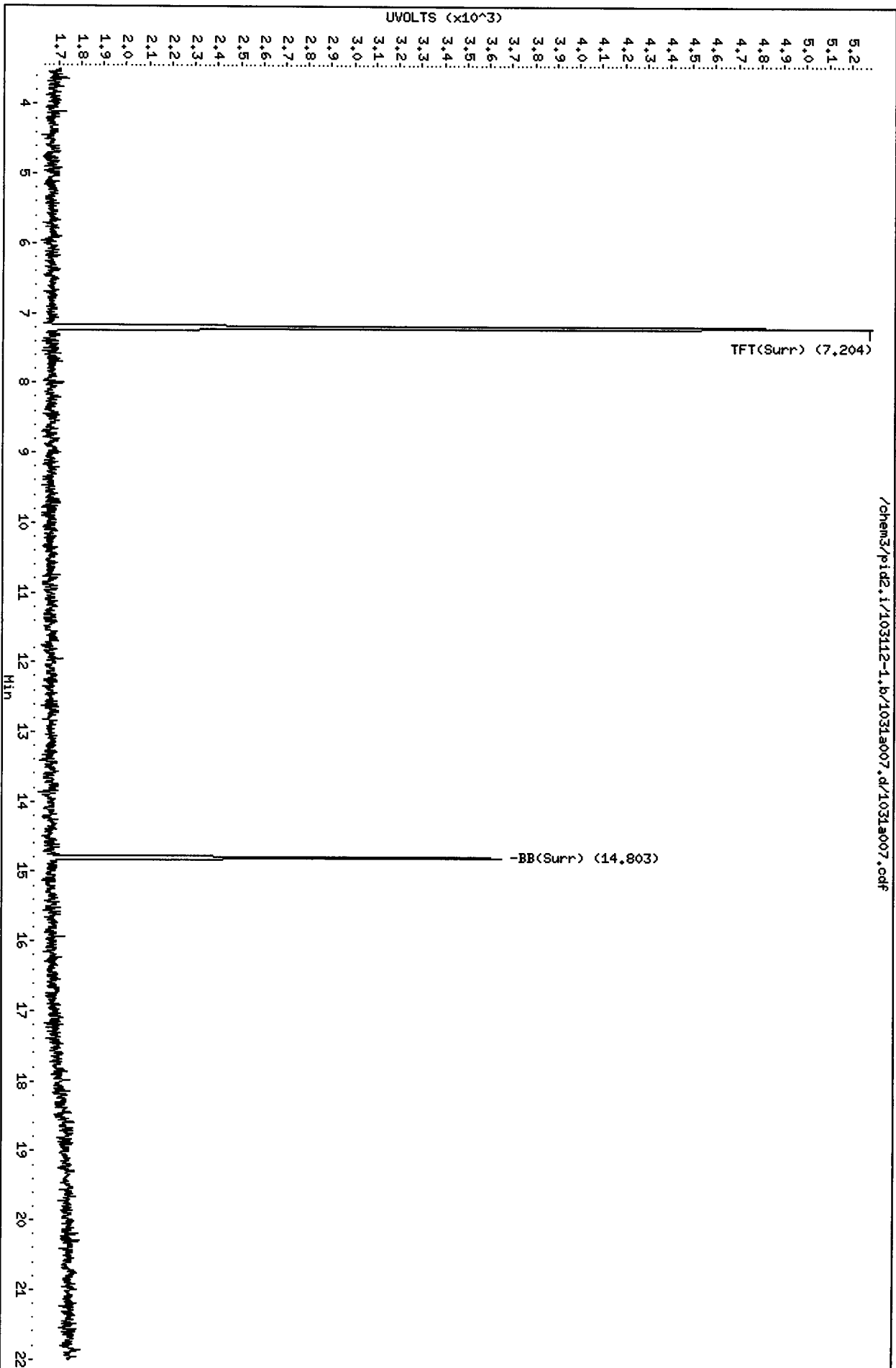
Column phase: RTX 502-2 FID

Instrument: pid2.i

Operator: JM

Column diameter: 0.18

Page 1



TPHG SOIL SURROGATE RECOVERY SUMMARY

ARI Job: VP51
Matrix: Soil

QC Report No: VP51-Anchor QEA LLC
Project: Central Waterfront Shoreline Inves.
Event: NA

<u>Client ID</u>	<u>BFB</u>	<u>TFT</u>	<u>BBZ</u>	<u>TOT OUT</u>
MB-103112	NA	97.5%	96.7%	0
LCS-103112	NA	99.5%	96.8%	0
LCSD-103112	NA	98.9%	98.4%	0
CWSI-07-2-4	NA	91.6%	93.5%	0
CWSI-05-2-4	NA	98.4%	98.7%	0
CWSI-05-7-9	NA	96.1%	97.3%	0
CWSI-05-12-14	NA	104%	99.4%	0
CWSI-06-8-10	NA	96.3%	80.2%	0
CWSI-06-12-14	NA	96.2%	100%	0

	LCS/MB LIMITS	QC LIMITS
(TFT) = Trifluorotoluene	(80-120)	(65-128)
(BBZ) = Bromobenzene	(80-120)	(52-149)

Log Number Range: 12-21314 to 12-21319

TPHG WATER SURROGATE RECOVERY SUMMARY

ARI Job: VP51
Matrix: Water

QC Report No: VP51-Anchor QEA LLC
Project: Central Waterfront Shoreline Inves.
Event: NA

<u>Client ID</u>	<u>TFT</u>	<u>BBZ</u>	<u>TOT OUT</u>
CWSI-TB-02	98.8%	95.7%	0

	<u>LCS/MB LIMITS</u>	<u>QC LIMITS</u>
(TFT) = Trifluorotoluene	(80-120)	(80-120)
(BBZ) = Bromobenzene	(80-120)	(80-120)

Log Number Range: 12-21324 to 12-21324

ORGANICS ANALYSIS DATA SHEET

TPHG by Method NWTPHG

Page 1 of 1

Sample ID: LCS-103112

LAB CONTROL SAMPLE

Lab Sample ID: LCS-103112

LIMS ID: 12-21314

Matrix: Soil

Data Release Authorized: *[Signature]*

Reported: 11/07/12

QC Report No: VP51-Anchor QEA LLC

Project: Central Waterfront Shoreline Inves.

Event: NA

Date Sampled: NA

Date Received: NA

Date Analyzed LCS: 10/31/12 11:07

LCSD: 10/31/12 11:35

Instrument/Analyst LCS: PID2/JLW

LCSD: PID2/JLW

Purge Volume: 5.0 mL

Sample Amount LCS: 100 mg-dry-wt

LCSD: 100 mg-dry-wt

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Gasoline Range Hydrocarbons	52.8	50.0	106%	51.5	50.0	103%	2.5%

Reported in mg/kg (ppm)

RPD calculated using sample concentrations per SW846.

TPHG Surrogate Recovery

	LCS	LCSD
Trifluorotoluene	99.5%	98.9%
Bromobenzene	96.8%	98.4%

Analytical Resources Inc.
 BETX/Gas Quantitation Report

Data file 1: /chem3/pid2.i/103112-1.b/1031a004.d
 Data file 2: /chem3/pid2.i/103112-2.b/1031a004.d
 Method: /chem3/pid2.i/103112-2.b/PIDB.m
 Instrument: pid2.i
 Gas Ical Date: 20-OCT-2012
 BETX Ical Date: 20-OCT-2012

ARI ID: LCS1031
 Client ID:
 Injection Date: 31-OCT-2012 11:07
 Matrix: WATER
 Dilution Factor: 1.000

FID Surrogates

RT	Shift	Height	Area	%Rec	Compound
--	-----	-----	-----	-----	-----
7.205	-0.002	3688	52666	99.5	TFT(Surr)
14.805	-0.004	2010	21000	96.8	BB(Surr)

PETROLEUM HYDROCARBONS (FID)

Method	Range	RF	Total Area*	Amount
WATPHG	Tol-C12 (9.07 to 17.58)	391690	410068	1.047 M
8015C	2MP-TMB (3.74 to 15.74)	825102	846020	1.025 M
AK101	nC6-nC10 (4.19 to 14.47)	660003	681503	1.033 M
NWTPHG	Tol-Nap (9.07 to 18.59)	406475	429559	1.057 M

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area
 Range marker RT's are set by daily RT standard

JW
~~tot~~
 11/1/12

PID Surrogates

RT	Shift	Response	%Rec	Compound
--	-----	-----	-----	-----
7.230	-0.001	13732	96.2	TFT(Surr)
14.822	-0.003	18864	93.6	BB(Surr)

SW8021B (PID)

RT	Shift	Response	Amount	Compound
--	-----	-----	-----	-----
6.436	-0.002	3487	3.45	Benzene
9.189	-0.002	24177	38.56	Toluene
12.026	-0.005	5115	9.39	Ethylbenzene
12.188	-0.002	20800	38.40	M/P-Xylene
13.090	-0.004	7805	17.48	O-Xylene
ND	---	---	---	MTBE

A Indicates Peak Area was used for quantitation instead of Height
 N Indicates peak was manually integrated

Data File: /chem3/pid2.i/103112-1.b/1031a004.d
Date: 31-OCT-2012 11:07

Client ID:

Sample Info: LCS1031

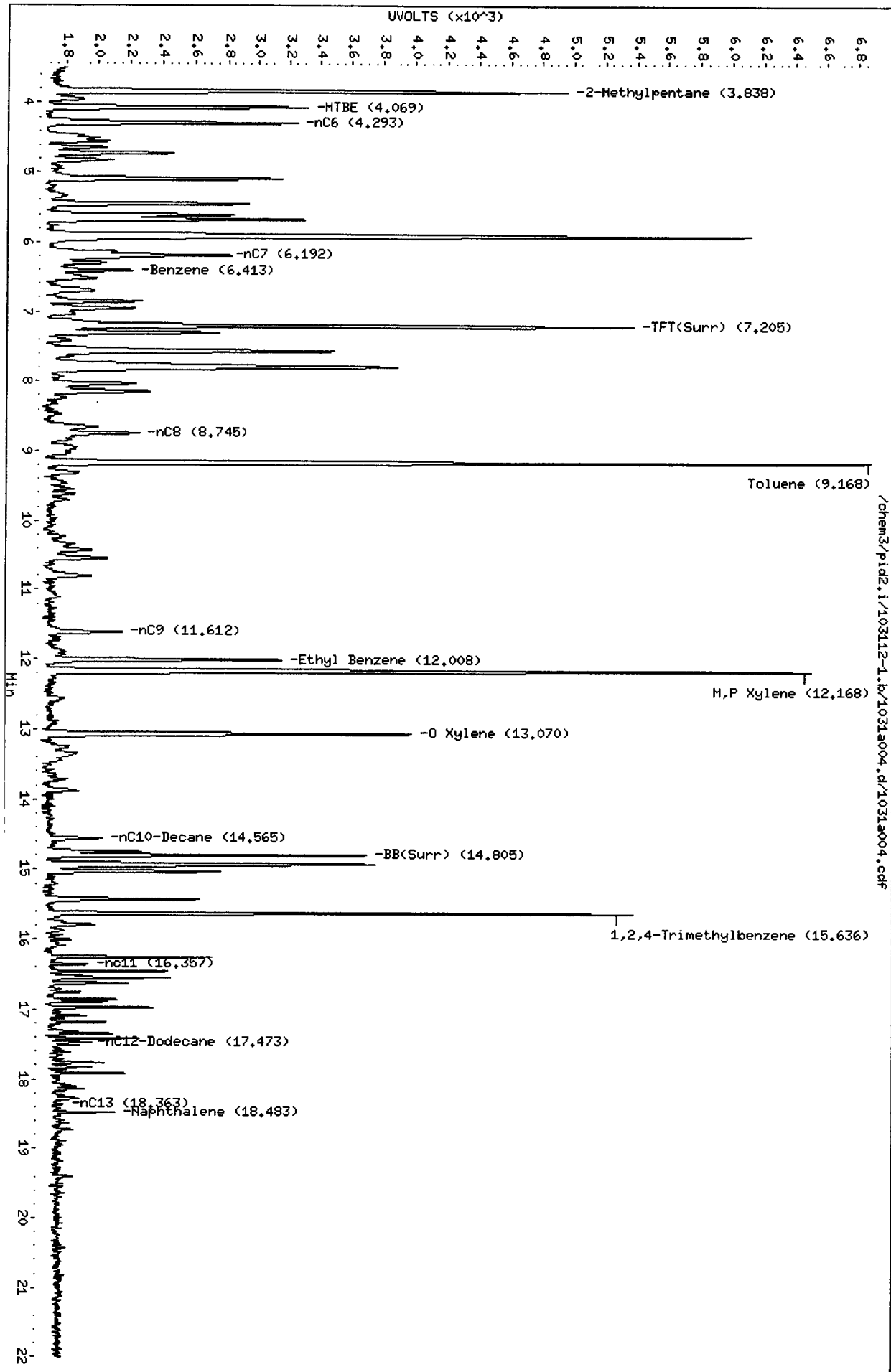
Column phase: RTX 502-2 FID

Instrument: pid2.i

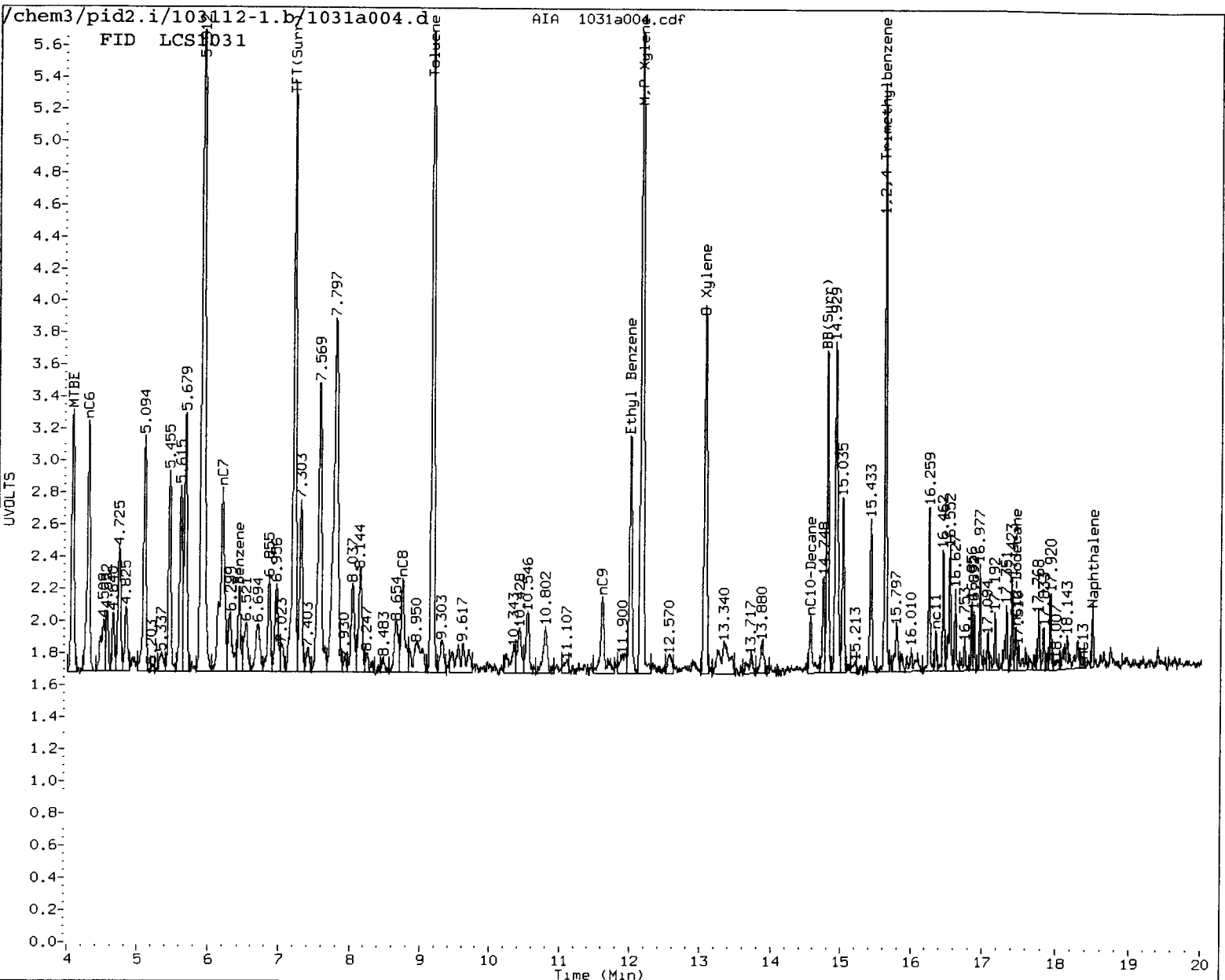
Operator: JM

Column diameter: 0.18

Page 1



103112-1.b

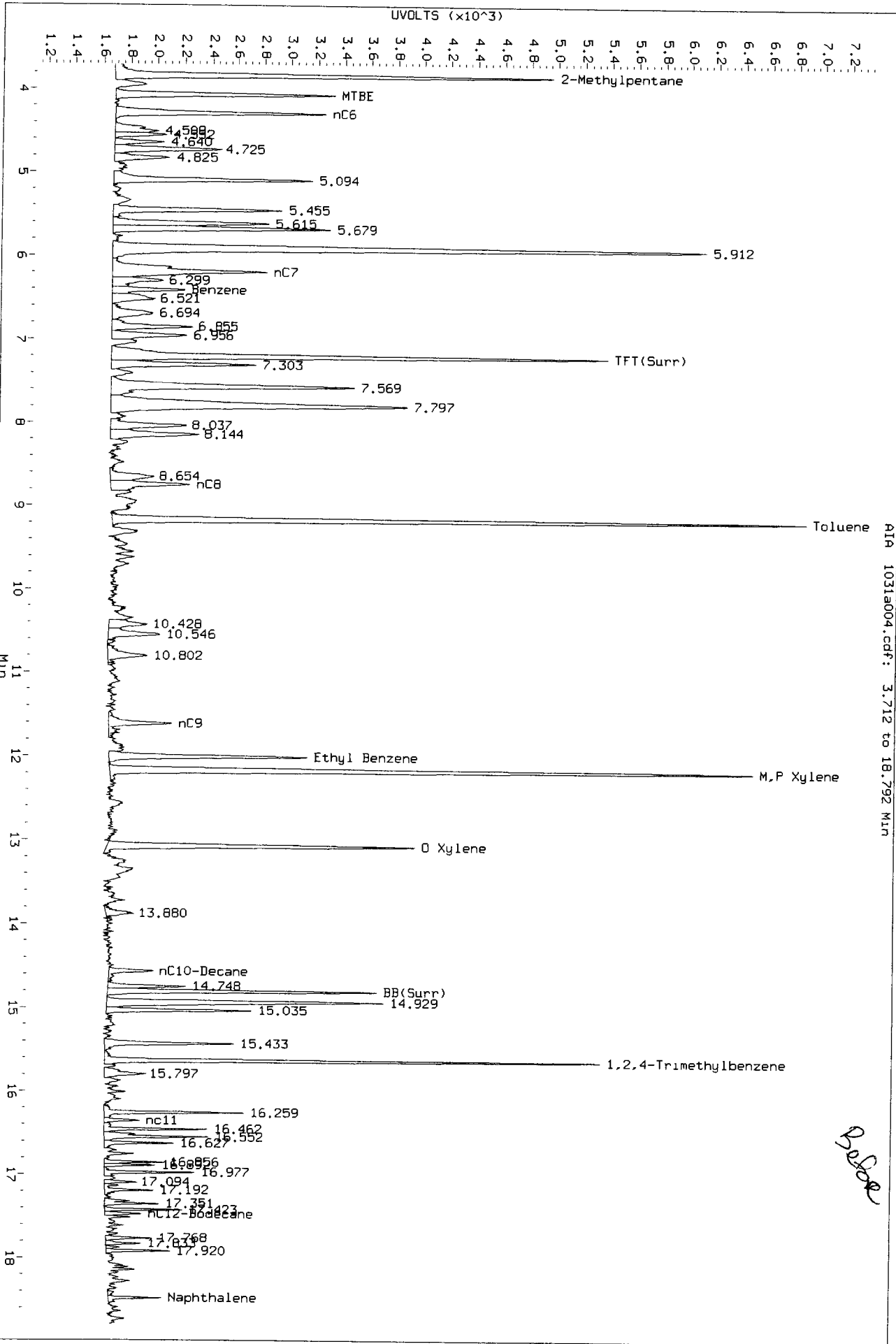


MANUAL INTEGRATION

- ① Baseline correction
- ② Poor chromatography
- ③ Peak not found
- 4. Totals calculation
- 5. Other _____

Analyst: SU Date: 11/1/12

Data File: /chem3/pid2.1/103112-1.b/1031a004.d/1031a004.cdf
Injection Date: 31-OCT-2012 11:07
Instrument: pid2.1
Client Sample ID:



Bob

Analytical Resources Inc.
 BETX/Gas Quantitation Report

Data file 1: /chem3/pid2.i/103112-1.b/1031a005.d
 Data file 2: /chem3/pid2.i/103112-2.b/1031a005.d
 Method: /chem3/pid2.i/103112-2.b/PIDB.m
 Instrument: pid2.i
 Gas Ical Date: 20-OCT-2012
 BETX Ical Date: 20-OCT-2012

ARI ID: LCSD1031
 Client ID:
 Injection Date: 31-OCT-2012 11:35
 Matrix: WATER
 Dilution Factor: 1.000

FID Surrogates

RT	Shift	Height	Area	%Rec	Compound
--	----	-----	----	----	-----
7.206	0.000	3666	52549	98.9	TFT(Surr)
14.805	-0.003	2044	20948	98.4	BB(Surr)

PETROLEUM HYDROCARBONS (FID)

Method	Range	RF	Total Area*	Amount
WATPHG	Tol-C12 (9.07 to 17.58)	391690	401632	1.025 M
8015C	2MP-TMB (3.74 to 15.74)	825102	831369	1.008 M
AK101	nC6-nC10 (4.19 to 14.47)	660003	671651	1.018 M
NWTPHG	Tol-Nap (9.07 to 18.59)	406475	418846	1.030 M

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area
 Range marker RT's are set by daily RT standard

JW
11/1/12

PID Surrogates

RT	Shift	Response	%Rec	Compound
--	----	-----	----	-----
7.230	-0.001	13708	96.0	TFT(Surr)
14.823	-0.003	18770	93.2	BB(Surr)

SW8021B (PID)

RT	Shift	Response	Amount	Compound
--	----	-----	-----	-----
6.437	-0.001	3541	3.50	Benzene
9.190	-0.001	24205	38.60	Toluene
12.027	-0.005	5078	9.32	Ethylbenzene
12.189	-0.001	20444	37.74	M/P-Xylene
13.090	-0.004	7694	17.24	O-Xylene
ND	---	---	---	MTBE

A Indicates Peak Area was used for quantitation instead of Height
 V Indicates peak was manually integrated

Data File: /chem3/pid2.i/103112-1.b/1031a005.d

Date: 31-OCT-2012 11:35

Client ID:

Sample Info: LCSD1031

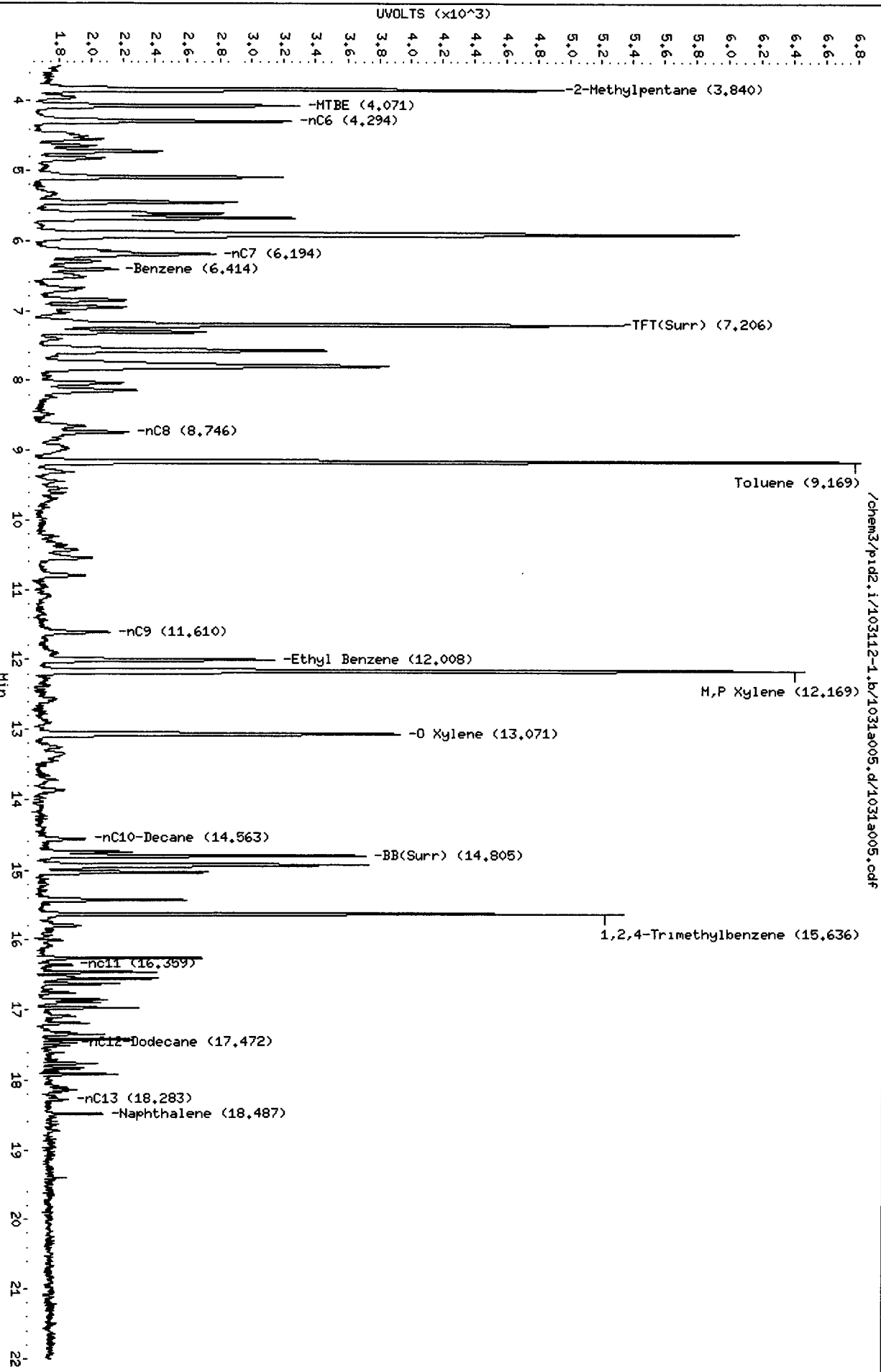
Column phase: RTX 502-2 FID

Instrument: pid2.i

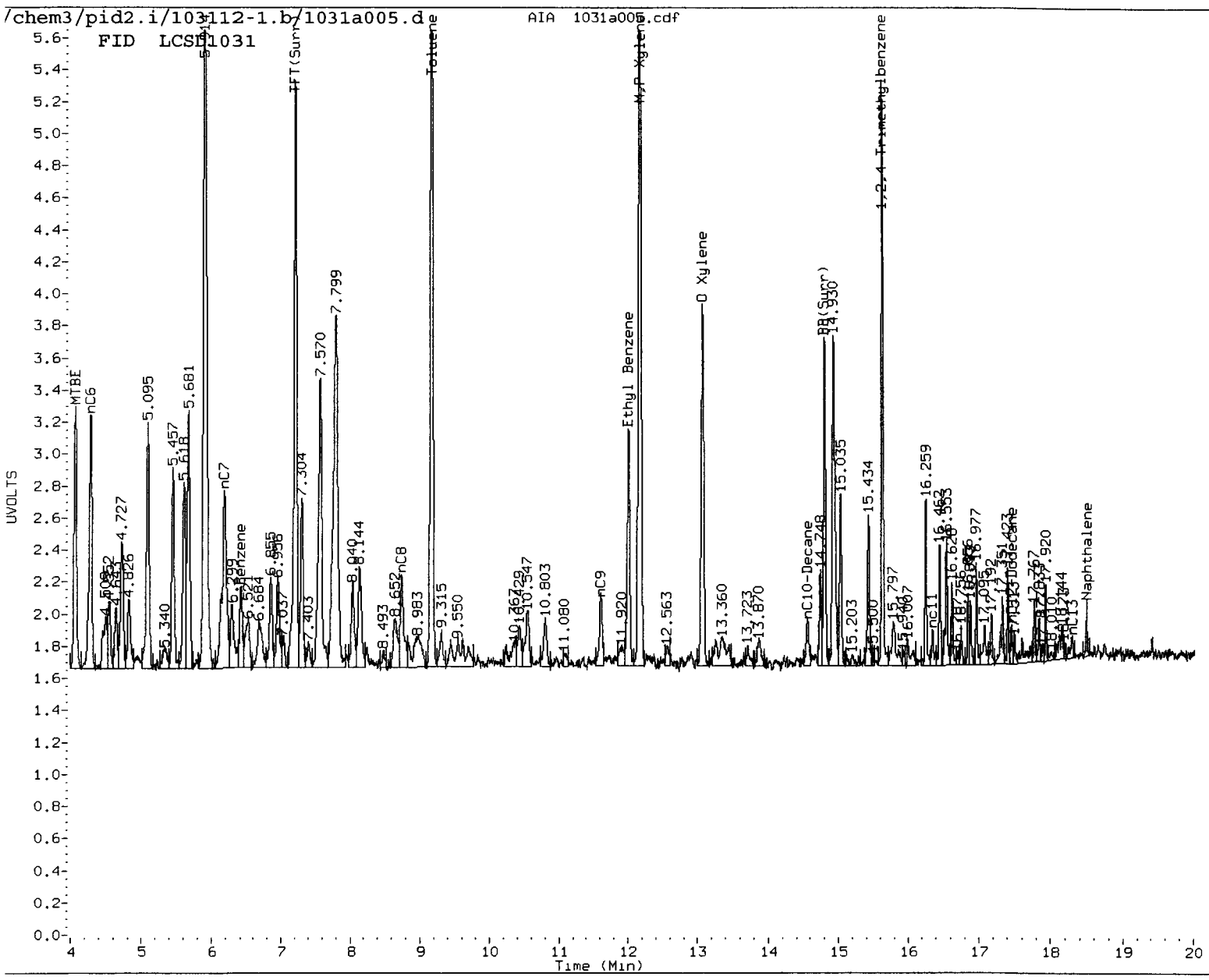
Operator: JM

Column diameter: 0.18

Page 1



10 20 30 40 50

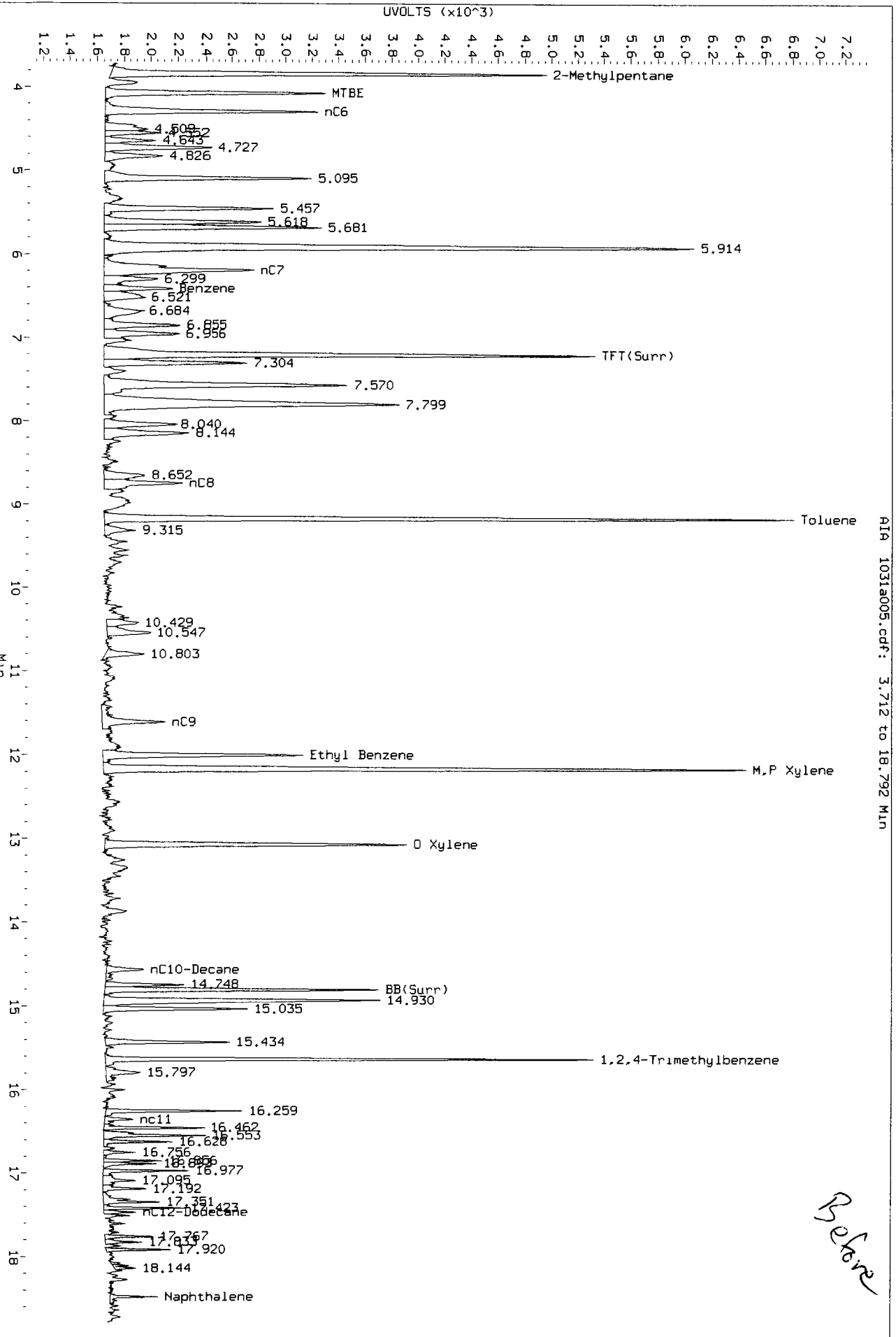


MANUAL INTEGRATION

- ① Baseline correction
- 2. Poor chromatography
- ③ Peak not found
- 4. Totals calculation
- 5. Other _____

Analyst: FU Date: 11/1/12

Data File: /chem3/pid2_1/1031a005.d/1031a005.cdf
 Injection Date: 31-Oct-2012 11:35
 Instrument: pid2_1
 Client Sample ID:



AIR 1031a005.cdf: 3.712 to 18.792 MIN

Before

BETX/GAS METHOD BLANK SUMMARY

BLANK NO.

MB1031

Lab Name: ANALYTICAL RESOURCES INC

Client: ANCHOR QEA LLC

SDG No.: VP51

Project No.: CENTRAL WATERFRONT

Date Analyzed : 10/31/12

Matrix: SOIL

Time Analyzed : 1203

Instrument ID : PID2

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED
	=====	=====	=====
01	LCS1031	LCS1031	10/31/12
02	LCSD1031	LCSD1031	10/31/12
03	CWSI-TB-02	VP51K	10/31/12
04	CWSI-07-2-4	VP51A	10/31/12
05	CWSI-05-2-4	VP51B	10/31/12
06	CWSI-05-7-9	VP51C	10/31/12
07	CWSI-05-12-1	VP51D	10/31/12
08	CWSI-06-8-10	VP51E	10/31/12
09	CWSI-06-12-1	VP51F	10/31/12
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			

6a
GAS INITIAL CALIBRATION

Lab Name: ANALYTICAL RESOURCES, INC.

Client: Anchor QEA LLC

Instrument/Det: PID2.I/RTX 502-2 FID

Project: Central Waterfront

Calibration Date: 20-OCT-2012

SDG No.: VP51

Gas Range	RF1 0.1	RF2 0.25	RF3 1.0	RF4 2.5	RF5 5.0	RF6 10	Ave RF	%RSD
WA Gas	349235	358515	408820	403377	414816	415379	391690	7.6
AK Gas	609435	644896	690302	653702	669673	692009	660003	4.7
NW Gas	358280	371107	424618	420179	431916	432748	406475	8.1
Cal Gas	759665	795129	850708	808208	826726	847830	814711	4.2
8015Gas	773895	816547	860460	816381	831400	851929	825102	3.7

Surrogates Rel. Rec.	RF1	RF2	RF3	RF4	RF5	RF6	Ave RF	%RSD
TFT(Surr)	40.27273 34.24000	39.13636	37.61194	36.49000	36.42105	35.21348	37.05508	5.728
BB(Surr)	21.59091 19.50000	22.04545	21.55224	20.44000	20.32331	19.96067	20.77323	4.604

<- Indicates %RSD outside limits
Surrogate areas are not included in RF calculation

Quant Ranges : WA Gas Toluene - nC12
 AK Gas nC6 - nC10
 NW Gas Toluene - Naphthalene
 Cal Gas nC6 - nC12
 8015 Gas 2-Methylpentane - 1,2,4-Trimethylbenzene

Calibration Files	Analysis Time
1020a011.d	20-OCT-2012 15:02
1020a012.d	20-OCT-2012 15:30
1020a013.d	20-OCT-2012 15:58
1020a014.d	20-OCT-2012 16:26
1020a015.d	20-OCT-2012 16:54
1020a016.d	20-OCT-2012 17:22

Surr Calibration Files	Analysis Time
1020a003.d	20-OCT-2012 11:17
1020a004.d	20-OCT-2012 11:45
1020a005.d	20-OCT-2012 12:13
1020a006.d	20-OCT-2012 12:42
1020a007.d	20-OCT-2012 13:09
1020a008.d	20-OCT-2012 13:38
1020a009.d	20-OCT-2012 14:06

p1 of 1

FORM VI-GAS

7a
GAS CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC.

Client: ANCHOR QEA LLC

ICal Date: 20-OCT-2012

Project: CENTRAL WATERFRONT

CCal Date: 31-OCT-2012

SDG No.: VP51

Lab File Name: 1031a003.d

Inst/Det: PID2.I/RTX 502-2 FID

Gas Range	Area*	CalcAmt	NomAmt	%D
WAGas (Tol-C12)	976277	2.49	2.50	-0.3
AKGas (C6-C10)	1630947	2.47	2.50	-1.2
NWGas (Tol-Nap)	1021578	2.51	2.50	0.5
8015C (2MP-TMB)	2016194	2.44	2.50	-2.3

* Surrogate areas are subtracted from Total Area
<- Indicates an RPD outside QC limits

7b
FID SURROGATE CONTINUING CALIBRATION

Lab Name: ANALYTICAL RESOURCES, INC.

Client: ANCHOR QEA LLC

ICal Date: 20-OCT-2012

Project: CENTRAL WATERFRONT

CCal Date: 31-OCT-2012

SDG No.: VP51

Lab File Name: 1031a003.d

Inst/Det: PID2.I/RTX 502-2 FID

Surrogate	Area	CalcAmt	NomAmt	RPD
Trifluorotol	64433	103.8	100.0	3.8
Bromoflrbenz	21772	98.3	100.0	-1.7

7a
GAS CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC.

Client: ANCHOR QEA LLC

ICal Date: 20-OCT-2012

Project: CENTRA WATERFRONT

CCal Date: 31-OCT-2012

SDG No.: VP51

Lab File Name: 1031a012.d

Inst/Det: PID2.I/RTX 502-2 FID

Gas Range	Area*	CalcAmt	NomAmt	%D
WAGas (Tol-C12)	927630	2.37	2.50	-5.3
AKGas (C6-C10)	1575696	2.39	2.50	-4.5
NWGas (Tol-Nap)	969830	2.39	2.50	-4.6
8015C (2MP-TMB)	1946829	2.36	2.50	-5.6

* Surrogate areas are subtracted from Total Area
<- Indicates an RPD outside QC limits

7b
FID SURROGATE CONTINUING CALIBRATION

Lab Name: ANALYTICAL RESOURCES, INC.

Client: ANCHOR QEA LLC

ICal Date: 20-OCT-2012

Project: CENTRA WATERFRONT

CCal Date: 31-OCT-2012

SDG No.: VP51

Lab File Name: 1031a012.d

Inst/Det: PID2.I/RTX 502-2 FID

Surrogate	Area	CalcAmt	NomAmt	RPD
Trifluorotol	62093	99.6	100.0	-0.4
Bromoflrbenz	20892	96.4	100.0	-3.6

7a
GAS CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC.

Client: ANCHOR QEA LLC

ICal Date: 20-OCT-2012

Project: CENTRAL WATERFRONT

CCal Date: 31-OCT-2012

SDG No.: VQ51

Lab File Name: 1031a022.d

Inst/Det: PID2.I/RTX 502-2 FID

Gas Range	Area*	CalcAmnt	NomAmnt	%D
WAGas (Tol-C12)	937814	2.39	2.50	-4.2
AKGas (C6-C10)	1528604	2.32	2.50	-7.4
NWGas (Tol-Nap)	984534	2.42	2.50	-3.1
8015C (2MP-TMB)	1894932	2.30	2.50	-8.1

* Surrogate areas are subtracted from Total Area
<- Indicates an RPD outside QC limits

7b
FID SURROGATE CONTINUING CALIBRATION

Lab Name: ANALYTICAL RESOURCES, INC.

Client: ANCHOR QEA LLC

ICal Date: 20-OCT-2012

Project: CENTRAL WATERFRONT

CCal Date: 31-OCT-2012

SDG No.: VQ51

Lab File Name: 1031a022.d

Inst/Det: PID2.I/RTX 502-2 FID

Surrogate	Area	CalcAmt	NomAmt	RPD
Trifluorotol	60298	98.7	100.0	-1.3
Bromoflrbenz	21547	96.9	100.0	-3.1

8
BETX/GAS ANALYTICAL SEQUENCE

Lab Name: ANALYTICAL RESOURCES INC

Client: Anchor QEA LLC

SDG No.: VP51

Project: Central Waterfront

Instrument ID: PID2

GC Detector: RTX 502-2 FID

Run Date: 10/20/12

THE ANALYTICAL SEQUENCE OF BLANKS, SAMPLES, AND STANDARDS,
IS GIVEN BELOW:

METHOD SURROGATE RT							
S1 : 7.20		S2 : 14.80					
CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	S1 RT	#	S2 RT	#
=====	=====	=====	=====	=====	=====	=====	=====
01	RINSE	10/20/12	1021				
02	RT1020+BCAL1	10/20/12	1049	7.20		14.80	
03	BTEX 0.25	10/20/12	1117	7.20		14.80	
04	BTEX 0.50	10/20/12	1145	7.20		14.80	
05	BTEX 5.0	10/20/12	1213	7.20		14.80	
06	BTEX 25	10/20/12	1242	7.19		14.80	
07	BTEX 50	10/20/12	1309	7.20		14.80	
08	BTEX 100	10/20/12	1338	7.20		14.80	
09	BTEX 200	10/20/12	1406	7.20		14.80	
10	BTEX ICV	10/20/12	1434	7.20		14.80	
11	GAS 0.10	10/20/12	1502	7.20		14.80	
12	GAS 0.25	10/20/12	1530	7.20		14.80	
13	GAS 1.0	10/20/12	1558	7.20		14.80	
14	GAS 2.5	10/20/12	1626	7.20		14.80	
15	GAS 5.0	10/20/12	1654	7.20		14.80	
16	GAS 10	10/20/12	1722	7.20		14.80	
17	GAS ICV	10/20/12	1750	7.20		14.80	

S1 = TFT(Surr) (+/- 0.07 MINUTES)
S2 = BB(Surr) (+/- 0.07 MINUTES)

QC LIMITS

* Values outside of QC limits.

BETX/GAS ANALYTICAL SEQUENCE

Lab Name: ANALYTICAL RESOURCES INC

Client: ANCHOR QEA LLC

SDG No.: VP51

Project: CENTRAL WATERFRONT

Instrument ID: PID2

GC Detector: RTX 502-2 FID

Run Date: 10/31/12

THE ANALYTICAL SEQUENCE OF BLANKS, SAMPLES, AND STANDARDS,
IS GIVEN BELOW:

METHOD SURROGATE RT				S1	S2
S1 : 7.20		S2 : 14.80			
CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	RT #	RT #
01	ZZZZZ	10/31/12	0943		
02	RT1031+BCAL1	10/31/12	1011	7.21	14.81
03	CENTRAL WATE	10/31/12	1039	7.20	14.81
04	LCS1031	10/31/12	1107	7.20	14.80
05	LCS1031	10/31/12	1135	7.21	14.80
06	MB1031	10/31/12	1203	7.20	14.80
07	CWSI-TB-02	10/31/12	1232	7.20	14.80
08	ZZZZZ	10/31/12	1300	7.20	14.80
09	ZZZZZ	10/31/12	1328	7.20	14.80
10	ZZZZZ	10/31/12	1356	7.20	14.80
11	ZZZZZ	10/31/12	1424	7.20	14.80
12	CENTRA WATER	10/31/12	1452	7.21	14.80
13	CWSI-07-2-4	10/31/12	1520	7.21	14.80
14	CWSI-05-2-4	10/31/12	1548	7.21	14.80
15	CWSI-05-7-9	10/31/12	1616	7.21	14.80
16	CWSI-05-12-1	10/31/12	1644	7.21	14.80
17	CWSI-06-8-10	10/31/12	1712	7.21	14.80
18	CWSI-06-12-1	10/31/12	1740	7.21	14.80
19	ZZZZZ	10/31/12	1809	7.20	14.80
20	ZZZZZ	10/31/12	1837	7.20	14.80
21	ZZZZZ	10/31/12	1905	7.20	14.80
22	CENTRAL WATE	10/31/12	1933	7.20	14.80

QC LIMITS
S1 = TFT(Surr) (+/- 0.07 MINUTES)
S2 = BB(Surr) (+/- 0.07 MINUTES)

* Values outside of QC limits.

**Metals Analysis
Report and Summary QC Forms**

ARI Job ID: VP51

Cover Page
INORGANIC ANALYSIS DATA PACKAGE



CLIENT: Anchor QEA LLC
 PROJECT: Central Waterfront S
 SDG: VP51

CLIENT ID	ARI ID	ARI LIMS ID	REPREP
CWSI-07-2-4	VP51A	12-21314	
CWSI-07-2-4D	VP51ADUP	12-21314	
CWSI-07-2-4S	VP51ASPK	12-21314	
CWSI-05-2-4	VP51B	12-21315	
PBS	VP51MB1	12-21315	
LCSS	VP51MB1SPK	12-21315	
CWSI-05-7-9	VP51C	12-21316	
CWSI-05-12-14	VP51D	12-21317	
CWSI-06-8-10	VP51E	12-21318	
CWSI-06-12-14	VP51F	12-21319	

Were ICP interelement corrections applied ? Yes/No YES
 Were ICP background corrections applied ? Yes/No YES
 If yes - were raw data generated before application of background corrections ? Yes/No NO

Comments: _____

THIS DATA PACKAGE HAS BEEN REVIEWED AND AUTHORIZED FOR RELEASE BY:

Signature: 

Name: Jay Kuhn

Date: 1/16/12

Title: Inorganics Director

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS


Page 1 of 1

Sample ID: CWSI-07-2-4
SAMPLE

Lab Sample ID: VP51A

LIMS ID: 12-21314

Matrix: Soil

Data Release Authorized: 

Reported: 11/06/12

QC Report No: VP51-Anchor QEA LLC

Project: Central Waterfront Shoreline Inves.

Date Sampled: 10/26/12

Date Received: 10/27/12

Percent Total Solids: 79.6%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	10/30/12	6010C	11/01/12	7440-36-0	Antimony	6	6	U
3050B	10/30/12	6010C	11/01/12	7440-38-2	Arsenic	6	11	
3050B	10/30/12	6010C	11/01/12	7440-41-7	Beryllium	0.1	0.2	
3050B	10/30/12	6010C	11/01/12	7440-43-9	Cadmium	0.2	0.3	
3050B	10/30/12	6010C	11/01/12	7440-47-3	Chromium	0.6	34.1	
3050B	10/30/12	6010C	11/01/12	7440-50-8	Copper	0.2	33.0	
3050B	10/30/12	6010C	11/01/12	7439-92-1	Lead	2	25	
CLP	10/30/12	7471A	11/02/12	7439-97-6	Mercury	0.03	0.04	
3050B	10/30/12	6010C	11/01/12	7440-02-0	Nickel	1	28	
3050B	10/30/12	6010C	11/01/12	7782-49-2	Selenium	6	6	U
3050B	10/30/12	6010C	11/01/12	7440-22-4	Silver	0.3	0.3	U
3050B	10/30/12	6010C	11/01/12	7440-28-0	Thallium	6	6	U
3050B	10/30/12	6010C	11/01/12	7440-66-6	Zinc	1	106	

U-Analyte undetected at given LOQ

LOQ-Limit of Quantitation

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS

Page 1 of 1

Sample ID: CWSI-05-2-4
SAMPLE

Lab Sample ID: VP51B

QC Report No: VP51-Anchor QEA LLC

LIMS ID: 12-21315

Project: Central Waterfront Shoreline Inves.

Matrix: Soil

Data Release Authorized

Date Sampled: 10/26/12

Reported: 11/06/12

Date Received: 10/27/12

Percent Total Solids: 83.5%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	10/30/12	6010C	11/01/12	7440-36-0	Antimony	6	6	U
3050B	10/30/12	6010C	11/01/12	7440-38-2	Arsenic	6	6	U
3050B	10/30/12	6010C	11/01/12	7440-41-7	Beryllium	0.1	0.1	
3050B	10/30/12	6010C	11/01/12	7440-43-9	Cadmium	0.2	0.3	
3050B	10/30/12	6010C	11/01/12	7440-47-3	Chromium	0.6	27.4	
3050B	10/30/12	6010C	11/01/12	7440-50-8	Copper	0.2	27.2	
3050B	10/30/12	6010C	11/01/12	7439-92-1	Lead	2	23	
CLP	10/30/12	7471A	11/02/12	7439-97-6	Mercury	0.02	0.17	
3050B	10/30/12	6010C	11/01/12	7440-02-0	Nickel	1	30	
3050B	10/30/12	6010C	11/01/12	7782-49-2	Selenium	6	6	U
3050B	10/30/12	6010C	11/01/12	7440-22-4	Silver	0.3	0.3	U
3050B	10/30/12	6010C	11/01/12	7440-28-0	Thallium	6	6	U
3050B	10/30/12	6010C	11/01/12	7440-66-6	Zinc	1	73	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS


Page 1 of 1

Sample ID: CWSI-05-7-9
SAMPLE

Lab Sample ID: VP51C

LIMS ID: 12-21316

Matrix: Soil

Data Release Authorized 

Reported: 11/06/12

QC Report No: VP51-Anchor QEA LLC

Project: Central Waterfront Shoreline Inves.

Date Sampled: 10/26/12

Date Received: 10/27/12

Percent Total Solids: 76.0%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	10/30/12	6010C	11/01/12	7440-36-0	Antimony	6	6	U
3050B	10/30/12	6010C	11/01/12	7440-38-2	Arsenic	6	18	
3050B	10/30/12	6010C	11/01/12	7440-41-7	Beryllium	0.1	0.2	
3050B	10/30/12	6010C	11/01/12	7440-43-9	Cadmium	0.3	0.4	
3050B	10/30/12	6010C	11/01/12	7440-47-3	Chromium	0.6	22.7	
3050B	10/30/12	6010C	11/01/12	7440-50-8	Copper	0.3	50.1	
3050B	10/30/12	6010C	11/01/12	7439-92-1	Lead	3	33	
CLP	10/30/12	7471A	11/02/12	7439-97-6	Mercury	0.03	0.12	
3050B	10/30/12	6010C	11/01/12	7440-02-0	Nickel	1	26	
3050B	10/30/12	6010C	11/01/12	7782-49-2	Selenium	6	6	U
3050B	10/30/12	6010C	11/01/12	7440-22-4	Silver	0.4	0.4	U
3050B	10/30/12	6010C	11/01/12	7440-28-0	Thallium	6	6	U
3050B	10/30/12	6010C	11/01/12	7440-66-6	Zinc	1	100	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS

Page 1 of 1

**Sample ID: CWSI-05-12-14
SAMPLE**


Lab Sample ID: VP51D

QC Report No: VP51-Anchor QEA LLC

LIMS ID: 12-21317

Project: Central Waterfront Shoreline Inves.

Matrix: Soil

Data Release Authorized: 

Date Sampled: 10/26/12

Reported: 11/06/12

Date Received: 10/27/12

Percent Total Solids: 80.9%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	10/30/12	6010C	11/01/12	7440-36-0	Antimony	6	6	U
3050B	10/30/12	6010C	11/01/12	7440-38-2	Arsenic	6	7	
3050B	10/30/12	6010C	11/01/12	7440-41-7	Beryllium	0.1	0.1	U
3050B	10/30/12	6010C	11/01/12	7440-43-9	Cadmium	0.2	0.3	
3050B	10/30/12	6010C	11/01/12	7440-47-3	Chromium	0.6	21.1	
3050B	10/30/12	6010C	11/01/12	7440-50-8	Copper	0.2	35.3	
3050B	10/30/12	6010C	11/01/12	7439-92-1	Lead	2	69	
CLP	10/30/12	7471A	11/02/12	7439-97-6	Mercury	0.03	0.09	
3050B	10/30/12	6010C	11/01/12	7440-02-0	Nickel	1	18	
3050B	10/30/12	6010C	11/01/12	7782-49-2	Selenium	6	6	U
3050B	10/30/12	6010C	11/01/12	7440-22-4	Silver	0.4	0.4	U
3050B	10/30/12	6010C	11/01/12	7440-28-0	Thallium	6	6	U
3050B	10/30/12	6010C	11/01/12	7440-66-6	Zinc	1	156	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS

Page 1 of 1

Sample ID: CWSI-06-8-10
SAMPLE


Lab Sample ID: VP51E

QC Report No: VP51-Anchor QEA LLC

LIMS ID: 12-21318

Project: Central Waterfront Shoreline Inves.

Matrix: Soil

Data Release Authorized: 

Date Sampled: 10/26/12

Reported: 11/06/12

Date Received: 10/27/12

Percent Total Solids: 61.4%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	10/30/12	6010C	11/01/12	7440-36-0	Antimony	7	7	U
3050B	10/30/12	6010C	11/01/12	7440-38-2	Arsenic	7	9	
3050B	10/30/12	6010C	11/01/12	7440-41-7	Beryllium	0.1	0.1	U
3050B	10/30/12	6010C	11/01/12	7440-43-9	Cadmium	0.3	0.7	
3050B	10/30/12	6010C	11/01/12	7440-47-3	Chromium	0.7	29.8	
3050B	10/30/12	6010C	11/01/12	7440-50-8	Copper	0.3	89.4	
3050B	10/30/12	6010C	11/01/12	7439-92-1	Lead	3	145	
CLP	10/30/12	7471A	11/02/12	7439-97-6	Mercury	0.03	0.38	
3050B	10/30/12	6010C	11/01/12	7440-02-0	Nickel	1	33	
3050B	10/30/12	6010C	11/01/12	7782-49-2	Selenium	7	7	U
3050B	10/30/12	6010C	11/01/12	7440-22-4	Silver	0.4	0.4	U
3050B	10/30/12	6010C	11/01/12	7440-28-0	Thallium	7	7	U
3050B	10/30/12	6010C	11/01/12	7440-66-6	Zinc	1	202	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS

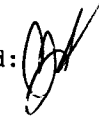
Page 1 of 1

**Sample ID: CWSI-06-12-14
SAMPLE**

Lab Sample ID: VP51F

LIMS ID: 12-21319

Matrix: Soil

Data Release Authorized: 

Reported: 11/06/12

QC Report No: VP51-Anchor QEA LLC

Project: Central Waterfront Shoreline Inves.

Date Sampled: 10/26/12

Date Received: 10/27/12

Percent Total Solids: 79.7%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	10/30/12	6010C	11/01/12	7440-36-0	Antimony	6	6	U
3050B	10/30/12	6010C	11/01/12	7440-38-2	Arsenic	6	6	U
3050B	10/30/12	6010C	11/01/12	7440-41-7	Beryllium	0.1	0.1	U
3050B	10/30/12	6010C	11/01/12	7440-43-9	Cadmium	0.2	0.5	
3050B	10/30/12	6010C	11/01/12	7440-47-3	Chromium	0.6	15.8	
3050B	10/30/12	6010C	11/01/12	7440-50-8	Copper	0.2	41.4	
3050B	10/30/12	6010C	11/01/12	7439-92-1	Lead	2	511	
CLP	10/30/12	7471A	11/02/12	7439-97-6	Mercury	0.02	0.33	
3050B	10/30/12	6010C	11/01/12	7440-02-0	Nickel	1	15	
3050B	10/30/12	6010C	11/01/12	7782-49-2	Selenium	6	6	U
3050B	10/30/12	6010C	11/01/12	7440-22-4	Silver	0.4	0.4	U
3050B	10/30/12	6010C	11/01/12	7440-28-0	Thallium	6	6	U
3050B	10/30/12	6010C	11/01/12	7440-66-6	Zinc	1	180	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS

Page 1 of 1

**Sample ID: CWSI-07-2-4
MATRIX SPIKE**

Lab Sample ID: VP51A

QC Report No: VP51-Anchor QEA LLC

LIMS ID: 12-21314

Project: Central Waterfront Shoreline Inves.

Matrix: Soil

Data Release Authorized: *[Signature]*

Date Sampled: 10/26/12

Reported: 11/06/12

Date Received: 10/27/12

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Antimony	6010C	6 U	48	232	20.7%	N
Arsenic	6010C	11	241	232	99.1%	
Beryllium	6010C	0.2	57.4	57.9	98.8%	
Cadmium	6010C	0.3	57.2	57.9	98.3%	
Chromium	6010C	34.1	106	57.9	124%	
Copper	6010C	33.0	106	57.9	126%	N
Lead	6010C	25	246	232	95.3%	
Mercury	7471A	0.04	0.36	0.291	110%	
Nickel	6010C	28	96	57.9	117%	
Selenium	6010C	6 U	215	232	92.7%	
Silver	6010C	0.3 U	58.7	57.9	101%	
Thallium	6010C	6 U	202	232	87.1%	
Zinc	6010C	106	201	57.9	164%	N

Reported in mg/kg-dry

N-Control Limit Not Met

H-% Recovery Not Applicable, Sample Concentration Too High

NA-Not Applicable, Analyte Not Spiked

Percent Recovery Limits: 75-125%

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS

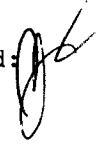
Page 1 of 1

**Sample ID: CWSI-07-2-4
DUPLICATE**

Lab Sample ID: VP51A

LIMS ID: 12-21314

Matrix: Soil

Data Release Authorized: 

Reported: 11/06/12

QC Report No: VP51-Anchor QEA LLC

Project: Central Waterfront Shoreline Inves.

Date Sampled: 10/26/12

Date Received: 10/27/12

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Antimony	6010C	6 U	6 U	0.0%	+/- 6	L
Arsenic	6010C	11	13	16.7%	+/- 6	L
Beryllium	6010C	0.2	0.2	0.0%	+/- 0.1	L
Cadmium	6010C	0.3	0.3	0.0%	+/- 0.2	L
Chromium	6010C	34.1	39.8	15.4%	+/- 20%	
Copper	6010C	33.0	31.6	4.3%	+/- 20%	
Lead	6010C	25	30	18.2%	+/- 20%	
Mercury	7471A	0.04	0.05	22.2%	+/- 0.03	L
Nickel	6010C	28	33	16.4%	+/- 20%	
Selenium	6010C	6 U	6 U	0.0%	+/- 6	L
Silver	6010C	0.3 U	0.3 U	0.0%	+/- 0.3	L
Thallium	6010C	6 U	6 U	0.0%	+/- 6	L
Zinc	6010C	106	152	35.7%	+/- 20%	*

Reported in mg/kg-dry

*-Control Limit Not Met

L-RPD Invalid, Limit = Detection Limit

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS

Page 1 of 1

Sample ID: LAB CONTROL


Lab Sample ID: VP51LCS

QC Report No: VP51-Anchor QEA LLC

LIMS ID: 12-21315

Project: Central Waterfront Shoreline Inves.

Matrix: Soil

Data Release Authorized: 

Date Sampled: NA

Reported: 11/06/12

Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Antimony	6010C	192	200	96.0%	
Arsenic	6010C	194	200	97.0%	
Beryllium	6010C	49.8	50.0	99.6%	
Cadmium	6010C	48.0	50.0	96.0%	
Chromium	6010C	51.0	50.0	102%	
Copper	6010C	49.1	50.0	98.2%	
Lead	6010C	194	200	97.0%	
Mercury	7471A	0.50	0.50	100%	
Nickel	6010C	49	50	98.0%	
Selenium	6010C	192	200	96.0%	
Silver	6010C	49.0	50.0	98.0%	
Thallium	6010C	190	200	95.0%	
Zinc	6010C	49	50	98.0%	

Reported in mg/kg-dry

N-Control limit not met

NA-Not Applicable, Analyte Not Spiked

Control Limits: 80-120%

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS

Sample ID: METHOD BLANK

Page 1 of 1

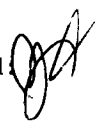
Lab Sample ID: VP51MB

QC Report No: VP51-Anchor QEA LLC

LIMS ID: 12-21315

Project: Central Waterfront Shoreline Inves.

Matrix: Soil

Data Release Authorized: 

Date Sampled: NA

Reported: 11/06/12

Date Received: NA

Percent Total Solids: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	10/30/12	6010C	11/01/12	7440-36-0	Antimony	5	5	U
3050B	10/30/12	6010C	11/01/12	7440-38-2	Arsenic	5	5	U
3050B	10/30/12	6010C	11/01/12	7440-41-7	Beryllium	0.1	0.1	U
3050B	10/30/12	6010C	11/01/12	7440-43-9	Cadmium	0.2	0.2	U
3050B	10/30/12	6010C	11/01/12	7440-47-3	Chromium	0.5	0.5	U
3050B	10/30/12	6010C	11/01/12	7440-50-8	Copper	0.2	0.2	U
3050B	10/30/12	6010C	11/01/12	7439-92-1	Lead	2	2	U
CLP	10/30/12	7471A	11/02/12	7439-97-6	Mercury	0.02	0.02	U
3050B	10/30/12	6010C	11/01/12	7440-02-0	Nickel	1	1	U
3050B	10/30/12	6010C	11/01/12	7782-49-2	Selenium	5	5	U
3050B	10/30/12	6010C	11/01/12	7440-22-4	Silver	0.3	0.3	U
3050B	10/30/12	6010C	11/01/12	7440-28-0	Thallium	5	5	U
3050B	10/30/12	6010C	11/01/12	7440-66-6	Zinc	1	1	U

U-Analyte undetected at given LOQ

LOQ-Limit of Quantitation

Calibration Verification

CLIENT: Anchor QEA LLC

PROJECT: Central Waterfront S

SDG: VP51



UNITS: ug/L

ANALYTE	EL	M	RUN	ICVTV	ICV	%R	CCVTV	CCV1	%R	CCV2	%R	CCV3	%R	CCV4	%R	CCV5	%R
Antimony	SB	ICP	IP110121	2000.0	2117.98	105.9	2000.0	2074.40	103.7	2104.21	105.2	2092.96	104.6	2089.40	104.5	2086.05	104.3
Arsenic	AS	ICP	IP110121	2000.0	2079.62	104.0	2000.0	2045.55	102.3	2082.01	104.1	2064.50	103.2	2081.01	104.1	2094.79	104.7
Beryllium	BE	ICP	IP110121	1000.0	1023.32	102.3	1000.0	1000.44	100.0	1024.97	102.5	1026.95	102.7	1026.30	102.6	995.93	99.6
Cadmium	CD	ICP	IP110121	1000.0	1023.16	102.3	1000.0	1003.36	100.3	1009.59	101.0	1012.94	101.3	1009.99	101.0	1024.17	102.4
Chromium	CR	ICP	IP110121	1000.0	990.21	99.0	1000.0	971.24	97.1	993.49	99.3	999.70	100.0	1008.32	100.8	1009.16	100.9
Copper	CU	ICP	IP110121	1000.0	1060.80	106.1	1000.0	1038.58	103.9	1054.85	105.5	1061.69	106.2	1049.16	104.9	1062.91	106.3
Lead	PB	ICP	IP110121	2000.0	2055.16	102.8	2000.0	2016.87	100.8	2054.11	102.7	2042.35	102.1	2081.28	104.1	2025.04	101.3
Mercury	HG	CVA	HG110201	8.0	7.95	99.4	4.0	4.06	101.5	4.03	100.8	4.01	100.3				
Nickel	NI	ICP	IP110121	1000.0	1013.93	101.4	1000.0	990.75	99.1	1014.38	101.4	1017.08	101.7	1033.84	103.4	996.56	99.7
Selenium	SE	ICP	IP110121	2000.0	2020.01	101.0	2000.0	1979.39	99.0	2016.19	100.8	1997.13	99.9	2007.83	100.4	2027.82	101.4
Silver	AG	ICP	IP110121	1000.0	1007.56	100.8	1000.0	982.82	98.3	994.25	99.4	991.46	99.1	989.51	99.0	1019.26	101.9
Thallium	TL	ICP	IP110121	2000.0	2003.89	100.2	2000.0	1969.61	98.5	2000.75	100.0	1990.00	99.5	2000.75	100.0	2017.00	100.9
Zinc	ZN	ICP	IP110121	1000.0	1069.21	106.9	1000.0	1048.58	104.9	1081.20	108.1	1081.96	108.2	1137.71	113.8	1046.52	104.7

Control Limits: Mercury 80-120; Other Metals 90-110

11/15/00 1:50:00

Calibration Verification



CLIENT: Anchor QEA LLC

PROJECT: Central Waterfront S

UNITS: ug/L

SDG: VP51

ANALYTE	EL	M	RUN	CCVTV	CCV6	%R	CCV7	%R	CCV8	%R	CCV9	%R	CCV10	%R	CCV11	%R
Antimony	SB	ICP	IP110121	2000.0	2090.10	104.5	2001.21	100.1	1927.49	96.4	1881.82	94.1				
Arsenic	AS	ICP	IP110121	2000.0	2098.74	104.9	2014.92	100.7	1961.68	98.1	1916.46	95.8				
Beryllium	BE	ICP	IP110121	1000.0	980.07	98.0	966.86	96.7	960.71	96.1	944.45	94.4				
Cadmium	CD	ICP	IP110121	1000.0	1014.11	101.4	983.62	98.4	963.01	96.3	947.02	94.7				
Chromium	CR	ICP	IP110121	1000.0	999.89	100.0	997.68	99.8	971.44	97.1	942.45	94.2				
Copper	CU	ICP	IP110121	1000.0	1067.28	106.7	1044.62	104.5	1040.82	104.1	1034.33	103.4				
Lead	PB	ICP	IP110121	2000.0	2041.46	102.1	1975.47	98.8	1924.95	96.2	1874.48	93.7				
Mercury	HG	CVA	HG110201	4.0												
Nickel	NI	ICP	IP110121	1000.0	988.06	98.8	981.77	98.2	940.25	94.0	914.65	91.5				
Selenium	SE	ICP	IP110121	2000.0	2021.22	101.1	1932.78	96.6	1876.28	93.8	1827.48	91.4				
Silver	AG	ICP	IP110121	1000.0	1017.02	101.7	991.30	99.1	980.11	98.0	980.93	98.1				
Thallium	TL	ICP	IP110121	2000.0	2027.24	101.4	1948.03	97.4	1892.93	94.6	1851.18	92.6				
Zinc	ZN	ICP	IP110121	1000.0	1031.03	103.1	1031.68	103.2	976.12	97.6	958.81	95.9				

VP51.00165

Control Limits: Mercury 80-120; Other Metals 90-110

CRDL Standard

CLIENT: Anchor QEA LLC

PROJECT: Central Waterfront S

SDG: VP51



UNITS: ug/L

ANALYTE	EL	M	RUN	CRA/I TV	CR-1	%R	CR-2	%R	CR-3	%R	CR-4	%R	CR-5	%R	CR-6	%R
Antimony	SB	ICP	IP110121	50.0	50.51	101.0										
Arsenic	AS	ICP	IP110121	50.0	52.15	104.3										
Beryllium	BE	ICP	IP110121	1.0	1.06	106.0										
Cadmium	CD	ICP	IP110121	2.0	1.89	94.5										
Chromium	CR	ICP	IP110121	5.0	6.26	125.2										
Copper	CU	ICP	IP110121	2.0	1.41	70.5										
Lead	PB	ICP	IP110121	20.0	20.28	101.4										
Mercury	HG	CVA	HG110201	0.1	0.10	100.0										
Nickel	NI	ICP	IP110121	10.0	11.68	116.8										
Selenium	SE	ICP	IP110121	50.0	49.32	98.6										
Silver	AG	ICP	IP110121	3.0	2.99	99.7										
Thallium	TL	ICP	IP110121	50.0	47.17	94.3										
Zinc	ZN	ICP	IP110121	10.0	9.86	98.6										

Control Limits: no control limits have been established by the EPA at this time.

VP51:00155

Calibration Blanks



CLIENT: Anchor QEA LLC

PROJECT: Central Waterfront S

UNITS: ug/L

SDG: VP51

ANALYTE	EL	METH	RUN	CRDL	IDL	ICB	C	CCB1	C	CCB2	C	CCB3	C	CCB4	C	CCB5	C
Antimony	SB	ICP	IP110121	60.0	50.0	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U
Arsenic	AS	ICP	IP110121	10.0	50.0	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U
Beryllium	BE	ICP	IP110121	5.0	1.0	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Cadmium	CD	ICP	IP110121	5.0	2.0	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Chromium	CR	ICP	IP110121	10.0	5.0	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Copper	CU	ICP	IP110121	25.0	2.0	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Lead	PB	ICP	IP110121	3.0	20.0	20.0	U	20.0	U	20.0	U	20.0	U	20.0	U	20.0	U
Mercury	HG	CVA	HG110201	0.2	0.1	0.1	U	0.1	U	0.1	U	0.1	U				
Nickel	NI	ICP	IP110121	40.0	10.0	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U
Selenium	SE	ICP	IP110121	5.0	50.0	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U
Silver	AG	ICP	IP110121	10.0	3.0	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U
Thallium	TL	ICP	IP110121	10.0	50.0	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U
Zinc	ZN	ICP	IP110121	20.0	10.0	10.0	U	10.0	U	10.0	U	10.0	U	16.3	B	10.0	U

VP51: 00157

Calibration Blanks



CLIENT: Anchor QEA LLC

PROJECT: Central Waterfront S

UNITS: ug/L

SDG: VP51

ANALYTE	EL	METH	RUN	CRDL	IDL	CCB6	C	CCB7	C	CCB8	C	CCB9	C	CCB10	C	CCB11	C
Antimony	SB	ICP	IP110121	60.0	50.0	50.0	U	50.0	U	50.0	U	50.0	U				
Arsenic	AS	ICP	IP110121	10.0	50.0	50.0	U	50.0	U	50.0	U	50.0	U				
Beryllium	BE	ICP	IP110121	5.0	1.0	1.0	U	1.0	U	1.0	U	1.0	U				
Cadmium	CD	ICP	IP110121	5.0	2.0	2.0	U	2.0	U	2.0	U	2.0	U				
Chromium	CR	ICP	IP110121	10.0	5.0	5.0	U	5.0	U	5.0	U	5.0	U				
Copper	CU	ICP	IP110121	25.0	2.0	2.0	U	2.0	U	2.0	U	2.0	U				
Lead	PB	ICP	IP110121	3.0	20.0	20.0	U	20.0	U	20.0	U	20.0	U				
Mercury	HG	CVA	HG110201	0.2	0.1												
Nickel	NI	ICP	IP110121	40.0	10.0	10.0	U	10.0	U	10.0	U	10.0	U				
Selenium	SE	ICP	IP110121	5.0	50.0	50.0	U	50.0	U	50.0	U	50.0	U				
Silver	AG	ICP	IP110121	10.0	3.0	3.0	U	3.0	U	3.0	U	3.0	U				
Thallium	TL	ICP	IP110121	10.0	50.0	50.0	U	50.0	U	50.0	U	50.0	U				
Zinc	ZN	ICP	IP110121	20.0	10.0	10.0	U	10.0	U	10.0	U	10.0	U				

VP51 00154

ICP Interference Check Sample



CLIENT: Anchor QEA LLC

ICS SOURCE: I.V.

PROJECT: Central Waterfront S

RUNID: IP110121

SDG: VP51

INSTRUMENT ID: OPTIMA ICP 1

UNITS: ug/L

ANALYTE	ICSA TV	ICSAB TV	ICSA1	ICSAB1	%R	ICSA2	ICSAB2	%R	ICSA3	ICSAB3	%R
Aluminum	200000	200000	190393.7	192398.2	96.2						
Antimony		1000	23.0	1021.2	102.1						
Arsenic		1000	-2.8	993.5	99.4						
Barium		1000	-1.1	933.2	93.3						
Beryllium		1000	-0.1	994.3	99.4						
Boron			0.2	4.3							
Cadmium		1000	0.9	970.5	97.1						
Calcium	100000	100000	93882.9	94902.2	94.9						
Chromium		1000	3.9	935.6	93.6						
Cobalt		1000	-0.5	901.2	90.1						
Copper		1000	0.1	1002.8	100.3						
Iron	200000	200000	191186.9	193030.8	96.5						
Lead		1000	6.3	948.6	94.9						
Magnesium	100000	100000	98320.3	99698.5	99.7						
Manganese		1000	-0.6	939.3	93.9						
Molybdenum			-6.4	-6.7							
Nickel		1000	3.8	929.3	92.9						
Potassium			-10.2	-19.4							
Selenium		1000	-63.6	926.1	92.6						
Silicon			10.2	51.9							
Silver		1000	-0.9	1000.3	100.0						
Sodium			25.0	80.5							
Strontium			4.0	4.4							
Thallium		1000	-11.3	902.0	90.2						
Tin			15.2	14.5							
Titanium			2.1	2.3							
Vanadium		1000	0.2	952.6	95.3						
Zinc		1000	-6.3	896.2	89.6						

VP51: 00159

Post Digest Spike Sample Recovery



CLIENT: Anchor QEA LLC

PROJECT: Central Waterfront S

ANALYSIS METHOD: ICP

SDG: VP51

UNITS: ug/L

ANALYTE	CLIENT ID	ARI ID	RUNID	SPIKED SAMPLE RESULT C	SAMPLE RESULT C	SPIKE ADDED	MATRIX	%R
Zinc	CWSI-07-2-4A	VP51APOST	IP110121	2682.44	1845.52	1000	Soil	83.7
Antimony	CWSI-07-2-4A	VP51APOST	IP110121	3851.88	100.00U	4000	Soil	96.3
Copper	CWSI-07-2-4A	VP51APOST	IP110121	1685.42	571.80	1000	Soil	111.4

IDLs and ICP Linear Ranges



CLIENT: Anchor QEA LLC

PROJECT: Central Waterfront S

SDG: VP51

UNITS: ug/L

ANALYTE	EL	METH	INSTRUMENT	WAVELENGTH (nm)	GFA BACK- GROUND	CLP CRDL	RL	RL DATE	ICP LINEAR RANGE (ug/L)	ICP LR DATE
Antimony	SB	ICP	OPTIMA ICP 1	206.84		60	50.0	4/1/2012	30000.0	8/2/2012
Arsenic	AS	ICP	OPTIMA ICP 1	188.98		10	50.0	4/1/2012	30000.0	8/2/2012
Beryllium	BE	ICP	OPTIMA ICP 1	313.04		5	1.0	4/1/2012	5000.0	8/2/2012
Cadmium	CD	ICP	OPTIMA ICP 1	228.80		5	2.0	4/1/2012	20000.0	8/2/2012
Chromium	CR	ICP	OPTIMA ICP 1	267.72		10	5.0	4/1/2012	100000.0	8/2/2012
Copper	CU	ICP	OPTIMA ICP 1	324.75		25	2.0	4/1/2012	40000.0	8/2/2012
Lead	PB	ICP	OPTIMA ICP 1	220.35		3	20.0	4/1/2012	300000.0	8/2/2012
Mercury	HG	CVA	CETAC MERCURY	253.70		0.2	0.1	4/1/2012		
Nickel	NI	ICP	OPTIMA ICP 1	231.60		40	10.0	4/1/2012	100000.0	8/2/2012
Selenium	SE	ICP	OPTIMA ICP 1	196.03		5	50.0	4/1/2012	20000.0	8/2/2012
Silver	AG	ICP	OPTIMA ICP 1	328.07		10	3.0	4/1/2012	5000.0	8/2/2012
Thallium	TL	ICP	OPTIMA ICP 1	190.80		10	50.0	4/1/2012	30000.0	8/2/2012
Zinc	ZN	ICP	OPTIMA ICP 1	206.20		20	10.0	4/1/2012	100000.0	8/2/2012

ICP Interlement Correction Factors



CLIENT: Anchor QEA LLC

PROJECT: Central Waterfront S

SDG: VP51

IEC DATE: 8/1/2012

INSTRUMENT ID: OPTIMA ICP 1

ANALYTE	WAVELENGTH	AL	AS	BA	BE	CA	CD	CO	CR	CU	FZ
Aluminum	308.22	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Antimony	206.84	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	15.185700	0.000000	0.1040430
Arsenic	188.98	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	-1.182290	1.059180	0.000000	0.000000
Barium	233.53	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	-0.168806	0.000000	0.000000	0.0462923
Beryllium	313.04	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Cadmium	228.80	0.000000	2.363400	0.000000	0.000000	0.000000	0.000000	0.113441	0.000000	0.000000	0.000000
Calcium	317.93	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Chromium	267.72	0.000000	0.000000	0.0277924	0.000000	0.000000	0.000000	-0.1702670	0.000000	0.000000	0.000000
Cobalt	228.62	0.000000	0.000000	0.3341190	0.000000	0.000000	0.000000	0.000000	-0.0341026	0.000000	0.0115541
Copper	324.75	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	-0.3361900	-0.0466820	0.000000	-0.0964768
Iron	273.96	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.7651920	0.000000	0.000000
Lead	220.35	-0.3512640	0.000000	0.000000	0.000000	-0.0256242	0.000000	0.1563080	-2.3759900	0.8342190	0.0726674
Magnesium	279.08	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	-1.1866700	-1.0216800	0.000000	0.7040250
Manganese	257.61	0.0068205	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.0051237
Molybdenum	202.03	-0.0208471	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.0933245	0.000000	0.000000
Nickel	231.60	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Potassium	766.49	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Selenium	196.03	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.4183610	0.000000	0.000000	0.000000
Silicon	288.16	0.000000	0.000000	0.000000	0.000000	0.000000	-3.4540100	0.000000	-1.0020900	0.000000	0.000000
Silver	328.07	0.000000	0.000000	0.000000	0.000000	0.0223663	0.000000	0.000000	0.000000	0.000000	-0.0330154
Sodium	589.59	0.000000	0.000000	0.000000	0.000000	4.4431000	0.000000	0.000000	0.000000	0.000000	0.000000
Thallium	190.80	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	6.8157000	0.3674950	0.000000	0.000000
Tin	189.93	0.000000	0.000000	0.000000	0.000000	-0.3571400	0.000000	0.000000	0.000000	0.000000	0.000000
Titanium	334.90	0.000000	0.000000	0.000000	0.000000	0.0490253	0.000000	0.000000	0.2444290	0.000000	0.000000
Vanadium	292.40	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	-7.0524000	0.000000	0.1165860
Zinc	206.20	0.000000	0.000000	0.000000	0.000000	-0.0214985	0.000000	0.000000	0.7289660	0.000000	0.000000

ICP Inter-element Correction Factors



CLIENT: Anchor QEA LLC

PROJECT: Central Waterfront S

SDG: VP51

IEC DATE: 8/1/2012

INSTRUMENT ID: OPTIMA ICP 1

ANALYTE	WAVELENGTH	MG	MN	MO	NI	PB	SB	TI	TL	V	ZN
Aluminum	308.22	0.000000	0.000000	25.3743000	0.0000000	0.0000000	0.0000000	2.2001400	0.0000000	15.3248000	0.0000000
Antimony	206.84	0.0000000	0.0000000	1.3316900	-0.3291700	0.0000000	0.0000000	-1.5094000	0.0000000	-3.7687600	0.9674010
Arsenic	188.98	0.0000000	0.0000000	3.2754400	0.0000000	0.0000000	0.0000000	-2.1487000	0.0000000	0.2373010	0.0000000
Barium	233.53	0.0000000	0.0000000	-0.0676563	0.1487540	0.0000000	0.0000000	0.0000000	0.0000000	0.4251790	0.0000000
Beryllium	313.04	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0161120	0.0000000	2.5849600	0.0000000
Cadmium	228.80	0.0000000	0.0000000	0.0000000	-0.2763290	0.0000000	0.0000000	0.0000000	0.0000000	0.0435241	0.0000000
Calcium	317.93	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Chromium	267.72	-0.0282409	0.2350890	0.1566040	0.0000000	0.0000000	0.0000000	0.0287539	0.0000000	0.1196170	0.0000000
Cobalt	228.62	0.0000000	0.0000000	-0.1973550	0.1098840	0.0000000	0.0000000	1.7517700	0.0000000	0.0000000	0.0000000
Copper	324.75	0.0000000	0.0000000	0.2757360	0.0000000	0.0000000	0.0000000	0.2149870	0.0000000	0.0000000	0.0000000
Iron	273.96	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Lead	220.35	0.0000000	0.0000000	-0.2855620	0.1706620	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Magnesium	279.08	0.0000000	0.0000000	-2.0298600	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Manganese	257.61	0.0000000	0.0000000	0.0000000	0.0000000	-0.2307900	0.0000000	0.0000000	0.0000000	-0.0231031	0.0000000
Molybdenum	202.03	0.0074768	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.1048000
Nickel	231.60	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	-0.6505180	0.0000000	0.5517490	0.0000000	0.0000000
Potassium	766.49	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Selenium	196.03	0.0000000	0.0000000	0.0000000	1.3045900	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Silicon	288.16	-0.1271090	0.0000000	-1.7127900	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Silver	328.07	0.0000000	0.1914050	0.1812780	0.0000000	0.0000000	0.0000000	-0.0355721	0.0000000	-0.2667920	0.0000000
Sodium	589.59	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Thallium	190.80	0.0000000	1.9622100	-2.1053700	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tin	189.93	-0.0404347	0.0000000	0.0000000	0.0000000	0.0000000	-0.4036970	-0.4257350	0.0000000	0.0000000	0.0000000
Titanium	334.90	0.0000000	0.0000000	0.9908490	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Vanadium	292.40	0.0000000	-0.1434250	-6.5129600	0.0000000	0.0000000	0.0000000	0.8061690	0.0000000	0.0000000	0.0000000
Zinc	206.20	0.0000000	0.0000000	0.2750230	0.0000000	-0.0830846	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000

08/01/2012 09:17:00

Preparation Log



CLIENT: Anchor QEA LLC

ANALYSIS METHOD: ICP

PROJECT: Central Waterfront S

ARI PREP CODE: SWC

SDG: VP51

PREPDATE: 10/30/2012

CLIENT ID	ARI ID	MASS (g)	INITIAL VOLUME (mL)	FINAL VOLUME (mL)
CWSI-07-2-4	VP51A	1.089	0.0	50.0
CWSI-07-2-4D	VP51ADUP	1.088	0.0	50.0
CWSI-07-2-4S	VP51ASPK	1.085	0.0	50.0
CWSI-05-2-4	VP51B	1.064	0.0	50.0
CWSI-05-7-9	VP51C	1.042	0.0	50.0
CWSI-05-12-14	VP51D	1.041	0.0	50.0
CWSI-06-8-10	VP51E	1.096	0.0	50.0
CWSI-06-12-14	VP51F	1.017	0.0	50.0
PBS	VP51MB1	1.000	0.0	50.0
LCSS	VP51MB1SPK	1.000	0.0	50.0

Preparation Log



CLIENT: Anchor QEA LLC

ANALYSIS METHOD: CVA

PROJECT: Central Waterfront S

ARI PREP CODE: SMM

SDG: VP51

PREPDATE: 10/30/2012

CLIENT ID	ARI ID	MASS (g)	INITIAL VOLUME (mL)	FINAL VOLUME (mL)
CWSI-07-2-4	VP51A	0.215	0.0	50.0
CWSI-07-2-4D	VP51ADUP	0.215	0.0	50.0
CWSI-07-2-4S	VP51ASPK	0.216	0.0	50.0
CWSI-05-2-4	VP51B	0.271	0.0	50.0
CWSI-05-7-9	VP51C	0.222	0.0	50.0
CWSI-05-12-14	VP51D	0.235	0.0	50.0
CWSI-06-8-10	VP51E	0.273	0.0	50.0
CWSI-06-12-14	VP51F	0.272	0.0	50.0
PBS	VP51MB1	0.200	0.0	50.0
LCSW	VP51MB1SPK	0.200	0.0	50.0



Analysis Run Log

CLIENT: Anchor QEA LLC

PROJECT: Central Waterfront S

INSTRUMENT ID: OPTIMA ICP 1

START DATE: 11/1/2012

SDG: VP51

RUNID: IP110121

METHOD: ICP

END DATE: 11/1/2012

CLIENT ID	ARI ID	DIL.	TIME	%R	AG	AL	AS	B	BA	BE	CA	CD	CO	CR	CU	FE	HG	K	MG	MN	MO	NA	NI	PB	SB	SE	SI	SN	TI	TL	U	V	ZN		
S0	S0	1.00	11081																														X		
S2	S2	1.00	11140																															X	
S3	S3	1.00	11180				X																											X	
S4	S4	1.00	11224																																
S5	S5	1.00	11265																																
ZZZZZ	ZZZZZ	1.00	11302																																
ZZZZZ	ZZZZZ	1.00	11362																																
ZZZZZ	ZZZZZ	1.00	11422																																
ZZZZZ	ZZZZZ	1.00	11482																																
ZZZZZ	ZZZZZ	1.00	11542																																
ZZZZZ	ZZZZZ	1.00	12012																																
ZZZZZ	ZZZZZ	1.00	12073																																
S0	S0	1.00	12134				X																											X	
ICV	ICV	1.00	12185				X																											X	
ICB	ICB	1.00	12245				X																												X
CRI	CRII	1.00	12305				X																												X
ICSA	ICSAI	1.00	12365				X																												X
ICSAB	ICSABI	1.00	12425				X																												X
CCV	CCV1	1.00	12495				X																												X
CCB	CCB1	1.00	12555				X																												X
ZZZZZ	VP23MB2	1.00	13030																																
ZZZZZ	VO93MB	2.00	13090																																
ZZZZZ	VO93H	2.00	13150																																
ZZZZZ	VP23I	1.00	13202																																
ZZZZZ	VP23J	1.00	13264																																
ZZZZZ	VP23K	1.00	13324																																
ZZZZZ	VP23L	1.00	13384																																
ZZZZZ	VP23HDUP	1.00	13444																																
ZZZZZ	VP23H	1.00	13510																																
ZZZZZ	VP23HSPK	1.00	13572																																
CCV	CCV2	1.00	14032				X																												X
CCB	CCB2	1.00	14092				X																												X
ZZZZZ	VQ16MB2	1.00	14152																																
ZZZZZ	VQ25MB	1.00	14212																																
ZZZZZ	VQ16L	1.00	14272																																

11/1/2012 10:00 AM

Analysis Run Log

CLIENT: Anchor QEA LLC
 PROJECT: Central Waterfront S INSTRUMENT ID: OPTIMA ICP 1 START DATE: 11/1/2012
 SDG: VP51 RUNID: IP110121 METHOD: ICP END DATE: 11/1/2012

CLIENT ID	ARI ID	DIL.	TIME	%R	AG	AL	AS	B	HA	BE	CA	CD	CO	CR	CU	FE	HG	K	MG	MN	MO	NA	NI	PB	SB	SE	SI	SN	TI	TL	U	V	ZN		
ZZZZZZ	VQ16KDUP	1.00	14332																														X	X	
ZZZZZZ	VQ16K	1.00	14392																																
ZZZZZZ	VQ16KSPK	1.00	14452																																
ZZZZZZ	VQ25ADUP	1.00	14512																																
ZZZZZZ	VQ25A	1.00	14572																																
ZZZZZZ	VQ25ASPK	1.00	15032																																
ZZZZZZ	VP23MB2SPK	1.00	15093																																
CCV	CCV3	1.00	15153		X			X						X											X									X	
CCB	CCB3	1.00	15214		X			X						X											X									X	
ZZZZZZ	VP40MB1	2.00	15273																																
ZZZZZZ	VP41A	2.00	15333																																
ZZZZZZ	VP41B	2.00	15392																																
ZZZZZZ	VP41C	2.00	15435																																
ZZZZZZ	VP41D	2.00	15494																																
ZZZZZZ	VP41E	2.00	15553																																
ZZZZZZ	VP40B	2.00	16013																																
ZZZZZZ	VP40C	2.00	16072																																
ZZZZZZ	VQ16MB2SPK	1.00	16131																																
ZZZZZZ	VQ25MBSPK	1.00	16191																																
CCV	CCV4	1.00	16241		X			X						X											X										X
CCB	CCB4	1.00	16301		X			X						X											X										X
S0	S0	1.00	16374		X			X						X											X										X
S3	S3	1.00	16441		X			X						X											X										X
CCV	CCV5	1.00	16521		X			X						X											X										X
CCB	CCB5	1.00	16581		X			X						X											X										X
ZZZZZZ	VP44MB	5.00	17041																																
PBS	VP51MB1	2.00	17103		X			X						X											X										X
CWSI-05-2-4	VP51B	2.00	17163		X			X						X											X										X
ZZZZZZ	VP40ADUP	2.00	17222																																
ZZZZZZ	VP40A	2.00	17281																																
ZZZZZZ	VP40ASPK	2.00	17340																																
ZZZZZZ	VP44ADUP	5.00	17391																																
ZZZZZZ	VP44A	5.00	17453																																
ZZZZZZ	VP44ASPK	5.00	17515																																
ZZZZZZ	VP40MB1SPK	2.00	17581																																



Analysis Run Log

CLIENT: Anchor QEA LLC

PROJECT: Central Waterfront S

INSTRUMENT ID: OPTIMA ICP 1

START DATE: 11/1/2012

SDG: VP51

RUNID: IP110121

METHOD: ICP

END DATE: 11/1/2012

CLIENT ID	ARI ID	DIL.	TIME	%R	AG	AL	AS	B	BA	BE	CA	CD	CO	CR	CU	FE	HG	K	MG	MN	MO	NA	NI	PB	SB	SE	SI	SN	TI	TL	U	V	ZN
CCV	CCV6	1.00	18041		X									X																		X	
CCB	CCB6	1.00	18102		X									X																		X	
CWSI-05-7-9	VP51C	2.00	18162		X									X																		X	
CWSI-05-12-14	VP51D	2.00	18220		X									X																		X	
CWSI-06-8-10	VP51E	2.00	18280		X									X																		X	
CWSI-06-12-14	VP51F	2.00	18334		X									X																		X	
CWSI-07-2-4D	VP51ADUP	2.00	18393		X									X																		X	
CWSI-07-2-4	VP51A	2.00	18454		X									X																		X	
CWSI-07-2-4S	VP51ASPK	2.00	18514		X									X																		X	
LCSS	VP51MB1SPK	2.00	18570		X									X																		X	
ZZZZZZ	VP29N	1.00	19030																														
ZZZZZZ	VP40APOST	2.00	19093																														
CCV	CCV7	1.00	19144		X									X																		X	
CCB	CCB7	1.00	19204		X									X																		X	
ZZZZZZ	VP83MB	1.00	19264																														
ZZZZZZ	VP92MB	1.00	19324																														
ZZZZZZ	VP92B	2.00	19384																														
ZZZZZZ	VP83B	1.00	19444																														
ZZZZZZ	VP83C	1.00	19511																														
ZZZZZZ	VP83D	1.00	19573																														
ZZZZZZ	VP92ADUP	2.00	20035																														
ZZZZZZ	VP92A	2.00	20100																														
ZZZZZZ	VP92ASPK	2.00	20162																														
ZZZZZZ	VP92MBSPK	1.00	20222																														
CCV	CCV8	1.00	20282		X									X																		X	
CCB	CCB8	1.00	20343		X									X																		X	
ZZZZZZ	VP81MB	1.00	20402																														
ZZZZZZ	VP81A	1.00	20462																														
ZZZZZZ	VP81B	1.00	20523																														
ZZZZZZ	VP83E	1.00	20583																														
ZZZZZZ	VP83ADUP	1.00	21043																														
ZZZZZZ	VP83A	1.00	21111																														
ZZZZZZ	VP83ASPK	1.00	21175																														
ZZZZZZ	VP83MBSPK	1.00	21240																														
ZZZZZZ	VP81MBSPK	1.00	21301																														



Analysis Run Log

CLIENT: Anchor QEA LLC
 PROJECT: Central Waterfront S
 SDG: VP51
 INSTRUMENT ID: OPTIMA ICP 1
 START DATE: 11/1/2012
 RUNID: IP110121
 METHOD: ICP
 END DATE: 11/1/2012

CLIENT ID	ARI ID	DIL.	TIME	%R	AG	AL	AS	B	BA	BE	CA	CD	CO	CR	CU	FE	HG	K	MG	MN	MO	NA	NI	PB	SB	SE	SI	SN	TI	TL	U	V	ZN
CWSI-07-2-4A	VP51APOST	2.00	21361																						X								X
CCV	CCV9	1.00	21413	X			X					X		X									X	X									X
CCB	CCB9	1.00	21473	X			X					X		X									X	X									X

VP51 09170



Analysis Run Log

CLIENT: Anchor QEA LLC
 PROJECT: Central Waterfront S
 SDG: VP51
 INSTRUMENT ID: CETAC MERCURY
 RUNID: HG110201
 METHOD: CVA
 START DATE: 11/2/2012
 END DATE: 11/2/2012

CLIENT ID	ARI ID	DIL.	TIME	%R	AG	AL	AS	B	BA	BE	CA	CD	CO	CR	CU	FE	HG	K	MG	MN	MO	NA	NI	PB	SB	SE	SI	SN	TI	TL	U	V	ZN
S0		1.00	11094														X																
S0.1	S0.1	1.00	11112														X																
S0.5	S0.5	1.00	11125														X																
S1	S1	1.00	11143														X																
S2	S2	1.00	11161														X																
S5	S5	1.00	11174														X																
S10	S10	1.00	11192														X																
ICV	AICV	1.00	11280														X																
ICB	ICB	1.00	11293														X																
CCV	ACCV1	1.00	11311														X																
CCB	CCB1	1.00	11325														X																
CRA	CRA	1.00	11343														X																
PBW	VP51MB1	1.00	11360														X																
LCSW	VP51MB1SPK	1.00	11374														X																
CWSI-07-2-4	VP51A	1.00	11391														X																
CWSI-07-2-4D	VP51ADUP	1.00	11405														X																
CWSI-07-2-4S	VP51ASPK	1.00	11423														X																
CWSI-05-2-4	VP51B	1.00	11440														X																
CWSI-05-7-9	VP51C	1.00	11454														X																
CWSI-05-12-14	VP51D	1.00	11472														X																
CWSI-06-8-10	VP51E	1.00	11490														X																
CCV	ACCV2	1.00	11503														X																
CCB	CCB2	1.00	11522														X																
CWSI-06-12-14	VP51F	1.00	11535														X																
ZZZZZZ	VP54MB1	1.00	11553														X																
ZZZZZZ	VP54MB1SPK	1.00	11570														X																
ZZZZZZ	VP54A	1.00	11584														X																
ZZZZZZ	VP54ADUP	1.00	12001														X																
ZZZZZZ	VP54ASPK	1.00	12015														X																
ZZZZZZ	VP54D	1.00	12033														X																
ZZZZZZ	VP54G	1.00	12050														X																
ZZZZZZ	VP54H	1.00	12064														X																
ZZZZZZ	VP54I	1.00	12082														X																
CCV	ACCV3	1.00	12100														X																
CCB	CCB3	1.00	12114														X																

11/2/2012 11:09:00

Total Solids

ARI Job ID: VP51

Volatiles Total Solids-voats
Data By: Pat Basilio
Created: 11/ 5/12

Worklist: 1272
Analyst: PAB
Comments:

Oven ID: _____

Balance ID: _____

Samples In: Date: _____ Time: _____ Temp: _____ Analyst: _____

Samples Out: Date: _____ Time: _____ Temp: _____ Analyst: _____

ARI ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids
1. VP51A 12-21314	_____	_____	_____	* 79.60
2. VP51B 12-21315	_____	_____	_____	* 83.50
3. VP51C 12-21316	_____	_____	_____	* 76.00
4. VP51D 12-21317	_____	_____	_____	* 80.90
5. VP51E 12-21318	_____	_____	_____	* 61.40
6. VP51F 12-21319	_____	_____	_____	* 79.70

BETX/TPHG Total Solids-betxts
Data By: Jonathon L. Walter
Created: 11/ 3/12

Worklist: 766
Analyst: JLW
Comments:

Oven ID: _____

Balance ID: _____

Samples In: Date: _____ Time: _____ Temp: _____ Analyst: _____

Samples Out: Date: _____ Time: _____ Temp: _____ Analyst: _____

ARI ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids
1. VP51A 12-21314	_____	_____	_____	% 79.6
2. VP51B 12-21315	_____	_____	_____	% 83.5
3. VP51C 12-21316	_____	_____	_____	% 76.0
4. VP51D 12-21317	_____	_____	_____	% 80.9
5. VP51E 12-21318	_____	_____	_____	% 61.4
6. VP51F 12-21319	_____	_____	_____	% 79.7

Extractions Total Solids-exttts
Data By: Tarry Hawk
Created: 11/ 2/12

Worklist: 562
Analyst: RVR
Comments:

Cheronne

Oven ID: _____

Balance ID: _____

Samples In: Date: _____ Time: _____ Temp: _____ Analyst: _____

Samples Out: Date: _____ Time: _____ Temp: _____ Analyst: _____

	ARI ID CLIENT ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids	pH
1.	VP51A 12-21314 CWSI-07-2-4	1.16	12.09	9.94	80.3	NR
2.	VP51B 12-21315 CWSI-05-2-4	1.17	11.02	9.18	81.3	NR
3.	VP51C 12-21316 CWSI-05-7-9	1.16	10.81	8.84	79.6	NR
4.	VP51D 12-21317 CWSI-05-12-14	1.17	10.54	8.70	80.4	NR
5.	VP51E 12-21318 CWSI-06-8-10	1.17	11.18	7.29	61.1	NR
6.	VP51F 12-21319 CWSI-06-12-14	1.14	11.56	9.78	82.9	NR

Extractions Total Solids-exttts
Data By: Tarry Hawk
Created: 11/ 2/12

Worklist: 562
Analyst: TH
Comments:

Oven ID: 615

Balance ID: B139298002

Samples In: Date: 11/2/12 Time: 16:07 Temp: 104 Analyst: TH

Samples Out: Date: 11/05/12 Time: 06:15 Temp: 109 Analyst: RR

ARI ID CLIENT ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids	pH
1. VP51A 12-21314 CWSI-07-2-4	<u>1.16</u>	<u>12.09</u>	<u>9.94</u>		NR
2. VP51B 12-21315 CWSI-05-2-4	<u>1.17</u>	<u>11.02</u>	<u>9.18</u>		NR
3. VP51C 12-21316 CWSI-05-7-9	<u>1.16</u>	<u>10.81</u>	<u>8.84</u>		NR
4. VP51D 12-21317 CWSI-05-12-14	<u>1.17</u>	<u>10.54</u>	<u>8.70</u>		NR
5. VP51E 12-21318 CWSI-06-8-10	<u>1.17</u>	<u>11.18</u>	<u>7.29</u>		NR
6. VP51F 12-21319 CWSI-06-12-14	<u>1.14</u>	<u>11.56</u>	<u>9.78</u>		NR

Solids Data Entry Report
Date: 10/31/12

Checked by: DM Date: 10/31/12
Data Analyst: CB

Solids Determination performed on 10/30/12 by NB

JOB	SAMPLE	CLIENTID	TAREWEIGHT	SAMPDISH	DRYWEIGHT	SOLIDS
VP51	A	CWSI-07-2-4	0.992	10.897	8.873	79.57
VP51	B	CWSI-05-2-4	0.991	10.183	8.663	83.46
VP51	C	CWSI-05-7-9	0.997	10.162	7.966	76.04
VP51	D	CWSI-05-12-14	0.978	10.512	8.688	80.87
VP51	E	CWSI-06-8-10	0.994	10.274	6.687	61.35
VP51	F	CWSI-06-12-14	1.018	10.734	8.764	79.72



Total Solids Bench Sheet

Laboratory Section METALS

Oven Identification: 01A

Balance ID: B116132369

Samples in Oven: Date: 10-30-12 Time: 1220 Temp: 109°C Analyst: NB

Removed from Oven: Date: 10-31-12 Time: 0145 Temp: 104°C Analyst: CB

ARI Sample ID	Tare Weight (g)	Tare + Sample Wet (g)	Tare + Sample Dry (g)	Date & Time Last Weight	Final Weighting >12 hrs ¹
VP51 A	0.992	10.897	9.873	-	✓
" B	0.991	10.183	9.663	-	✓
" C	0.997	10.162	7.166	-	✓
" D	0.978	10.512	9.688	-	✓
" E	0.994	10.274	6.687	-	✓
" F	1.018	10.734	9.764	-	✓
 <div data-bbox="649 1218 812 1270" data-label="Text"> <p>NB 10-30-12</p> </div> 					

1) Place a check mark in this column if samples have dried > 12 but < 24 hours. When samples have been at 104°C < 12 hours, constant weight must be verified as described in SOP 10023S. Use a 2nd bench sheet for additional weightings.

**Metals Raw Data
Run Logs, Calibrations, and Raw Data**

ARI Job ID: VP51



Corrective Actions Inorganic Analyses

Criteria Flagged:	ARI Job No.: <u>VP51</u>
Unacceptable Blank: <input type="checkbox"/>	Date of Event: <u>11-1-12</u>
Unacceptable Duplicate: <input checked="" type="checkbox"/>	Client ID: <u>Anchor</u>
Unacceptable Spike: <input type="checkbox"/>	Method/Element: <u>ICP</u>
Unacceptable Reference: <input type="checkbox"/>	Prep Code: <u>SWC</u>
Details of Problem/Recommended Corrective Action:	
<u>VP51 A Dup Zn high % RPD</u> <u>Zn in sample = 0.92 ppm</u>	
<u>Aspk - see attached - Post-spike OK</u>	
Samples Affected: _____	
Corrective Action Taken: _____	
<u>Send</u>	
<u>11/5/12</u>	

Analyst Initials:
 Date: 11-2-12

Supervisor: _____
 Date: _____

MATRIX DUPLICATE AND MATRIX SPIKE WORKSHEET (FOR SAMPLES >5 IDL)									
DUPLICATION:		BKGD		SPIKE RECOVERY:		BKGD			
VOLUME	DUP	100	100	VOLUME	SPIKE	100	100		
SAMP WT	1.088	1.089	1.089	SAMP WT	1.085	1.085	1.0890		
ELEMENT	DUP	BKGD	% RPD	ELEMENT	SPIKE	BKGD	SPK'D CONC	% RECOV	
	mg/L				mg/L	mg/L	mg/L		
Ag	0	0	#DIV/0!	Ag	0.5064	0	0.5	101.3	
Al			#DIV/0!	Al			2	0.0	
As	0.1111	0.09837	12.25	As	2.082	0	2	104.1	
B			#DIV/0!	B			0.5	0.0	
Ba			#DIV/0!	Ba			2	0.0	
Be	0.00149	0.0017	13.07	Be	0.4951	0.0017	0.5	98.7	
Ca			#DIV/0!	Ca			10	0.0	
Cd	0.00287	0.00236	19.59	Cd	0.4939	0.00236	0.5	98.3	
Co			#DIV/0!	Co			0.5	0.0	
Cr	0.3447	0.2955	15.46	Cr	0.9158	0.2955	0.5	124.3	
Cu	0.2739	0.2859	4.20	Cu	0.9169	0.2859	0.50	126.4	
Fe			#DIV/0!	Fe			2	0.0	
K			#DIV/0!	K			10	0.0	
Mg			#DIV/0!	Mg			10	0.0	
Mn			#DIV/0!	Mn			0.5	0.0	
Mo			#DIV/0!	Mo			0.5	0.0	
Na			#DIV/0!	Na			10	0.0	
Ni	0.2833	0.243	15.41	Ni	0.8283	0.243	0.5	117.2	
Pb	0.2591	0.2152	18.60	Pb	2.123	0.2152	2	95.4	
Sb	0	0	#DIV/0!	Sb	0.415	0	2	20.8	
Se	0	0	#DIV/0!	Se	1.858	0	2	92.9	
Si			#DIV/0!	Si			10	0.0	
Sn			#DIV/0!	Sn			0.5	0.0	
Sr			#DIV/0!	Sr			0.5	0.0	
Ti			#DIV/0!	Ti			2	0.0	
Tl	0	0	#DIV/0!	Tl	1.747	0	2	87.4	
V			#DIV/0!	V			0.5	0.0	
Zn	1.317	0.9228	35.29	Zn	1.738	0.9228	0.5	163.7	

TABLE 6

09/11/09



Analytical Resources, Incorporated
Analytical Chemists and Consultants

SPIKING LOG

Sample ID VPSI ASPK, MBSPK

Final Volume 50.0

Analyst: AB

Final Volume (Hg): 50.0

Date: 10-30-12

Precode:	ICP Routine	ICP No GFA	GFA
Spike Solution:	<u>SWC</u>		
Standard No.:	<u>2977-9</u>		
Vol Added (mL):	<u>1.0</u>		
Ag	50 ✓		2.0
Al	200	200	
As	200 ✓		10
Ba	200	200	
Be	50 ✓	50	
Ca	1000	1000	
Cd	50 ✓		2.0
Co	50	50	
Cr	50 ✓	50	
Cu	50 ✓	50	
Fe	200	200	
K	1000	1000	
Mg	1000	1000	
Mn	50	50	
Na	1000	1000	
Ni	50 ✓	50	10
Pb	200 ✓		10
Se	200 ✓		
Sr	50	50	
Tl	200 ✓		10
V	50	50	
Zn	50 ✓	50	

ICP-MS #1	ICP-MS #2	ICP-MS Minerals
Ag	25	
Al		500
As	25	
Ba	25	
Be	25	
Ca		500
Cd	25	
Co	25	
Cr	25	
Cu	25	
Fe		500
K		500
Mg		500
Mn	25	
Mo		25
Na		500
Ni	25	
Pb	25	
Sb		25
Se	80	
Tl	25	
U	25	
V	25	
Zn	80	

Element	Prepcode	Analysis	Stock Conc.	Stock Added	Std No.
Hg	<u>SMM</u>	CVA	1.0	<u>0.05</u>	<u>2908-7</u>
Hg MBSPK	<u>SMM</u>	CVA	1.0	<u>0.10</u>	<u>2908-7</u>
Sb	<u>SWC</u>	ICP	2000	<u>0.10</u>	<u>2941-4</u>
Sb		GFA	100		
B		ICP	500		
Mo		ICP	500		
Si		ICP	10000		
Sn		ICP	500		
Ti		ICP	2000		

Additional Elements:

Element	Prepcode	Analysis	Stock Conc.	Stock Added	Std. No.

5033F 09/15/12



Digestion Log

Analyst: NB Date: 10-30-12 Time: 1248
Matrix: SOIL Block ID: #2 Block Temp: 95°C Thermometer: MP30

ARI Sample ID	Btl #	pH<2	Prep Code: <u>SWC</u>		Prep Code:		Comments
			Initial Wt (g) Vol (mL)	Final Vol (mL)	Initial Wt (g) Vol (mL)	Final Vol (mL)	
VP5i A	7	-	1.089	50.0			
" ADUP	7	-	1.088				
" ASPK	7	-	1.085				
" B	7	-	1.064				
" C	7	-	1.042				
" D	7	-	1.041				
" E	7	-	1.096				
" F	7	-	1.017				
" MBI	-	-	-				
" MBISPK	-	-	-	50.0			
NB 10-30-12							

Chemical/Reagent ID:

HNO₃: MP2371/I7834 HCl: I7676 H₂O₂: I7845 Tube Lot #: 1205258



Mercury Digestion Log

Prep Code: SMM

Matrix: SOIL

Analyst: NB

Date: 10-30-12

Bath Temp: 92°C

Start Time: 1307

End Time: 1337

ARI Sample ID	Sample Bottle #	pH<2	Initial Weight (g) Volume (mL)	Final Volume (mL)	# KMnO ₄ Aliquots	CLP	Comments
VP51 A	7	-	0.215	50.0	¹¹⁻⁰⁹ 1	YES	
" ADUP	7	-	0.215		1		
" ASPK	7	-	0.216		1		
" B	7	-	0.271		1		
" C	7	-	0.222		1		
" D	7	-	0.235		1		
" E	7	-	0.273		1		
" F	7	-	0.272		1		
" MBI	-	-	-	↓	1		
" MBISPK	-	-	-	50.0	1	↓	
NB 10-30-12							
(The remainder of the table is crossed out with a diagonal line.)							

Chemical/Reagent ID:

HNO₃: I7628

H₂SO₄: I7677

HCl:

5% K₂S₂O₈: MP2375

5% KMnO₄: MP2376

Digest Tube Lot: 1205258



IEC Date: 8-1-12

Analysis Date: 11-1-12

Analyst: H-12

LR Date: 8-2-12

Page: 1 of 5

All corrections made by analyst unless otherwise noted.

Edit Label	Delete Data	ARI Sample ID	Prep. Code	Dilution	Comments
		STD-0			2988-5
		↓ -2			2987-13
		↓ -3			↓ -14
		↓ -4			↓ -15
		↓ -5			↓ -16
		222222 ICV			2986-1
		222222 ICB			Cu high
		222222 CRI			Cu high
		222222 ICSA			Cu high
		222222 ICSAB			
		222222 CCVI			
		222222 CCB1			
		STD-0			
		ICV			
		ICB			
		CRI			
		ICSA			
		ICSAB			
		CCVI			Sn/Al
		CCB1			
✓		VP23 MB2	WMM		CCB and -2R
✓		VO93 MB	SUC	2	PE sample
✓		↓ H	↓	↓	" "
✓		VP23 I	WMM		CCB and -2R



IEC Date: _____ Analysis Date: 11-1-12 Analyst: SC

LR Date: _____ Page: 2 of 5

All corrections made by analyst unless otherwise noted.

Edit Label	Delete Data	ARI Sample ID	Prep. Code	Dilution	Comments
	✓	VP23 J	WMN		CCB out-RR
	✓	↓ K	↓		
	✓	↓ L	↓		
	✓	↓ HDup	↓	✓	
	✓	↓ H	↓		
	✓	↓ H5PK	↓	✓	Ca, Mn STD 0.080ml ICP spk
		CCV2			
		CCB2			Mn high
		VA16 MBZ	DMN		
	✓	VA25 MB	↓		CCBout RR
		VA16 L	↓		
		↓ K Dup	↓	✓	
		↓ K	↓		
		↓ K5PK	↓	✓	0.080ml ICP spk
	✓	VA25 ADup	WMN	✓	CCB - RR
	✓	↓ A	↓		
	✓	↓ A5PK	↓		0.080 ml ICP spk
	✓	VP23 MBZ5PK	↓		0.080 ml ICP spk
		CCV3			
		CCB3			
	✓	VP40MB1	EWJ	2.	CCV out RR
	✓	VP41 A	↓	↓	
	✓	↓ B	↓	↓	
	✓	↓ C	↓	↓	



IEC Date: _____

Analysis Date: 11-1-12

Analyst: GL

LR Date: _____

Page: 3 of 5

All corrections made by analyst unless otherwise noted. GL 11-1-12

Edit Label	Delete Data	ARI Sample ID	Prep. Code	Dilution	Comments
	✓	VP41 D	SLOC	2	CCU out RR
	✓	↓ E	↓	↓	
	✓	VP40 B	↓	↓	
	✓	↓ C	↓	↓	
	✓	VP41 MB SPK	WMM		✓ dose int ICP spk ✓
		VP45 MB SPK	WMM		✓ dose int ICP spk
		CCU4			Zn high
		CCB4			Zn high
		VP44 MB	LEN	5	} STD-0 STD-3 CCB5
		VP51 MB1	SLOC	2	
		↓ B	↓	↓	
		VP40 A Dup	↓	↓	
		↓ A	↓	↓	CAF
		↓ A spk	↓	↓	Sn low
		VP44 A Dup	LEN	5	✓
		↓ A	↓	↓	
		↓ A spk	↓	↓	✓
		VP40 MB1 SPK	SLOC	2	✓
		CCV86			
		CCV86			
		VP51 C	SLOC	2	
		↓ D	↓	↓	
		↓ E	↓	↓	
		↓ F	↓	↓	



IEC Date: _____ Analysis Date: 11-1-12 Analyst: SL

LR Date: _____ Page: 1 of 5

All corrections made by analyst unless otherwise noted. SL 11-1-12

Edit Label	Delete Data	ARI Sample ID	Prep. Code	Dilution	Comments
		VP51 A Dup	Suc	2	Zn - high % RPD
		↓ H	↓	↓	CAF
		↓ ASJK	↓	↓	Cu, Zn high Res.
		↓ MBJSJK	↓	↓	
		VP29 A	TWC		
		VP40 A POST	Suc	2	normal Temp, original Sm
		CCB 6 7			3rd lot
		CCB 6 7			Spk Pkg
	✓	VP83 MB	TWC		Cu high RR CCB out
		VP92 MB			
		↓ B		2	
	✓	VP03 B			RR STD CCB out (20)
	✓	↓ C			
	✓	↓ D			
		VP92 A Dup		2	Cu high % RPD
		↓ A		↓	CAF
		↓ ASJK		↓	
		↓ MBJSJK	↓	↓	
		CCB 7 8			MS, Sm low
		CCB 7 8			in E.O.
		VP81 MB	TWC		
		↓ A		↓	
		↓ B		↓	
	✓	VP03 E			??



IEC Date: _____ Analysis Date: 11-1-12 Analyst: RL
LR Date: _____ Page: 5 of 5

All corrections made by analyst unless otherwise noted. RL 11-1-12

Edit Label	Delete Data	ARI Sample ID	Prep. Code	Dilution	Comments
	✓	VP83 ADup	TWX	✓	RR x10 CCBout
	✓	↓ A	↓		
	✓	↓ ASPK	↓		✓ Ca, Mg, Na STL ↓
	✓	↓ MBSPK	↓		Na high
		VP81 MBSPK	↓		VP51 ADOS ← 100000 ECASPK SWC 0.016456
		CCV89			Mg, Sn low
		CCB89			End Pks
		EA 11-1-12			

Metals Data Review Checklist

Method: ICP/ICP-MS GFA CVA

Analysis Date: 11-1-12

	Analyst	Peer	Comment
<i>Optima 1</i>	<i>11-2-12</i>	<i>11-1-12</i>	
Logbook:			
Analyst, Date, Method info	✓	✓	
Sample ID's	✓	✓	
Standard/QC solution ID's recorded	✓	✓	
Prep codes	✓	✓	
Dilution factors	✓	✓	
Crossouts/Corrections/Deletions	✓	✓	
Calibration:			
Blank & Standard intensities	✓	✓	
Standard deviations	✓	✓	
Curve fit	✓	✓	
Calibration Verification:			
ICV/CCV	✓	✓	<i>See log</i>
ICB/CCB	✓	✓	<i>See log</i>
Samples:			
RSD's & SD's	✓	✓	
Internal Standards	✓	✓	
Carry-over	✓	✓	<i>See log</i>
Method QC:			
CRI/CRA	✓	✓	<i>See log</i>
ICSA/ICSAB	✓	✓	<i>See log</i>
Post Spikes/Serial Dilutions	✓	✓	
Analytic Spikes	✓	✓	
Matrix QC:			
SRM/LCS	✓	✓	
Matrix Spikes	✓	✓	<i>See log CAF VP40</i>
Matrix Duplicates	✓	✓	<i>See log CAF VP51</i>
Method Blanks	✓	✓	<i>See log - AMZL</i>
Data Distribution:			
Requested elements/isotope identified	✓	✓	
Correct samples identified for distribution	✓	✓	
Raw data match distributed data	✓	✓	
Data filename correct	✓	✓	
Necessary Analysts Notes and CAF's	✓	✓	<i>VP40, VP51</i>

Nebulizer Parameters: Hg ReAlign

Analyte Back Pressure Flow
All 231.0 kPa 0.55 L/min

11/1/2012 10:08:55 AM Hg ReAlign... Actual peak offset (nm): 0.001
Drift (nm): -0.001 Slit adjustment: -4

Analysis Begun

Start Time: 11/1/2012 10:12:11 AM Plasma On Time: 11/1/2012 9:01:02 AM
Logged In Analyst: metals Technique: ICP Continuous
Spectrometer Model: Optima 4300 DV, S/N 077N0060101 Autosampler Model: S10

Sample Information File: C:\pe\Administrator\Sample Information\CRISSET.sif

Batch ID:

Results Data Set: PE121101

Results Library: C:\pe\metals\Results\Results.mdb

Method Loaded

Method Name: ARIIEC6AN.552AS

Method Last Saved: 8/1/2012 1:18:45 PM

IEC File: IEC48.iec

MSF File:

Method Description: 12Axial Elements

Table with 6 columns: Analyte, Calibration Equation, Processing, View, Internal Standard, IEC. Lists various elements like Ag, Al, As, B, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, K, Mg, Mn, Mo, Na, Ni, Pb, Sb, Se, Si, Sn, Sr, Ti, Tl, V, Zn and their corresponding calibration and processing details.

Sequence No.: 1

Autosampler Location: 1

Sample ID: Calib Blank 1

Date Collected: 11/1/2012 10:12:18 AM

Data Type: Original

Nebulizer Parameters: Calib Blank 1

Analyte Back Pressure Flow
All 231.0 kPa 0.55 L/min

6.5 15.0 532.1
7.0 15.0 708.1

11/1/2012 10:41:16 AM aligned for analyte Mn 257.610
X viewing position set to 0.0 mm having Peak intensity 479258.8 for Radial viewing

Analysis Begun

Start Time: 11/1/2012 11:08:11 AM Plasma On Time: 11/1/2012 9:01:02 AM
Logged In Analyst: metals Technique: ICP Continuous
Spectrometer Model: Optima 4300 DV, S/N 077N0060101Autosampler Model: S10

Sample Information File: C:\pe\Administrator\Sample Information\CRISSET.sif
Batch ID:
Results Data Set: PE121101
Results Library: C:\pe\metals\Results\Results.mdb

Sequence No.: 1 Autosampler Location: 1
Sample ID: Calib Blank 1 Date Collected: 11/1/2012 11:08:11 AM
Data Type: Original

Nebulizer Parameters: Calib Blank 1
Analyte Back Pressure Flow
All 232.0 kPa 0.55 L/min

Mean Data: Calib Blank 1

Table with 5 columns: Analyte, Mean Corrected Intensity, Std.Dev., RSD, Calib Conc. Units. Lists various elements like ScA, ScR, Ag, Al, As, B, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, K, Mg, Mn, Mo, Na, Ni, Pb, Sb, Se, Si, Sn, Sr, Ti, Tl, V, Zn with their respective intensity and deviation values.

Sequence No.: 2
Sample ID: STD2

Autosampler Location: 2
Date Collected: 11/1/2012 11:14:09 AM
Data Type: Original

Nebulizer Parameters: STD2

Analyte	Back Pressure	Flow
All	232.0 kPa	0.55 L/min

Mean Data: STD2

Analyte	Mean Corrected			Calib	
	Intensity	Std.Dev.	RSD	Conc.	Units
ScA 357.253	2664563.2	17175.40	0.64%	100.6	%
ScR 361.383	211917.5	2122.58	1.00%	100.1	%
Ba 233.527†	102780.4	809.43	0.79%	[10]	mg/L
Cd 228.802†	835797.2	8999.04	1.08%	[10]	mg/L
Co 228.616†	843238.6	8292.48	0.98%	[10]	mg/L
Cr 267.716†	45779.8	388.50	0.85%	[10]	mg/L
Cu 324.752†	3131076.1	29662.68	0.95%	[10]	mg/L
Mn 257.610†	404704.2	2919.50	0.72%	[10]	mg/L
V 292.402†	2040014.1	23064.42	1.13%	[10]	mg/L

Sequence No.: 3
Sample ID: STD3

Autosampler Location: 3
Date Collected: 11/1/2012 11:18:05 AM
Data Type: Original

Nebulizer Parameters: STD3

Analyte	Back Pressure	Flow
All	231.0 kPa	0.55 L/min

Mean Data: STD3

Analyte	Mean Corrected			Calib	
	Intensity	Std.Dev.	RSD	Conc.	Units
ScA 357.253	2642226.9	34270.45	1.30%	99.77	%
ScR 361.383	214112.8	1551.20	0.72%	101.1	%
Ag 328.068†	298057.6	1029.31	0.35%	[1.0]	mg/L
As 188.979†	23822.1	130.24	0.55%	[10]	mg/L
B 249.677†	21691.1	170.32	0.79%	[10]	mg/L
Be 313.042†	1331298.9	24940.43	1.87%	[5.0]	mg/L
Na 589.592†	406685.7	6334.13	1.56%	[50]	mg/L
Ni 231.604†	22096.5	114.83	0.52%	[10]	mg/L
Pb 220.353†	129252.2	729.20	0.56%	[10]	mg/L
Se 196.026†	19212.4	103.05	0.54%	[10]	mg/L
Sr 421.552†	2892450.2	34499.13	1.19%	[5]	mg/L
Tl 190.801†	36588.5	211.86	0.58%	[10]	mg/L
Zn 206.200†	24347.7	121.56	0.50%	[10]	mg/L

Sequence No.: 4
Sample ID: STD4

Autosampler Location: 4
Date Collected: 11/1/2012 11:22:41 AM
Data Type: Original

Nebulizer Parameters: STD4

Analyte	Back Pressure	Flow
All	231.0 kPa	0.55 L/min

Mean Data: STD4

Analyte	Mean Corrected			Calib
	Intensity	Std.Dev.	RSD	Conc. Units
ScA 357.253	2698318.1	23463.76	0.87%	101.9 %
ScR 361.383	211100.1	2142.43	1.01%	99.69 %
Mo 202.031†	185038.9	902.37	0.49%	[10] mg/L
Sb 206.836†	36568.0	172.70	0.47%	[10] mg/L
Si 288.158†	13524.9	76.03	0.56%	[10] mg/L
Sn 189.927†	65582.6	269.95	0.41%	[10] mg/L
Ti 334.903†	257016.6	4894.02	1.90%	[10] mg/L

Sequence No.: 5
 Sample ID: STD5

Autosampler Location: 5
 Date Collected: 11/1/2012 11:26:54 AM
 Data Type: Original

Nebulizer Parameters: STD5

Analyte	Back Pressure	Flow
All	232.0 kPa	0.55 L/min

Mean Data: STD5

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Units
ScA 357.253	2577494.3	10704.19	0.42%	97.33	%
ScR 361.383	209084.7	1663.91	0.80%	98.74	%
Al 308.215†	45103.6	522.97	1.16%	[30]	mg/L
Ca 317.933†	317571.9	1287.82	0.41%	[30]	mg/L
Fe 273.955†	122581.6	370.66	0.30%	[100]	mg/L
K 766.490†	360299.6	1303.17	0.36%	[100]	mg/L
Mg 279.077†	34942.7	378.72	1.08%	[30]	mg/L
Na 330.237†	2743.4	24.42	0.89%	[100]	mg/L

Calibration Summary

Analyte	Stds.	Equation	Intercept	Slope	Curvature	Corr. Coef.	Reslope
Ag 328.068	1	Lin Thru 0	0.0	298100	0.00000	1.000000	
Al 308.215	1	Lin Thru 0	0.0	1503	0.00000	1.000000	
As 188.979	1	Lin Thru 0	0.0	2382	0.00000	1.000000	
B 249.677	1	Lin Thru 0	0.0	2169	0.00000	1.000000	
Ba 233.527	1	Lin Thru 0	0.0	10280	0.00000	1.000000	
Be 313.042	1	Lin Thru 0	0.0	266300	0.00000	1.000000	
Ca 317.933	1	Lin Thru 0	0.0	10590	0.00000	1.000000	
Cd 228.802	1	Lin Thru 0	0.0	83580	0.00000	1.000000	
Co 228.616	1	Lin Thru 0	0.0	84320	0.00000	1.000000	
Cr 267.716	1	Lin Thru 0	0.0	4578	0.00000	1.000000	
Cu 324.752	1	Lin Thru 0	0.0	313100	0.00000	1.000000	
Fe 273.955	1	Lin Thru 0	0.0	1226	0.00000	1.000000	
K 766.490	1	Lin Thru 0	0.0	3603	0.00000	1.000000	
Mg 279.077	1	Lin Thru 0	0.0	1165	0.00000	1.000000	
Mn 257.610	1	Lin Thru 0	0.0	40470	0.00000	1.000000	
Mo 202.031	1	Lin Thru 0	0.0	18500	0.00000	1.000000	
Na 589.592	1	Lin Thru 0	0.0	8134	0.00000	1.000000	
Na 330.237	1	Lin Thru 0	0.0	27.43	0.00000	1.000000	
Ni 231.604	1	Lin Thru 0	0.0	2210	0.00000	1.000000	
Pb 220.353	1	Lin Thru 0	0.0	12930	0.00000	1.000000	
Sb 206.836	1	Lin Thru 0	0.0	3657	0.00000	1.000000	
Se 196.026	1	Lin Thru 0	0.0	1921	0.00000	1.000000	
Si 288.158	1	Lin Thru 0	0.0	1352	0.00000	1.000000	
Sn 189.927	1	Lin Thru 0	0.0	6558	0.00000	1.000000	
Sr 421.552	1	Lin Thru 0	0.0	578500	0.00000	1.000000	
Ti 334.903	1	Lin Thru 0	0.0	25700	0.00000	1.000000	
Tl 190.801	1	Lin Thru 0	0.0	3659	0.00000	1.000000	
V 292.402	1	Lin Thru 0	0.0	204000	0.00000	1.000000	
Zn 206.200	1	Lin Thru 0	0.0	2435	0.00000	1.000000	

=====
 Analysis Begun

Start Time: 11/1/2012 11:30:21 AM

Plasma On Time: 11/1/2012 9:01:02 AM

Logged In Analyst: metals

Technique: ICP Continuous

Spectrometer Model: Optima 4300 DV, S/N 077N0060101Autosampler Model: S10

Sample Information File: C:\pe\metals\Sample Information\CRISSET.sif

Batch ID:

Results Data Set: PE121101

Results Library: C:\pe\metals\Results\Results.mdb

=====
 Sequence No.: 1

Autosampler Location: 7

Sample ID: ~~ICV~~

Date Collected: 11/1/2012 11:30:23 AM

Analyst: EL *222222*

Data Type: Original

Dilution: 1X *5.0 (10) -12*

 Nebulizer Parameters: CV

Analyte	Back Pressure	Flow
All	231.0 kPa	0.55 L/min

 Mean Data: CV

Analyte	Mean Corrected Intensity	Calib. Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2650410.4	100.1 %	0.25			0.25%
ScR 361.383	215502.0	101.8 %	0.75			0.74%
Ag 328.068†	302649.5	1.015 mg/L	0.0022	1.015 mg/L	0.0022	0.22%
Al 308.215†	3073.7	2.002 mg/L	0.0105	2.002 mg/L	0.0105	0.53%
As 188.979†	4999.6	2.098 mg/L	0.0019	2.098 mg/L	0.0019	0.09%
B 249.677†	2155.8	0.9922 mg/L	0.00066	0.9922 mg/L	0.00066	0.07%
Ba 233.527†	10176.7	0.9897 mg/L	0.00421	0.9897 mg/L	0.00421	0.43%
Be 313.042†	271995.0	1.019 mg/L	0.0061	1.019 mg/L	0.0061	0.60%
Ca 317.933†	21224.9	2.005 mg/L	0.0105	2.005 mg/L	0.0105	0.53%
Cd 228.802†	86019.0	1.024 mg/L	0.0049	1.024 mg/L	0.0049	0.48%
Co 228.616†	82972.4	0.9820 mg/L	0.00332	0.9820 mg/L	0.00332	0.34%
Cr 267.716†	4508.0	0.9844 mg/L	0.00291	0.9844 mg/L	0.00291	0.30%
Cu 324.752†	333358.8	1.065 mg/L	0.0009	1.065 mg/L	0.0009	0.09%
Fe 273.955†	2552.8	2.082 mg/L	0.0050	2.082 mg/L	0.0050	0.24%
K 766.490†	73185.1	20.31 mg/L	0.071	20.31 mg/L	0.071	0.35%
Mg 279.077†	2424.4	2.085 mg/L	0.0047	2.085 mg/L	0.0047	0.23%
Mn 257.610†	40350.8	0.9975 mg/L	0.00747	0.9975 mg/L	0.00747	0.75%
Mo 202.031†	18036.3	0.9746 mg/L	0.00100	0.9746 mg/L	0.00100	0.10%
Na 589.592†	417836.7	51.37 mg/L	0.297	51.37 mg/L	0.297	0.58%
Na 330.237†	1418.7	51.50 mg/L	0.561	51.50 mg/L	0.561	1.09%
Ni 231.604†	2227.5	1.009 mg/L	0.0037	1.009 mg/L	0.0037	0.37%
Pb 220.353†	26608.9	2.060 mg/L	0.0001	2.060 mg/L	0.0001	0.00%
Sb 206.836†	7799.4	2.130 mg/L	0.0026	2.130 mg/L	0.0026	0.12%
Se 196.026†	3912.0	2.033 mg/L	0.0016	2.033 mg/L	0.0016	0.08%
Si 288.158†	2861.0	2.122 mg/L	0.0174	2.122 mg/L	0.0174	0.82%
Sn 189.927†	6013.0	0.9177 mg/L	0.00194	0.9177 mg/L	0.00194	0.21%
Sr 421.552†	589990.9	1.020 mg/L	0.0024	1.020 mg/L	0.0024	0.24%
Ti 334.903†	25679.1	0.9979 mg/L	0.00688	0.9979 mg/L	0.00688	0.69%
Tl 190.801†	7396.8	2.009 mg/L	0.0020	2.009 mg/L	0.0020	0.10%
V 292.402†	204689.7	1.014 mg/L	0.0006	1.014 mg/L	0.0006	0.06%
Zn 206.200†	2586.8	1.061 mg/L	0.0025	1.061 mg/L	0.0025	0.24%

Sequence No.: 2

Autosampler Location: 1

Sample ID: ~~1CB~~

Date Collected: 11/1/2012 11:36:26 AM

Analyst: EL

Data Type: Original

Dilution: 1X

Nebulizer Parameters: CB

Analyte	Back Pressure	Flow
All	231.0 kPa	0.55 L/min

Mean Data: CB

Analyte	Mean Corrected		Calib. Units	Std.Dev.	Sample		Std.Dev.	RSD
	Intensity	Conc.			Conc.	Units		
ScA 357.253	2710641.2	102.4	%	1.69				1.66%
ScR 361.383	218148.6	103.0	%	1.61				1.56%
Ag 328.068†	-6.1	-0.00002	mg/L	0.000175	-0.00002	mg/L	0.000175	857.12%
Al 308.215†	-13.7	-0.00912	mg/L	0.005536	-0.00912	mg/L	0.005536	60.70%
As 188.979†	4.9	0.00206	mg/L	0.001108	0.00206	mg/L	0.001108	53.76%
B 249.677†	14.8	0.00681	mg/L	0.001633	0.00681	mg/L	0.001633	23.98%
Ba 233.527†	4.2	0.00041	mg/L	0.000392	0.00041	mg/L	0.000392	95.68%
Be 313.042†	49.7	0.00019	mg/L	0.000033	0.00019	mg/L	0.000033	17.80%
Ca 317.933†	11.3	0.00107	mg/L	0.001476	0.00107	mg/L	0.001476	138.30%
Cd 228.802†	8.1	0.00009	mg/L	0.000060	0.00009	mg/L	0.000060	65.40%
Co 228.616†	5.5	0.00006	mg/L	0.000044	0.00006	mg/L	0.000044	67.81%
Cr 267.716†	-0.1	-0.00002	mg/L	0.000803	-0.00002	mg/L	0.000803	>999.9%
Cu 324.752†	910.0	0.00291	mg/L	0.000104	0.00291	mg/L	0.000104	3.59%
Fe 273.955†	0.8	0.00064	mg/L	0.000752	0.00064	mg/L	0.000752	117.89%
K 766.490†	126.0	0.03498	mg/L	0.019597	0.03498	mg/L	0.019597	56.02%
Mg 279.077†	-1.7	-0.00146	mg/L	0.000690	-0.00146	mg/L	0.000690	47.33%
Mn 257.610†	-1.5	-0.00004	mg/L	0.000132	-0.00004	mg/L	0.000132	361.93%
Mo 202.031†	4.2	0.00023	mg/L	0.000234	0.00023	mg/L	0.000234	102.83%
Na 589.592†	289.6	0.03561	mg/L	0.007460	0.03561	mg/L	0.007460	20.95%
Na 330.237†	-2.5	-0.09162	mg/L	0.274824	-0.09162	mg/L	0.274824	299.95%
Ni 231.604†	-0.2	-0.00008	mg/L	0.001741	-0.00008	mg/L	0.001741	>999.9%
Pb 220.353†	1.6	0.00012	mg/L	0.000631	0.00012	mg/L	0.000631	538.85%
Sb 206.836†	7.9	0.00217	mg/L	0.000450	0.00217	mg/L	0.000450	20.70%
Se 196.026†	6.5	0.00340	mg/L	0.000913	0.00340	mg/L	0.000913	26.88%
Si 288.158†	10.2	0.00751	mg/L	0.002455	0.00751	mg/L	0.002455	32.69%
Sn 189.927†	6.2	0.00094	mg/L	0.000644	0.00094	mg/L	0.000644	68.16%
Sr 421.552†	-18.7	-0.00003	mg/L	0.000080	-0.00003	mg/L	0.000080	248.19%
Ti 334.903†	13.0	0.00050	mg/L	0.000929	0.00050	mg/L	0.000929	184.06%
Tl 190.801†	5.2	0.00141	mg/L	0.000872	0.00141	mg/L	0.000872	61.98%
V 292.402†	0.2	0.00000	mg/L	0.000038	0.00000	mg/L	0.000038	>999.9%
Zn 206.200†	-0.5	-0.00021	mg/L	0.001050	-0.00021	mg/L	0.001050	499.32%

Sequence No.: 3

Autosampler Location: 21

Sample ID: CRI

Date Collected: 11/1/2012 11:42:25 AM

Analyst: EL

Data Type: Original

Dilution: 1X

Nebulizer Parameters: CRI

Analyte	Back Pressure	Flow
All	232.0 kPa	0.55 L/min

Mean Data: CRI

Analyte	Mean Corrected Intensity	Conc. Units	Calib.	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2713526.3	102.5	%	0.96			0.94%
ScR 361.383	218772.9	103.3	%	1.76			1.71%
Ag 328.068†	828.7	0.00278	mg/L	0.000093	0.00278 mg/L	0.000093	3.35%
Al 308.215†	76.6	0.05080	mg/L	0.009787	0.05080 mg/L	0.009787	19.27%
As 188.979†	127.1	0.05333	mg/L	0.002022	0.05333 mg/L	0.002022	3.79%
B 249.677†	43.0	0.01981	mg/L	0.001746	0.01981 mg/L	0.001746	8.81%
Ba 233.527†	35.1	0.00341	mg/L	0.000286	0.00341 mg/L	0.000286	8.39%
Be 313.042†	333.4	0.00124	mg/L	0.000072	0.00124 mg/L	0.000072	5.79%
Ca 317.933†	522.3	0.04934	mg/L	0.000729	0.04934 mg/L	0.000729	1.48%
Cd 228.802†	180.8	0.00204	mg/L	0.000060	0.00204 mg/L	0.000060	2.96%
Co 228.616†	281.6	0.00333	mg/L	0.000053	0.00333 mg/L	0.000053	1.60%
Cr 267.716†	20.9	0.00456	mg/L	0.000326	0.00456 mg/L	0.000326	7.15%
Cu 324.752†	1289.7	0.00412	mg/L	0.000115	0.00412 mg/L	0.000115	2.78%
Fe 273.955†	63.1	0.05146	mg/L	0.000634	0.05146 mg/L	0.000634	1.23%
K 766.490†	1881.1	0.5221	mg/L	0.01473	0.5221 mg/L	0.01473	2.82%
Mg 279.077†	60.6	0.05203	mg/L	0.005052	0.05203 mg/L	0.005052	9.71%
Mn 257.610†	41.6	0.00103	mg/L	0.000197	0.00103 mg/L	0.000197	19.08%
Mo 202.031†	93.3	0.00504	mg/L	0.000157	0.00504 mg/L	0.000157	3.12%
Na 589.592†	4284.3	0.5267	mg/L	0.00880	0.5267 mg/L	0.00880	1.67%
Na 330.237†	20.2	0.7346	mg/L	0.18760	0.7346 mg/L	0.18760	25.54%
Ni 231.604†	21.7	0.00981	mg/L	0.000742	0.00981 mg/L	0.000742	7.56%
Pb 220.353†	256.5	0.01987	mg/L	0.000785	0.01987 mg/L	0.000785	3.95%
Sb 206.836†	195.0	0.05337	mg/L	0.000989	0.05337 mg/L	0.000989	1.85%
Se 196.026†	98.6	0.05129	mg/L	0.002876	0.05129 mg/L	0.002876	5.61%
Si 288.158†	121.6	0.08996	mg/L	0.002453	0.08996 mg/L	0.002453	2.73%
Sn 189.927†	64.9	0.00992	mg/L	0.000200	0.00992 mg/L	0.000200	2.02%
Sr 421.552†	574.1	0.00099	mg/L	0.000089	0.00099 mg/L	0.000089	9.01%
Ti 334.903†	130.7	0.00508	mg/L	0.000447	0.00508 mg/L	0.000447	8.81%
Tl 190.801†	178.1	0.04863	mg/L	0.001153	0.04863 mg/L	0.001153	2.37%
V 292.402†	601.3	0.00300	mg/L	0.000160	0.00300 mg/L	0.000160	5.36%
Zn 206.200†	24.3	0.00997	mg/L	0.000919	0.00997 mg/L	0.000919	9.21%

Sequence No.: 4
 Sample ID: ICSA
 Analyst: EL
 Dilution: 1X

Autosampler Location: 22
 Date Collected: 11/1/2012 11:48:25 AM
 Data Type: Original

Nebulizer Parameters: ICSA

Analyte Back Pressure Flow
 All 231.0 kPa 0.55 L/min

Mean Data: ICSA

Analyte	Mean Corrected Intensity	Conc. Units	Calib.	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2598827.9	98.13 %		0.404			0.41%
ScR 361.383	214108.8	101.1 %		0.50			0.50%
Ag 328.068†	-1906.2	-0.00113 mg/L		0.000369	-0.00113 mg/L	0.000369	32.49%
Al 308.215†	290694.1	193.4 mg/L		0.34	193.4 mg/L	0.34	0.18%
As 188.979†	1.9	0.00083 mg/L		0.001011	0.00083 mg/L	0.001011	121.78%
B 249.677†	-3.2	-0.00150 mg/L		0.005242	-0.00150 mg/L	0.005242	349.14%
Ba 233.527†	85.0	-0.00061 mg/L		0.000475	-0.00061 mg/L	0.000475	78.23%
Be 313.042†	44.2	0.00012 mg/L		0.000006	0.00012 mg/L	0.000006	5.15%
Ca 317.933†	996683.5	94.15 mg/L		0.148	94.15 mg/L	0.148	0.16%
Cd 228.802†	93.4	0.00112 mg/L		0.000050	0.00112 mg/L	0.000050	4.52%
Co 228.616†	159.0	-0.00034 mg/L		0.000160	-0.00034 mg/L	0.000160	46.53%
Cr 267.716†	16.5	0.00360 mg/L		0.000272	0.00360 mg/L	0.000272	7.57%
Cu 324.752†	-4278.4	0.00235 mg/L		0.000081	0.00235 mg/L	0.000081	3.42%
Fe 273.955†	234803.7	191.5 mg/L		0.36	191.5 mg/L	0.36	0.19%
K 766.490†	44.5	0.01236 mg/L		0.008620	0.01236 mg/L	0.008620	69.76%
Mg 279.077†	113893.0	97.67 mg/L		0.615	97.67 mg/L	0.615	0.63%
Mn 257.610†	25.5	-0.00070 mg/L		0.000351	-0.00070 mg/L	0.000351	50.10%
Mo 202.031†	-180.1	-0.00690 mg/L		0.000337	-0.00690 mg/L	0.000337	4.89%
Na 589.592†	128.3	0.01578 mg/L		0.004234	0.01578 mg/L	0.004234	26.83%
Na 330.237†	32.3	0.7653 mg/L		0.48184	0.7653 mg/L	0.48184	62.96%
Ni 231.604†	9.6	0.00438 mg/L		0.001851	0.00438 mg/L	0.001851	42.23%
Pb 220.353†	-693.5	0.00736 mg/L		0.000717	0.00736 mg/L	0.000717	9.75%
Sb 206.836†	171.7	0.02892 mg/L		0.000657	0.02892 mg/L	0.000657	2.27%
Se 196.026†	-120.6	-0.06277 mg/L		0.002931	-0.06277 mg/L	0.002931	4.67%
Si 288.158†	-0.6	0.01131 mg/L		0.005210	0.01131 mg/L	0.005210	46.07%
Sn 189.927†	-44.3	0.01563 mg/L		0.001515	0.01563 mg/L	0.001515	9.70%
Sr 421.552†	2273.0	0.00393 mg/L <i>ent.</i>		0.000037	0.00393 mg/L	0.000037	0.94%
Ti 334.903†	166.1	0.00185 mg/L		0.000235	0.00185 mg/L	0.000235	12.68%
Tl 190.801†	-40.8	-0.01128 mg/L		0.001292	-0.01128 mg/L	0.001292	11.46%
V 292.402†	3921.1	0.00098 mg/L		0.000408	0.00098 mg/L	0.000408	41.67%
Zn 206.200†	-21.3	-0.00673 mg/L		0.000947	-0.00673 mg/L	0.000947	14.06%

Sequence No.: 5

Autosampler Location: 23

Sample ID: ICSAB

Date Collected: 11/1/2012 11:54:28 AM

Analyst: EL *Z 2862*

Data Type: Original

Dilution: 1X *2862*

Nebulizer Parameters: ICSAB

Analyte	Back Pressure	Flow
All	231.0 kPa	0.55 L/min

Mean Data: ICSAB

Analyte	Mean Corrected Intensity	Conc. Units	Calib.	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2619354.8	98.91	%	0.543			0.55%
ScR 361.383	215966.6	102.0	%	0.71			0.70%
Ag 328.068†	298306.4	1.006	mg/L	0.0037	1.006 mg/L	0.0037	0.37%
Al 308.215†	290392.1	193.1	mg/L	0.67	193.1 mg/L	0.67	0.35%
As 188.979†	2370.7	0.9950	mg/L	0.00515	0.9950 mg/L	0.00515	0.52%
B 249.677†	18.2	0.00536	mg/L	0.002743	0.00536 mg/L	0.002743	51.21%
Ba 233.527†	9886.3	0.9525	mg/L	0.00896	0.9525 mg/L	0.00896	0.94%
Be 313.042†	266043.1	0.9967	mg/L	0.00485	0.9967 mg/L	0.00485	0.49%
Ca 317.933†	1005184.8	94.96	mg/L	0.436	94.96 mg/L	0.436	0.46%
Cd 228.802†	81798.0	0.9764	mg/L	0.00467	0.9764 mg/L	0.00467	0.48%
Co 228.616†	76142.4	0.9003	mg/L	0.00303	0.9003 mg/L	0.00303	0.34%
Cr 267.716†	4358.8	0.9520	mg/L	0.01008	0.9520 mg/L	0.01008	1.06%
Cu 324.752†	309647.5	1.005	mg/L	0.0064	1.005 mg/L	0.0064	0.64%
Fe 273.955†	236743.6	193.1	mg/L	0.50	193.1 mg/L	0.50	0.26%
K 766.490†	62.9	0.01746	mg/L	0.016770	0.01746 mg/L	0.016770	96.03%
Mg 279.077†	116487.6	99.90	mg/L	0.326	99.90 mg/L	0.326	0.33%
Mn 257.610†	38171.5	0.9421	mg/L	0.00307	0.9421 mg/L	0.00307	0.33%
Mo 202.031†	-171.6	-0.00665	mg/L	0.000665	-0.00665 mg/L	0.000665	10.00%
Na 589.592†	636.1	0.07820	mg/L	0.002857	0.07820 mg/L	0.002857	3.65%
Na 330.237†	37.5	0.6012	mg/L	0.09047	0.6012 mg/L	0.09047	15.05%
Ni 231.604†	2093.8	0.9479	mg/L	0.00916	0.9479 mg/L	0.00916	0.97%
Pb 220.353†	11516.0	0.9528	mg/L	0.00504	0.9528 mg/L	0.00504	0.53%
Sb 206.836†	3880.3	1.029	mg/L	0.0037	1.029 mg/L	0.0037	0.36%
Se 196.026†	1798.2	0.9333	mg/L	0.00755	0.9333 mg/L	0.00755	0.81%
Si 288.158†	41.7	0.04709	mg/L	0.004939	0.04709 mg/L	0.004939	10.49%
Sn 189.927†	-50.7	0.01487	mg/L	0.000493	0.01487 mg/L	0.000493	3.31%
Sr 421.552†	2547.8	0.00440	mg/L <i>IC cut</i>	0.000025	0.00440 mg/L	0.000025	0.57%
Ti 334.903†	166.1	0.00159	mg/L	0.000377	0.00159 mg/L	0.000377	23.66%
Tl 190.801†	3350.5	0.9038	mg/L	0.00729	0.9038 mg/L	0.00729	0.81%
V 292.402†	197290.2	0.9556	mg/L	0.00478	0.9556 mg/L	0.00478	0.50%
Zn 206.200†	2221.5	0.9136	mg/L	0.01191	0.9136 mg/L	0.01191	1.30%

Sequence No.: 6

Autosampler Location: 7

Sample ID: CV

Date Collected: 11/1/2012 12:01:28 PM

Analyst: EL

Data Type: Original

Dilution: 1X

Nebulizer Parameters: CV

Analyte	Back Pressure	Flow
All	232.0 kPa	0.55 L/min

Mean Data: CV

Analyte	Mean Corrected Intensity	Conc. Units	Calib.	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2656598.2	100.3	%	0.40			0.40%
ScR 361.383	216442.6	102.2	%	0.82			0.80%
Ag 328.068†	300504.0	1.008	mg/L	0.0020	1.008 mg/L	0.0020	0.20%
Al 308.215†	3057.4	1.991	mg/L	0.0189	1.991 mg/L	0.0189	0.95%
As 188.979†	4985.3	2.092	mg/L	0.0022	2.092 mg/L	0.0022	0.10%
B 249.677†	2119.8	0.9756	mg/L	0.01082	0.9756 mg/L	0.01082	1.11%
Ba 233.527†	10148.2	0.9869	mg/L	0.00890	0.9869 mg/L	0.00890	0.90%
Be 313.042†	271227.1	1.016	mg/L	0.0011	1.016 mg/L	0.0011	0.11%
Ca 317.933†	21205.4	2.003	mg/L	0.0192	2.003 mg/L	0.0192	0.96%
Cd 228.802†	85753.8	1.021	mg/L	0.0029	1.021 mg/L	0.0029	0.29%
Co 228.616†	83058.7	0.9830	mg/L	0.00120	0.9830 mg/L	0.00120	0.12%
Cr 267.716†	4500.0	0.9826	mg/L	0.01150	0.9826 mg/L	0.01150	1.17%
Cu 324.752†	331138.3	1.058	mg/L	0.0021	1.058 mg/L	0.0021	0.20%
Fe 273.955†	2560.7	2.088	mg/L	0.0192	2.088 mg/L	0.0192	0.92%
K 766.490†	72337.4	20.08	mg/L	0.090	20.08 mg/L	0.090	0.45%
Mg 279.077†	2427.8	2.088	mg/L	0.0185	2.088 mg/L	0.0185	0.89%
Mn 257.610†	40233.7	0.9946	mg/L	0.00053	0.9946 mg/L	0.00053	0.05%
Mo 202.031†	17992.8	0.9722	mg/L	0.00146	0.9722 mg/L	0.00146	0.15%
Na 589.592†	413052.2	50.78	mg/L	0.233	50.78 mg/L	0.233	0.46%
Na 330.237†	1406.2	51.04	mg/L	0.428	51.04 mg/L	0.428	0.84%
Ni 231.604†	2221.8	1.006	mg/L	0.0111	1.006 mg/L	0.0111	1.11%
Pb 220.353†	26633.0	2.062	mg/L	0.0046	2.062 mg/L	0.0046	0.22%
Sb 206.836†	7767.8	2.122	mg/L	0.0048	2.122 mg/L	0.0048	0.23%
Se 196.026†	3901.5	2.028	mg/L	0.0046	2.028 mg/L	0.0046	0.23%
Si 288.158†	2849.8	2.114	mg/L	0.0163	2.114 mg/L	0.0163	0.77%
Sn 189.927†	6008.5	0.9170	mg/L	0.00114	0.9170 mg/L	0.00114	0.12%
Sr 421.552†	586064.5	1.013	mg/L	0.0041	1.013 mg/L	0.0041	0.41%
Ti 334.903†	25474.1	0.9899	mg/L	0.00107	0.9899 mg/L	0.00107	0.11%
Tl 190.801†	7382.1	2.005	mg/L	0.0059	2.005 mg/L	0.0059	0.29%
V 292.402†	203645.0	1.009	mg/L	0.0079	1.009 mg/L	0.0079	0.78%
Zn 206.200†	2601.2	1.067	mg/L	0.0067	1.067 mg/L	0.0067	0.63%

Sequence No.: 7

Autosampler Location: 1

Sample ID: CB
Analyst: EL
Dilution: 1XDate Collected: 11/1/2012 12:07:31 PM
Data Type: Original

Nebulizer Parameters: CB

Analyte	Back Pressure	Flow
All	232.0 kPa	0.55 L/min

Mean Data: CB

Analyte	Mean Corrected Intensity	Conc. Units	Calib.	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2694565.4	101.7	%	0.18			0.18%
ScR 361.383	215850.0	101.9	%	1.82			1.78%
Ag 328.068†	39.8	0.00013	mg/L	0.000096	0.00013 mg/L	0.000096	71.60%
Al 308.215†	-3.7	-0.00248	mg/L	0.013676	-0.00248 mg/L	0.013676	552.19%
As 188.979†	2.2	0.00093	mg/L	0.000661	0.00093 mg/L	0.000661	70.95%
B 249.677†	2.1	0.00099	mg/L	0.002246	0.00099 mg/L	0.002246	227.07%
Ba 233.527†	9.2	0.00089	mg/L	0.000438	0.00089 mg/L	0.000438	49.10%
Be 313.042†	65.6	0.00025	mg/L	0.000105	0.00025 mg/L	0.000105	42.67%
Ca 317.933†	-21.1	-0.00200	mg/L	0.001141	-0.00200 mg/L	0.001141	57.21%
Cd 228.802†	27.9	0.00033	mg/L	0.000048	0.00033 mg/L	0.000048	14.40%
Co 228.616†	18.7	0.00022	mg/L	0.000086	0.00022 mg/L	0.000086	38.59%
Cr 267.716†	2.2	0.00048	mg/L	0.000628	0.00048 mg/L	0.000628	130.11%
Cu 324.752†	631.1	0.00202	mg/L	0.000062	0.00202 mg/L	0.000062	3.09%
Fe 273.955†	2.6	0.00211	mg/L	0.000969	0.00211 mg/L	0.000969	45.91%
K 766.490†	157.0	0.04356	mg/L	0.005952	0.04356 mg/L	0.005952	13.66%
Mg 279.077†	-2.5	-0.00214	mg/L	0.005591	-0.00214 mg/L	0.005591	261.87%
Mn 257.610†	-3.0	-0.00007	mg/L	0.000061	-0.00007 mg/L	0.000061	84.13%
Mo 202.031†	2.0	0.00011	mg/L	0.000114	0.00011 mg/L	0.000114	106.42%
Na 589.592†	233.7	0.02873	mg/L	0.005703	0.02873 mg/L	0.005703	19.85%
Na 330.237†	1.0	0.03659	mg/L	0.229724	0.03659 mg/L	0.229724	627.90%
Ni 231.604†	2.0	0.00092	mg/L	0.002309	0.00092 mg/L	0.002309	251.58%
Pb 220.353†	12.1	0.00093	mg/L	0.000297	0.00093 mg/L	0.000297	31.88%
Sb 206.836†	10.1	0.00276	mg/L	0.001332	0.00276 mg/L	0.001332	48.20%
Se 196.026†	8.9	0.00462	mg/L	0.001553	0.00462 mg/L	0.001553	33.64%
Si 288.158†	8.2	0.00609	mg/L	0.002276	0.00609 mg/L	0.002276	37.36%
Sn 189.927†	6.7	0.00102	mg/L	0.000144	0.00102 mg/L	0.000144	14.09%
Sr 421.552†	-18.8	-0.00003	mg/L	0.000076	-0.00003 mg/L	0.000076	233.18%
Ti 334.903†	-1.3	-0.00005	mg/L	0.000612	-0.00005 mg/L	0.000612	>999.9%
Tl 190.801†	9.4	0.00256	mg/L	0.002534	0.00256 mg/L	0.002534	98.89%
V 292.402†	-29.6	-0.00014	mg/L	0.000063	-0.00014 mg/L	0.000063	44.72%
Zn 206.200†	2.6	0.00107	mg/L	0.000400	0.00107 mg/L	0.000400	37.51%

=====
Analysis Begun

Start Time: 11/1/2012 12:13:39 PM Plasma On Time: 11/1/2012 9:01:02 AM
Logged In Analyst: metals Technique: ICP Continuous
Spectrometer Model: Optima 4300 DV, S/N 077N0060101 Autosampler Model: S10

Sample Information File: C:\pe\metals\Sample Information\CRISSET.sif

Batch ID:

Results Data Set: PE121101

Results Library: C:\pe\metals\Results\Results.mdb

=====
Sequence No.: 1

Sample ID: Calib Blank 1

Date Collected: 11/1/2012 12:13:42 PM

Data Type: Original

Nebulizer Parameters: Calib Blank 1

Analyte	Back Pressure	Flow
All	232.0 kPa	0.55 L/min

Mean Data: Calib Blank 1

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Units
ScA 357.253	2710131.8	20389.97	0.75%	102.3	%
ScR 361.383	216445.5	1416.51	0.65%	102.2	%
Ag 328.068†	580.4	11.89	2.05%	[0.00]	mg/L
Al 308.215†	28.0	9.82	35.04%	[0.00]	mg/L
As 188.979†	1.3	2.05	154.00%	[0.00]	mg/L
B 249.677†	-122.2	2.15	1.76%	[0.00]	mg/L
Ba 233.527†	64.0	1.53	2.40%	[0.00]	mg/L
Be 313.042†	612.7	25.08	4.09%	[0.00]	mg/L
Ca 317.933†	-10.2	13.51	132.96%	[0.00]	mg/L
Cd 228.802†	301.2	5.36	1.78%	[0.00]	mg/L
Co 228.616†	310.7	4.38	1.41%	[0.00]	mg/L
Cr 267.716†	4.2	3.23	76.27%	[0.00]	mg/L
Cu 324.752†	1762.9	27.67	1.57%	[0.00]	mg/L
Fe 273.955†	-31.3	1.94	6.19%	[0.00]	mg/L
K 766.490†	2075.2	51.81	2.50%	[0.00]	mg/L
Mg 279.077†	-154.7	0.52	0.34%	[0.00]	mg/L
Mn 257.610†	-63.9	6.51	10.19%	[0.00]	mg/L
Mo 202.031†	-128.2	3.52	2.75%	[0.00]	mg/L
Na 589.592†	129.0	25.26	19.58%	[0.00]	mg/L
Na 330.237†	47.0	13.68	29.12%	[0.00]	mg/L
Ni 231.604†	29.0	2.93	10.12%	[0.00]	mg/L
Pb 220.353†	259.1	5.92	2.29%	[0.00]	mg/L
Sb 206.836†	128.9	3.48	2.70%	[0.00]	mg/L
Se 196.026†	-94.7	2.87	3.03%	[0.00]	mg/L
Si 288.158†	2.1	3.94	192.21%	[0.00]	mg/L
Sn 189.927†	-8.2	2.93	35.52%	[0.00]	mg/L
Sr 421.552†	630.8	12.46	1.97%	[0.00]	mg/L
Ti 334.903†	-75.1	32.85	43.71%	[0.00]	mg/L
Tl 190.801†	21.9	5.73	26.18%	[0.00]	mg/L
V 292.402†	-43.2	34.92	80.77%	[0.00]	mg/L
Zn 206.200†	-27.2	1.05	3.86%	[0.00]	mg/L

=====
Analysis Begun

Start Time: 11/1/2012 12:18:49 PM

Plasma On Time: 11/1/2012 9:01:02 AM

Logged In Analyst: metals

Technique: ICP Continuous

Spectrometer Model: Optima 4300 DV, S/N 077N0060101 Autosampler Model: S10

Sample Information File: C:\pe\metals\Sample Information\CRISSET.sif

Batch ID:

Results Data Set: PE121101

Results Library: C:\pe\metals\Results\Results.mdb

=====
Sequence No.: 1

Autosampler Location: 7

Sample ID: CV

Date Collected: 11/1/2012 12:18:52 PM

Data Type: Original

Dilution: 1X

=====
Nebulizer Parameters: CV

Analyte	Back Pressure	Flow
All	232.0 kPa	0.55 L/min

=====
Mean Data: CV

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2633249.0	99.43	%	0.349				0.35%
ScR 361.383	217033.1	102.5	%	0.89				0.86%
Ag 328.068†	300317.2	1.008	mg/L	0.0038	1.008	mg/L	0.0038	0.38%
Al 308.215†	3058.1	1.992	mg/L	0.0211	1.992	mg/L	0.0211	1.06%
As 188.979†	4956.8	2.080	mg/L	0.0139	2.080	mg/L	0.0139	0.67%
B 249.677†	2142.8	0.9862	mg/L	0.00445	0.9862	mg/L	0.00445	0.45%
Ba 233.527†	10177.1	0.9898	mg/L	0.00944	0.9898	mg/L	0.00944	0.95%
Be 313.042†	273164.2	1.023	mg/L	0.0015	1.023	mg/L	0.0015	0.14%
Ca 317.933†	21369.6	2.019	mg/L	0.0173	2.019	mg/L	0.0173	0.85%
Cd 228.802†	85915.7	1.023	mg/L	0.0016	1.023	mg/L	0.0016	0.16%
Co 228.616†	83218.6	0.9849	mg/L	0.00072	0.9849	mg/L	0.00072	0.07%
Cr 267.716†	4534.8	0.9902	mg/L	0.00729	0.9902	mg/L	0.00729	0.74%
Cu 324.752†	332156.8	1.061	mg/L	0.0019	1.061	mg/L	0.0019	0.18%
Fe 273.955†	2571.2	2.097	mg/L	0.0207	2.097	mg/L	0.0207	0.99%
K 766.490†	72078.9	20.01	mg/L	0.063	20.01	mg/L	0.063	0.31%
Mg 279.077†	2437.8	2.096	mg/L	0.0223	2.096	mg/L	0.0223	1.07%
Mn 257.610†	40347.9	0.9975	mg/L	0.00050	0.9975	mg/L	0.00050	0.05%
Mo 202.031†	17932.6	0.9689	mg/L	0.00600	0.9689	mg/L	0.00600	0.62%
Na 589.592†	413480.9	50.84	mg/L	0.087	50.84	mg/L	0.087	0.17%
Na 330.237†	1396.9	50.70	mg/L	0.327	50.70	mg/L	0.327	0.65%
Ni 231.604†	2239.3	1.014	mg/L	0.0082	1.014	mg/L	0.0082	0.81%
Pb 220.353†	26542.9	2.055	mg/L	0.0121	2.055	mg/L	0.0121	0.59%
Sb 206.836†	7754.7	2.118	mg/L	0.0145	2.118	mg/L	0.0145	0.68%
Se 196.026†	3886.4	2.020	mg/L	0.0150	2.020	mg/L	0.0150	0.74%
Si 288.158†	2855.2	2.118	mg/L	0.0250	2.118	mg/L	0.0250	1.18%
Sn 189.927†	5985.3	0.9135	mg/L	0.00549	0.9135	mg/L	0.00549	0.60%
Sr 421.552†	588852.4	1.018	mg/L	0.0059	1.018	mg/L	0.0059	0.58%
Ti 334.903†	25617.3	0.9955	mg/L	0.00354	0.9955	mg/L	0.00354	0.36%
Tl 190.801†	7377.6	2.004	mg/L	0.0163	2.004	mg/L	0.0163	0.81%
V 292.402†	204495.3	1.013	mg/L	0.0015	1.013	mg/L	0.0015	0.14%
Zn 206.200†	2606.4	1.069	mg/L	0.0120	1.069	mg/L	0.0120	1.12%

Sequence No.: 2
 Sample ID: CB

Autosampler Location: 1
 Date Collected: 11/1/2012 12:24:55 PM
 Data Type: Original

Dilution: 1X

Nebulizer Parameters: CB

Analyte Back Pressure Flow
 All 232.0 kPa 0.55 L/min

Mean Data: CB

Analyte	Mean Corrected		Calib. Units	Std.Dev.	Sample		Std.Dev.	RSD
	Intensity	Conc.			Conc.	Units		
ScA 357.253	2710476.7	102.4	%	1.50				1.46%
ScR 361.383	213769.7	101.0	%	1.02				1.01%
Ag 328.068†	-5.2	-0.00002	mg/L	0.000054	-0.00002	mg/L	0.000054	307.41%
Al 308.215†	2.7	0.00178	mg/L	0.004150	0.00178	mg/L	0.004150	233.57%
As 188.979†	-0.1	-0.00006	mg/L	0.001428	-0.00006	mg/L	0.001428	>999.9%
B 249.677†	7.8	0.00359	mg/L	0.002171	0.00359	mg/L	0.002171	60.52%
Ba 233.527†	-3.7	-0.00036	mg/L	0.000185	-0.00036	mg/L	0.000185	51.10%
Be 313.042†	9.3	0.00004	mg/L	0.000039	0.00004	mg/L	0.000039	109.87%
Ca 317.933†	27.9	0.00263	mg/L	0.000219	0.00263	mg/L	0.000219	8.30%
Cd 228.802†	-2.2	-0.00003	mg/L	0.000109	-0.00003	mg/L	0.000109	418.91%
Co 228.616†	-1.9	-0.00002	mg/L	0.000146	-0.00002	mg/L	0.000146	615.62%
Cr 267.716†	5.9	0.00129	mg/L	0.000264	0.00129	mg/L	0.000264	20.42%
Cu 324.752†	-18.2	-0.00006	mg/L	0.000094	-0.00006	mg/L	0.000094	161.72%
Fe 273.955†	-0.3	-0.00024	mg/L	0.000892	-0.00024	mg/L	0.000892	365.82%
K 766.490†	75.1	0.02085	mg/L	0.016415	0.02085	mg/L	0.016415	78.73%
Mg 279.077†	-1.5	-0.00126	mg/L	0.003255	-0.00126	mg/L	0.003255	258.72%
Mn 257.610†	3.9	0.00010	mg/L	0.000047	0.00010	mg/L	0.000047	48.63%
Mo 202.031†	-2.2	-0.00012	mg/L	0.000190	-0.00012	mg/L	0.000190	157.32%
Na 589.592†	190.1	0.02338	mg/L	0.004610	0.02338	mg/L	0.004610	19.72%
Na 330.237†	-2.1	-0.07805	mg/L	0.366111	-0.07805	mg/L	0.366111	469.10%
Ni 231.604†	0.7	0.00031	mg/L	0.000943	0.00031	mg/L	0.000943	301.15%
Pb 220.353†	1.4	0.00011	mg/L	0.001022	0.00011	mg/L	0.001022	942.77%
Sb 206.836†	-0.2	-0.00006	mg/L	0.001422	-0.00006	mg/L	0.001422	>999.9%
Se 196.026†	-1.8	-0.00093	mg/L	0.001506	-0.00093	mg/L	0.001506	161.60%
Si 288.158†	8.2	0.00607	mg/L	0.004564	0.00607	mg/L	0.004564	75.23%
Sn 189.927†	9.4	0.00143	mg/L	0.000152	0.00143	mg/L	0.000152	10.59%
Sr 421.552†	32.5	0.00006	mg/L	0.000107	0.00006	mg/L	0.000107	191.39%
Ti 334.903†	18.4	0.00071	mg/L	0.000746	0.00071	mg/L	0.000746	104.46%
Tl 190.801†	1.5	0.00040	mg/L	0.001247	0.00040	mg/L	0.001247	308.30%
V 292.402†	-25.3	-0.00012	mg/L	0.000101	-0.00012	mg/L	0.000101	87.12%
Zn 206.200†	0.7	0.00028	mg/L	0.000324	0.00028	mg/L	0.000324	117.54%

Sequence No.: 3
 Sample ID: CRI

Autosampler Location: 21
 Date Collected: 11/1/2012 12:30:53 PM
 Data Type: Original

Dilution: 1X

Nebulizer Parameters: CRI

Analyte	Back Pressure	Flow
All	232.0 kPa	0.55 L/min

Mean Data: CRI

Analyte	Mean Corrected		Calib.	Std.Dev.	Sample		RSD
	Intensity	Conc. Units			Conc. Units	Std.Dev.	
ScA 357.253	2725519.0	102.9 %	%	0.76			0.74%
ScR 361.383	217319.7	102.6 %	%	1.29			1.26%
Ag 328.068†	890.0	0.00299	mg/L	0.000084	0.00299	mg/L	0.000084 2.82%
Al 308.215†	79.9	0.05294	mg/L	0.007970	0.05294	mg/L	0.007970 15.05%
As 188.979†	124.2	0.05215	mg/L	0.000501	0.05215	mg/L	0.000501 0.96%
B 249.677†	47.8	0.02202	mg/L	0.000503	0.02202	mg/L	0.000503 2.28%
Ba 233.527†	30.4	0.00295	mg/L	0.000201	0.00295	mg/L	0.000201 6.83%
Be 313.042†	285.3	0.00106	mg/L	0.000020	0.00106	mg/L	0.000020 1.90%
Ca 317.933†	557.6	0.05267	mg/L	0.002177	0.05267	mg/L	0.002177 4.13%
Cd 228.802†	168.3	0.00189	mg/L	0.000034	0.00189	mg/L	0.000034 1.78%
Co 228.616†	267.8	0.00316	mg/L	0.000027	0.00316	mg/L	0.000027 0.86%
Cr 267.716†	28.7	0.00626	mg/L	0.000279	0.00626	mg/L	0.000279 4.46%
Cu 324.752†	440.1	0.00141	mg/L	0.000015	0.00141	mg/L	0.000015 1.09%
Fe 273.955†	65.9	0.05379	mg/L	0.000359	0.05379	mg/L	0.000359 0.67%
K 766.490†	1844.9	0.5120	mg/L	0.00390	0.5120	mg/L	0.00390 0.76%
Mg 279.077†	62.5	0.05363	mg/L	0.004148	0.05363	mg/L	0.004148 7.73%
Mn 257.610†	44.4	0.00110	mg/L	0.000078	0.00110	mg/L	0.000078 7.08%
Mo 202.031†	89.8	0.00485	mg/L	0.000366	0.00485	mg/L	0.000366 7.55%
Na 589.592†	4234.0	0.5205	mg/L	0.00758	0.5205	mg/L	0.00758 1.46%
Na 330.237†	15.2	0.5507	mg/L	0.72771	0.5507	mg/L	0.72771 132.13%
Ni 231.604†	25.8	0.01168	mg/L	0.002131	0.01168	mg/L	0.002131 18.25%
Pb 220.353†	261.8	0.02028	mg/L	0.000880	0.02028	mg/L	0.000880 4.34%
Sb 206.836†	184.7	0.05051	mg/L	0.000839	0.05051	mg/L	0.000839 1.66%
Se 196.026†	94.8	0.04932	mg/L	0.000055	0.04932	mg/L	0.000055 0.11%
Si 288.158†	118.8	0.08790	mg/L	0.000496	0.08790	mg/L	0.000496 0.56%
Sn 189.927†	60.1	0.00917	mg/L	0.000205	0.00917	mg/L	0.000205 2.24%
Sr 421.552†	625.8	0.00108	mg/L	0.000056	0.00108	mg/L	0.000056 5.19%
Ti 334.903†	137.5	0.00534	mg/L	0.000386	0.00534	mg/L	0.000386 7.22%
Tl 190.801†	172.7	0.04717	mg/L	0.001569	0.04717	mg/L	0.001569 3.33%
V 292.402†	635.8	0.00318	mg/L	0.000085	0.00318	mg/L	0.000085 2.66%
Zn 206.200†	24.0	0.00986	mg/L	0.000699	0.00986	mg/L	0.000699 7.09%

Sequence No.: 4
Sample ID: ICSA

Autosampler Location: 22
Date Collected: 11/1/2012 12:36:53 PM
Data Type: Original

Dilution: 1X

Nebulizer Parameters: ICSA

Analyte	Back Pressure	Flow
All	232.0 kPa	0.55 L/min

Mean Data: ICSA

Analyte	Mean Corrected		Calib. Conc. Units	Std.Dev.	Sample		Std.Dev.	RSD
	Intensity	Conc.			Conc.	Units		
ScA 357.253	2657159.0	100.3	%	1.66				1.65%
ScR 361.383	220195.9	104.0	%	1.21				1.16%
Ag 328.068†	-1831.9	-0.00089	mg/L	0.000127	-0.00089	mg/L	0.000127	14.19%
Al 308.215†	286248.3	190.4	mg/L	2.56	190.4	mg/L	2.56	1.35%
As 188.979†	-6.9	-0.00284	mg/L	0.002083	-0.00284	mg/L	0.002083	73.24%
B 249.677†	0.4	0.00016	mg/L	0.003970	0.00016	mg/L	0.003970	>999.9%
Ba 233.527†	79.3	-0.00115	mg/L	0.000112	-0.00115	mg/L	0.000112	9.75%
Be 313.042†	-22.9	-0.00013	mg/L	0.000016	-0.00013	mg/L	0.000016	11.89%
Ca 317.933†	993818.7	93.88	mg/L	1.189	93.88	mg/L	1.189	1.27%
Cd 228.802†	76.5	0.00092	mg/L	0.000094	0.00092	mg/L	0.000094	10.15%
Co 228.616†	143.3	-0.00053	mg/L	0.000029	-0.00053	mg/L	0.000029	5.59%
Cr 267.716†	17.7	0.00386	mg/L	0.000585	0.00386	mg/L	0.000585	15.15%
Cu 324.752†	-4977.9	0.00009	mg/L	0.000397	0.00009	mg/L	0.000397	442.99%
Fe 273.955†	234359.9	191.2	mg/L	3.38	191.2	mg/L	3.38	1.77%
K 766.490†	-36.8	-0.01022	mg/L	0.026871	-0.01022	mg/L	0.026871	262.90%
Mg 279.077†	114646.6	98.32	mg/L	1.301	98.32	mg/L	1.301	1.32%
Mn 257.610†	30.6	-0.00055	mg/L	0.000109	-0.00055	mg/L	0.000109	19.67%
Mo 202.031†	-170.2	-0.00643	mg/L	0.000759	-0.00643	mg/L	0.000759	11.80%
Na 589.592†	203.6	0.02503	mg/L	0.008479	0.02503	mg/L	0.008479	33.87%
Na 330.237†	5.6	-0.2091	mg/L	0.49364	-0.2091	mg/L	0.49364	236.04%
Ni 231.604†	8.2	0.00375	mg/L	0.002062	0.00375	mg/L	0.002062	54.93%
Pb 220.353†	-693.9	0.00630	mg/L	0.001606	0.00630	mg/L	0.001606	25.49%
Sb 206.836†	150.0	0.02301	mg/L	0.002754	0.02301	mg/L	0.002754	11.97%
Se 196.026†	-122.2	-0.06362	mg/L	0.004118	-0.06362	mg/L	0.004118	6.47%
Si 288.158†	-2.1	0.01022	mg/L	0.007194	0.01022	mg/L	0.007194	70.38%
Sn 189.927†	-47.0	0.01518	mg/L	0.000403	0.01518	mg/L	0.000403	2.65%
Sr 421.552†	2286.6	0.00395	mg/L <i>correct</i>	0.000068	0.00395	mg/L	0.000068	1.72%
Ti 334.903†	171.8	0.00209	mg/L	0.000240	0.00209	mg/L	0.000240	11.47%
Tl 190.801†	-41.1	-0.01134	mg/L	0.001447	-0.01134	mg/L	0.001447	12.76%
V 292.402†	3752.7	0.00019	mg/L	0.000375	0.00019	mg/L	0.000375	194.51%
Zn 206.200†	-20.3	-0.00635	mg/L	0.001039	-0.00635	mg/L	0.001039	16.38%

Sequence No.: 5
Sample ID: ICSAB

Autosampler Location: 23
Date Collected: 11/1/2012 12:42:56 PM
Data Type: Original

Dilution: 1X

Nebulizer Parameters: ICSAB

Analyte Back Pressure Flow
All 232.0 kPa 0.55 L/min

Mean Data: ICSAB

Analyte	Mean Corrected Intensity	Conc. Units	Calib. Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2618195.3	98.87 %	0.287			0.29%
ScR 361.383	217326.8	102.6 %	0.56			0.55%
Ag 328.068†	296557.3	1.000 mg/L	0.0016	1.000 mg/L	0.0016	0.16%
Al 308.215†	289283.6	192.4 mg/L	0.12	192.4 mg/L	0.12	0.06%
As 188.979†	2367.1	0.9935 mg/L	0.00367	0.9935 mg/L	0.00367	0.37%
B 249.677†	15.9	0.00432 mg/L	0.003038	0.00432 mg/L	0.003038	70.37%
Ba 233.527†	9687.5	0.9332 mg/L	0.00057	0.9332 mg/L	0.00057	0.06%
Be 313.042†	265418.8	0.9943 mg/L	0.00242	0.9943 mg/L	0.00242	0.24%
Ca 317.933†	1004608.9	94.90 mg/L	0.097	94.90 mg/L	0.097	0.10%
Cd 228.802†	81303.6	0.9705 mg/L	0.00073	0.9705 mg/L	0.00073	0.08%
Co 228.616†	76215.7	0.9012 mg/L	0.00146	0.9012 mg/L	0.00146	0.16%
Cr 267.716†	4283.7	0.9356 mg/L	0.00194	0.9356 mg/L	0.00194	0.21%
Cu 324.752†	308817.9	1.003 mg/L	0.0022	1.003 mg/L	0.0022	0.22%
Fe 273.955†	236621.3	193.0 mg/L	0.70	193.0 mg/L	0.70	0.36%
K 766.490†	-69.7	-0.01936 mg/L	0.011128	-0.01936 mg/L	0.011128	57.49%
Mg 279.077†	116250.7	99.70 mg/L	0.030	99.70 mg/L	0.030	0.03%
Mn 257.610†	38058.1	0.9393 mg/L	0.00053	0.9393 mg/L	0.00053	0.06%
Mo 202.031†	-173.1	-0.00674 mg/L	0.000336	-0.00674 mg/L	0.000336	4.98%
Na 589.592†	654.9	0.08051 mg/L	0.007693	0.08051 mg/L	0.007693	9.55%
Na 330.237†	18.8	-0.07506 mg/L	0.238557	-0.07506 mg/L	0.238557	317.80%
Ni 231.604†	2052.8	0.9293 mg/L	0.00135	0.9293 mg/L	0.00135	0.15%
Pb 220.353†	11466.1	0.9486 mg/L	0.00376	0.9486 mg/L	0.00376	0.40%
Sb 206.836†	3850.0	1.021 mg/L	0.0018	1.021 mg/L	0.0018	0.17%
Se 196.026†	1784.3	0.9261 mg/L	0.01374	0.9261 mg/L	0.01374	1.48%
Si 288.158†	48.3	0.05188 mg/L	0.008149	0.05188 mg/L	0.008149	15.71%
Sn 189.927†	-52.8	0.01454 mg/L	0.000536	0.01454 mg/L	0.000536	3.69%
Sr 421.552†	2562.9	0.00443 mg/L	0.000047	0.00443 mg/L	0.000047	1.06%
Ti 334.903†	185.0	0.00233 mg/L	0.000505	0.00233 mg/L	0.000505	21.64%
Tl 190.801†	3344.0	0.9020 mg/L	0.00290	0.9020 mg/L	0.00290	0.32%
V 292.402†	196687.8	0.9526 mg/L	0.00356	0.9526 mg/L	0.00356	0.37%
Zn 206.200†	2179.3	0.8962 mg/L	0.00109	0.8962 mg/L	0.00109	0.12%

Sequence No.: 6
Sample ID: CVi

Autosampler Location: 7
Date Collected: 11/1/2012 12:49:56 PM
Data Type: Original

Dilution: 1X

Nebulizer Parameters: CV

Analyte	Back Pressure	Flow
All	233.0 kPa	0.55 L/min

Mean Data: CV

Analyte	Mean Corrected		Calib.		Sample		Std.Dev.	RSD
	Intensity	Conc.	Units	Std.Dev.	Conc.	Units		
ScA 357.253	2708409.2	102.3	%	1.70				1.66%
ScR 361.383	220178.2	104.0	%	0.91				0.87%
Ag 328.068†	292942.4	0.9828	mg/L	0.00982	0.9828	mg/L	0.00982	1.00%
Al 308.215†	3005.0	1.957	mg/L	0.0330	1.957	mg/L	0.0330	1.69%
As 188.979†	4875.6	2.046	mg/L	0.0392	2.046	mg/L	0.0392	1.92%
B 249.677†	2098.6	0.9658	mg/L	0.01170	0.9658	mg/L	0.01170	1.21%
Ba 233.527†	9952.8	0.9679	mg/L	0.01482	0.9679	mg/L	0.01482	1.53%
Be 313.042†	267057.5	1.000	mg/L	0.0049	1.000	mg/L	0.0049	0.49%
Ca 317.933†	20920.5	1.976	mg/L	0.0332	1.976	mg/L	0.0332	1.68%
Cd 228.802†	84254.7	1.003	mg/L	0.0131	1.003	mg/L	0.0131	1.30%
Co 228.616†	81756.6	0.9676	mg/L	0.00961	0.9676	mg/L	0.00961	0.99%
Cr 267.716†	4448.0	0.9712	mg/L	0.01511	0.9712	mg/L	0.01511	1.56%
Cu 324.752†	325197.8	1.039	mg/L	0.0101	1.039	mg/L	0.0101	0.97%
Fe 273.955†	2531.3	2.064	mg/L	0.0369	2.064	mg/L	0.0369	1.79%
K 766.490†	71255.1	19.78	mg/L	0.093	19.78	mg/L	0.093	0.47%
Mg 279.077†	2391.9	2.057	mg/L	0.0318	2.057	mg/L	0.0318	1.55%
Mn 257.610†	39489.9	0.9763	mg/L	0.00438	0.9763	mg/L	0.00438	0.45%
Mo 202.031†	17564.7	0.9491	mg/L	0.01948	0.9491	mg/L	0.01948	2.05%
Na 589.592†	405073.1	49.80	mg/L	0.287	49.80	mg/L	0.287	0.58%
Na 330.237†	1365.5	49.56	mg/L	1.034	49.56	mg/L	1.034	2.09%
Ni 231.604†	2188.1	0.9907	mg/L	0.01499	0.9907	mg/L	0.01499	1.51%
Pb 220.353†	26048.2	2.017	mg/L	0.0387	2.017	mg/L	0.0387	1.92%
Sb 206.836†	7595.3	2.074	mg/L	0.0432	2.074	mg/L	0.0432	2.08%
Se 196.026†	3808.3	1.979	mg/L	0.0389	1.979	mg/L	0.0389	1.97%
Si 288.158†	2809.2	2.084	mg/L	0.0258	2.084	mg/L	0.0258	1.24%
Sn 189.927†	5859.4	0.8943	mg/L	0.01827	0.8943	mg/L	0.01827	2.04%
Sr 421.552†	579908.0	1.002	mg/L	0.0084	1.002	mg/L	0.0084	0.84%
Ti 334.903†	25069.9	0.9742	mg/L	0.00551	0.9742	mg/L	0.00551	0.57%
Tl 190.801†	7251.3	1.970	mg/L	0.0357	1.970	mg/L	0.0357	1.81%
V 292.402†	200645.3	0.9943	mg/L	0.00972	0.9943	mg/L	0.00972	0.98%
Zn 206.200†	2556.1	1.049	mg/L	0.0177	1.049	mg/L	0.0177	1.69%

Sequence No.: 7
Sample ID: CB ;

Autosampler Location: 1
Date Collected: 11/1/2012 12:55:59 PM
Data Type: Original

Dilution: 1X

Nebulizer Parameters: CB

Analyte Back Pressure Flow
All 233.0 kPa 0.55 L/min

Mean Data: CB

Analyte	Mean Corrected		Calib. Units	Std.Dev.	Sample		Std.Dev.	RSD
	Intensity	Conc.			Conc.	Units		
ScA 357.253	2709170.9	102.3	%	0.31				0.31%
ScR 361.383	212994.3	100.6	%	0.98				0.98%
Ag 328.068†	13.4	0.00005	mg/L	0.000037	0.00005	mg/L	0.000037	82.70%
Al 308.215†	5.1	0.00338	mg/L	0.014044	0.00338	mg/L	0.014044	415.57%
As 188.979†	0.8	0.00035	mg/L	0.000428	0.00035	mg/L	0.000428	122.88%
B 249.677†	8.6	0.00395	mg/L	0.001308	0.00395	mg/L	0.001308	33.13%
Ba 233.527†	-1.5	-0.00015	mg/L	0.000656	-0.00015	mg/L	0.000656	443.22%
Be 313.042†	7.4	0.00003	mg/L	0.000023	0.00003	mg/L	0.000023	84.23%
Ca 317.933†	-2.2	-0.00021	mg/L	0.000908	-0.00021	mg/L	0.000908	431.73%
Cd 228.802†	17.3	0.00021	mg/L	0.000034	0.00021	mg/L	0.000034	16.35%
Co 228.616†	-1.4	-0.00002	mg/L	0.000115	-0.00002	mg/L	0.000115	644.11%
Cr 267.716†	6.5	0.00142	mg/L	0.001127	0.00142	mg/L	0.001127	79.40%
Cu 324.752†	54.2	0.00017	mg/L	0.000272	0.00017	mg/L	0.000272	157.17%
Fe 273.955†	5.6	0.00459	mg/L	0.001521	0.00459	mg/L	0.001521	33.16%
K 766.490†	185.6	0.05152	mg/L	0.015556	0.05152	mg/L	0.015556	30.20%
Mg 279.077†	-6.0	-0.00519	mg/L	0.001857	-0.00519	mg/L	0.001857	35.78%
Mn 257.610†	3.1	0.00008	mg/L	0.000041	0.00008	mg/L	0.000041	53.85%
Mo 202.031†	0.7	0.00004	mg/L	0.000121	0.00004	mg/L	0.000121	310.92%
Na 589.592†	217.2	0.02670	mg/L	0.005712	0.02670	mg/L	0.005712	21.39%
Na 330.237†	9.1	0.3317	mg/L	0.16164	0.3317	mg/L	0.16164	48.73%
Ni 231.604†	2.2	0.00099	mg/L	0.000294	0.00099	mg/L	0.000294	29.65%
Pb 220.353†	6.7	0.00052	mg/L	0.000389	0.00052	mg/L	0.000389	74.22%
Sb 206.836†	0.5	0.00013	mg/L	0.000671	0.00013	mg/L	0.000671	519.96%
Se 196.026†	2.3	0.00119	mg/L	0.003186	0.00119	mg/L	0.003186	266.70%
Si 288.158†	3.3	0.00245	mg/L	0.002866	0.00245	mg/L	0.002866	116.74%
Sn 189.927†	9.5	0.00144	mg/L	0.000349	0.00144	mg/L	0.000349	24.18%
Sr 421.552†	99.2	0.00017	mg/L	0.000070	0.00017	mg/L	0.000070	40.98%
Ti 334.903†	14.5	0.00056	mg/L	0.000930	0.00056	mg/L	0.000930	165.45%
Tl 190.801†	5.0	0.00137	mg/L	0.000484	0.00137	mg/L	0.000484	35.18%
V 292.402†	34.9	0.00018	mg/L	0.000174	0.00018	mg/L	0.000174	96.61%
Zn 206.200†	2.3	0.00094	mg/L	0.000837	0.00094	mg/L	0.000837	88.76%

=====
Analysis Begun

Start Time: 11/1/2012 1:03:05 PM

Plasma On Time: 11/1/2012 9:01:02 AM

Logged In Analyst: metals

Technique: ICP Continuous

Spectrometer Model: Optima 4300 DV, S/N 077N0060101 Autosampler Model: S10

Sample Information File: C:\pe\metals\Sample Information\1101.sif

Batch ID:

Results Data Set: PE121101

Results Library: C:\pe\metals\Results\Results.mdb
=====

Sequence No.: 1

Autosampler Location: 24

Sample ID: VP23 MB2 WMN

Date Collected: 11/1/2012 1:03:07 PM

Analyst: EL

Data Type: Original

Dilution: 1X
del-----
Nebulizer Parameters: VP23 MB2 WMN

Analyte	Back Pressure	Flow
All	232.0 kPa	0.55 L/min

Mean Data: VP23 MB2 WMN

Analyte	Mean Corrected Intensity	Conc. Units	Calib. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2770538.4	104.6	%	0.85			0.81%
ScR 361.383	222018.1	104.8	%	1.28			1.22%
Ag 328.068†	-31.4	-0.00011	mg/L	0.000162	-0.00011 mg/L	0.000162	153.14%
Al 308.215†	-3.8	-0.00256	mg/L	0.009660	-0.00256 mg/L	0.009660	378.06%
As 188.979†	0.1	0.00003	mg/L	0.001240	0.00003 mg/L	0.001240	>999.9%
B 249.677†	2.2	0.00103	mg/L	0.000611	0.00103 mg/L	0.000611	59.19%
Ba 233.527†	-1.3	-0.00012	mg/L	0.000415	-0.00012 mg/L	0.000415	338.65%
Be 313.042†	-12.8	-0.00005	mg/L	0.000068	-0.00005 mg/L	0.000068	140.82%
Ca 317.933†	31.9	0.00301	mg/L	0.002809	0.00301 mg/L	0.002809	93.24%
Cd 228.802†	-5.1	-0.00006	mg/L	0.000064	-0.00006 mg/L	0.000064	104.09%
Co 228.616†	-13.1	-0.00016	mg/L	0.000053	-0.00016 mg/L	0.000053	33.95%
Cr 267.716†	2.2	0.00049	mg/L	0.000718	0.00049 mg/L	0.000718	147.27%
Cu 324.752†	-620.9	-0.00198	mg/L	0.000018	-0.00198 mg/L	0.000018	0.93%
Fe 273.955†	-2.5	-0.00206	mg/L	0.001831	-0.00206 mg/L	0.001831	88.70%
K 766.490†	-59.8	-0.01661	mg/L	0.027527	-0.01661 mg/L	0.027527	165.78%
Mg 279.077†	1.6	0.00141	mg/L	0.003382	0.00141 mg/L	0.003382	239.50%
Mn 257.610†	-4.9	-0.00012	mg/L	0.000063	-0.00012 mg/L	0.000063	51.74%
Mo 202.031†	2.6	0.00014	mg/L	0.000046	0.00014 mg/L	0.000046	32.76%
Na 589.592†	-42.6	-0.00524	mg/L	0.004269	-0.00524 mg/L	0.004269	81.51%
Na 330.237†	5.1	0.1863	mg/L	0.79704	0.1863 mg/L	0.79704	427.76%
Ni 231.604†	-3.8	-0.00170	mg/L	0.001926	-0.00170 mg/L	0.001926	113.15%
Pb 220.353†	-6.1	-0.00047	mg/L	0.000317	-0.00047 mg/L	0.000317	67.12%
Sb 206.836†	-9.8	-0.00268	mg/L	0.000339	-0.00268 mg/L	0.000339	12.67%
Se 196.026†	9.7	0.00506	mg/L	0.003410	0.00506 mg/L	0.003410	67.35%
Si 288.158†	1.6	0.00116	mg/L	0.001951	0.00116 mg/L	0.001951	168.06%
Sn 189.927†	5.4	0.00082	mg/L	0.000525	0.00082 mg/L	0.000525	64.17%
Sr 421.552†	68.7	0.00012	mg/L	0.000070	0.00012 mg/L	0.000070	58.60%
Ti 334.903†	5.6	0.00022	mg/L	0.000666	0.00022 mg/L	0.000666	304.54%
Tl 190.801†	-5.1	-0.00139	mg/L	0.000819	-0.00139 mg/L	0.000819	58.82%
V 292.402†	33.4	0.00017	mg/L	0.000124	0.00017 mg/L	0.000124	73.93%
Zn 206.200†	0.7	0.00029	mg/L	0.000388	0.00029 mg/L	0.000388	131.59%

Sequence No.: 2
 Sample ID: VO93 MB SWC
 Analyst: EL
 Dilution: 2X

Autosampler Location: 25
 Date Collected: 11/1/2012 1:09:07 PM
 Data Type: Original

Nebulizer Parameters: VO93 MB SWC

Analyte Back Pressure Flow
 All 232.0 kPa 0.55 L/min

Mean Data: VO93 MB SWC

Analyte	Mean Corrected Intensity	Conc. Units	Calib. Units	Std.Dev.	Conc. Units	Sample Std.Dev.	RSD
ScA 357.253	2700243.4	102.0	%	0.65			0.64%
ScR 361.383	214834.4	101.5	%	1.26			1.24%
Ag 328.068†	-11.0	-0.00004	mg/L	0.000298	-0.00007	0.000596	805.30%
Al 308.215†	4.7	0.00309	mg/L	0.012153	0.00618	0.024305	392.98%
As 188.979†	-0.2	-0.00007	mg/L	0.001269	-0.00014	0.002537	>999.9%
B 249.677†	2.3	0.00106	mg/L	0.001329	0.00213	0.002657	124.83%
Ba 233.527†	-2.8	-0.00028	mg/L	0.000083	-0.00055	0.000165	30.05%
Be 313.042†	0.0	0.00000	mg/L	0.000074	0.00000	0.000147	>999.9%
Ca 317.933†	168.2	0.01589	mg/L	0.000971	0.03178	0.001942	6.11%
Cd 228.802†	0.4	0.00001	mg/L	0.000097	0.00001	0.000193	>999.9%
Co 228.616†	2.7	0.00003	mg/L	0.000109	0.00006	0.000218	372.99%
Cr 267.716†	6.0	0.00132	mg/L	0.000465	0.00264	0.000930	52.98%
Cu 324.752†	-182.1	-0.00058	mg/L	0.000206	-0.00116	0.000412	35.45%
Fe 273.955†	5.1	0.00420	mg/L	0.001272	0.00840	0.002544	30.30%
K 766.490†	15.7	0.00434	mg/L	0.018420	0.00869	0.036840	424.03%
Mg 279.077†	1.7	0.00145	mg/L	0.001517	0.00290	0.003033	104.55%
Mn 257.610†	-2.9	-0.00007	mg/L	0.000038	-0.00014	0.000076	52.98%
Mo 202.031†	-1.5	-0.00008	mg/L	0.000263	-0.00016	0.000526	322.65%
Na 589.592†	70.2	0.00863	mg/L	0.003335	0.01727	0.006669	38.62%
Na 330.237†	-1.4	-0.05001	mg/L	0.188603	-0.1000	0.37721	377.12%
Ni 231.604†	2.5	0.00112	mg/L	0.002581	0.00224	0.005161	230.67%
Pb 220.353†	8.8	0.00069	mg/L	0.000895	0.00137	0.001790	130.30%
Sb 206.836†	2.5	0.00067	mg/L	0.000390	0.00133	0.000779	58.47%
Se 196.026†	-1.2	-0.00065	mg/L	0.002293	-0.00130	0.004586	353.56%
Si 288.158†	15.6	0.01150	mg/L	0.001618	0.02301	0.003236	14.07%
Sn 189.927†	1.2	0.00019	mg/L	0.000521	0.00038	0.001041	275.50%
Sr 421.552†	75.1	0.00013	mg/L	0.000079	0.00026	0.000158	60.69%
Ti 334.903†	32.9	0.00128	mg/L	0.000267	0.00256	0.000535	20.91%
Tl 190.801†	-7.4	-0.00201	mg/L	0.000062	-0.00403	0.000123	3.06%
V 292.402†	12.5	0.00007	mg/L	0.000118	0.00014	0.000237	172.23%
Zn 206.200†	4.1	0.00168	mg/L	0.000537	0.00335	0.001074	32.07%

Sequence No.: 3
 Sample ID: VO93 H SWC
 Analyst: EL
 Dilution: 2X

Autosampler Location: 26
 Date Collected: 11/1/2012 1:15:07 PM
 Data Type: Original

Nebulizer Parameters: VO93 H SWC

Analyte Back Pressure Flow
 All 232.0 kPa 0.55 L/min

Mean Data: VO93 H SWC

Analyte	Mean Corrected Intensity	Conc. Units	Calib. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2635107.2	99.50	%	0.120			0.12%
ScR 361.383	216212.0	102.1	%	1.86			1.82%
Ag 328.068†	104093.8	0.3501	mg/L	0.00014	0.7001 mg/L	0.00027	0.04%
Al 308.215†	239495.3	159.2	mg/L	2.10	318.4 mg/L	4.21	1.32%
As 188.979†	1210.3	0.5066	mg/L	0.00019	1.013 mg/L	0.0004	0.04%
B 249.677†	2743.7	1.260	mg/L	0.0235	2.519 mg/L	0.0470	1.87%
Ba 233.527†	59805.7	5.815	mg/L	0.0937	11.63 mg/L	0.187	1.61%
Be 313.042†	452628.3	1.694	mg/L	0.0221	3.388 mg/L	0.0441	1.30%
Ca 317.933†	364621.2	34.44	mg/L	0.425	68.89 mg/L	0.850	1.23%
Cd 228.802†	178185.6	2.131	mg/L	0.0065	4.262 mg/L	0.0129	0.30%
Co 228.616†	215110.8	2.547	mg/L	0.0037	5.093 mg/L	0.0074	0.15%
Cr 267.716†	5374.0	1.173	mg/L	0.0213	2.345 mg/L	0.0427	1.82%
Cu 324.752†	452081.6	1.449	mg/L	0.0016	2.897 mg/L	0.0032	0.11%
Fe 273.955†	67954.6	55.44	mg/L	0.733	110.9 mg/L	1.47	1.32%
K 766.490†	93693.5	26.00	mg/L	0.343	52.01 mg/L	0.686	1.32%
Mg 279.077†	53907.3	46.26	mg/L	0.764	92.52 mg/L	1.528	1.65%
Mn 257.610†	203274.9	5.023	mg/L	0.0639	10.05 mg/L	0.128	1.27%
Mo 202.031†	27928.6	1.512	mg/L	0.0015	3.023 mg/L	0.0031	0.10%
Na 589.592†	23576.0	2.899	mg/L	0.0419	5.797 mg/L	0.0839	1.45%
Na 330.237†	103.3	2.246	mg/L	0.4867	4.492 mg/L	0.9734	21.67%
Ni 231.604†	7246.2	3.279	mg/L	0.0492	6.558 mg/L	0.0985	1.50%
Pb 220.353†	41536.5	3.268	mg/L	0.0035	6.536 mg/L	0.0070	0.11%
Sb 206.836†	1281.9	0.3443	mg/L	0.00173	0.6886 mg/L	0.00345	0.50%
Se 196.026†	2837.0	1.468	mg/L	0.0119	2.935 mg/L	0.0238	0.81%
Si 288.158†	6512.2	4.832	mg/L	0.0498	9.664 mg/L	0.0995	1.03%
Sn 189.927†	4758.8	0.7344	mg/L	0.00122	1.469 mg/L	0.0024	0.17%
Sr 421.552†	1277222.7	2.208	mg/L	0.0276	4.416 mg/L	0.0551	1.25%
Ti 334.903†	26093.1	1.012	mg/L	0.0131	2.024 mg/L	0.0263	1.30%
Tl 190.801†	7300.1	1.962	mg/L	0.0014	3.925 mg/L	0.0027	0.07%
V 292.402†	453615.9	2.234	mg/L	0.0080	4.468 mg/L	0.0161	0.36%
Zn 206.200†	10035.0	4.121	mg/L	0.0580	8.242 mg/L	0.1160	1.41%

Sequence No.: 4
Sample ID: VP23 I WMN
Analyst: EL
Dilution: 1X

Autosampler Location: 27
Date Collected: 11/1/2012 1:20:28 PM
Data Type: Original

Nebulizer Parameters: VP23 I WMN
Analyte Back Pressure Flow
All 232.0 kPa 0.55 L/min

Mean Data: VP23 I WMN

Analyte	Mean Corrected Intensity	Conc. Units	Calib. Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2727351.4	103.0 %	1.43			1.39%
ScR 361.383	222034.4	104.9 %	2.06			1.96%
Ag 328.068†	111.3	-0.00057 mg/L	0.000199	-0.00057 mg/L	0.000199	34.73%
Al 308.215†	8.6	0.00558 mg/L	0.004007	0.00558 mg/L	0.004007	71.86%
As 188.979†	4.4	0.00182 mg/L	0.000775	0.00182 mg/L	0.000775	42.46%
B 249.677†	73.0	0.03366 mg/L	0.001580	0.03366 mg/L	0.001580	4.69%
Ba 233.527†	356.8	0.03471 mg/L	0.001092	0.03471 mg/L	0.001092	3.15%
Be 313.042†	-9.6	-0.00004 mg/L	0.000030	-0.00004 mg/L	0.000030	72.54%
Ca 317.933†	867513.6	81.95 mg/L	1.569	81.95 mg/L	1.569	1.91%
Cd 228.802†	-3.8	-0.00005 mg/L	0.000008	-0.00005 mg/L	0.000008	16.98%
Co 228.616†	-7.2	-0.00011 mg/L	0.000067	-0.00011 mg/L	0.000067	61.42%
Cr 267.716†	20.9	0.00455 mg/L	0.000433	0.00455 mg/L	0.000433	9.53%
Cu 324.752†	-93.1	-0.00030 mg/L	0.000140	-0.00030 mg/L	0.000140	47.25%
Fe 273.955†	61.2	0.04991 mg/L	0.002541	0.04991 mg/L	0.002541	5.09%
K 766.490†	13229.1	3.672 mg/L	0.1049	3.672 mg/L	0.1049	2.86%
Mg 279.077†	57019.6	48.95 mg/L	1.242	48.95 mg/L	1.242	2.54%
Mn 257.610†	3357.1	0.08295 mg/L	0.001565	0.08295 mg/L	0.001565	1.89%
Mo 202.031†	72.2	0.00331 mg/L	0.000094	0.00331 mg/L	0.000094	2.84%
Na 589.592†	154811.8	19.03 mg/L	0.366	19.03 mg/L	0.366	1.92%
Na 330.237†	545.4	19.52 mg/L	0.839	19.52 mg/L	0.839	4.30%
Ni 231.604†	18.7	0.00846 mg/L	0.001707	0.00846 mg/L	0.001707	20.16%
Pb 220.353†	-32.5	-0.00040 mg/L	0.000367	-0.00040 mg/L	0.000367	90.82%
Sb 206.836†	-10.1	-0.00289 mg/L	0.001517	-0.00289 mg/L	0.001517	52.59%
Se 196.026†	20.3	0.01052 mg/L	0.002963	0.01052 mg/L	0.002963	28.17%
Si 288.158†	23588.1	17.45 mg/L	0.367	17.45 mg/L	0.367	2.10%
Sn 189.927†	-29.9	0.01406 mg/L	0.000966	0.01406 mg/L	0.000966	6.87%
Sr 421.552†	275600.3	0.4764 mg/L	0.00966	0.4764 mg/L	0.00966	2.03%
Ti 334.903†	162.3	0.00229 mg/L	0.000330	0.00229 mg/L	0.000330	14.39%
Tl 190.801†	-15.0	-0.00421 mg/L	0.001190	-0.00421 mg/L	0.001190	28.30%
V 292.402†	386.5	0.00195 mg/L	0.000144	0.00195 mg/L	0.000144	7.38%
Zn 206.200†	-1.9	0.00098 mg/L	0.000875	0.00098 mg/L	0.000875	88.82%

Sequence No.: 5

Autosampler Location: 28

Sample ID: VP23 J WMN

Date Collected: 11/1/2012 1:26:45 PM

Analyst: EL

Data Type: Original

Dilution: 1X

Del

Nebulizer Parameters: VP23 J WMN

Analyte	Back Pressure	Flow
All	233.0 kPa	0.55 L/min

Mean Data: VP23 J WMN

Analyte	Mean Corrected		Calib. Units	Std.Dev.	Sample		Std.Dev.	RSD
	Intensity	Conc.			Conc.	Units		
ScA 357.253	2710038.9	102.3	%	0.16				0.16%
ScR 361.383	216247.8	102.1	%	0.89				0.87%
Ag 328.068†	42.1	-0.00007	mg/L	0.000027	-0.00007	mg/L	0.000027	36.18%
Al 308.215†	21.0	0.01392	mg/L	0.007200	0.01392	mg/L	0.007200	51.72%
As 188.979†	1.5	0.00063	mg/L	0.000897	0.00063	mg/L	0.000897	142.82%
B 249.677†	63.1	0.02908	mg/L	0.002565	0.02908	mg/L	0.002565	8.82%
Ba 233.527†	108.7	0.01057	mg/L	0.000395	0.01057	mg/L	0.000395	3.74%
Be 313.042†	-9.9	-0.00004	mg/L	0.000073	-0.00004	mg/L	0.000073	188.44%
Ca 317.933†	197983.1	18.70	mg/L	0.119	18.70	mg/L	0.119	0.63%
Cd 228.802†	1.8	0.00002	mg/L	0.000058	0.00002	mg/L	0.000058	286.26%
Co 228.616†	-13.6	-0.00017	mg/L	0.000061	-0.00017	mg/L	0.000061	36.04%
Cr 267.716†	13.4	0.00292	mg/L	0.000492	0.00292	mg/L	0.000492	16.84%
Cu 324.752†	132.9	0.00043	mg/L	0.000133	0.00043	mg/L	0.000133	30.73%
Fe 273.955†	129.7	0.1058	mg/L	0.00175	0.1058	mg/L	0.00175	1.65%
K 766.490†	13691.6	3.800	mg/L	0.0112	3.800	mg/L	0.0112	0.29%
Mg 279.077†	11954.0	10.26	mg/L	0.054	10.26	mg/L	0.054	0.53%
Mn 257.610†	1143.6	0.02826	mg/L	0.000292	0.02826	mg/L	0.000292	1.03%
Mo 202.031†	25.7	0.00126	mg/L	0.000097	0.00126	mg/L	0.000097	7.69%
Na 589.592†	65928.6	8.106	mg/L	0.0182	8.106	mg/L	0.0182	0.22%
Na 330.237†	229.3	8.274	mg/L	0.3330	8.274	mg/L	0.3330	4.03%
Ni 231.604†	4.0	0.00182	mg/L	0.001039	0.00182	mg/L	0.001039	57.16%
Pb 220.353†	-2.9	0.00026	mg/L	0.000449	0.00026	mg/L	0.000449	170.51%
Sb 206.836†	-2.0	-0.00062	mg/L	0.000769	-0.00062	mg/L	0.000769	124.87%
Se 196.026†	0.3	0.00018	mg/L	0.002850	0.00018	mg/L	0.002850	>999.9%
Si 288.158†	11803.4	8.728	mg/L	0.0467	8.728	mg/L	0.0467	0.54%
Sn 189.927†	-7.3	0.00312	mg/L	0.000492	0.00312	mg/L	0.000492	15.79%
Sr 421.552†	64819.5	0.1120	mg/L	0.00035	0.1120	mg/L	0.00035	0.31%
Ti 334.903†	46.6	0.00089	mg/L	0.000997	0.00089	mg/L	0.000997	111.49%
Tl 190.801†	-8.7	-0.00241	mg/L	0.000779	-0.00241	mg/L	0.000779	32.25%
V 292.402†	134.9	0.00068	mg/L	0.000043	0.00068	mg/L	0.000043	6.27%
Zn 206.200†	2.3	0.00135	mg/L	0.001122	0.00135	mg/L	0.001122	83.33%

Sequence No.: 6

Autosampler Location: 29

Sample ID: VP23 K WMN

Date Collected: 11/1/2012 1:32:46 PM

Analyst: EL

Data Type: Original

Dilution: 1X

Nebulizer Parameters: VP23 K WMN

Analyte	Back Pressure	Flow
All	233.0 kPa	0.55 L/min

Mean Data: VP23 K WMN

Analyte	Mean Corrected		Calib. Units	Std.Dev.	Sample		RSD
	Intensity	Conc.			Conc.	Units	
ScA 357.253	2772180.8	104.7	%	0.24			0.23%
ScR 361.383	222752.7	105.2	%	0.40			0.38%
Ag 328.068†	3.3	-0.00020	mg/L	0.000169	-0.00020	mg/L	0.000169 85.00%
Al 308.215†	31.7	0.02103	mg/L	0.004518	0.02103	mg/L	0.004518 21.49%
As 188.979†	2.8	0.00116	mg/L	0.001433	0.00116	mg/L	0.001433 123.56%
B 249.677†	62.2	0.02866	mg/L	0.000958	0.02866	mg/L	0.000958 3.34%
Ba 233.527†	108.3	0.01052	mg/L	0.000262	0.01052	mg/L	0.000262 2.49%
Be 313.042†	-39.4	-0.00015	mg/L	0.000021	-0.00015	mg/L	0.000021 13.84%
Ca 317.933†	193450.0	18.27	mg/L	0.055	18.27	mg/L	0.055 0.30%
Cd 228.802†	0.6	0.00000	mg/L	0.000100	0.00000	mg/L	0.000100 >999.9%
Co 228.616†	-19.9	-0.00025	mg/L	0.000052	-0.00025	mg/L	0.000052 20.75%
Cr 267.716†	7.7	0.00167	mg/L	0.000762	0.00167	mg/L	0.000762 45.67%
Cu 324.752†	119.3	0.00040	mg/L	0.000115	0.00040	mg/L	0.000115 28.76%
Fe 273.955†	285.7	0.2331	mg/L	0.00392	0.2331	mg/L	0.00392 1.68%
K 766.490†	13058.7	3.624	mg/L	0.0207	3.624	mg/L	0.0207 0.57%
Mg 279.077†	11649.4	10.00	mg/L	0.035	10.00	mg/L	0.035 0.35%
Mn 257.610†	1981.1	0.04895	mg/L	0.000086	0.04895	mg/L	0.000086 0.17%
Mo 202.031†	29.2	0.00146	mg/L	0.000116	0.00146	mg/L	0.000116 7.99%
Na 589.592†	65356.6	8.035	mg/L	0.0322	8.035	mg/L	0.0322 0.40%
Na 330.237†	209.8	7.568	mg/L	0.5029	7.568	mg/L	0.5029 6.64%
Ni 231.604†	1.8	0.00082	mg/L	0.002427	0.00082	mg/L	0.002427 297.38%
Pb 220.353†	-13.2	-0.00055	mg/L	0.000052	-0.00055	mg/L	0.000052 9.46%
Sb 206.836†	-9.4	-0.00263	mg/L	0.000748	-0.00263	mg/L	0.000748 28.48%
Se 196.026†	8.6	0.00448	mg/L	0.002978	0.00448	mg/L	0.002978 66.46%
Si 288.158†	11467.1	8.480	mg/L	0.0216	8.480	mg/L	0.0216 0.26%
Sn 189.927†	-10.9	0.00246	mg/L	0.000214	0.00246	mg/L	0.000214 8.67%
Sr 421.552†	63893.7	0.1104	mg/L	0.00079	0.1104	mg/L	0.00079 0.72%
Ti 334.903†	100.8	0.00302	mg/L	0.000877	0.00302	mg/L	0.000877 28.99%
Tl 190.801†	-5.4	-0.00155	mg/L	0.000543	-0.00155	mg/L	0.000543 35.00%
V 292.402†	152.6	0.00075	mg/L	0.000138	0.00075	mg/L	0.000138 18.38%
Zn 206.200†	0.9	0.00078	mg/L	0.001089	0.00078	mg/L	0.001089 140.30%

Sequence No.: 7

Sample ID: VP23 L WMN

Analyst: EL

Dilution: 1X

Autosampler Location: 30

Date Collected: 11/1/2012 1:38:46 PM

Data Type: Original

Nebulizer Parameters: VP23 L WMN

Analyte	Back Pressure	Flow
All	233.0 kPa	0.55 L/min

Mean Data: VP23 L WMN

Analyte	Mean Corrected Intensity	Conc. Units	Calib. Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2806852.2	106.0 %	1.06			1.00%
ScR 361.383	230013.5	108.6 %	0.02			0.02%
Ag 328.068†	92.0	-0.00051 mg/L	0.000054	-0.00051 mg/L	0.000054	10.63%
Al 308.215†	-2.2	-0.00157 mg/L	0.004435	-0.00157 mg/L	0.004435	282.64%
As 188.979†	0.9	0.00039 mg/L	0.001288	0.00039 mg/L	0.001288	327.99%
B 249.677†	56.7	0.02612 mg/L	0.003342	0.02612 mg/L	0.003342	12.80%
Ba 233.527†	153.0	0.01488 mg/L	0.000128	0.01488 mg/L	0.000128	0.86%
Be 313.042†	-71.4	-0.00027 mg/L	0.000007	-0.00027 mg/L	0.000007	2.49%
Ca 317.933†	605894.5	57.24 mg/L	0.247	57.24 mg/L	0.247	0.43%
Cd 228.802†	-16.0	-0.00019 mg/L	0.000058	-0.00019 mg/L	0.000058	30.49%
Co 228.616†	-0.1	-0.00001 mg/L	0.000057	-0.00001 mg/L	0.000057	416.75%
Cr 267.716†	19.9	0.00414 mg/L	0.000705	0.00414 mg/L	0.000705	17.01%
Cu 324.752†	-599.3	-0.00192 mg/L	0.000232	-0.00192 mg/L	0.000232	12.11%
Fe 273.955†	7.9	0.00643 mg/L	0.001001	0.00643 mg/L	0.001001	15.56%
K 766.490†	11312.7	3.140 mg/L	0.0190	3.140 mg/L	0.0190	0.60%
Mg 279.077†	45886.3	39.40 mg/L	0.157	39.40 mg/L	0.157	0.40%
Mn 257.610†	35911.7	0.8874 mg/L	0.00294	0.8874 mg/L	0.00294	0.33%
Mo 202.031†	45.0	0.00195 mg/L	0.000153	0.00195 mg/L	0.000153	7.85%
Na 589.592†	93637.8	11.51 mg/L	0.028	11.51 mg/L	0.028	0.24%
Na 330.237†	312.9	11.05 mg/L	0.200	11.05 mg/L	0.200	1.81%
Ni 231.604†	20.4	0.00923 mg/L	0.001505	0.00923 mg/L	0.001505	16.31%
Pb 220.353†	-29.0	-0.00077 mg/L	0.000955	-0.00077 mg/L	0.000955	124.18%
Sb 206.836†	-20.5	-0.00574 mg/L	0.000108	-0.00574 mg/L	0.000108	1.87%
Se 196.026†	16.7	0.00867 mg/L	0.003385	0.00867 mg/L	0.003385	39.06%
Si 288.158†	27594.0	20.41 mg/L	0.047	20.41 mg/L	0.047	0.23%
Sn 189.927†	-30.2	0.00853 mg/L	0.000310	0.00853 mg/L	0.000310	3.63%
Sr 421.552†	149777.3	0.2589 mg/L	0.00016	0.2589 mg/L	0.00016	0.06%
Ti 334.903†	109.2	0.00144 mg/L	0.000437	0.00144 mg/L	0.000437	30.34%
Tl 190.801†	-13.7	-0.00485 mg/L	0.001300	-0.00485 mg/L	0.001300	26.83%
V 292.402†	63.9	0.00048 mg/L	0.000152	0.00048 mg/L	0.000152	31.54%
Zn 206.200†	672.5	0.2774 mg/L	0.00298	0.2774 mg/L	0.00298	1.07%

Sequence No.: 8

Sample ID: VP23 HDUP WMN

Analyst: EL

Dilution: 1X

Autosampler Location: 31

Date Collected: 11/1/2012 1:44:48 PM

Data Type: Original

Nebulizer Parameters: VP23 HDUP WMN

Analyte	Back Pressure	Flow
All	233.0 kPa	0.55 L/min

Mean Data: VP23 HDUP WMN

Analyte	Mean Corrected		Calib. Units	Std.Dev.	Sample		RSD
	Intensity	Conc.			Conc.	Units	
ScA 357.253	2750343.3	103.9	%	0.44			0.42%
ScR 361.383	225642.1	106.6	%	0.73			0.69%
Ag 328.068†	324.0	-0.00057	mg/L	0.000050	-0.00057	mg/L	0.000050 8.84%
Al 308.215†	8.5	0.00557	mg/L	0.012554	0.00557	mg/L	0.012554 225.23%
As 188.979†	3.6	0.00149	mg/L	0.000588	0.00149	mg/L	0.000588 39.35%
B 249.677†	134.2	0.06186	mg/L	0.001632	0.06186	mg/L	0.001632 2.64%
Ba 233.527†	412.8	0.04016	mg/L	0.000951	0.04016	mg/L	0.000951 2.37%
Be 313.042†	-43.5	-0.00017	mg/L	0.000085	-0.00017	mg/L	0.000085 51.01%
Ca 317.933†	683694.8	64.59	mg/L	0.273	64.59	mg/L	0.273 0.42%
Cd 228.802†	366.1	0.00438	mg/L	0.001371	0.00438	mg/L	0.001371 31.31%
Co 228.616†	328.2	0.00387	mg/L	0.001721	0.00387	mg/L	0.001721 44.49%
Cr 267.716†	19.9	0.00327	mg/L	0.000305	0.00327	mg/L	0.000305 9.31%
Cu 324.752†	2.1	0.00001	mg/L	0.000025	0.00001	mg/L	0.000025 220.81%
Fe 273.955†	81.7	0.06668	mg/L	0.002371	0.06668	mg/L	0.002371 3.56%
K 766.490†	12111.7	3.362	mg/L	0.0444	3.362	mg/L	0.0444 1.32%
Mg 279.077†	24146.4	20.73	mg/L	0.345	20.73	mg/L	0.345 1.66%
Mn 257.610†	195582.1	4.833	mg/L	0.0249	4.833	mg/L	0.0249 0.52%
Mo 202.031†	53.9	0.00266	mg/L	0.000798	0.00266	mg/L	0.000798 30.01%
Na 589.592†	100823.3	12.40	mg/L	0.097	12.40	mg/L	0.097 0.78%
Na 330.237†	344.3	12.27	mg/L	0.299	12.27	mg/L	0.299 2.44%
Ni 231.604†	18.6	0.00840	mg/L	0.001975	0.00840	mg/L	0.001975 23.51%
Pb 220.353†	-46.2	-0.00191	mg/L	0.001602	-0.00191	mg/L	0.001602 83.83%
Sb 206.836†	-12.9	-0.00365	mg/L	0.004398	-0.00365	mg/L	0.004398 120.57%
Se 196.026†	23.0	0.01197	mg/L	0.003010	0.01197	mg/L	0.003010 25.15%
Si 288.158†	12743.7	9.425	mg/L	0.1357	9.425	mg/L	0.1357 1.44%
Sn 189.927†	-30.6	0.00957	mg/L	0.002199	0.00957	mg/L	0.002199 22.97%
Sr 421.552†	266731.5	0.4611	mg/L	0.00314	0.4611	mg/L	0.00314 0.68%
Ti 334.903†	139.8	0.00227	mg/L	0.000945	0.00227	mg/L	0.000945 41.66%
Tl 190.801†	4.0	-0.00486	mg/L	0.001906	-0.00486	mg/L	0.001906 39.24%
V 292.402†	260.8	0.00202	mg/L	0.000160	0.00202	mg/L	0.000160 7.94%
Zn 206.200†	-5.7	-0.00097	mg/L	0.000660	-0.00097	mg/L	0.000660 68.19%

Sequence No.: 9

Autosampler Location: 32

Sample ID: VP23 H WMN

Date Collected: 11/1/2012 1:51:07 PM

Analyst: EL

Data Type: Original

Dilution: 1X

DEL

Nebulizer Parameters: VP23 H WMN

Analyte	Back Pressure	Flow
All	233.0 kPa	0.55 L/min

Mean Data: VP23 H WMN

Analyte	Mean Corrected		Calib. Units	Std.Dev.	Sample		Std.Dev.	RSD
	Intensity	Conc.			Conc.	Units		
ScA 357.253	2774664.4	104.8	%	0.27				0.26%
ScR 361.383	224541.3	106.0	%	0.50				0.47%
Ag 328.068†	322.9	-0.00056	mg/L	0.000218	-0.00056	mg/L	0.000218	38.91%
Al 308.215†	0.3	0.00011	mg/L	0.005769	0.00011	mg/L	0.005769	>999.9%
As 188.979†	5.0	0.00210	mg/L	0.000090	0.00210	mg/L	0.000090	4.27%
B 249.677†	137.5	0.06338	mg/L	0.002929	0.06338	mg/L	0.002929	4.62%
Ba 233.527†	406.5	0.03954	mg/L	0.000472	0.03954	mg/L	0.000472	1.19%
Be 313.042†	-27.1	-0.00011	mg/L	0.000029	-0.00011	mg/L	0.000029	27.51%
Ca 317.933†	678687.7	64.11	mg/L	0.191	64.11	mg/L	0.191	0.30%
Cd 228.802†	396.4	0.00474	mg/L	0.000847	0.00474	mg/L	0.000847	17.87%
Co 228.616†	361.2	0.00426	mg/L	0.000848	0.00426	mg/L	0.000848	19.91%
Cr 267.716†	15.3	0.00228	mg/L	0.000410	0.00228	mg/L	0.000410	17.95%
Cu 324.752†	-16.6	-0.00005	mg/L	0.000098	-0.00005	mg/L	0.000098	203.87%
Fe 273.955†	82.5	0.06733	mg/L	0.001399	0.06733	mg/L	0.001399	2.08%
K 766.490†	12129.6	3.367	mg/L	0.0131	3.367	mg/L	0.0131	0.39%
Mg 279.077†	23914.5	20.53	mg/L	0.169	20.53	mg/L	0.169	0.82%
Mn 257.610†	193727.3	4.787	mg/L	0.0082	4.787	mg/L	0.0082	0.17%
Mo 202.031†	55.0	0.00272	mg/L	0.000362	0.00272	mg/L	0.000362	13.29%
Na 589.592†	100590.5	12.37	mg/L	0.011	12.37	mg/L	0.011	0.09%
Na 330.237†	340.1	12.11	mg/L	0.345	12.11	mg/L	0.345	2.85%
Ni 231.604†	17.1	0.00772	mg/L	0.001913	0.00772	mg/L	0.001913	24.78%
Pb 220.353†	-34.6	-0.00103	mg/L	0.002080	-0.00103	mg/L	0.002080	201.92%
Sb 206.836†	-12.1	-0.00343	mg/L	0.002675	-0.00343	mg/L	0.002675	78.04%
Se 196.026†	17.1	0.00888	mg/L	0.005607	0.00888	mg/L	0.005607	63.17%
Si 288.158†	12667.9	9.369	mg/L	0.0622	9.369	mg/L	0.0622	0.66%
Sn 189.927†	-31.4	0.00936	mg/L	0.000734	0.00936	mg/L	0.000734	7.85%
Sr 421.552†	265878.2	0.4596	mg/L	0.00182	0.4596	mg/L	0.00182	0.40%
Ti 334.903†	128.5	0.00185	mg/L	0.000528	0.00185	mg/L	0.000528	28.52%
Tl 190.801†	5.5	-0.00440	mg/L	0.001968	-0.00440	mg/L	0.001968	44.74%
V 292.402†	266.7	0.00203	mg/L	0.000137	0.00203	mg/L	0.000137	6.75%
Zn 206.200†	-7.7	-0.00180	mg/L	0.000780	-0.00180	mg/L	0.000780	43.30%

Sequence No.: 10

Autosampler Location: 33

Sample ID: VP23 HSPK WMN

Date Collected: 11/1/2012 1:57:26 PM

Analyst: EL

Data Type: Original

Dilution: 1X

Nebulizer Parameters: VP23 HSPK WMN

Analyte	Back Pressure	Flow
All	232.0 kPa	0.55 L/min

Mean Data: VP23 HSPK WMN

Analyte	Mean Corrected		Calib. Units	Std.Dev.	Sample		RSD	
	Intensity	Conc.			Conc.	Units		Std.Dev.
ScA 357.253	2635164.5	99.51	%	0.345			0.35%	
ScR 361.383	217338.5	102.6	%	0.36			0.36%	
Ag 328.068†	153375.1	0.5129	mg/L	0.00830	0.5129	mg/L	0.00830	1.62%
Al 308.215†	3531.7	2.340	mg/L	0.0058	2.340	mg/L	0.0058	0.25%
As 188.979†	6105.6	2.563	mg/L	0.0056	2.563	mg/L	0.0056	0.22%
B 249.677†	143.6	0.06436	mg/L	0.003024	0.06436	mg/L	0.003024	4.70%
Ba 233.527†	23474.6	2.284	mg/L	0.0127	2.284	mg/L	0.0127	0.56%
Be 313.042†	163922.0	0.6141	mg/L	0.00438	0.6141	mg/L	0.00438	0.71%
Ca 317.933†	820259.3	77.49	mg/L	0.584	77.49	mg/L	0.584	0.75%
Cd 228.802†	50725.2	0.6009	mg/L	0.00415	0.6009	mg/L	0.00415	0.69%
Co 228.616†	47000.4	0.5565	mg/L	0.00293	0.5565	mg/L	0.00293	0.53%
Cr 267.716†	2708.9	0.5905	mg/L	0.00175	0.5905	mg/L	0.00175	0.30%
Cu 324.752†	170199.1	0.5440	mg/L	0.00212	0.5440	mg/L	0.00212	0.39%
Fe 273.955†	3062.2	2.498	mg/L	0.0108	2.498	mg/L	0.0108	0.43%
K 766.490†	55379.8	15.37	mg/L	0.111	15.37	mg/L	0.111	0.73%
Mg 279.077†	38274.1	32.86	mg/L	0.196	32.86	mg/L	0.196	0.60%
Mn 257.610†	220595.2	5.451	mg/L	0.0320	5.451	mg/L	0.0320	0.59%
Mo 202.031†	52.5	0.00237	mg/L	0.000293	0.00237	mg/L	0.000293	12.37%
Na 589.592†	198325.1	24.38	mg/L	0.117	24.38	mg/L	0.117	0.48%
Na 330.237†	677.9	24.15	mg/L	0.151	24.15	mg/L	0.151	0.63%
Ni 231.604†	1261.5	0.5701	mg/L	0.00511	0.5701	mg/L	0.00511	0.90%
Pb 220.353†	30272.3	2.345	mg/L	0.0172	2.345	mg/L	0.0172	0.73%
Sb 206.836†	25.9	-0.00181	mg/L	0.001502	-0.00181	mg/L	0.001502	82.86%
Se 196.026†	5412.3	2.815	mg/L	0.0066	2.815	mg/L	0.0066	0.24%
Si 288.158†	12987.3	9.609	mg/L	0.0488	9.609	mg/L	0.0488	0.51%
Sn 189.927†	-38.3	0.01145	mg/L	0.000623	0.01145	mg/L	0.000623	5.44%
Sr 421.552†	617771.3	1.068	mg/L	0.0065	1.068	mg/L	0.0065	0.61%
Ti 334.903†	153.1	0.00201	mg/L	0.000475	0.00201	mg/L	0.000475	23.57%
Tl 190.801†	8700.2	2.365	mg/L	0.0043	2.365	mg/L	0.0043	0.18%
V 292.402†	120465.7	0.5953	mg/L	0.00337	0.5953	mg/L	0.00337	0.57%
Zn 206.200†	1397.0	0.5752	mg/L	0.00458	0.5752	mg/L	0.00458	0.80%

Sequence No.: 11
 Sample ID: CV 2
 Analyst: EL
 Dilution: 1X

Autosampler Location: 7
 Date Collected: 11/1/2012 2:03:23 PM
 Data Type: Original

Nebulizer Parameters: CV

Analyte	Back Pressure	Flow
All	232.0 kPa	0.55 L/min

Mean Data: CV

Analyte	Mean Corrected Intensity	Conc. Units	Calib.	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2650925.8	100.1 %		1.28			1.28%
ScR 361.383	216601.7	102.3 %		0.21			0.21%
Ag 328.068†	296350.4	0.9943 mg/L		0.00305	0.9943 mg/L	0.00305	0.31%
Al 308.215†	3065.1	1.997 mg/L		0.0102	1.997 mg/L	0.0102	0.51%
As 188.979†	4962.5	2.082 mg/L		0.0227	2.082 mg/L	0.0227	1.09%
B 249.677†	2144.1	0.9868 mg/L		0.00569	0.9868 mg/L	0.00569	0.58%
Ba 233.527†	10165.4	0.9886 mg/L		0.00415	0.9886 mg/L	0.00415	0.42%
Be 313.042†	273597.1	1.025 mg/L		0.0016	1.025 mg/L	0.0016	0.16%
Ca 317.933†	21479.3	2.029 mg/L		0.0090	2.029 mg/L	0.0090	0.44%
Cd 228.802†	84782.2	1.010 mg/L		0.0008	1.010 mg/L	0.0008	0.08%
Co 228.616†	82995.8	0.9823 mg/L		0.00130	0.9823 mg/L	0.00130	0.13%
Cr 267.716†	4549.8	0.9935 mg/L		0.00325	0.9935 mg/L	0.00325	0.33%
Cu 324.752†	330292.4	1.055 mg/L		0.0005	1.055 mg/L	0.0005	0.05%
Fe 273.955†	2602.2	2.122 mg/L		0.0089	2.122 mg/L	0.0089	0.42%
K 766.490†	73030.5	20.27 mg/L		0.082	20.27 mg/L	0.082	0.40%
Mg 279.077†	2450.2	2.107 mg/L		0.0120	2.107 mg/L	0.0120	0.57%
Mn 257.610†	40359.2	0.9977 mg/L		0.00220	0.9977 mg/L	0.00220	0.22%
Mo 202.031†	17818.7	0.9628 mg/L		0.01057	0.9628 mg/L	0.01057	1.10%
Na 589.592†	411626.7	50.61 mg/L		0.129	50.61 mg/L	0.129	0.25%
Na 330.237†	1388.3	50.38 mg/L		0.327	50.38 mg/L	0.327	0.65%
Ni 231.604†	2240.3	1.014 mg/L		0.0051	1.014 mg/L	0.0051	0.50%
Pb 220.353†	26529.0	2.054 mg/L		0.0193	2.054 mg/L	0.0193	0.94%
Sb 206.836†	7704.7	2.104 mg/L		0.0215	2.104 mg/L	0.0215	1.02%
Se 196.026†	3879.1	2.016 mg/L		0.0236	2.016 mg/L	0.0236	1.17%
Si 288.158†	2898.6	2.150 mg/L		0.0133	2.150 mg/L	0.0133	0.62%
Sn 189.927†	5991.8	0.9145 mg/L		0.00968	0.9145 mg/L	0.00968	1.06%
Sr 421.552†	596077.9	1.030 mg/L		0.0019	1.030 mg/L	0.0019	0.19%
Ti 334.903†	25623.9	0.9957 mg/L		0.00096	0.9957 mg/L	0.00096	0.10%
Tl 190.801†	7365.9	2.001 mg/L		0.0229	2.001 mg/L	0.0229	1.14%
V 292.402†	203012.7	1.006 mg/L		0.0008	1.006 mg/L	0.0008	0.08%
Zn 206.200†	2635.6	1.081 mg/L		0.0048	1.081 mg/L	0.0048	0.45%

Sequence No.: 12
 Sample ID: CB-2
 Analyst: EL
 Dilution: 1X

Autosampler Location: 1
 Date Collected: 11/1/2012 2:09:25 PM
 Data Type: Original

Nebulizer Parameters: CB

Analyte Back Pressure Flow
 All 232.0 kPa 0.55 L/min

Mean Data: CB

Analyte	Mean Corrected		Calib. Conc. Units	Std.Dev.	Sample		RSD
	Intensity	Conc.			Conc.	Units	
ScA 357.253	2689324.6	101.6	%	0.87			0.86%
ScR 361.383	212401.5	100.3	%	1.43			1.43%
Ag 328.068†	33.0	0.00011	mg/L	0.000037	0.00011	mg/L	0.000037 33.58%
Al 308.215†	12.0	0.00795	mg/L	0.009365	0.00795	mg/L	0.009365 117.76%
As 188.979†	2.2	0.00092	mg/L	0.000625	0.00092	mg/L	0.000625 67.61%
B 249.677†	9.8	0.00451	mg/L	0.002343	0.00451	mg/L	0.002343 51.92%
Ba 233.527†	0.1	0.00001	mg/L	0.000264	0.00001	mg/L	0.000264 >999.9%
Be 313.042†	-21.7	-0.00008	mg/L	0.000045	-0.00008	mg/L	0.000045 55.61%
Ca 317.933†	8.9	0.00084	mg/L	0.000415	0.00084	mg/L	0.000415 49.55%
Cd 228.802†	18.4	0.00022	mg/L	0.000096	0.00022	mg/L	0.000096 43.95%
Co 228.616†	-0.7	-0.00001	mg/L	0.000089	-0.00001	mg/L	0.000089 987.38%
Cr 267.716†	3.0	0.00065	mg/L	0.001065	0.00065	mg/L	0.001065 163.51%
Cu 324.752†	205.4	0.00066	mg/L	0.000257	0.00066	mg/L	0.000257 39.16%
Fe 273.955†	7.8	0.00635	mg/L	0.003360	0.00635	mg/L	0.003360 52.90%
K 766.490†	127.9	0.03550	mg/L	0.013027	0.03550	mg/L	0.013027 36.70%
Mg 279.077†	-6.9	-0.00596	mg/L	0.005053	-0.00596	mg/L	0.005053 84.74%
Mn 257.610†	44.5	0.00110	mg/L	0.000092	0.00110	mg/L	0.000092 8.36%
Mo 202.031†	0.8	0.00005	mg/L	0.000301	0.00005	mg/L	0.000301 660.29%
Na 589.592†	328.0	0.04033	mg/L	0.005586	0.04033	mg/L	0.005586 13.85%
Na 330.237†	5.9	0.2154	mg/L	0.44131	0.2154	mg/L	0.44131 204.89%
Ni 231.604†	1.7	0.00077	mg/L	0.001226	0.00077	mg/L	0.001226 159.06%
Pb 220.353†	8.2	0.00064	mg/L	0.000380	0.00064	mg/L	0.000380 59.49%
Sb 206.836†	2.6	0.00071	mg/L	0.001209	0.00071	mg/L	0.001209 170.70%
Se 196.026†	1.5	0.00080	mg/L	0.004432	0.00080	mg/L	0.004432 556.20%
Si 288.158†	10.3	0.00763	mg/L	0.002751	0.00763	mg/L	0.002751 36.06%
Sn 189.927†	8.8	0.00134	mg/L	0.000355	0.00134	mg/L	0.000355 26.56%
Sr 421.552†	71.6	0.00012	mg/L	0.000073	0.00012	mg/L	0.000073 58.80%
Ti 334.903†	14.3	0.00056	mg/L	0.000994	0.00056	mg/L	0.000994 178.36%
Tl 190.801†	1.3	0.00036	mg/L	0.001438	0.00036	mg/L	0.001438 399.05%
V 292.402†	7.7	0.00004	mg/L	0.000141	0.00004	mg/L	0.000141 338.03%
Zn 206.200†	3.5	0.00142	mg/L	0.001396	0.00142	mg/L	0.001396 98.58%

Sequence No.: 13

Autosampler Location: 34

Sample ID: VQ16 MB2 DMN

Date Collected: 11/1/2012 2:15:23 PM

Analyst: EL

Data Type: Original

Dilution: 1X

Nebulizer Parameters: VQ16 MB2 DMN

Analyte	Back Pressure	Flow
All	233.0 kPa	0.55 L/min

Mean Data: VQ16 MB2 DMN

Analyte	Mean Intensity	Conc. Units	Calib.	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2760897.2	104.3 %		0.18			0.17%
ScR 361.383	217469.8	102.7 %		1.03			1.00%
Ag 328.068†	-39.2	-0.00013 mg/L		0.000072	-0.00013 mg/L	0.000072	54.55%
Al 308.215†	2.2	0.00147 mg/L		0.002001	0.00147 mg/L	0.002001	136.24%
As 188.979†	1.2	0.00052 mg/L		0.002686	0.00052 mg/L	0.002686	518.12%
B 249.677†	4.5	0.00209 mg/L		0.001348	0.00209 mg/L	0.001348	64.41%
Ba 233.527†	1.8	0.00017 mg/L		0.000332	0.00017 mg/L	0.000332	190.01%
Be 313.042†	-0.4	0.00000 mg/L		0.000082	0.00000 mg/L	0.000082	>999.9%
Ca 317.933†	43.2	0.00408 mg/L		0.001575	0.00408 mg/L	0.001575	38.60%
Cd 228.802†	-1.7	-0.00002 mg/L		0.000041	-0.00002 mg/L	0.000041	191.96%
Co 228.616†	-16.1	-0.00019 mg/L		0.000015	-0.00019 mg/L	0.000015	7.63%
Cr 267.716†	7.0	0.00153 mg/L		0.000842	0.00153 mg/L	0.000842	55.07%
Cu 324.752†	-562.4	-0.00180 mg/L		0.000103	-0.00180 mg/L	0.000103	5.71%
Fe 273.955†	-4.2	-0.00340 mg/L		0.000956	-0.00340 mg/L	0.000956	28.14%
K 766.490†	14.7	0.00409 mg/L		0.010904	0.00409 mg/L	0.010904	266.86%
Mg 279.077†	4.8	0.00408 mg/L		0.005385	0.00408 mg/L	0.005385	131.92%
Mn 257.610†	4.2	0.00010 mg/L		0.000048	0.00010 mg/L	0.000048	45.68%
Mo 202.031†	3.8	0.00020 mg/L		0.000329	0.00020 mg/L	0.000329	161.79%
Na 589.592†	17.5	0.00215 mg/L		0.006770	0.00215 mg/L	0.006770	314.97%
Na 330.237†	6.0	0.2169 mg/L		0.42708	0.2169 mg/L	0.42708	196.93%
Ni 231.604†	0.8	0.00038 mg/L		0.001895	0.00038 mg/L	0.001895	497.39%
Pb 220.353†	-8.2	-0.00063 mg/L		0.000161	-0.00063 mg/L	0.000161	25.69%
Sb 206.836†	-8.4	-0.00233 mg/L		0.001919	-0.00233 mg/L	0.001919	82.36%
Se 196.026†	6.3	0.00327 mg/L		0.002898	0.00327 mg/L	0.002898	88.73%
Si 288.158†	1.9	0.00143 mg/L		0.003804	0.00143 mg/L	0.003804	265.11%
Sn 189.927†	-1.7	-0.00026 mg/L		0.000342	-0.00026 mg/L	0.000342	129.64%
Sr 421.552†	63.5	0.00011 mg/L		0.000071	0.00011 mg/L	0.000071	64.32%
Ti 334.903†	6.6	0.00026 mg/L		0.000700	0.00026 mg/L	0.000700	273.81%
Tl 190.801†	-4.6	-0.00126 mg/L		0.000939	-0.00126 mg/L	0.000939	74.38%
V 292.402†	25.4	0.00014 mg/L		0.000241	0.00014 mg/L	0.000241	176.46%
Zn 206.200†	1.3	0.00055 mg/L		0.000674	0.00055 mg/L	0.000674	122.97%

Sequence No.: 14

Sample ID: VQ25 MB DMN

Analyst: EL

Dilution: 1X

*LUMC
2/11/12
Del*

Autosampler Location: 35

Date Collected: 11/1/2012 2:21:25 PM

Data Type: Original

Nebulizer Parameters: VQ25 MB DMN

Analyte	Back Pressure	Flow
All	232.0 kPa	0.55 L/min

Mean Data: VQ25 MB DMN

Analyte	Mean Corrected		Calib. Conc. Units	Std.Dev.	Sample		RSD
	Intensity	Conc.			Conc.	Units	
SCA 357.253	2756433.2	104.1	%	1.07			1.03%
SCR 361.383	221786.7	104.7	%	1.15			1.09%
Ag 328.068†	-31.5	-0.00011	mg/L	0.000012	-0.00011	mg/L	0.000012 11.42%
Al 308.215†	-11.5	-0.00768	mg/L	0.002358	-0.00768	mg/L	0.002358 30.72%
As 188.979†	2.6	0.00110	mg/L	0.001476	0.00110	mg/L	0.001476 133.77%
B 249.677†	3.4	0.00156	mg/L	0.000780	0.00156	mg/L	0.000780 49.88%
Ba 233.527†	-0.8	-0.00008	mg/L	0.000420	-0.00008	mg/L	0.000420 532.78%
Be 313.042†	-27.7	-0.00010	mg/L	0.000007	-0.00010	mg/L	0.000007 6.62%
Ca 317.933†	26.7	0.00252	mg/L	0.001379	0.00252	mg/L	0.001379 54.72%
Cd 228.802†	2.8	0.00003	mg/L	0.000060	0.00003	mg/L	0.000060 188.96%
Co 228.616†	-12.5	-0.00015	mg/L	0.000056	-0.00015	mg/L	0.000056 37.59%
Cr 267.716†	6.3	0.00137	mg/L	0.001081	0.00137	mg/L	0.001081 78.84%
Cu 324.752†	-711.3	-0.00227	mg/L	0.000161	-0.00227	mg/L	0.000161 7.08%
Fe 273.955†	-3.5	-0.00288	mg/L	0.002869	-0.00288	mg/L	0.002869 99.64%
K 766.490†	0.6	0.00016	mg/L	0.012221	0.00016	mg/L	0.012221 >999.9%
Mg 279.077†	-0.2	-0.00017	mg/L	0.003513	-0.00017	mg/L	0.003513 >999.9%
Mn 257.610†	0.4	0.00001	mg/L	0.000051	0.00001	mg/L	0.000051 582.56%
Mo 202.031†	0.7	0.00004	mg/L	0.000118	0.00004	mg/L	0.000118 331.50%
Na 589.592†	2.6	0.00032	mg/L	0.001819	0.00032	mg/L	0.001819 572.33%
Na 330.237†	-8.1	-0.2945	mg/L	0.09545	-0.2945	mg/L	0.09545 32.42%
Ni 231.604†	1.4	0.00065	mg/L	0.002468	0.00065	mg/L	0.002468 378.22%
Pb 220.353†	-3.9	-0.00030	mg/L	0.000609	-0.00030	mg/L	0.000609 202.49%
Sb 206.836†	-11.9	-0.00329	mg/L	0.000544	-0.00329	mg/L	0.000544 16.52%
Se 196.026†	1.5	0.00081	mg/L	0.001997	0.00081	mg/L	0.001997 248.06%
Si 288.158†	0.3	0.00026	mg/L	0.001067	0.00026	mg/L	0.001067 418.49%
Sn 189.927†	-4.1	-0.00062	mg/L	0.000334	-0.00062	mg/L	0.000334 53.86%
Sr 421.552†	81.0	0.00014	mg/L	0.000092	0.00014	mg/L	0.000092 65.79%
Ti 334.903†	31.3	0.00122	mg/L	0.000954	0.00122	mg/L	0.000954 78.34%
Tl 190.801†	-6.3	-0.00172	mg/L	0.000224	-0.00172	mg/L	0.000224 13.04%
V 292.402†	9.9	0.00006	mg/L	0.000051	0.00006	mg/L	0.000051 87.70%
Zn 206.200†	1.3	0.00052	mg/L	0.000771	0.00052	mg/L	0.000771 147.55%

Sequence No.: 15
 Sample ID: VQ16 L DMN
 Analyst: EL
 Dilution: 1X

Autosampler Location: 36
 Date Collected: 11/1/2012 2:27:27 PM
 Data Type: Original

Nebulizer Parameters: VQ16 L DMN

Analyte Back Pressure Flow
 All 232.0 kPa 0.55 L/min

Mean Data: VQ16 L DMN

Analyte	Mean Corrected		Calib. Units	Std.Dev.	Sample		RSD
	Intensity	Conc.			Conc.	Units	
ScA 357.253	2750494.9	103.9	%	0.59			0.57%
ScR 361.383	222597.2	105.1	%	0.70			0.66%
Ag 328.068†	-54.8	-0.00030	mg/L	0.000071	-0.00030	mg/L	0.000071 24.10%
Al 308.215†	173.9	0.1155	mg/L	0.00518	0.1155	mg/L	0.00518 4.49%
As 188.979†	5.6	0.00233	mg/L	0.000246	0.00233	mg/L	0.000246 10.59%
B 249.677†	90.7	0.04184	mg/L	0.001204	0.04184	mg/L	0.001204 2.88%
Ba 233.527†	61.9	0.00603	mg/L	0.000069	0.00603	mg/L	0.000069 1.14%
Be 313.042†	-14.2	-0.00006	mg/L	0.000060	-0.00006	mg/L	0.000060 104.27%
Ca 317.933†	102052.4	9.641	mg/L	0.0517	9.641	mg/L	0.0517 0.54%
Cd 228.802†	-0.8	-0.00002	mg/L	0.000062	-0.00002	mg/L	0.000062 408.03%
Co 228.616†	-7.0	-0.00009	mg/L	0.000025	-0.00009	mg/L	0.000025 28.79%
Cr 267.716†	11.8	0.00258	mg/L	0.000713	0.00258	mg/L	0.000713 27.63%
Cu 324.752†	1180.8	0.00377	mg/L	0.000147	0.00377	mg/L	0.000147 3.90%
Fe 273.955†	47.7	0.03895	mg/L	0.002319	0.03895	mg/L	0.002319 5.95%
K 766.490†	5155.5	1.431	mg/L	0.0079	1.431	mg/L	0.0079 0.55%
Mg 279.077†	1450.7	1.245	mg/L	0.0115	1.245	mg/L	0.0115 0.93%
Mn 257.610†	574.6	0.01420	mg/L	0.000174	0.01420	mg/L	0.000174 1.23%
Mo 202.031†	74.8	0.00403	mg/L	0.000049	0.00403	mg/L	0.000049 1.22%
Na 589.592†	67066.9	8.246	mg/L	0.0216	8.246	mg/L	0.0216 0.26%
Na 330.237†	226.2	8.199	mg/L	0.5477	8.199	mg/L	0.5477 6.68%
Ni 231.604†	-1.0	-0.00045	mg/L	0.000963	-0.00045	mg/L	0.000963 214.96%
Pb 220.353†	-10.9	-0.00056	mg/L	0.000249	-0.00056	mg/L	0.000249 44.66%
Sb 206.836†	-5.1	-0.00145	mg/L	0.000449	-0.00145	mg/L	0.000449 31.00%
Se 196.026†	1.8	0.00094	mg/L	0.000985	0.00094	mg/L	0.000985 104.92%
Si 288.158†	1888.9	1.397	mg/L	0.0103	1.397	mg/L	0.0103 0.74%
Sn 189.927†	-7.7	0.00091	mg/L	0.000820	0.00091	mg/L	0.000820 90.44%
Sr 421.552†	24699.1	0.04270	mg/L	0.000086	0.04270	mg/L	0.000086 0.20%
Ti 334.903†	62.8	0.00197	mg/L	0.000366	0.00197	mg/L	0.000366 18.61%
Tl 190.801†	-8.9	-0.00245	mg/L	0.000664	-0.00245	mg/L	0.000664 27.05%
V 292.402†	306.4	0.00154	mg/L	0.000080	0.00154	mg/L	0.000080 5.18%
Zn 206.200†	24.5	0.01026	mg/L	0.000410	0.01026	mg/L	0.000410 4.00%

Sequence No.: 16
Sample ID: VQ16 KDUP DMN
Analyst: EL
Dilution: 1X

Autosampler Location: 37
Date Collected: 11/1/2012 2:33:27 PM
Data Type: Original

Nebulizer Parameters: VQ16 KDUP DMN

Analyte Back Pressure Flow
All 233.0 kPa 0.55 L/min

Mean Data: VQ16 KDUP DMN

Analyte	Mean Intensity	Conc. Corrected	Calib. Units	Std.Dev.	Conc. Units	Sample Std.Dev.	RSD
ScA 357.253	2771757.6	104.7	%	0.50			0.48%
ScR 361.383	219340.3	103.6	%	1.36			1.31%
Ag 328.068†	-31.4	-0.00022	mg/L	0.000100	-0.00022	0.000100	45.04%
Al 308.215†	129.5	0.08610	mg/L	0.005275	0.08610	0.005275	6.13%
As 188.979†	3.1	0.00129	mg/L	0.000832	0.00129	0.000832	64.35%
B 249.677†	273.6	0.1261	mg/L	0.00431	0.1261	0.00431	3.42%
Ba 233.527†	57.2	0.00557	mg/L	0.000552	0.00557	0.000552	9.92%
Be 313.042†	-30.5	-0.00012	mg/L	0.000033	-0.00012	0.000033	28.61%
Ca 317.933†	106904.9	10.10	mg/L	0.021	10.10	0.021	0.21%
Cd 228.802†	-2.3	-0.00003	mg/L	0.000028	-0.00003	0.000028	91.81%
Co 228.616†	-13.7	-0.00017	mg/L	0.000053	-0.00017	0.000053	31.63%
Cr 267.716†	12.0	0.00262	mg/L	0.000721	0.00262	0.000721	27.48%
Cu 324.752†	343.0	0.00110	mg/L	0.000011	0.00110	0.000011	0.99%
Fe 273.955†	39.5	0.03225	mg/L	0.000855	0.03225	0.000855	2.65%
K 766.490†	3216.8	0.8928	mg/L	0.00953	0.8928	0.00953	1.07%
Mg 279.077†	925.7	0.7947	mg/L	0.00533	0.7947	0.00533	0.67%
Mn 257.610†	582.5	0.01439	mg/L	0.000255	0.01439	0.000255	1.77%
Mo 202.031†	29.1	0.00156	mg/L	0.000072	0.00156	0.000072	4.63%
Na 589.592†	35183.0	4.326	mg/L	0.0201	4.326	0.0201	0.47%
Na 330.237†	116.3	4.195	mg/L	0.0378	4.195	0.0378	0.90%
Ni 231.604†	3.8	0.00173	mg/L	0.001148	0.00173	0.001148	66.27%
Pb 220.353†	-13.6	-0.00076	mg/L	0.000295	-0.00076	0.000295	38.60%
Sb 206.836†	-7.5	-0.00212	mg/L	0.001301	-0.00212	0.001301	61.29%
Se 196.026†	3.9	0.00201	mg/L	0.001810	0.00201	0.001810	90.25%
Si 288.158†	1190.4	0.8802	mg/L	0.00808	0.8802	0.00808	0.92%
Sn 189.927†	-9.8	0.00067	mg/L	0.000836	0.00067	0.000836	124.13%
Sr 421.552†	21618.3	0.03737	mg/L	0.000239	0.03737	0.000239	0.64%
Ti 334.903†	61.2	0.00189	mg/L	0.000189	0.00189	0.000189	10.05%
Tl 190.801†	-8.9	-0.00246	mg/L	0.001222	-0.00246	0.001222	49.70%
V 292.402†	123.7	0.00063	mg/L	0.000116	0.00063	0.000116	18.43%
Zn 206.200†	10.8	0.00467	mg/L	0.000445	0.00467	0.000445	9.54%

Sequence No.: 17
 Sample ID: VQ16 K DMN
 Analyst: EL
 Dilution: 1X

Autosampler Location: 38
 Date Collected: 11/1/2012 2:39:27 PM
 Data Type: Original

Nebulizer Parameters: VQ16 K DMN

Analyte Back Pressure Flow
 All 233.0 kPa 0.55 L/min

Mean Data: VQ16 K DMN

Analyte	Mean Corrected Intensity	Conc. Units	Calib. Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2767994.0	104.5 %	0.22			0.21%
ScR 361.383	218541.0	103.2 %	0.79			0.77%
Ag 328.068†	-17.4	-0.00018 mg/L	0.000308	-0.00018 mg/L	0.000308	175.25%
Al 308.215†	120.4	0.08005 mg/L	0.011998	0.08005 mg/L	0.011998	14.99%
As 188.979†	0.0	0.00001 mg/L	0.002183	0.00001 mg/L	0.002183	>999.9%
B 249.677†	280.8	0.1295 mg/L	0.00109	0.1295 mg/L	0.00109	0.84%
Ba 233.527†	54.6	0.00531 mg/L	0.000214	0.00531 mg/L	0.000214	4.03%
Be 313.042†	-3.9	-0.00002 mg/L	0.000028	-0.00002 mg/L	0.000028	168.47%
Ca 317.933†	107773.3	10.18 mg/L	0.023	10.18 mg/L	0.023	0.22%
Cd 228.802†	1.4	0.00002 mg/L	0.000053	0.00002 mg/L	0.000053	309.32%
Co 228.616†	-14.9	-0.00018 mg/L	0.000096	-0.00018 mg/L	0.000096	52.51%
Cr 267.716†	9.3	0.00204 mg/L	0.000826	0.00204 mg/L	0.000826	40.56%
Cu 324.752†	364.0	0.00116 mg/L	0.000090	0.00116 mg/L	0.000090	7.69%
Fe 273.955†	40.0	0.03260 mg/L	0.001116	0.03260 mg/L	0.001116	3.42%
K 766.490†	3210.2	0.8910 mg/L	0.01864	0.8910 mg/L	0.01864	2.09%
Mg 279.077†	933.1	0.8011 mg/L	0.00775	0.8011 mg/L	0.00775	0.97%
Mn 257.610†	582.6	0.01440 mg/L	0.000144	0.01440 mg/L	0.000144	1.00%
Mo 202.031†	27.8	0.00150 mg/L	0.000229	0.00150 mg/L	0.000229	15.33%
Na 589.592†	35476.9	4.362 mg/L	0.0138	4.362 mg/L	0.0138	0.32%
Na 330.237†	106.4	3.832 mg/L	0.4855	3.832 mg/L	0.4855	12.67%
Ni 231.604†	1.9	0.00085 mg/L	0.001162	0.00085 mg/L	0.001162	136.12%
Pb 220.353†	-17.7	-0.00108 mg/L	0.000155	-0.00108 mg/L	0.000155	14.42%
Sb 206.836†	-11.4	-0.00316 mg/L	0.000816	-0.00316 mg/L	0.000816	25.82%
Se 196.026†	5.1	0.00264 mg/L	0.000933	0.00264 mg/L	0.000933	35.39%
Si 288.158†	1197.7	0.8856 mg/L	0.00717	0.8856 mg/L	0.00717	0.81%
Sn 189.927†	-10.2	0.00064 mg/L	0.000139	0.00064 mg/L	0.000139	21.79%
Sr 421.552†	21664.7	0.03745 mg/L	0.000089	0.03745 mg/L	0.000089	0.24%
Ti 334.903†	56.3	0.00169 mg/L	0.000924	0.00169 mg/L	0.000924	54.73%
Tl 190.801†	-8.3	-0.00229 mg/L	0.001667	-0.00229 mg/L	0.001667	72.81%
V 292.402†	131.8	0.00067 mg/L	0.000134	0.00067 mg/L	0.000134	20.20%
Zn 206.200†	12.9	0.00552 mg/L	0.001063	0.00552 mg/L	0.001063	19.26%

Sequence No.: 18

Autosampler Location: 39

Sample ID: VQ16 KSPK DMN

Date Collected: 11/1/2012 2:45:27 PM

Analyst: EL

Data Type: Original

Dilution: 1X

Nebulizer Parameters: VQ16 KSPK DMN

Analyte Back Pressure Flow
 All 233.0 kPa 0.55 L/min

Mean Data: VQ16 KSPK DMN

Analyte	Mean Corrected			Std.Dev.	Sample		RSD
	Intensity	Conc.	Units		Conc.	Units	
ScA 357.253	2707834.1	102.3	%	0.25			0.25%
ScR 361.383	220594.4	104.2	%	0.17			0.16%
Ag 328.068†	135395.0	0.4541	mg/L	0.00671	0.4541	mg/L	1.48%
Al 308.215†	3516.8	2.330	mg/L	0.0098	2.330	mg/L	0.42%
As 188.979†	5615.2	2.357	mg/L	0.0056	2.357	mg/L	0.24%
B 249.677†	269.6	0.1224	mg/L	0.00142	0.1224	mg/L	1.16%
Ba 233.527†	22447.0	2.184	mg/L	0.0156	2.184	mg/L	0.71%
Be 313.042†	158314.3	0.5931	mg/L	0.00168	0.5931	mg/L	0.28%
Ca 317.933†	226549.0	21.40	mg/L	0.059	21.40	mg/L	0.27%
Cd 228.802†	49243.8	0.5837	mg/L	0.00311	0.5837	mg/L	0.53%
Co 228.616†	46876.2	0.5551	mg/L	0.00197	0.5551	mg/L	0.36%
Cr 267.716†	2617.3	0.5716	mg/L	0.00466	0.5716	mg/L	0.82%
Cu 324.752†	171162.2	0.5471	mg/L	0.00118	0.5471	mg/L	0.22%
Fe 273.955†	2922.1	2.383	mg/L	0.0157	2.383	mg/L	0.66%
K 766.490†	45304.0	12.57	mg/L	0.044	12.57	mg/L	0.35%
Mg 279.077†	14396.0	12.36	mg/L	0.100	12.36	mg/L	0.81%
Mn 257.610†	22835.9	0.5648	mg/L	0.00378	0.5648	mg/L	0.67%
Mo 202.031†	38.6	0.00187	mg/L	0.000110	0.00187	mg/L	5.86%
Na 589.592†	128278.8	15.77	mg/L	0.013	15.77	mg/L	0.08%
Na 330.237†	428.4	15.30	mg/L	0.121	15.30	mg/L	0.79%
Ni 231.604†	1250.0	0.5649	mg/L	0.00542	0.5649	mg/L	0.96%
Pb 220.353†	30267.7	2.344	mg/L	0.0100	2.344	mg/L	0.43%
Sb 206.836†	22.0	-0.00257	mg/L	0.000722	-0.00257	mg/L	28.05%
Se 196.026†	4805.9	2.500	mg/L	0.0088	2.500	mg/L	0.35%
Si 288.158†	1193.3	0.8864	mg/L	0.00360	0.8864	mg/L	0.41%
Sn 189.927†	-17.6	0.00218	mg/L	0.000298	0.00218	mg/L	13.70%
Sr 421.552†	358948.9	0.6205	mg/L	0.00292	0.6205	mg/L	0.47%
Ti 334.903†	79.5	0.00191	mg/L	0.000482	0.00191	mg/L	25.27%
Tl 190.801†	8612.5	2.347	mg/L	0.0087	2.347	mg/L	0.37%
V 292.402†	115442.3	0.5698	mg/L	0.00235	0.5698	mg/L	0.41%
Zn 206.200†	1428.0	0.5867	mg/L	0.00660	0.5867	mg/L	1.13%

Sequence No.: 19
 Sample ID: VQ25 ADUP WMN
 Analyst: EL
 Dilution: 1X

Autosampler Location: 40
 Date Collected: 11/1/2012 2:51:29 PM
 Data Type: Original

Del

Nebulizer Parameters: VQ25 ADUP WMN

Analyte Back Pressure Flow
 All 233.0 kPa 0.55 L/min

Mean Data: VQ25 ADUP WMN

Analyte	Mean Corrected Intensity	Conc. Units	Calib. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2712569.6	102.4 %	%	0.51			0.50%
ScR 361.383	219916.7	103.9 %	%	0.86			0.83%
Ag 328.068†	11.3	-0.00025 mg/L	mg/L	0.000133	-0.00025 mg/L	0.000133	53.72%
Al 308.215†	12.5	0.00807 mg/L	mg/L	0.005340	0.00807 mg/L	0.005340	66.13%
As 188.979†	1.5	0.00062 mg/L	mg/L	0.001041	0.00062 mg/L	0.001041	167.77%
B 249.677†	20.2	0.00932 mg/L	mg/L	0.001143	0.00932 mg/L	0.001143	12.26%
Ba 233.527†	156.7	0.01524 mg/L	mg/L	0.000255	0.01524 mg/L	0.000255	1.67%
Be 313.042†	-13.9	-0.00008 mg/L	mg/L	0.000039	-0.00008 mg/L	0.000039	49.50%
Ca 317.933†	268479.4	25.36 mg/L	mg/L	0.055	25.36 mg/L	0.055	0.22%
Cd 228.802†	-9.4	-0.00011 mg/L	mg/L	0.000039	-0.00011 mg/L	0.000039	33.76%
Co 228.616†	-21.3	-0.00026 mg/L	mg/L	0.000025	-0.00026 mg/L	0.000025	9.76%
Cr 267.716†	2.7	0.00060 mg/L	mg/L	0.000355	0.00060 mg/L	0.000355	59.48%
Cu 324.752†	10.0	0.00003 mg/L	mg/L	0.000189	0.00003 mg/L	0.000189	553.25%
Fe 273.955†	48.1	0.03920 mg/L	mg/L	0.000774	0.03920 mg/L	0.000774	1.98%
K 766.490†	10618.6	2.947 mg/L	mg/L	0.0098	2.947 mg/L	0.0098	0.33%
Mg 279.077†	7793.7	6.691 mg/L	mg/L	0.0134	6.691 mg/L	0.0134	0.20%
Mn 257.610†	204.5	0.00505 mg/L	mg/L	0.000132	0.00505 mg/L	0.000132	2.61%
Mo 202.031†	33.8	0.00175 mg/L	mg/L	0.000046	0.00175 mg/L	0.000046	2.61%
Na 589.592†	32180.0	3.956 mg/L	mg/L	0.0129	3.956 mg/L	0.0129	0.33%
Na 330.237†	103.5	3.656 mg/L	mg/L	0.1842	3.656 mg/L	0.1842	5.04%
Ni 231.604†	0.6	0.00027 mg/L	mg/L	0.001420	0.00027 mg/L	0.001420	516.69%
Pb 220.353†	-15.7	-0.00056 mg/L	mg/L	0.000763	-0.00056 mg/L	0.000763	135.37%
Sb 206.836†	-1.9	-0.00050 mg/L	mg/L	0.002160	-0.00050 mg/L	0.002160	433.06%
Se 196.026†	4.2	0.00219 mg/L	mg/L	0.001777	0.00219 mg/L	0.001777	81.11%
Si 288.158†	36245.3	26.80 mg/L	mg/L	0.061	26.80 mg/L	0.061	0.23%
Sn 189.927†	-17.7	0.00286 mg/L	mg/L	0.000723	0.00286 mg/L	0.000723	25.30%
Sr 421.552†	52182.3	0.09020 mg/L	mg/L	0.000092	0.09020 mg/L	0.000092	0.10%
Ti 334.903†	45.0	0.00051 mg/L	mg/L	0.000351	0.00051 mg/L	0.000351	69.18%
Tl 190.801†	-14.2	-0.00393 mg/L	mg/L	0.001154	-0.00393 mg/L	0.001154	29.38%
V 292.402†	2102.7	0.01032 mg/L	mg/L	0.000266	0.01032 mg/L	0.000266	2.57%
Zn 206.200†	39.7	0.01685 mg/L	mg/L	0.000844	0.01685 mg/L	0.000844	5.01%

Sequence No.: 20
 Sample ID: VQ25 A WMN
 Analyst: EL
 Dilution: 1X

Autosampler Location: 41
 Date Collected: 11/1/2012 2:57:29 PM
 Data Type: Original

Nebulizer Parameters: VQ25 A WMN

Analyte Back Pressure Flow
 All 233.0 kPa 0.55 L/min

Mean Data: VQ25 A WMN

Analyte	Mean Corrected Intensity	Conc. Units	Calib.	Std.Dev.	Conc. Units	Sample Std.Dev.	RSD
ScA 357.253	2762488.3	104.3 %		0.82			0.78%
ScR 361.383	219338.5	103.6 %		1.39			1.34%
Ag 328.068†	-28.2	-0.00038 mg/L		0.000191	-0.00038 mg/L	0.000191	50.43%
Al 308.215†	-5.9	-0.00410 mg/L		0.009052	-0.00410 mg/L	0.009052	220.62%
As 188.979†	0.0	0.00000 mg/L		0.002468	0.00000 mg/L	0.002468	>999.9%
B 249.677†	22.6	0.01044 mg/L		0.001974	0.01044 mg/L	0.001974	18.91%
Ba 233.527†	159.4	0.01550 mg/L		0.000214	0.01550 mg/L	0.000214	1.38%
Be 313.042†	-19.8	-0.00010 mg/L		0.000105	-0.00010 mg/L	0.000105	104.28%
Ca 317.933†	267511.1	25.27 mg/L		0.062	25.27 mg/L	0.062	0.25%
Cd 228.802†	-12.9	-0.00015 mg/L		0.000044	-0.00015 mg/L	0.000044	28.87%
Co 228.616†	-27.7	-0.00034 mg/L		0.000069	-0.00034 mg/L	0.000069	20.55%
Cr 267.716†	4.5	0.00098 mg/L		0.000462	0.00098 mg/L	0.000462	47.16%
Cu 324.752†	-175.2	-0.00056 mg/L		0.000053	-0.00056 mg/L	0.000053	9.51%
Fe 273.955†	47.8	0.03901 mg/L		0.000641	0.03901 mg/L	0.000641	1.64%
K 766.490†	10553.7	2.929 mg/L		0.0297	2.929 mg/L	0.0297	1.01%
Mg 279.077†	7757.7	6.660 mg/L		0.0239	6.660 mg/L	0.0239	0.36%
Mn 257.610†	201.7	0.00498 mg/L		0.000093	0.00498 mg/L	0.000093	1.86%
Mo 202.031†	32.6	0.00168 mg/L		0.000363	0.00168 mg/L	0.000363	21.62%
Na 589.592†	32005.6	3.935 mg/L		0.0032	3.935 mg/L	0.0032	0.08%
Na 330.237†	106.0	3.744 mg/L		0.3277	3.744 mg/L	0.3277	8.75%
Ni 231.604†	6.9	0.00313 mg/L		0.000762	0.00313 mg/L	0.000762	24.31%
Pb 220.353†	-9.0	-0.00005 mg/L		0.000204	-0.00005 mg/L	0.000204	394.52%
Sb 206.836†	-11.1	-0.00303 mg/L		0.000999	-0.00303 mg/L	0.000999	32.94%
Se 196.026†	5.1	0.00266 mg/L		0.003286	0.00266 mg/L	0.003286	123.38%
Si 288.158†	36130.3	26.71 mg/L		0.089	26.71 mg/L	0.089	0.33%
Sn 189.927†	-22.5	0.00211 mg/L		0.000809	0.00211 mg/L	0.000809	38.31%
Sr 421.552†	51867.9	0.08966 mg/L		0.000601	0.08966 mg/L	0.000601	0.67%
Ti 334.903†	46.7	0.00058 mg/L		0.001063	0.00058 mg/L	0.001063	184.52%
Tl 190.801†	-13.8	-0.00382 mg/L		0.000789	-0.00382 mg/L	0.000789	20.67%
V 292.402†	2057.1	0.01010 mg/L		0.000151	0.01010 mg/L	0.000151	1.50%
Zn 206.200†	41.4	0.01753 mg/L		0.000273	0.01753 mg/L	0.000273	1.56%

Sequence No.: 21
 Sample ID: VQ25 ASPK WMN
 Analyst: EL
 Dilution: 1X

DL

Autosampler Location: 42
 Date Collected: 11/1/2012 3:03:29 PM
 Data Type: Original

Nebulizer Parameters: VQ25 ASPK WMN
 Analyte Back Pressure Flow
 All 233.0 kPa 0.55 L/min

Mean Data: VQ25 ASPK WMN

Analyte	Mean Corrected		Calib. Units	Std.Dev.	Sample		RSD	
	Intensity	Conc.			Conc.	Units		
ScA 357.253	2695063.5	101.8	%	0.30			0.29%	
ScR 361.383	219888.4	103.8	%	0.68			0.65%	
Ag 328.068†	160513.6	0.5382	mg/L	0.00673	0.5382	mg/L	0.00673	1.25%
Al 308.215†	3406.7	2.257	mg/L	0.0122	2.257	mg/L	0.0122	0.54%
As 188.979†	5686.9	2.387	mg/L	0.0135	2.387	mg/L	0.0135	0.57%
B 249.677†	21.7	0.00817	mg/L	0.001534	0.00817	mg/L	0.001534	18.78%
Ba 233.527†	23264.2	2.263	mg/L	0.0040	2.263	mg/L	0.0040	0.18%
Be 313.042†	159233.6	0.5966	mg/L	0.00090	0.5966	mg/L	0.00090	0.15%
Ca 317.933†	385478.9	36.41	mg/L	0.062	36.41	mg/L	0.062	0.17%
Cd 228.802†	49463.7	0.5862	mg/L	0.00574	0.5862	mg/L	0.00574	0.98%
Co 228.616†	46336.1	0.5487	mg/L	0.00469	0.5487	mg/L	0.00469	0.85%
Cr 267.716†	2623.6	0.5730	mg/L	0.00328	0.5730	mg/L	0.00328	0.57%
Cu 324.752†	175320.8	0.5604	mg/L	0.00367	0.5604	mg/L	0.00367	0.66%
Fe 273.955†	2934.2	2.393	mg/L	0.0149	2.393	mg/L	0.0149	0.62%
K 766.490†	52458.2	14.56	mg/L	0.098	14.56	mg/L	0.098	0.68%
Mg 279.077†	21493.9	18.45	mg/L	0.017	18.45	mg/L	0.017	0.09%
Mn 257.610†	23042.0	0.5699	mg/L	0.00108	0.5699	mg/L	0.00108	0.19%
Mo 202.031†	41.5	0.00195	mg/L	0.000062	0.00195	mg/L	0.000062	3.20%
Na 589.592†	125552.4	15.44	mg/L	0.036	15.44	mg/L	0.036	0.23%
Na 330.237†	424.0	15.06	mg/L	0.164	15.06	mg/L	0.164	1.09%
Ni 231.604†	1232.0	0.5568	mg/L	0.00217	0.5568	mg/L	0.00217	0.39%
Pb 220.353†	30115.1	2.332	mg/L	0.0163	2.332	mg/L	0.0163	0.70%
Sb 206.836†	19.9	-0.00314	mg/L	0.001241	-0.00314	mg/L	0.001241	39.51%
Se 196.026†	4980.7	2.591	mg/L	0.0165	2.591	mg/L	0.0165	0.64%
Si 288.158†	35875.2	26.53	mg/L	0.060	26.53	mg/L	0.060	0.23%
Sn 189.927†	-30.1	0.00361	mg/L	0.000563	0.00361	mg/L	0.000563	15.60%
Sr 421.552†	394144.7	0.6813	mg/L	0.00136	0.6813	mg/L	0.00136	0.20%
Ti 334.903†	83.5	0.00133	mg/L	0.000291	0.00133	mg/L	0.000291	21.91%
Tl 190.801†	8557.0	2.332	mg/L	0.0133	2.332	mg/L	0.0133	0.57%
V 292.402†	117215.2	0.5785	mg/L	0.00476	0.5785	mg/L	0.00476	0.82%
Zn 206.200†	1460.5	0.6004	mg/L	0.00575	0.6004	mg/L	0.00575	0.96%

Sequence No.: 22
 Sample ID: VP23 MB2SPK WMN
 Analyst: EL
 Dilution: 1X

Autosampler Location: 43
 Date Collected: 11/1/2012 3:09:33 PM
 Data Type: Original

Nebulizer Parameters: VP23 MB2SPK WMN

Analyte Back Pressure Flow
 All 233.0 kPa 0.55 L/min

Mean Data: VP23 MB2SPK WMN

Analyte	Mean Corrected Intensity	Conc. Units	Calib.	Std.Dev.	Conc. Units	Sample Std.Dev.	RSD
ScA 357.253	2687766.0	101.5 %		0.67			0.66%
ScR 361.383	217065.8	102.5 %		0.84			0.82%
Ag 328.068†	161488.7	0.5418 mg/L		0.00601	0.5418 mg/L	0.00601	1.11%
Al 308.215†	3451.3	2.287 mg/L		0.0150	2.287 mg/L	0.0150	0.65%
As 188.979†	5587.7	2.345 mg/L		0.0256	2.345 mg/L	0.0256	1.09%
B 249.677†	3.5	-0.00027 mg/L		0.001332	-0.00027 mg/L	0.001332	491.37%
Ba 233.527†	23329.8	2.270 mg/L		0.0078	2.270 mg/L	0.0078	0.34%
Be 313.042†	161593.6	0.6054 mg/L		0.00217	0.6054 mg/L	0.00217	0.36%
Ca 317.933†	124267.4	11.74 mg/L		0.032	11.74 mg/L	0.032	0.27%
Cd 228.802†	49996.6	0.5927 mg/L		0.00358	0.5927 mg/L	0.00358	0.60%
Co 228.616†	47520.7	0.5627 mg/L		0.00270	0.5627 mg/L	0.00270	0.48%
Cr 267.716†	2668.7	0.5828 mg/L		0.00613	0.5828 mg/L	0.00613	1.05%
Cu 324.752†	174810.5	0.5587 mg/L		0.00314	0.5587 mg/L	0.00314	0.56%
Fe 273.955†	2928.8	2.389 mg/L		0.0247	2.389 mg/L	0.0247	1.03%
K 766.490†	43054.8	11.95 mg/L		0.059	11.95 mg/L	0.059	0.49%
Mg 279.077†	13934.8	11.96 mg/L		0.122	11.96 mg/L	0.122	1.02%
Mn 257.610†	23081.7	0.5709 mg/L		0.00156	0.5709 mg/L	0.00156	0.27%
Mo 202.031†	15.1	0.00060 mg/L		0.000182	0.00060 mg/L	0.000182	30.18%
Na 589.592†	96711.6	11.89 mg/L		0.055	11.89 mg/L	0.055	0.47%
Na 330.237†	325.0	11.57 mg/L		0.208	11.57 mg/L	0.208	1.80%
Ni 231.604†	1289.5	0.5828 mg/L		0.00572	0.5828 mg/L	0.00572	0.98%
Pb 220.353†	30809.6	2.385 mg/L		0.0087	2.385 mg/L	0.0087	0.36%
Sb 206.836†	17.0	-0.00412 mg/L		0.000983	-0.00412 mg/L	0.000983	23.84%
Se 196.026†	4789.1	2.491 mg/L		0.0247	2.491 mg/L	0.0247	0.99%
Si 288.158†	2.4	0.00585 mg/L		0.001312	0.00585 mg/L	0.001312	22.45%
Sn 189.927†	-14.5	0.00057 mg/L		0.000655	0.00057 mg/L	0.000655	114.70%
Sr 421.552†	345344.5	0.5970 mg/L		0.00206	0.5970 mg/L	0.00206	0.34%
Ti 334.903†	41.6	0.00090 mg/L		0.000349	0.00090 mg/L	0.000349	38.61%
Tl 190.801†	8738.1	2.381 mg/L		0.0191	2.381 mg/L	0.0191	0.80%
V 292.402†	116264.7	0.5739 mg/L		0.00153	0.5739 mg/L	0.00153	0.27%
Zn 206.200†	1453.6	0.5970 mg/L		0.00639	0.5970 mg/L	0.00639	1.07%

Sequence No.: 23
 Sample ID: CV3
 Analyst: EL
 Dilution: 1X

Autosampler Location: 7
 Date Collected: 11/1/2012 3:15:36 PM
 Data Type: Original

Nebulizer Parameters: CV

Analyte	Back Pressure	Flow
All	233.0 kPa	0.55 L/min

Mean Data: CV

Analyte	Mean Corrected		Calib. Units	Std.Dev.	Sample		Std.Dev.	RSD
	Intensity	Conc.			Conc.	Units		
ScA 357.253	2652436.1	100.2	%	0.48				0.48%
ScR 361.383	213720.7	100.9	%	0.11				0.10%
Ag 328.068†	295516.5	0.9915	mg/L	0.00520	0.9915	mg/L	0.00520	0.52%
Al 308.215†	3088.0	2.012	mg/L	0.0031	2.012	mg/L	0.0031	0.16%
As 188.979†	4920.7	2.064	mg/L	0.0146	2.064	mg/L	0.0146	0.71%
B 249.677†	2158.7	0.9935	mg/L	0.00334	0.9935	mg/L	0.00334	0.34%
Ba 233.527†	10217.3	0.9937	mg/L	0.00307	0.9937	mg/L	0.00307	0.31%
Be 313.042†	274128.4	1.027	mg/L	0.0063	1.027	mg/L	0.0063	0.61%
Ca 317.933†	21533.9	2.034	mg/L	0.0068	2.034	mg/L	0.0068	0.34%
Cd 228.802†	85058.9	1.013	mg/L	0.0017	1.013	mg/L	0.0017	0.16%
Co 228.616†	83267.5	0.9855	mg/L	0.00287	0.9855	mg/L	0.00287	0.29%
Cr 267.716†	4578.3	0.9997	mg/L	0.00325	0.9997	mg/L	0.00325	0.32%
Cu 324.752†	332434.0	1.062	mg/L	0.0029	1.062	mg/L	0.0029	0.28%
Fe 273.955†	2611.8	2.130	mg/L	0.0092	2.130	mg/L	0.0092	0.43%
K 766.490†	73698.9	20.45	mg/L	0.039	20.45	mg/L	0.039	0.19%
Mg 279.077†	2442.8	2.101	mg/L	0.0081	2.101	mg/L	0.0081	0.38%
Mn 257.610†	40357.2	0.9977	mg/L	0.00425	0.9977	mg/L	0.00425	0.43%
Mo 202.031†	17722.7	0.9576	mg/L	0.00509	0.9576	mg/L	0.00509	0.53%
Na 589.592†	414251.3	50.93	mg/L	0.177	50.93	mg/L	0.177	0.35%
Na 330.237†	1401.6	50.87	mg/L	0.052	50.87	mg/L	0.052	0.10%
Ni 231.604†	2246.3	1.017	mg/L	0.0017	1.017	mg/L	0.0017	0.16%
Pb 220.353†	26377.0	2.042	mg/L	0.0146	2.042	mg/L	0.0146	0.72%
Sb 206.836†	7664.3	2.093	mg/L	0.0151	2.093	mg/L	0.0151	0.72%
Se 196.026†	3842.5	1.997	mg/L	0.0107	1.997	mg/L	0.0107	0.53%
Si 288.158†	2920.4	2.166	mg/L	0.0064	2.166	mg/L	0.0064	0.30%
Sn 189.927†	5943.8	0.9072	mg/L	0.00465	0.9072	mg/L	0.00465	0.51%
Sr 421.552†	604317.9	1.045	mg/L	0.0014	1.045	mg/L	0.0014	0.13%
Ti 334.903†	25676.7	0.9978	mg/L	0.00333	0.9978	mg/L	0.00333	0.33%
Tl 190.801†	7326.8	1.990	mg/L	0.0131	1.990	mg/L	0.0131	0.66%
V 292.402†	203816.8	1.010	mg/L	0.0043	1.010	mg/L	0.0043	0.42%
Zn 206.200†	2637.5	1.082	mg/L	0.0063	1.082	mg/L	0.0063	0.59%

Sequence No.: 24
 Sample ID: CB 3
 Analyst: EL
 Dilution: 1X

Autosampler Location: 1
 Date Collected: 11/1/2012 3:21:41 PM
 Data Type: Original

Nebulizer Parameters: CB

Analyte Back Pressure Flow
 All 232.0 kPa 0.55 L/min

Mean Data: CB

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc. Units	Sample Std.Dev.	RSD
ScA 357.253	2641997.0	99.76	%	0.272			0.27%
ScR 361.383	2097111.4	99.04	%	0.617			0.62%
Ag 328.068†	40.4	0.00014	mg/L	0.000117	0.00014	0.000117	85.98%
Al 308.215†	5.9	0.00392	mg/L	0.004763	0.00392	0.004763	121.50%
As 188.979†	3.6	0.00152	mg/L	0.001565	0.00152	0.001565	103.01%
B 249.677†	4.0	0.00183	mg/L	0.002697	0.00183	0.002697	147.02%
Ba 233.527†	0.6	0.00005	mg/L	0.000256	0.00005	0.000256	472.42%
Be 313.042†	2.8	0.00001	mg/L	0.000043	0.00001	0.000043	431.22%
Ca 317.933†	13.2	0.00124	mg/L	0.000491	0.00124	0.000491	39.52%
Cd 228.802†	11.7	0.00014	mg/L	0.000051	0.00014	0.000051	36.93%
Co 228.616†	8.7	0.00010	mg/L	0.000024	0.00010	0.000024	22.98%
Cr 267.716†	7.3	0.00159	mg/L	0.000351	0.00159	0.000351	22.11%
Cu 324.752†	378.0	0.00121	mg/L	0.000081	0.00121	0.000081	6.72%
Fe 273.955†	4.4	0.00360	mg/L	0.001547	0.00360	0.001547	42.93%
K 766.490†	170.4	0.04730	mg/L	0.015301	0.04730	0.015301	32.35%
Mg 279.077†	-1.1	-0.00092	mg/L	0.001887	-0.00092	0.001887	204.51%
Mn 257.610†	22.4	0.00055	mg/L	0.000116	0.00055	0.000116	20.90%
Mo 202.031†	-5.5	-0.00030	mg/L	0.000058	-0.00030	0.000058	19.40%
Na 589.592†	260.4	0.03201	mg/L	0.006854	0.03201	0.006854	21.41%
Na 330.237†	9.6	0.3488	mg/L	0.37818	0.3488	0.37818	108.43%
Ni 231.604†	0.7	0.00030	mg/L	0.002784	0.00030	0.002784	942.65%
Pb 220.353†	19.1	0.00148	mg/L	0.000472	0.00148	0.000472	31.90%
Sb 206.836†	-4.7	-0.00130	mg/L	0.001476	-0.00130	0.001476	113.50%
Se 196.026†	-0.6	-0.00032	mg/L	0.001361	-0.00032	0.001361	427.19%
Si 288.158†	9.0	0.00662	mg/L	0.002411	0.00662	0.002411	36.42%
Sn 189.927†	5.9	0.00090	mg/L	0.000236	0.00090	0.000236	26.27%
Sr 421.552†	86.3	0.00015	mg/L	0.000066	0.00015	0.000066	44.24%
Ti 334.903†	4.9	0.00019	mg/L	0.000246	0.00019	0.000246	129.02%
Tl 190.801†	4.9	0.00133	mg/L	0.000646	0.00133	0.000646	48.49%
V 292.402†	38.6	0.00020	mg/L	0.000115	0.00020	0.000115	57.90%
Zn 206.200†	-0.4	-0.00016	mg/L	0.001037	-0.00016	0.001037	663.26%

Sequence No.: 25

Autosampler Location: 44

Sample ID: VP40 MB1 SWC

Date Collected: 11/1/2012 3:27:39 PM

Analyst: EL

Data Type: Original

Dilution: 2X *oil*

Nebulizer Parameters: VP40 MB1 SWC

Analyte	Back Pressure	Flow
All	233.0 kPa	0.55 L/min

Mean Data: VP40 MB1 SWC

Analyte	Mean Corrected Intensity	Conc. Units	Calib.	Std.Dev.	Conc. Units	Sample Std.Dev.	RSD
ScA 357.253	2673523.7	101.0 %		0.24			0.24%
ScR 361.383	213796.1	101.0 %		0.51			0.51%
Ag 328.068†	18.6	0.00006 mg/L		0.000044	0.00013 mg/L	0.000089	70.92%
Al 308.215†	14.2	0.00943 mg/L		0.012522	0.01887 mg/L	0.025044	132.73%
As 188.979†	2.6	0.00111 mg/L		0.002511	0.00222 mg/L	0.005021	225.88%
B 249.677†	2.5	0.00117 mg/L		0.001627	0.00235 mg/L	0.003255	138.77%
Ba 233.527†	2.3	0.00023 mg/L		0.000295	0.00045 mg/L	0.000589	129.80%
Be 313.042†	2.6	0.00001 mg/L		0.000045	0.00002 mg/L	0.000090	508.04%
Ca 317.933†	143.1	0.01352 mg/L		0.001231	0.02703 mg/L	0.002462	9.11%
Cd 228.802†	6.3	0.00007 mg/L		0.000029	0.00015 mg/L	0.000058	39.34%
Co 228.616†	-0.8	-0.00001 mg/L		0.000099	-0.00002 mg/L	0.000197	859.58%
Cr 267.716†	3.2	0.00069 mg/L		0.000682	0.00138 mg/L	0.001363	98.90%
Cu 324.752†	1507.2	0.00481 mg/L		0.000060	0.00963 mg/L	0.000120	1.25%
Fe 273.955†	13.7	0.01118 mg/L		0.003154	0.02236 mg/L	0.006308	28.21%
K 766.490†	76.9	0.02133 mg/L		0.003425	0.04267 mg/L	0.006850	16.05%
Mg 279.077†	1.0	0.00081 mg/L		0.006400	0.00162 mg/L	0.012801	790.48%
Mn 257.610†	23.5	0.00058 mg/L		0.000164	0.00116 mg/L	0.000328	28.25%
Mo 202.031†	-2.2	-0.00012 mg/L		0.000066	-0.00023 mg/L	0.000133	56.71%
Na 589.592†	94.3	0.01160 mg/L		0.007923	0.02319 mg/L	0.015846	68.32%
Na 330.237†	-8.0	-0.2952 mg/L		0.44613	-0.5904 mg/L	0.89227	151.12%
Ni 231.604†	-0.1	-0.00006 mg/L		0.000440	-0.00011 mg/L	0.000879	787.70%
Pb 220.353†	15.2	0.00118 mg/L		0.000342	0.00236 mg/L	0.000684	29.03%
Sb 206.836†	2.5	0.00067 mg/L		0.000509	0.00134 mg/L	0.001018	75.86%
Se 196.026†	6.1	0.00316 mg/L		0.000767	0.00631 mg/L	0.001533	24.28%
Si 288.158†	17.5	0.01291 mg/L		0.003762	0.02582 mg/L	0.007525	29.14%
Sn 189.927†	-3.5	-0.00053 mg/L		0.000368	-0.00106 mg/L	0.000737	69.57%
Sr 421.552†	94.4	0.00016 mg/L		0.000027	0.00033 mg/L	0.000053	16.40%
Ti 334.903†	34.0	0.00132 mg/L		0.000560	0.00264 mg/L	0.001119	42.35%
Tl 190.801†	-9.8	-0.00268 mg/L		0.000797	-0.00536 mg/L	0.001594	29.71%
V 292.402†	59.7	0.00029 mg/L		0.000128	0.00059 mg/L	0.000257	43.57%
Zn 206.200†	23.5	0.00963 mg/L		0.000490	0.01927 mg/L	0.000981	5.09%

Sequence No.: 26
Sample ID: VP41 A SWC
Analyst: EL
Dilution: 2X

Del

Autosampler Location: 45
Date Collected: 11/1/2012 3:33:39 PM
Data Type: Original

Nebulizer Parameters: VP41 A SWC

Analyte Back Pressure Flow
All 233.0 kPa 0.55 L/min

Mean Data: VP41 A SWC

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2616861.3	98.82	%	0.368			0.37%
ScR 361.383	215629.0	101.8	%	0.94			0.92%
Ag 328.068†	-1255.1	-0.00043	mg/L	0.000095	-0.00086 mg/L	0.000191	22.09%
Al 308.215†	161726.6	107.5	mg/L	0.16	215.1 mg/L	0.32	0.15%
As 188.979†	529.0	0.2376	mg/L	0.00091	0.4751 mg/L	0.00181	0.38%
B 249.677†	56.0	0.02558	mg/L	0.004553	0.05116 mg/L	0.009107	17.80%
Ba 233.527†	3771.6	0.3591	mg/L	0.00288	0.7182 mg/L	0.00575	0.80%
Be 313.042†	590.2	0.00114	mg/L	0.000053	0.00228 mg/L	0.000107	4.68%
Ca 317.933†	1429603.0	135.1	mg/L	0.29	270.1 mg/L	0.58	0.21%
Cd 228.802†	178.2	0.00163	mg/L	0.000052	0.00327 mg/L	0.000105	3.21%
Co 228.616†	7058.5	0.06885	mg/L	0.000428	0.1377 mg/L	0.00086	0.62%
Cr 267.716†	620.2	0.1346	mg/L	0.00056	0.2692 mg/L	0.00113	0.42%
Cu 324.752†	115204.4	0.3797	mg/L	0.00083	0.7594 mg/L	0.00166	0.22%
Fe 273.955†	204107.4	166.5	mg/L	0.47	333.0 mg/L	0.95	0.28%
K 766.490†	28170.8	7.819	mg/L	0.0429	15.64 mg/L	0.086	0.55%
Mg 279.077†	65333.1	56.00	mg/L	0.100	112.0 mg/L	0.20	0.18%
Mn 257.610†	113741.4	2.810	mg/L	0.0028	5.620 mg/L	0.0056	0.10%
Mo 202.031†	433.7	0.02496	mg/L	0.000152	0.04991 mg/L	0.000305	0.61%
Na 589.592†	31384.1	3.859	mg/L	0.0138	7.717 mg/L	0.0275	0.36%
Na 330.237†	94.0	4.088	mg/L	0.1395	8.175 mg/L	0.2791	3.41%
Ni 231.604†	410.6	0.1859	mg/L	0.00234	0.3717 mg/L	0.00469	1.26%
Pb 220.353†	1596.9	0.1566	mg/L	0.00020	0.3132 mg/L	0.00041	0.13%
Sb 206.836†	213.6	0.05074	mg/L	0.002067	0.1015 mg/L	0.00413	4.07%
Se 196.026†	-75.9	-0.03998	mg/L	0.007237	-0.07996 mg/L	0.014473	18.10%
Si 288.158†	3937.0	2.918	mg/L	0.0250	5.836 mg/L	0.0501	0.86%
Sn 189.927†	-9.9	0.03127	mg/L	0.000638	0.06253 mg/L	0.001277	2.04%
Sr 421.552†	210392.9	0.3637	mg/L	0.00113	0.7274 mg/L	0.00225	0.31%
Ti 334.903†	187800.1	7.300	mg/L	0.0049	14.60 mg/L	0.010	0.07%
Tl 190.801†	23.9	-0.00596	mg/L	0.002253	-0.01192 mg/L	0.004506	37.80%
V 292.402†	75504.8	0.3496	mg/L	0.00075	0.6992 mg/L	0.00149	0.21%
Zn 206.200†	1214.9	0.5018	mg/L	0.00219	1.004 mg/L	0.0044	0.44%

Sequence No.: 27

Autosampler Location: 46

Sample ID: VP41 B SWC

Date Collected: 11/1/2012 3:39:29 PM

Analyst: EL

Data Type: Original

Dilution: 2X *EL*

Nebulizer Parameters: VP41 B SWC

Analyte	Back Pressure	Flow
All	233.0 kPa	0.55 L/min

Mean Data: VP41 B SWC

Analyte	Mean Corrected Intensity	Conc. Units	Calib.	Std.Dev.	Conc. Units	Sample	Std.Dev.	RSD
ScA 357.253	2461674.4	92.96 %		0.443				0.48%
ScR 361.383	203648.1	96.17 %		0.972				1.01%
Ag 328.068†	-19471.8	-0.00698 mg/L		0.002458	-0.01396 mg/L	0.004915		35.22%
Al 308.215†	110517.0	73.49 mg/L		0.128	147.0 mg/L	0.26		0.17%
As 188.979†	969.4	0.4127 mg/L		0.00740	0.8254 mg/L	0.01480		1.79%
B 249.677†	702.1	0.3229 mg/L		0.01440	0.6457 mg/L	0.02880		4.46%
Ba 233.527†	4652.3	0.3621 mg/L		0.00681	0.7241 mg/L	0.01362		1.88%
Be 313.042†	367.8	0.00035 mg/L		0.000068	0.00071 mg/L	0.000136		19.24%
Ca 317.933†	2512008.0	237.3 mg/L		0.15	474.6 mg/L	0.30		0.06%
Cd 228.802†	972.1	0.01099 mg/L		0.000231	0.02198 mg/L	0.000462		2.10%
Co 228.616†	18702.0	0.1931 mg/L		0.00289	0.3861 mg/L	0.00578		1.50%
Cr 267.716†	4855.3	1.056 mg/L		0.0129	2.113 mg/L	0.0259		1.23%
Cu 324.752†	1031611.6	3.457 mg/L		0.0065	6.914 mg/L	0.0129		0.19%
Fe 273.955†	2390948.9	1950 mg/L		2.1	3901 mg/L	4.3		0.11%
K 766.490†	14803.2	4.109 mg/L		0.0276	8.217 mg/L	0.0552		0.67%
Mg 279.077†	148847.5	126.7 mg/L		0.04	253.4 mg/L	0.07		0.03%
Mn 257.610†	747759.1	18.48 mg/L		0.016	36.96 mg/L	0.033		0.09%
Mo 202.031†	3412.4	0.1842 mg/L		0.00209	0.3684 mg/L	0.00419		1.14%
Na 589.592†	183028.9	22.50 mg/L		0.072	45.01 mg/L	0.145		0.32%
Na 330.237†	585.6	20.20 mg/L		0.639	40.40 mg/L	1.277		3.16%
Ni 231.604†	2884.0	1.305 mg/L		0.0110	2.611 mg/L	0.0219		0.84%
Pb 220.353†	132916.3	10.22 mg/L		0.046	20.44 mg/L	0.092		0.45%
Sb 206.836†	926.3	0.05860 mg/L		0.010510	0.1172 mg/L	0.02102		17.94%
Se 196.026†	-528.9	-0.2785 mg/L		0.00987	-0.5571 mg/L	0.01974		3.54%
Si 288.158†	4684.8	3.481 mg/L		0.0609	6.961 mg/L	0.1218		1.75%
Sn 189.927†	1779.3	0.3261 mg/L		0.00121	0.6523 mg/L	0.00242		0.37%
Sr 421.552†	643054.0	1.112 mg/L		0.0020	2.223 mg/L	0.0040		0.18%
Ti 334.903†	87539.0	3.394 mg/L		0.0047	6.788 mg/L	0.0094		0.14%
Tl 190.801†	-454.0	-0.1532 mg/L		0.00397	-0.3065 mg/L	0.00794		2.59%
V 292.402†	76828.6	0.1994 mg/L		0.00301	0.3988 mg/L	0.00601		1.51%
Zn 206.200†	4914.3	2.023 mg/L		0.0302	4.047 mg/L	0.0603		1.49%

Sequence No.: 28

Autosampler Location: 47

Sample ID: VP41 C SWC

Date Collected: 11/1/2012 3:43:56 PM

Analyst: EL

Data Type: Original

Dilution: 2X

Nebulizer Parameters: VP41 C SWC

Analyte	Back Pressure	Flow
All	233.0 kPa	0.55 L/min

Mean Data: VP41 C SWC

Analyte	Mean Corrected Intensity	Conc. Units	Calib.	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2618281.4	98.87	%	0.451			0.46%
ScR 361.383	208394.8	98.42	%	1.076			1.09%
Ag 328.068†	-6937.2	-0.00048	mg/L	0.000208	-0.00096 mg/L	0.000416	43.34%
Al 308.215†	44270.5	29.44	mg/L	0.102	58.89 mg/L	0.205	0.35%
As 188.979†	226.4	0.09486	mg/L	0.004379	0.1897 mg/L	0.00876	4.62%
B 249.677†	152.3	0.06999	mg/L	0.002217	0.1400 mg/L	0.00443	3.17%
Ba 233.527†	908.0	0.05364	mg/L	0.000711	0.1073 mg/L	0.00142	1.33%
Be 313.042†	118.9	0.00020	mg/L	0.000012	0.00040 mg/L	0.000023	5.87%
Ca 317.933†	642912.0	60.73	mg/L	0.088	121.5 mg/L	0.18	0.14%
Cd 228.802†	970.5	0.01147	mg/L	0.000187	0.02293 mg/L	0.000373	1.63%
Co 228.616†	6033.2	0.06267	mg/L	0.000467	0.1253 mg/L	0.00093	0.74%
Cr 267.716†	1171.0	0.2544	mg/L	0.00344	0.5087 mg/L	0.00689	1.35%
Cu 324.752†	540015.7	1.787	mg/L	0.0016	3.574 mg/L	0.0033	0.09%
Fe 273.955†	917135.7	748.2	mg/L	5.02	1496 mg/L	10.0	0.67%
K 766.490†	5779.9	1.604	mg/L	0.0243	3.208 mg/L	0.0486	1.51%
Mg 279.077†	25982.1	21.88	mg/L	0.217	43.76 mg/L	0.434	0.99%
Mn 257.610†	260967.3	6.448	mg/L	0.0215	12.90 mg/L	0.043	0.33%
Mo 202.031†	1193.0	0.06477	mg/L	0.001019	0.1295 mg/L	0.00204	1.57%
Na 589.592†	86518.3	10.64	mg/L	0.062	21.27 mg/L	0.124	0.58%
Na 330.237†	288.9	9.759	mg/L	0.1713	19.52 mg/L	0.343	1.76%
Ni 231.604†	736.7	0.3335	mg/L	0.00368	0.6669 mg/L	0.00736	1.10%
Pb 220.353†	4993.7	0.3607	mg/L	0.00172	0.7215 mg/L	0.00344	0.48%
Sb 206.836†	249.0	-0.00557	mg/L	0.002502	-0.01113 mg/L	0.005004	44.96%
Se 196.026†	-196.1	-0.1029	mg/L	0.00528	-0.2058 mg/L	0.01056	5.13%
Si 288.158†	4550.8	3.368	mg/L	0.0325	6.736 mg/L	0.0649	0.96%
Sn 189.927†	537.9	0.09552	mg/L	0.000676	0.1910 mg/L	0.00135	0.71%
Sr 421.552†	369507.7	0.6387	mg/L	0.00559	1.277 mg/L	0.0112	0.88%
Ti 334.903†	2848.7	0.1077	mg/L	0.00079	0.2155 mg/L	0.00157	0.73%
Tl 190.801†	-149.5	-0.04980	mg/L	0.002203	-0.09959 mg/L	0.004406	4.42%
V 292.402†	19509.1	0.02748	mg/L	0.000496	0.05495 mg/L	0.000991	1.80%
Zn 206.200†	3369.5	1.385	mg/L	0.0167	2.770 mg/L	0.0335	1.21%

Sequence No.: 29

Autosampler Location: 48

Sample ID: VP41 D SWC

Date Collected: 11/1/2012 3:49:48 PM

Analyst: EL

Data Type: Original

Dilution: 2X

Nebulizer Parameters: VP41 D SWC

Analyte Back Pressure Flow
All 233.0 kPa 0.55 L/min

Mean Data: VP41 D SWC

Table with 8 columns: Analyte, Mean Corrected Intensity, Conc. Units, Calib. Std.Dev., Sample Conc. Units, Std.Dev., RSD. Lists various elements like ScA, ScR, Ag, Al, As, B, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, K, Mg, Mn, Mo, Na, Ni, Pb, Sb, Se, Si, Sn, Sr, Ti, Tl, V, Zn with their respective values.

Sequence No.: 30

Autosampler Location: 49

Sample ID: VP41 E SWC

Date Collected: 11/1/2012 3:55:39 PM

Analyst: EL

Data Type: Original

Dilution: 2X

Nebulizer Parameters: VP41 E SWC

Analyte	Back Pressure	Flow
All	233.0 kPa	0.55 L/min

Mean Data: VP41 E SWC

Analyte	Mean Corrected Intensity	Conc. Units	Calib.	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2671460.5	100.9 %		0.76			0.75%
ScR 361.383	219481.5	103.7 %		1.67			1.61%
Ag 328.068†	-7280.6	0.00007 mg/L		0.000708	0.00015 mg/L	0.001416	974.30%
Al 308.215†	43935.8	29.22 mg/L		0.396	58.43 mg/L	0.792	1.36%
As 188.979†	393.4	0.1678 mg/L		0.00129	0.3356 mg/L	0.00258	0.77%
B 249.677†	43.0	0.01937 mg/L		0.003254	0.03874 mg/L	0.006509	16.80%
Ba 233.527†	1293.2	0.08977 mg/L		0.000679	0.1795 mg/L	0.00136	0.76%
Be 313.042†	194.5	0.00025 mg/L		0.000058	0.00051 mg/L	0.000116	22.80%
Ca 317.933†	203350.2	19.21 mg/L		0.255	38.42 mg/L	0.510	1.33%
Cd 228.802†	707.7	0.00829 mg/L		0.000220	0.01658 mg/L	0.000440	2.65%
Co 228.616†	10637.7	0.1144 mg/L		0.00180	0.2289 mg/L	0.00361	1.58%
Cr 267.716†	2039.8	0.4444 mg/L		0.00597	0.8888 mg/L	0.01193	1.34%
Cu 324.752†	858212.8	2.805 mg/L		0.0033	5.611 mg/L	0.0065	0.12%
Fe 273.955†	950250.6	775.2 mg/L		11.85	1550 mg/L	23.7	1.53%
K 766.490†	9065.9	2.516 mg/L		0.0435	5.032 mg/L	0.0870	1.73%
Mg 279.077†	26180.5	22.04 mg/L		0.318	44.07 mg/L	0.637	1.45%
Mn 257.610†	203581.8	5.030 mg/L		0.0657	10.06 mg/L	0.131	1.31%
Mo 202.031†	1364.3	0.07399 mg/L		0.001352	0.1480 mg/L	0.00270	1.83%
Na 589.592†	81254.8	9.990 mg/L		0.1458	19.98 mg/L	0.292	1.46%
Na 330.237†	262.9	8.975 mg/L		0.0604	17.95 mg/L	0.121	0.67%
Ni 231.604†	1870.1	0.8464 mg/L		0.00971	1.693 mg/L	0.0194	1.15%
Pb 220.353†	11896.4	0.8917 mg/L		0.01127	1.783 mg/L	0.0225	1.26%
Sb 206.836†	502.5	0.06722 mg/L		0.003482	0.1344 mg/L	0.00696	5.18%
Se 196.026†	-202.2	-0.1074 mg/L		0.00524	-0.2147 mg/L	0.01048	4.88%
Si 288.158†	4771.0	3.531 mg/L		0.0464	7.062 mg/L	0.0928	1.31%
Sn 189.927†	4749.4	0.7294 mg/L		0.00884	1.459 mg/L	0.0177	1.21%
Sr 421.552†	97133.3	0.1679 mg/L		0.00258	0.3358 mg/L	0.00516	1.54%
Ti 334.903†	39028.4	1.517 mg/L		0.0202	3.035 mg/L	0.0404	1.33%
Tl 190.801†	-158.0	-0.05245 mg/L		0.001683	-0.1049 mg/L	0.00337	3.21%
V 292.402†	35709.3	0.1043 mg/L		0.00127	0.2086 mg/L	0.00254	1.22%
Zn 206.200†	5279.5	2.168 mg/L		0.0287	4.337 mg/L	0.0574	1.32%

Sequence No.: 31

Autosampler Location: 50

Sample ID: VP40 B SWC

Date Collected: 11/1/2012 4:01:34 PM

Analyst: EL

Data Type: Original

Dilution: 2X

Nebulizer Parameters: VP40 B SWC

Analyte	Back Pressure	Flow
All	233.0 kPa	0.55 L/min

Mean Data: VP40 B SWC

Analyte	Mean Corrected Intensity	Conc. Units	Calib.	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2695509.7	101.8	%	0.73			0.71%
ScR 361.383	219257.6	103.5	%	1.87			1.81%
Ag 328.068†	-1696.8	0.00011	mg/L	0.000135	0.00021 mg/L	0.000270	126.45%
Al 308.215†	122316.2	81.34	mg/L	0.699	162.7 mg/L	1.40	0.86%
As 188.979†	92.2	0.04752	mg/L	0.001493	0.09504 mg/L	0.002986	3.14%
B 249.677†	104.8	0.04802	mg/L	0.002398	0.09603 mg/L	0.004796	4.99%
Ba 233.527†	2409.9	0.2254	mg/L	0.00533	0.4508 mg/L	0.01067	2.37%
Be 313.042†	562.0	0.00123	mg/L	0.000059	0.00246 mg/L	0.000119	4.83%
Ca 317.933†	413650.5	39.08	mg/L	0.253	78.15 mg/L	0.506	0.65%
Cd 228.802†	157.8	0.00183	mg/L	0.000045	0.00365 mg/L	0.000090	2.46%
Co 228.616†	5252.6	0.05250	mg/L	0.000658	0.1050 mg/L	0.00132	1.25%
Cr 267.716†	1350.0	0.2943	mg/L	0.00785	0.5887 mg/L	0.01571	2.67%
Cu 324.752†	78482.6	0.2655	mg/L	0.00118	0.5310 mg/L	0.00235	0.44%
Fe 273.955†	235923.5	192.5	mg/L	1.26	384.9 mg/L	2.52	0.65%
K 766.490†	20274.5	5.627	mg/L	0.0652	11.25 mg/L	0.130	1.16%
Mg 279.077†	49118.5	42.06	mg/L	0.271	84.12 mg/L	0.542	0.64%
Mn 257.610†	72715.8	1.796	mg/L	0.0134	3.593 mg/L	0.0269	0.75%
Mo 202.031†	248.5	0.01456	mg/L	0.000331	0.02911 mg/L	0.000663	2.28%
Na 589.592†	140388.6	17.26	mg/L	0.195	34.52 mg/L	0.390	1.13%
Na 330.237†	455.0	17.11	mg/L	0.126	34.23 mg/L	0.252	0.74%
Ni 231.604†	403.6	0.1827	mg/L	0.00636	0.3653 mg/L	0.01271	3.48%
Pb 220.353†	2059.9	0.1800	mg/L	0.00149	0.3599 mg/L	0.00298	0.83%
Sb 206.836†	90.5	0.00761	mg/L	0.001276	0.01522 mg/L	0.002553	16.77%
Se 196.026†	-62.6	-0.03307	mg/L	0.001640	-0.06613 mg/L	0.003281	4.96%
Si 288.158†	4901.8	3.630	mg/L	0.0768	7.259 mg/L	0.1536	2.12%
Sn 189.927†	36.4	0.01645	mg/L	0.000863	0.03290 mg/L	0.001726	5.25%
Sr 421.552†	125765.7	0.2174	mg/L	0.00177	0.4348 mg/L	0.00355	0.82%
Ti 334.903†	109826.4	4.271	mg/L	0.0338	8.542 mg/L	0.0675	0.79%
Tl 190.801†	-13.0	-0.01165	mg/L	0.000322	-0.02330 mg/L	0.000644	2.76%
V 292.402†	63975.2	0.2941	mg/L	0.00096	0.5882 mg/L	0.00191	0.32%
Zn 206.200†	942.2	0.3876	mg/L	0.00934	0.7752 mg/L	0.01868	2.41%

Sequence No.: 32

Sample ID: VP40 C SWC

Analyst: EL

Dilution: 2X

Autosampler Location: 51

Date Collected: 11/1/2012 4:07:24 PM

Data Type: Original

Nebulizer Parameters: VP40 C SWC

Analyte	Back Pressure	Flow
All	233.0 kPa	0.55 L/min

Mean Data: VP40 C SWC

Analyte	Mean Corrected Intensity	Conc. Units	Calib.	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2685212.2	101.4 %		0.35			0.35%
ScR 361.383	216164.4	102.1 %		0.08			0.08%
Ag 328.068†	-1973.4	0.00157 mg/L		0.000101	0.00313 mg/L	0.000202	6.43%
Al 308.215†	95162.5	63.28 mg/L		0.075	126.6 mg/L	0.15	0.12%
As 188.979†	127.6	0.06285 mg/L		0.000742	0.1257 mg/L	0.00148	1.18%
B 249.677†	117.8	0.05409 mg/L		0.003404	0.1082 mg/L	0.00681	6.29%
Ba 233.527†	13012.3	1.253 mg/L		0.0028	2.507 mg/L	0.0055	0.22%
Be 313.042†	340.7	0.00062 mg/L		0.000045	0.00124 mg/L	0.000090	7.23%
Ca 317.933†	639106.7	60.37 mg/L		0.034	120.7 mg/L	0.07	0.06%
Cd 228.802†	8346.7	0.09976 mg/L		0.000563	0.1995 mg/L	0.00113	0.56%
Co 228.616†	3948.0	0.03548 mg/L		0.000324	0.07096 mg/L	0.000648	0.91%
Cr 267.716†	832.0	0.1811 mg/L		0.00022	0.3623 mg/L	0.00045	0.12%
Cu 324.752†	74815.3	0.2605 mg/L		0.00019	0.5210 mg/L	0.00037	0.07%
Fe 273.955†	334887.8	273.2 mg/L		0.66	546.4 mg/L	1.32	0.24%
K 766.490†	18079.7	5.018 mg/L		0.0171	10.04 mg/L	0.034	0.34%
Mg 279.077†	53777.8	46.02 mg/L		0.050	92.03 mg/L	0.101	0.11%
Mn 257.610†	76541.7	1.892 mg/L		0.0020	3.784 mg/L	0.0041	0.11%
Mo 202.031†	169.3	0.00987 mg/L		0.000165	0.01974 mg/L	0.000330	1.67%
Na 589.592†	57588.8	7.080 mg/L		0.0126	14.16 mg/L	0.025	0.18%
Na 330.237†	562.7	4.150 mg/L		0.6053	8.300 mg/L	1.2106	14.59%
Ni 231.604†	325.3	0.1472 mg/L		0.00241	0.2945 mg/L	0.00482	1.64%
Pb 220.353†	51699.6	4.011 mg/L		0.0043	8.021 mg/L	0.0086	0.11%
Sb 206.836†	94.5	0.01201 mg/L		0.001134	0.02403 mg/L	0.002267	9.43%
Se 196.026†	-96.8	-0.05078 mg/L		0.004467	-0.1016 mg/L	0.00893	8.80%
Si 288.158†	4529.8	3.355 mg/L		0.0148	6.711 mg/L	0.0296	0.44%
Sn 189.927†	5040.3	0.7841 mg/L		0.00453	1.568 mg/L	0.0091	0.58%
Sr 421.552†	245049.1	0.4236 mg/L		0.00254	0.8472 mg/L	0.00509	0.60%
Ti 334.903†	113745.9	4.423 mg/L		0.0055	8.845 mg/L	0.0110	0.12%
Tl 190.801†	-18.2	-0.01280 mg/L		0.001566	-0.02560 mg/L	0.003131	12.23%
V 292.402†	46465.3	0.1997 mg/L		0.00029	0.3993 mg/L	0.00058	0.15%
Zn 206.200†	108725.1	44.66 mg/L		0.065	89.31 mg/L	0.129	0.14%

Sequence No.: 33

Sample ID: VQ16 MB2SPK DMN

Analyst: EL

Dilution: 1X

Autosampler Location: 52

Date Collected: 11/1/2012 4:13:13 PM

Data Type: Original

Nebulizer Parameters: VQ16 MB2SPK DMN

Analyte	Back Pressure	Flow
All	233.0 kPa	0.55 L/min

Mean Data: VQ16 MB2SPK DMN

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2795176.3	105.5	%	0.44				0.42%
ScR 361.383	220436.4	104.1	%	0.75				0.72%
Ag 328.068†	157306.9	0.5278	mg/L	0.00261	0.5278	mg/L	0.00261	0.49%
Al 308.215†	3351.3	2.221	mg/L	0.0136	2.221	mg/L	0.0136	0.61%
As 188.979†	5385.1	2.260	mg/L	0.0122	2.260	mg/L	0.0122	0.54%
B 249.677†	-0.1	-0.00186	mg/L	0.000958	-0.00186	mg/L	0.000958	51.44%
Ba 233.527†	22282.6	2.168	mg/L	0.0056	2.168	mg/L	0.0056	0.26%
Be 313.042†	154019.3	0.5770	mg/L	0.00223	0.5770	mg/L	0.00223	0.39%
Ca 317.933†	120432.4	11.38	mg/L	0.050	11.38	mg/L	0.050	0.44%
Cd 228.802†	48026.7	0.5694	mg/L	0.00458	0.5694	mg/L	0.00458	0.80%
Co 228.616†	45854.2	0.5430	mg/L	0.00386	0.5430	mg/L	0.00386	0.71%
Cr 267.716†	2604.3	0.5688	mg/L	0.00265	0.5688	mg/L	0.00265	0.47%
Cu 324.752†	166170.3	0.5311	mg/L	0.00369	0.5311	mg/L	0.00369	0.70%
Fe 273.955†	2873.3	2.343	mg/L	0.0020	2.343	mg/L	0.0020	0.08%
K 766.490†	41684.7	11.57	mg/L	0.027	11.57	mg/L	0.027	0.24%
Mg 279.077†	13505.7	11.60	mg/L	0.013	11.60	mg/L	0.013	0.11%
Mn 257.610†	21912.5	0.5420	mg/L	0.00148	0.5420	mg/L	0.00148	0.27%
Mo 202.031†	13.1	0.00050	mg/L	0.000335	0.00050	mg/L	0.000335	66.63%
Na 589.592†	92591.4	11.38	mg/L	0.057	11.38	mg/L	0.057	0.50%
Na 330.237†	310.9	11.06	mg/L	0.256	11.06	mg/L	0.256	2.31%
Ni 231.604†	1256.9	0.5680	mg/L	0.00276	0.5680	mg/L	0.00276	0.49%
Pb 220.353†	29946.5	2.318	mg/L	0.0190	2.318	mg/L	0.0190	0.82%
Sb 206.836†	16.9	-0.00398	mg/L	0.000801	-0.00398	mg/L	0.000801	20.15%
Se 196.026†	4627.0	2.407	mg/L	0.0068	2.407	mg/L	0.0068	0.28%
Si 288.158†	2.3	0.00564	mg/L	0.004394	0.00564	mg/L	0.004394	77.88%
Sn 189.927†	-15.7	0.00031	mg/L	0.000261	0.00031	mg/L	0.000261	83.76%
Sr 421.552†	331542.4	0.5731	mg/L	0.00117	0.5731	mg/L	0.00117	0.20%
Ti 334.903†	37.6	0.00077	mg/L	0.000165	0.00077	mg/L	0.000165	21.38%
Tl 190.801†	8453.3	2.303	mg/L	0.0101	2.303	mg/L	0.0101	0.44%
V 292.402†	112096.1	0.5534	mg/L	0.00393	0.5534	mg/L	0.00393	0.71%
Zn 206.200†	1436.8	0.5901	mg/L	0.00037	0.5901	mg/L	0.00037	0.06%

Sequence No.: 34
 Sample ID: VQ25 MBSPK WMN
 Analyst: EL
 Dilution: 1X

Autosampler Location: 53
 Date Collected: 11/1/2012 4:19:16 PM
 Data Type: Original

Nebulizer Parameters: VQ25 MBSPK WMN
 Analyte Back Pressure Flow
 All 233.0 kPa 0.55 L/min

Mean Data: VQ25 MBSPK WMN

Analyte	Mean Corrected Intensity	Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2793957.6	105.5 %	0.37			0.35%
ScR 361.383	223763.9	105.7 %	0.69			0.65%
Ag 328.068†	162560.5	0.5454 mg/L	0.00358	0.5454 mg/L	0.00358	0.66%
Al 308.215†	3392.9	2.248 mg/L	0.0237	2.248 mg/L	0.0237	1.05%
As 188.979†	5537.2	2.324 mg/L	0.0085	2.324 mg/L	0.0085	0.36%
B 249.677†	-4.1	-0.00376 mg/L	0.002424	-0.00376 mg/L	0.002424	64.42%
Ba 233.527†	22775.6	2.216 mg/L	0.0205	2.216 mg/L	0.0205	0.92%
Be 313.042†	157967.1	0.5918 mg/L	0.00243	0.5918 mg/L	0.00243	0.41%
Ca 317.933†	123291.6	11.65 mg/L	0.051	11.65 mg/L	0.051	0.44%
Cd 228.802†	49754.0	0.5899 mg/L	0.00519	0.5899 mg/L	0.00519	0.88%
Co 228.616†	47554.5	0.5631 mg/L	0.00496	0.5631 mg/L	0.00496	0.88%
Cr 267.716†	2656.6	0.5802 mg/L	0.00589	0.5802 mg/L	0.00589	1.01%
Cu 324.752†	171945.1	0.5496 mg/L	0.00412	0.5496 mg/L	0.00412	0.75%
Fe 273.955†	2923.8	2.385 mg/L	0.0154	2.385 mg/L	0.0154	0.64%
K 766.490†	42319.4	11.75 mg/L	0.005	11.75 mg/L	0.005	0.04%
Mg 279.077†	13823.9	11.87 mg/L	0.107	11.87 mg/L	0.107	0.90%
Mn 257.610†	22402.8	0.5541 mg/L	0.00482	0.5541 mg/L	0.00482	0.87%
Mo 202.031†	11.3	0.00040 mg/L	0.000151	0.00040 mg/L	0.000151	37.90%
Na 589.592†	93827.2	11.54 mg/L	0.016	11.54 mg/L	0.016	0.14%
Na 330.237†	314.3	11.18 mg/L	0.323	11.18 mg/L	0.323	2.89%
Ni 231.604†	1284.1	0.5803 mg/L	0.00694	0.5803 mg/L	0.00694	1.20%
Pb 220.353†	31008.3	2.401 mg/L	0.0213	2.401 mg/L	0.0213	0.89%
Sb 206.836†	15.4	-0.00451 mg/L	0.001405	-0.00451 mg/L	0.001405	31.18%
Se 196.026†	4756.6	2.474 mg/L	0.0085	2.474 mg/L	0.0085	0.34%
Si 288.158†	-0.2	0.00384 mg/L	0.004367	0.00384 mg/L	0.004367	113.80%
Sn 189.927†	-16.1	0.00032 mg/L	0.000475	0.00032 mg/L	0.000475	150.82%
Sr 421.552†	339592.3	0.5870 mg/L	0.00031	0.5870 mg/L	0.00031	0.05%
Ti 334.903†	28.7	0.00041 mg/L	0.000332	0.00041 mg/L	0.000332	81.56%
Tl 190.801†	8707.9	2.373 mg/L	0.0046	2.373 mg/L	0.0046	0.20%
V 292.402†	116010.2	0.5727 mg/L	0.00497	0.5727 mg/L	0.00497	0.87%
Zn 206.200†	1462.2	0.6006 mg/L	0.00509	0.6006 mg/L	0.00509	0.85%

=====
Analysis Begun

Start Time: 11/1/2012 4:24:13 PM

Plasma On Time: 11/1/2012 9:01:02 AM

Logged In Analyst: metals

Technique: ICP Continuous

Spectrometer Model: Optima 4300 DV, S/N 077N0060101Autosampler Model: S10

Sample Information File: C:\pe\metals\Sample Information\1101.sif

Batch ID:

Results Data Set: PE121101

Results Library: C:\pe\metals\Results\Results.mdb
=====

Sequence No.: 1

Autosampler Location: 7

Sample ID: CV4

Date Collected: 11/1/2012 4:24:16 PM

Analyst: EL

Data Type: Original

Dilution: 1X

Nebulizer Parameters: CV

Analyte	Back Pressure	Flow
All	233.0 kPa	0.55 L/min

Mean Data: CV

Analyte	Mean Corrected Intensity	Conc. Units	Calib. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2696116.0	101.8	%	0.19			0.19%
ScR 361.383	215776.9	101.9	%	0.68			0.66%
Ag 328.068†	294934.7	0.9895	mg/L	0.00301	0.9895 mg/L	0.00301	0.30%
Al 308.215†	3079.6	2.007	mg/L	0.0047	2.007 mg/L	0.0047	0.23%
As 188.979†	4960.1	2.081	mg/L	0.0085	2.081 mg/L	0.0085	0.41%
B 249.677†	2141.7	0.9856	mg/L	0.00775	0.9856 mg/L	0.00775	0.79%
Ba 233.527†	10340.0	1.006	mg/L	0.0057	1.006 mg/L	0.0057	0.57%
Be 313.042†	273952.4	1.026	mg/L	0.0017	1.026 mg/L	0.0017	0.17%
Ca 317.933†	21850.7	2.064	mg/L	0.0117	2.064 mg/L	0.0117	0.57%
Cd 228.802†	84815.5	1.010	mg/L	0.0019	1.010 mg/L	0.0019	0.19%
Co 228.616†	83729.9	0.9910	mg/L	0.00159	0.9910 mg/L	0.00159	0.16%
Cr 267.716†	4617.7	1.008	mg/L	0.0051	1.008 mg/L	0.0051	0.51%
Cu 324.752†	328506.8	1.049	mg/L	0.0009	1.049 mg/L	0.0009	0.09%
Fe 273.955†	2660.9	2.170	mg/L	0.0129	2.170 mg/L	0.0129	0.60%
K 766.490†	74033.2	20.55	mg/L	0.056	20.55 mg/L	0.056	0.27%
Mg 279.077†	2476.8	2.130	mg/L	0.0139	2.130 mg/L	0.0139	0.65%
Mn 257.610†	40593.5	1.004	mg/L	0.0008	1.004 mg/L	0.0008	0.08%
Mo 202.031†	17682.3	0.9554	mg/L	0.00392	0.9554 mg/L	0.00392	0.41%
Na 589.592†	410712.4	50.50	mg/L	0.125	50.50 mg/L	0.125	0.25%
Na 330.237†	1386.0	50.28	mg/L	0.233	50.28 mg/L	0.233	0.46%
Ni 231.604†	2283.3	1.034	mg/L	0.0086	1.034 mg/L	0.0086	0.83%
Pb 220.353†	26879.8	2.081	mg/L	0.0094	2.081 mg/L	0.0094	0.45%
Sb 206.836†	7651.6	2.089	mg/L	0.0082	2.089 mg/L	0.0082	0.39%
Se 196.026†	3863.1	2.008	mg/L	0.0091	2.008 mg/L	0.0091	0.45%
Si 288.158†	2922.5	2.167	mg/L	0.0099	2.167 mg/L	0.0099	0.46%
Sn 189.927†	5983.6	0.9132	mg/L	0.00424	0.9132 mg/L	0.00424	0.46%
Sr 421.552†	606331.3	1.048	mg/L	0.0020	1.048 mg/L	0.0020	0.19%
Ti 334.903†	25672.7	0.9976	mg/L	0.00102	0.9976 mg/L	0.00102	0.10%
Tl 190.801†	7366.3	2.001	mg/L	0.0064	2.001 mg/L	0.0064	0.32%
V 292.402†	203480.9	1.008	mg/L	0.0037	1.008 mg/L	0.0037	0.37%
Zn 206.200†	2773.2	1.138	mg/L	0.0078	1.138 mg/L	0.0078	0.69%

Sequence No.: 2
 Sample ID: CB 4
 Analyst: EL
 Dilution: 1X

Autosampler Location: 1
 Date Collected: 11/1/2012 4:30:18 PM
 Data Type: Original

Nebulizer Parameters: CB

Analyte	Back Pressure	Flow
All	233.0 kPa	0.55 L/min

Mean Data: CB

Analyte	Mean Corrected Intensity	Conc. Units	Calib.	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2745444.6	103.7 %		0.69			0.67%
ScR 361.383	211900.8	100.1 %		0.89			0.89%
Ag 328.068†	97.5	0.00033 mg/L		0.000015	0.00033 mg/L	0.000015	4.71%
Al 308.215†	3.3	0.00220 mg/L		0.003726	0.00220 mg/L	0.003726	169.01%
As 188.979†	0.5	0.00021 mg/L		0.000415	0.00021 mg/L	0.000415	201.09%
B 249.677†	-1.4	-0.00064 mg/L		0.000423	-0.00064 mg/L	0.000423	66.29%
Ba 233.527†	-0.7	-0.00007 mg/L		0.000326	-0.00007 mg/L	0.000326	492.92%
Be 313.042†	38.0	0.00014 mg/L		0.000028	0.00014 mg/L	0.000028	19.28%
Ca 317.933†	19.5	0.00184 mg/L		0.000740	0.00184 mg/L	0.000740	40.25%
Cd 228.802†	15.7	0.00019 mg/L		0.000097	0.00019 mg/L	0.000097	51.36%
Co 228.616†	10.2	0.00012 mg/L		0.000108	0.00012 mg/L	0.000108	89.52%
Cr 267.716†	1.6	0.00034 mg/L		0.001895	0.00034 mg/L	0.001895	552.01%
Cu 324.752†	317.4	0.00102 mg/L		0.000182	0.00102 mg/L	0.000182	17.93%
Fe 273.955†	22.8	0.01858 mg/L		0.001814	0.01858 mg/L	0.001814	9.77%
K 766.490†	299.8	0.08321 mg/L		0.011592	0.08321 mg/L	0.011592	13.93%
Mg 279.077†	-12.9	-0.01109 mg/L		0.001236	-0.01109 mg/L	0.001236	11.15%
Mn 257.610†	23.8	0.00059 mg/L		0.000049	0.00059 mg/L	0.000049	8.33%
Mo 202.031†	-8.2	-0.00044 mg/L		0.000260	-0.00044 mg/L	0.000260	58.54%
Na 589.592†	275.2	0.03383 mg/L		0.003847	0.03383 mg/L	0.003847	11.37%
Na 330.237†	7.4	0.2626 mg/L		0.51393	0.2626 mg/L	0.51393	195.72%
Ni 231.604†	3.5	0.00157 mg/L		0.002350	0.00157 mg/L	0.002350	149.41%
Pb 220.353†	22.5	0.00174 mg/L		0.000351	0.00174 mg/L	0.000351	20.15%
Sb 206.836†	0.2	0.00006 mg/L		0.000904	0.00006 mg/L	0.000904	>999.9%
Se 196.026†	-2.4	-0.00125 mg/L		0.004492	-0.00125 mg/L	0.004492	360.54%
Si 288.158†	6.1	0.00453 mg/L		0.003544	0.00453 mg/L	0.003544	78.20%
Sn 189.927†	2.8	0.00043 mg/L		0.000592	0.00043 mg/L	0.000592	138.91%
Sr 421.552†	124.0	0.00021 mg/L		0.000063	0.00021 mg/L	0.000063	29.26%
Tl 334.903†	3.5	0.00014 mg/L		0.000945	0.00014 mg/L	0.000945	685.73%
Tl 190.801†	4.6	0.00125 mg/L		0.000828	0.00125 mg/L	0.000828	66.23%
V 292.402†	13.3	0.00006 mg/L		0.000105	0.00006 mg/L	0.000105	164.78%
Zn 206.200†	39.7	0.01631 mg/L		0.001689	0.01631 mg/L	0.001689	10.36%

=====
Analysis Begun

Start Time: 11/1/2012 4:37:40 PM Plasma On Time: 11/1/2012 9:01:02 AM
Logged In Analyst: metals Technique: ICP Continuous
Spectrometer Model: Optima 4300 DV, S/N 077N0060101Autosampler Model: S10

Sample Information File: C:\pe\metals\Sample Information\1101.sif
Batch ID:
Results Data Set: PE121101
Results Library: C:\pe\metals\Results\Results.mdb

=====
Sequence No.: 1
Sample ID: Calib Blank 1 Date Collected: 11/1/2012 4:37:42 PM
Data Type: Original

Nebulizer Parameters: Calib Blank 1
Analyte Back Pressure Flow
All 233.0 kPa 0.55 L/min

Mean Data: Calib Blank 1

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Units
ScA 357.253	2743025.2	29392.22	1.07%	103.6	%
ScR 361.383	216784.2	2230.23	1.03%	102.4	%
Ag 328.068†	646.9	24.09	3.72%	[0.00]	mg/L
Al 308.215†	42.3	13.46	31.85%	[0.00]	mg/L
As 188.979†	3.2	1.64	51.33%	[0.00]	mg/L
B 249.677†	-126.9	8.24	6.49%	[0.00]	mg/L
Ba 233.527†	70.1	3.56	5.07%	[0.00]	mg/L
Be 313.042†	635.4	16.83	2.65%	[0.00]	mg/L
Ca 317.933†	-1.5	9.24	634.50%	[0.00]	mg/L
Cd 228.802†	311.3	8.41	2.70%	[0.00]	mg/L
Co 228.616†	319.0	9.02	2.83%	[0.00]	mg/L
Cr 267.716†	8.9	0.36	3.97%	[0.00]	mg/L
Cu 324.752†	1864.5	28.52	1.53%	[0.00]	mg/L
Fe 273.955†	-11.6	2.54	21.83%	[0.00]	mg/L
K 766.490†	2249.0	24.15	1.07%	[0.00]	mg/L
Mg 279.077†	-169.5	7.35	4.34%	[0.00]	mg/L
Mn 257.610†	-45.8	6.79	14.82%	[0.00]	mg/L
Mo 202.031†	-133.4	2.41	1.81%	[0.00]	mg/L
Na 589.592†	203.0	5.29	2.61%	[0.00]	mg/L
Na 330.237†	43.9	7.47	17.02%	[0.00]	mg/L
Ni 231.604†	30.7	3.00	9.78%	[0.00]	mg/L
Pb 220.353†	284.8	2.96	1.04%	[0.00]	mg/L
Sb 206.836†	123.5	3.01	2.44%	[0.00]	mg/L
Se 196.026†	-98.3	1.40	1.43%	[0.00]	mg/L
Si 288.158†	4.6	1.86	40.29%	[0.00]	mg/L
Sn 189.927†	-8.6	7.65	88.73%	[0.00]	mg/L
Sr 421.552†	736.2	33.60	4.56%	[0.00]	mg/L
Ti 334.903†	-44.9	6.40	14.25%	[0.00]	mg/L
Ti 190.801†	17.5	3.57	20.32%	[0.00]	mg/L
V 292.402†	-13.3	23.46	176.14%	[0.00]	mg/L
Zn 206.200†	-8.3	2.00	24.13%	[0.00]	mg/L

Sequence No.: 2
Sample ID: STD3

Date Collected: 11/1/2012 4:44:13 PM
Data Type: Original

Nebulizer Parameters: STD3

Analyte	Back Pressure	Flow
All	233.0 kPa	0.55 L/min

Mean Data: STD3

Analyte	Mean Corrected			Calib
	Intensity	Std.Dev.	RSD	Conc. Units
ScA 357.253	2706785.4	10235.05	0.38%	102.2 %
ScR 361.383	210301.8	1635.71	0.78%	99.32 %
Ag 328.068†	292246.5	537.41	0.18%	[1.0] mg/L
As 188.979†	23574.7	173.29	0.74%	[10] mg/L
B 249.677†	21810.3	69.78	0.32%	[10] mg/L
Be 313.042†	1379288.3	7495.92	0.54%	[5.0] mg/L
Na 589.592†	413710.4	554.80	0.13%	[50] mg/L
Ni 231.604†	22835.0	55.33	0.24%	[10] mg/L
Pb 220.353†	132246.6	216.73	0.16%	[10] mg/L
Se 196.026†	18880.0	80.49	0.43%	[10] mg/L
Sr 421.552†	3035653.2	42484.90	1.40%	[5] mg/L
Tl 190.801†	36287.7	201.09	0.55%	[10] mg/L
Zn 206.200†	25537.0	70.16	0.27%	[10] mg/L

=====
Analysis Begun

Start Time: 11/1/2012 4:52:12 PM

Plasma On Time: 11/1/2012 9:01:02 AM

Logged In Analyst: metals

Technique: ICP Continuous

Spectrometer Model: Optima 4300 DV, S/N 077N0060101Autosampler Model: S10

Sample Information File: C:\pe\metals\Sample Information\1101.sif

Batch ID:

Results Data Set: PE121101

Results Library: C:\pe\metals\Results\Results.mdb
=====

Sequence No.: 1

Autosampler Location: 7

Sample ID: CV 4

Date Collected: 11/1/2012 4:52:15 PM

Analyst: EL

Data Type: Original

Dilution: 1X

Nebulizer Parameters: CV

Analyte	Back Pressure	Flow
All	233.0 kPa	0.55 L/min

Mean Data: CV

Analyte	Mean Corrected Intensity	Calib. Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2661489.5	100.5 %	0.91			0.90%
ScR 361.383	212234.8	100.2 %	0.26			0.26%
Ag 328.068†	297879.8	1.019 mg/L	0.0038	1.019 mg/L	0.0038	0.38%
Al 308.215†	3081.5	2.008 mg/L	0.0032	2.008 mg/L	0.0032	0.16%
As 188.979†	4941.0	2.095 mg/L	0.0126	2.095 mg/L	0.0126	0.60%
B 249.677†	2190.8	1.003 mg/L	0.0043	1.003 mg/L	0.0043	0.43%
Ba 233.527†	10337.0	1.005 mg/L	0.0015	1.005 mg/L	0.0015	0.15%
Be 313.042†	275463.4	0.9959 mg/L	0.00319	0.9959 mg/L	0.00319	0.32%
Ca 317.933†	21803.8	2.060 mg/L	0.0038	2.060 mg/L	0.0038	0.19%
Cd 228.802†	86004.2	1.024 mg/L	0.0016	1.024 mg/L	0.0016	0.15%
Co 228.616†	84378.7	0.9986 mg/L	0.00231	0.9986 mg/L	0.00231	0.23%
Cr 267.716†	4621.6	1.009 mg/L	0.0012	1.009 mg/L	0.0012	0.12%
Cu 324.752†	332812.7	1.063 mg/L	0.0015	1.063 mg/L	0.0015	0.14%
Fe 273.955†	2622.5	2.138 mg/L	0.0035	2.138 mg/L	0.0035	0.16%
K 766.490†	74438.7	20.66 mg/L	0.092	20.66 mg/L	0.092	0.45%
Mg 279.077†	2491.7	2.143 mg/L	0.0043	2.143 mg/L	0.0043	0.20%
Mn 257.610†	40808.4	1.009 mg/L	0.0010	1.009 mg/L	0.0010	0.10%
Mo 202.031†	17691.6	0.9559 mg/L	0.00654	0.9559 mg/L	0.00654	0.68%
Na 589.592†	416283.2	50.31 mg/L	0.128	50.31 mg/L	0.128	0.26%
Na 330.237†	1405.3	51.02 mg/L	0.185	51.02 mg/L	0.185	0.36%
Ni 231.604†	2274.5	0.9966 mg/L	0.00105	0.9966 mg/L	0.00105	0.11%
Pb 220.353†	26758.8	2.025 mg/L	0.0132	2.025 mg/L	0.0132	0.65%
Sb 206.836†	7639.5	2.086 mg/L	0.0152	2.086 mg/L	0.0152	0.73%
Se 196.026†	3833.9	2.028 mg/L	0.0058	2.028 mg/L	0.0058	0.28%
Si 288.158†	2923.9	2.169 mg/L	0.0058	2.169 mg/L	0.0058	0.27%
Sn 189.927†	5932.9	0.9055 mg/L	0.00426	0.9055 mg/L	0.00426	0.47%
Sr 421.552†	609822.9	1.004 mg/L	0.0037	1.004 mg/L	0.0037	0.37%
Ti 334.903†	25894.4	1.006 mg/L	0.0003	1.006 mg/L	0.0003	0.03%
Tl 190.801†	7365.2	2.017 mg/L	0.0144	2.017 mg/L	0.0144	0.72%
V 292.402†	207018.9	1.026 mg/L	0.0006	1.026 mg/L	0.0006	0.06%
Zn 206.200†	2675.8	1.047 mg/L	0.0024	1.047 mg/L	0.0024	0.23%

Sequence No.: 2
 Sample ID: CB 5
 Analyst: EL
 Dilution: 1X

Autosampler Location: 1
 Date Collected: 11/1/2012 4:58:18 PM
 Data Type: Original

Nebulizer Parameters: CB

Analyte Back Pressure Flow
 All 233.0 kPa 0.55 L/min

Mean Data: CB

Analyte	Mean Corrected Intensity	Conc. Units	Calib.	Std.Dev.	Conc. Units	Sample Std.Dev.	RSD
ScA 357.253	2729381.8	103.1 %		0.48			0.47%
ScR 361.383	209067.3	98.73 %		0.546			0.55%
Ag 328.068†	5.1	0.00002 mg/L		0.000119	0.00002 mg/L	0.000119	689.21%
Al 308.215†	-8.1	-0.00538 mg/L		0.008457	-0.00538 mg/L	0.008457	157.10%
As 188.979†	0.6	0.00024 mg/L		0.001393	0.00024 mg/L	0.001393	589.17%
B 249.677†	23.7	0.01087 mg/L		0.001487	0.01087 mg/L	0.001487	13.67%
Ba 233.527†	-0.7	-0.00007 mg/L		0.000353	-0.00007 mg/L	0.000353	513.08%
Be 313.042†	36.7	0.00013 mg/L		0.000082	0.00013 mg/L	0.000082	61.23%
Ca 317.933†	-12.4	-0.00118 mg/L		0.002023	-0.00118 mg/L	0.002023	172.02%
Cd 228.802†	-8.2	-0.00010 mg/L		0.000062	-0.00010 mg/L	0.000062	63.37%
Co 228.616†	-5.9	-0.00007 mg/L		0.000081	-0.00007 mg/L	0.000081	119.13%
Cr 267.716†	-1.9	-0.00042 mg/L		0.000592	-0.00042 mg/L	0.000592	140.53%
Cu 324.752†	-107.7	-0.00034 mg/L		0.000060	-0.00034 mg/L	0.000060	17.36%
Fe 273.955†	-4.4	-0.00359 mg/L		0.001541	-0.00359 mg/L	0.001541	42.93%
K 766.490†	111.3	0.03089 mg/L		0.011186	0.03089 mg/L	0.011186	36.21%
Mg 279.077†	-0.0	-0.00001 mg/L		0.005506	-0.00001 mg/L	0.005506	>999.9%
Mn 257.610†	-1.9	-0.00005 mg/L		0.000073	-0.00005 mg/L	0.000073	157.18%
Mo 202.031†	-1.5	-0.00008 mg/L		0.000167	-0.00008 mg/L	0.000167	205.84%
Na 589.592†	268.7	0.03247 mg/L		0.011815	0.03247 mg/L	0.011815	36.38%
Na 330.237†	6.8	0.2477 mg/L		0.39726	0.2477 mg/L	0.39726	160.37%
Ni 231.604†	-0.5	-0.00022 mg/L		0.001586	-0.00022 mg/L	0.001586	706.91%
Pb 220.353†	-3.5	-0.00027 mg/L		0.000581	-0.00027 mg/L	0.000581	217.08%
Sb 206.836†	6.2	0.00171 mg/L		0.001166	0.00171 mg/L	0.001166	68.05%
Se 196.026†	-1.3	-0.00069 mg/L		0.002159	-0.00069 mg/L	0.002159	313.76%
Si 288.158†	5.5	0.00408 mg/L		0.002777	0.00408 mg/L	0.002777	68.02%
Sn 189.927†	1.3	0.00020 mg/L		0.000392	0.00020 mg/L	0.000392	195.56%
Sr 421.552†	-46.4	-0.00008 mg/L		0.000154	-0.00008 mg/L	0.000154	202.25%
Ti 334.903†	-23.9	-0.00093 mg/L		0.001104	-0.00093 mg/L	0.001104	118.55%
Tl 190.801†	2.1	0.00057 mg/L		0.000610	0.00057 mg/L	0.000610	107.25%
V 292.402†	-17.8	-0.00009 mg/L		0.000071	-0.00009 mg/L	0.000071	79.85%
Zn 206.200†	-11.7	-0.00458 mg/L		0.000598	-0.00458 mg/L	0.000598	13.06%

Sequence No.: 3
 Sample ID: VP44 MB LEN
 Analyst: EL
 Dilution: 5X

Autosampler Location: 54
 Date Collected: 11/1/2012 5:04:17 PM
 Data Type: Original

Nebulizer Parameters: VP44 MB LEN

Analyte Back Pressure Flow
 All 232.0 kPa 0.55 L/min

Mean Data: VP44 MB LEN

Analyte	Mean Intensity	Conc. Units	Calib.	Std.Dev.	Conc. Units	Sample Std.Dev.	RSD
ScA 357.253	2558628.8	96.62 %		0.343			0.36%
ScR 361.383	205348.1	96.98 %		0.563			0.58%
Ag 328.068†	72.6	0.00025 mg/L		0.000187	0.00124 mg/L	0.000935	75.55%
Al 308.215†	-1.4	-0.00090 mg/L		0.004158	-0.00450 mg/L	0.020792	462.44%
As 188.979†	2.0	0.00086 mg/L		0.001360	0.00430 mg/L	0.006800	158.07%
B 249.677†	52.6	0.02412 mg/L		0.003025	0.1206 mg/L	0.01513	12.54%
Ba 233.527†	1790.8	0.1742 mg/L		0.00094	0.8712 mg/L	0.00472	0.54%
Be 313.042†	0.9	0.00000 mg/L		0.000011	0.00002 mg/L	0.000054	319.28%
Ca 317.933†	809.9	0.07651 mg/L		0.000392	0.3825 mg/L	0.00196	0.51%
Cd 228.802†	12.7	0.00015 mg/L		0.000046	0.00075 mg/L	0.000228	30.22%
Co 228.616†	33.9	0.00035 mg/L		0.000139	0.00173 mg/L	0.000693	40.18%
Cr 267.716†	-1.0	-0.00022 mg/L		0.000611	-0.00108 mg/L	0.003055	281.85%
Cu 324.752†	45.1	0.00014 mg/L		0.000099	0.00072 mg/L	0.000495	68.54%
Fe 273.955†	-2.0	-0.00162 mg/L		0.001513	-0.00812 mg/L	0.007566	93.16%
K 766.490†	1550.3	0.4303 mg/L		0.01749	2.151 mg/L	0.0875	4.07%
Mg 279.077†	4.5	0.00387 mg/L		0.002475	0.01934 mg/L	0.012374	63.97%
Mn 257.610†	-6.5	-0.00016 mg/L		0.000200	-0.00080 mg/L	0.001000	124.81%
Mo 202.031†	-7.0	-0.00038 mg/L		0.000217	-0.00190 mg/L	0.001085	57.03%
Na 589.592†	2257020.6	272.8 mg/L		1.05	1364 mg/L	5.3	0.39%
Na 330.237†	7793.3	284.1 mg/L		0.57	1420 mg/L	2.9	0.20%
Ni 231.604†	6.0	0.00262 mg/L		0.000465	0.01308 mg/L	0.002326	17.79%
Pb 220.353†	14.3	0.00108 mg/L		0.000354	0.00540 mg/L	0.001768	32.75%
Sb 206.836†	12.3	0.00338 mg/L		0.001437	0.01689 mg/L	0.007184	42.52%
Se 196.026†	-1.8	-0.00095 mg/L		0.002960	-0.00476 mg/L	0.014801	311.22%
Si 288.158†	29.6	0.02191 mg/L		0.004303	0.1096 mg/L	0.02151	19.64%
Sn 189.927†	-1.2	-0.00016 mg/L		0.000388	-0.00080 mg/L	0.001941	242.91%
Sr 421.552†	728.2	0.00120 mg/L		0.000016	0.00600 mg/L	0.000080	1.33%
Ti 334.903†	-18.3	-0.00071 mg/L		0.000273	-0.00357 mg/L	0.001363	38.13%
Tl 190.801†	4.7	0.00130 mg/L		0.001194	0.00652 mg/L	0.005969	91.49%
V 292.402†	-3.9	-0.00002 mg/L		0.000264	-0.00011 mg/L	0.001319	>999.9%
Zn 206.200†	89.2	0.03492 mg/L		0.000326	0.1746 mg/L	0.00163	0.93%

Sequence No.: 4

Sample ID: VP51 MB1 SWC

Analyst: EL

Dilution: 2X

Autosampler Location: 55

Date Collected: 11/1/2012 5:10:37 PM

Data Type: Original

Nebulizer Parameters: VP51 MB1 SWC

Analyte	Back Pressure	Flow
All	233.0 kPa	0.55 L/min

Mean Data: VP51 MB1 SWC

Analyte	Mean Corrected Intensity	Calib. Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2721103.3	102.8 %	0.59			0.57%
ScR 361.383	209433.3	98.91 %	1.022			1.03%
Ag 328.068†	0.8	0.00000 mg/L	0.000109	0.00001 mg/L	0.000218	>999.9%
Al 308.215†	1.4	0.00096 mg/L	0.005012	0.00192 mg/L	0.010024	521.37%
As 188.979†	2.7	0.00113 mg/L	0.001774	0.00226 mg/L	0.003548	157.24%
B 249.677†	4.8	0.00220 mg/L	0.001394	0.00440 mg/L	0.002789	63.36%
Ba 233.527†	-3.7	-0.00036 mg/L	0.000239	-0.00072 mg/L	0.000478	66.74%
Be 313.042†	13.2	0.00005 mg/L	0.000063	0.00010 mg/L	0.000125	130.98%
Ca 317.933†	78.0	0.00737 mg/L	0.001221	0.01474 mg/L	0.002442	16.57%
Cd 228.802†	-0.5	-0.00001 mg/L	0.000060	-0.00002 mg/L	0.000120	653.77%
Co 228.616†	7.1	0.00009 mg/L	0.000013	0.00017 mg/L	0.000027	15.46%
Cr 267.716†	1.6	0.00036 mg/L	0.001059	0.00072 mg/L	0.002118	296.21%
Cu 324.752†	-171.2	-0.00055 mg/L	0.000225	-0.00109 mg/L	0.000450	41.24%
Fe 273.955†	1.4	0.00114 mg/L	0.001438	0.00228 mg/L	0.002876	126.38%
K 766.490†	185.2	0.05140 mg/L	0.010936	0.1028 mg/L	0.02187	21.28%
Mg 279.077†	2.5	0.00216 mg/L	0.002899	0.00432 mg/L	0.005799	134.15%
Mn 257.610†	-8.3	-0.00021 mg/L	0.000080	-0.00041 mg/L	0.000161	38.97%
Mo 202.031†	-4.3	-0.00023 mg/L	0.000206	-0.00047 mg/L	0.000413	88.74%
Na 589.592†	2591.5	0.3132 mg/L	0.01990	0.6264 mg/L	0.03981	6.35%
Na 330.237†	12.7	0.4648 mg/L	0.32740	0.9296 mg/L	0.65479	70.43%
Ni 231.604†	-0.3	-0.00013 mg/L	0.001213	-0.00026 mg/L	0.002426	919.95%
Pb 220.353†	-13.1	-0.00099 mg/L	0.000420	-0.00197 mg/L	0.000840	42.55%
Sb 206.836†	-0.4	-0.00011 mg/L	0.001320	-0.00022 mg/L	0.002640	>999.9%
Se 196.026†	0.7	0.00035 mg/L	0.002272	0.00070 mg/L	0.004544	646.02%
Si 288.158†	5.9	0.00439 mg/L	0.005070	0.00879 mg/L	0.010139	115.38%
Sn 189.927†	-1.3	-0.00020 mg/L	0.000528	-0.00039 mg/L	0.001055	269.08%
Sr 421.552†	26.0	0.00004 mg/L	0.000046	0.00009 mg/L	0.000092	107.46%
Ti 334.903†	-24.7	-0.00096 mg/L	0.000925	-0.00192 mg/L	0.001849	96.15%
Tl 190.801†	-3.0	-0.00082 mg/L	0.000385	-0.00164 mg/L	0.000770	47.05%
V 292.402†	14.2	0.00007 mg/L	0.000080	0.00014 mg/L	0.000160	111.64%
Zn 206.200†	-13.5	-0.00527 mg/L	0.000261	-0.01055 mg/L	0.000522	4.95%

Sequence No.: 5
 Sample ID: VP51 B SWC
 Analyst: EL
 Dilution: 2X

Autosampler Location: 56
 Date Collected: 11/1/2012 5:16:38 PM
 Data Type: Original

Nebulizer Parameters: VP51 B SWC

Analyte	Back Pressure	Flow
All	232.0 kPa	0.55 L/min

Mean Data: VP51 B SWC

Analyte	Mean Corrected Intensity	Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2658066.8	100.4 %	0.43			0.43%
ScR 361.383	215088.5	101.6 %	0.13			0.12%
Ag 328.068†	-970.5	0.00092 mg/L	0.000080	0.00183 mg/L	0.000160	8.74%
Al 308.215†	173647.4	115.5 mg/L	0.22	231.0 mg/L	0.43	0.19%
As 188.979†	70.6	0.04374 mg/L	0.000860	0.08748 mg/L	0.001719	1.97%
B 249.677†	66.0	0.02992 mg/L	0.000515	0.05983 mg/L	0.001031	1.72%
Ba 233.527†	3416.1	0.3249 mg/L	0.00146	0.6498 mg/L	0.00292	0.45%
Be 313.042†	661.1	0.00132 mg/L	0.000032	0.00264 mg/L	0.000065	2.46%
Ca 317.933†	751462.1	70.99 mg/L	0.097	142.0 mg/L	0.19	0.14%
Cd 228.802†	225.2	0.00267 mg/L	0.000086	0.00534 mg/L	0.000173	3.23%
Co 228.616†	6629.1	0.06523 mg/L	0.000546	0.1305 mg/L	0.00109	0.84%
Cr 267.716†	1118.2	0.2435 mg/L	0.00091	0.4869 mg/L	0.00182	0.37%
Cu 324.752†	71983.3	0.2412 mg/L	0.00062	0.4823 mg/L	0.00124	0.26%
Fe 273.955†	193203.2	157.6 mg/L	1.08	315.2 mg/L	2.16	0.68%
K 766.490†	33470.9	9.290 mg/L	0.0462	18.58 mg/L	0.092	0.50%
Mg 279.077†	67162.4	57.57 mg/L	0.094	115.1 mg/L	0.19	0.16%
Mn 257.610†	104157.5	2.573 mg/L	0.0053	5.146 mg/L	0.0105	0.20%
Mo 202.031†	0.2	0.00166 mg/L	0.000299	0.00332 mg/L	0.000599	18.04%
Na 589.592†	53585.7	6.476 mg/L	0.0184	12.95 mg/L	0.037	0.28%
Na 330.237†	168.7	6.881 mg/L	0.2290	13.76 mg/L	0.458	3.33%
Ni 231.604†	606.4	0.2656 mg/L	0.00068	0.5311 mg/L	0.00136	0.26%
Pb 220.353†	2261.3	0.2060 mg/L	0.00122	0.4120 mg/L	0.00244	0.59%
Sb 206.836†	98.1	0.01720 mg/L	0.000159	0.03440 mg/L	0.000318	0.92%
Se 196.026†	-65.9	-0.03556 mg/L	0.005170	-0.07113 mg/L	0.010341	14.54%
Si 288.158†	1400.5	1.043 mg/L	0.0057	2.085 mg/L	0.0113	0.54%
Sn 189.927†	134.5	0.03941 mg/L	0.001035	0.07882 mg/L	0.002070	2.63%
Sr 421.552†	163186.7	0.2688 mg/L	0.00142	0.5376 mg/L	0.00284	0.53%
Ti 334.903†	167778.6	6.524 mg/L	0.0020	13.05 mg/L	0.004	0.03%
Tl 190.801†	22.1	-0.00545 mg/L	0.000764	-0.01090 mg/L	0.001529	14.03%
V 292.402†	76753.6	0.3578 mg/L	0.00092	0.7157 mg/L	0.00184	0.26%
Zn 206.200†	1658.5	0.6508 mg/L	0.00457	1.302 mg/L	0.0091	0.70%

Sequence No.: 6
 Sample ID: VP40 ADUP SWC
 Analyst: EL
 Dilution: 2X

Autosampler Location: 57
 Date Collected: 11/1/2012 5:22:28 PM
 Data Type: Original

Nebulizer Parameters: VP40 ADUP SWC

Analyte Back Pressure Flow
 All 232.0 kPa 0.55 L/min

Mean Data: VP40 ADUP SWC

Analyte	Mean Corrected Intensity	Conc. Units	Calib.	Std.Dev.	Conc. Units	Sample	Std.Dev.	RSD
ScA 357.253	2638891.2	99.65 %		0.165				0.17%
ScR 361.383	211185.2	99.73 %		0.746				0.75%
Ag 328.068†	-1298.5	0.00107 mg/L		0.000192	0.00214 mg/L	0.000385		17.98%
Al 308.215†	185479.3	123.3 mg/L		0.03	246.7 mg/L	0.06		0.03%
As 188.979†	66.9	0.04406 mg/L		0.001185	0.08813 mg/L	0.002371		2.69%
B 249.677†	123.6	0.05628 mg/L		0.001929	0.1126 mg/L	0.00386		3.43%
Ba 233.527†	7066.6	0.6783 mg/L		0.00445	1.357 mg/L	0.0089		0.66%
Be 313.042†	762.0	0.00153 mg/L		0.000056	0.00306 mg/L	0.000112		3.66%
Ca 317.933†	734548.9	69.39 mg/L		0.142	138.8 mg/L	0.28		0.21%
Cd 228.802†	456.4	0.00545 mg/L		0.000112	0.01089 mg/L	0.000223		2.05%
Co 228.616†	7232.5	0.07021 mg/L		0.000944	0.1404 mg/L	0.00189		1.34%
Cr 267.716†	1396.1	0.3041 mg/L		0.00246	0.6082 mg/L	0.00492		0.81%
Cu 324.752†	99160.4	0.3308 mg/L		0.00045	0.6616 mg/L	0.00091		0.14%
Fe 273.955†	238760.2	194.8 mg/L		0.29	389.6 mg/L	0.58		0.15%
K 766.490†	44778.0	12.43 mg/L		0.022	24.86 mg/L	0.043		0.17%
Mg 279.077†	86316.1	74.00 mg/L		0.107	148.0 mg/L	0.21		0.14%
Mn 257.610†	107452.2	2.654 mg/L		0.0040	5.309 mg/L	0.0079		0.15%
Mo 202.031†	35.1	0.00350 mg/L		0.000180	0.00700 mg/L	0.000360		5.15%
Na 589.592†	96363.2	11.65 mg/L		0.018	23.29 mg/L	0.036		0.15%
Na 330.237†	303.3	11.96 mg/L		0.246	23.91 mg/L	0.492		2.06%
Ni 231.604†	665.3	0.2914 mg/L		0.00195	0.5827 mg/L	0.00389		0.67%
Pb 220.353†	2944.1	0.2586 mg/L		0.00223	0.5172 mg/L	0.00446		0.86%
Sb 206.836†	98.9	0.01396 mg/L		0.002395	0.02792 mg/L	0.004790		17.15%
Se 196.026†	-83.9	-0.04517 mg/L		0.000882	-0.09033 mg/L	0.001765		1.95%
Si 288.158†	4034.1	2.992 mg/L		0.0079	5.984 mg/L	0.0158		0.26%
Sn 189.927†	52.4	0.02727 mg/L		0.000548	0.05455 mg/L	0.001096		2.01%
Sr 421.552†	216813.2	0.3571 mg/L		0.00127	0.7142 mg/L	0.00253		0.35%
Ti 334.903†	191541.0	7.449 mg/L		0.0103	14.90 mg/L	0.021		0.14%
Tl 190.801†	19.6	-0.00741 mg/L		0.001663	-0.01482 mg/L	0.003326		22.45%
V 292.402†	87646.9	0.4074 mg/L		0.00007	0.8148 mg/L	0.00015		0.02%
Zn 206.200†	1823.2	0.7152 mg/L		0.00609	1.430 mg/L	0.0122		0.85%

Sequence No.: 7
 Sample ID: VP40 A SWC
 Analyst: EL
 Dilution: 2X

Autosampler Location: 58
 Date Collected: 11/1/2012 5:28:16 PM
 Data Type: Original

Nebulizer Parameters: VP40 A SWC

Analyte Back Pressure Flow
 All 232.0 kPa 0.55 L/min

Mean Data: VP40 A SWC

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc. Units	Sample Std.Dev.	RSD
ScA 357.253	2684604.0	101.4	%	0.28			0.27%
ScR 361.383	215255.5	101.7	%	0.38			0.38%
Ag 328.068†	-1353.2	0.00099	mg/L	0.000182	0.00198 mg/L	0.000364	18.33%
Al 308.215†	185090.1	123.1	mg/L	0.12	246.2 mg/L	0.23	0.10%
As 188.979†	67.4	0.04244	mg/L	0.000500	0.08487 mg/L	0.001000	1.18%
B 249.677†	121.7	0.05543	mg/L	0.003441	0.1109 mg/L	0.00688	6.21%
Ba 233.527†	7413.0	0.7119	mg/L	0.00498	1.424 mg/L	0.0100	0.70%
Be 313.042†	774.0	0.00158	mg/L	0.000050	0.00316 mg/L	0.000100	3.17%
Ca 317.933†	681299.4	64.36	mg/L	0.062	128.7 mg/L	0.12	0.10%
Cd 228.802†	491.3	0.00588	mg/L	0.000038	0.01175 mg/L	0.000076	0.64%
Co 228.616†	7259.8	0.07199	mg/L	0.000477	0.1440 mg/L	0.00095	0.66%
Cr 267.716†	1420.2	0.3094	mg/L	0.00191	0.6188 mg/L	0.00382	0.62%
Cu 324.752†	105585.6	0.3518	mg/L	0.00050	0.7036 mg/L	0.00099	0.14%
Fe 273.955†	242118.2	197.5	mg/L	0.37	395.0 mg/L	0.75	0.19%
K 766.490†	48802.1	13.54	mg/L	0.038	27.09 mg/L	0.076	0.28%
Mg 279.077†	94421.7	80.95	mg/L	0.059	161.9 mg/L	0.12	0.07%
Mn 257.610†	109312.9	2.700	mg/L	0.0024	5.401 mg/L	0.0048	0.09%
Mo 202.031†	40.6	0.00370	mg/L	0.000332	0.00740 mg/L	0.000665	8.98%
Na 589.592†	99182.5	11.99	mg/L	0.030	23.97 mg/L	0.059	0.25%
Na 330.237†	324.1	12.56	mg/L	0.205	25.13 mg/L	0.411	1.63%
Ni 231.604†	783.7	0.3432	mg/L	0.00263	0.6864 mg/L	0.00525	0.77%
Pb 220.353†	2920.9	0.2565	mg/L	0.00147	0.5129 mg/L	0.00294	0.57%
Sb 206.836†	101.9	0.01348	mg/L	0.001774	0.02696 mg/L	0.003548	13.16%
Se 196.026†	-80.8	-0.04364	mg/L	0.002226	-0.08727 mg/L	0.004453	5.10%
Si 288.158†	4763.9	3.532	mg/L	0.0161	7.065 mg/L	0.0323	0.46%
Sn 189.927†	74.5	0.02943	mg/L	0.000315	0.05886 mg/L	0.000629	1.07%
Sr 421.552†	203403.8	0.3350	mg/L	0.00144	0.6700 mg/L	0.00288	0.43%
Ti 334.903†	169504.4	6.592	mg/L	0.0033	13.18 mg/L	0.007	0.05%
Tl 190.801†	9.0	-0.00960	mg/L	0.002834	-0.01920 mg/L	0.005667	29.52%
V 292.402†	88284.7	0.4110	mg/L	0.00044	0.8220 mg/L	0.00088	0.11%
Zn 206.200†	1841.3	0.7222	mg/L	0.00310	1.444 mg/L	0.0062	0.43%

Sequence No.: 8
 Sample ID: VP40 ASPK SWC
 Analyst: EL
 Dilution: 2X

Autosampler Location: 59
 Date Collected: 11/1/2012 5:34:05 PM
 Data Type: Original

Nebulizer Parameters: VP40 ASPK SWC

Analyte Back Pressure Flow
 All 232.0 kPa 0.55 L/min

Mean Data: VP40 ASPK SWC

Analyte	Mean Corrected Intensity	Calib. Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2647957.2	99.99 %	0.374			0.37%
ScR 361.383	212990.8	100.6 %	0.59			0.59%
Ag 328.068†	146105.0	0.5047 mg/L	0.00228	1.009 mg/L	0.0046	0.45%
Al 308.215†	189449.4	126.0 mg/L	0.21	252.0 mg/L	0.41	0.16%
As 188.979†	4824.3	2.060 mg/L	0.0377	4.120 mg/L	0.0755	1.83%
B 249.677†	150.2	0.06697 mg/L	0.001534	0.1339 mg/L	0.00307	2.29%
Ba 233.527†	26945.3	2.613 mg/L	0.0132	5.226 mg/L	0.0264	0.51%
Be 313.042†	140509.1	0.5070 mg/L	0.00038	1.014 mg/L	0.0008	0.08%
Ca 317.933†	891998.0	84.26 mg/L	0.096	168.5 mg/L	0.19	0.11%
Cd 228.802†	42143.2	0.4995 mg/L	0.00920	0.9990 mg/L	0.01840	1.84%
Co 228.616†	45628.4	0.5267 mg/L	0.00983	1.053 mg/L	0.0197	1.87%
Cr 267.716†	3932.2	0.8580 mg/L	0.00506	1.716 mg/L	0.0101	0.59%
Cu 324.752†	261183.5	0.8473 mg/L	0.00054	1.695 mg/L	0.0011	0.06%
Fe 273.955†	217606.4	177.5 mg/L	0.31	355.0 mg/L	0.62	0.17%
K 766.490†	78649.9	21.83 mg/L	0.112	43.66 mg/L	0.225	0.51%
Mg 279.077†	94492.8	81.03 mg/L	0.063	162.1 mg/L	0.13	0.08%
Mn 257.610†	130456.2	3.223 mg/L	0.0056	6.446 mg/L	0.0113	0.17%
Mo 202.031†	339.3	0.01981 mg/L	0.000380	0.03962 mg/L	0.000759	1.92%
Na 589.592†	180526.6	21.82 mg/L	0.078	43.64 mg/L	0.156	0.36%
Na 330.237†	594.7	22.16 mg/L	0.027	44.32 mg/L	0.054	0.12%
Ni 231.604†	1756.3	0.7687 mg/L	0.00213	1.537 mg/L	0.0043	0.28%
Pb 220.353†	27842.6	2.144 mg/L	0.0385	4.288 mg/L	0.0771	1.80%
Sb 206.836†	1713.0	0.4473 mg/L	0.01343	0.8945 mg/L	0.02686	3.00%
Se 196.026†	3690.9	1.953 mg/L	0.0346	3.906 mg/L	0.0693	1.77%
Si 288.158†	5189.5	3.849 mg/L	0.0230	7.699 mg/L	0.0461	0.60%
Sn 189.927†	62.0	0.03172 mg/L	0.001634	0.06344 mg/L	0.003267	5.15%
Sr 421.552†	512765.0	0.8446 mg/L	0.00174	1.689 mg/L	0.0035	0.21%
Ti 334.903†	167112.0	6.498 mg/L	0.0125	13.00 mg/L	0.025	0.19%
Tl 190.801†	6802.4	1.857 mg/L	0.0336	3.713 mg/L	0.0672	1.81%
V 292.402†	179484.3	0.8641 mg/L	0.00114	1.728 mg/L	0.0023	0.13%
Zn 206.200†	2931.1	1.149 mg/L	0.0045	2.298 mg/L	0.0091	0.40%

Sequence No.: 9
 Sample ID: VP44 ADUP LEN
 Analyst: EL
 Dilution: 5X

Autosampler Location: 60
 Date Collected: 11/1/2012 5:39:11 PM
 Data Type: Original

Nebulizer Parameters: VP44 ADUP LEN

Analyte Back Pressure Flow
 All 232.0 kPa 0.55 L/min

Mean Data: VP44 ADUP LEN

Analyte	Mean Corrected Intensity	Calib. Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2566190.7	96.90 %	0.690			0.71%
ScR 361.383	203330.4	96.02 %	0.652			0.68%
Ag 328.068†	134.8	0.00046 mg/L	0.000197	0.00231 mg/L	0.000987	42.77%
Al 308.215†	459.0	0.3053 mg/L	0.00458	1.526 mg/L	0.0229	1.50%
As 188.979†	8.0	0.00340 mg/L	0.001216	0.01700 mg/L	0.006080	35.76%
B 249.677†	119.1	0.05461 mg/L	0.001343	0.2730 mg/L	0.00672	2.46%
Ba 233.527†	3541.4	0.3445 mg/L	0.00141	1.723 mg/L	0.0071	0.41%
Be 313.042†	124.4	0.00045 mg/L	0.000033	0.00224 mg/L	0.000165	7.35%
Ca 317.933†	19481.9	1.840 mg/L	0.0017	9.202 mg/L	0.0087	0.09%
Cd 228.802†	485.8	0.00581 mg/L	0.000102	0.02903 mg/L	0.000511	1.76%
Co 228.616†	170.5	0.00188 mg/L	0.000104	0.00940 mg/L	0.000522	5.55%
Cr 267.716†	15.0	0.00325 mg/L	0.001005	0.01626 mg/L	0.005023	30.88%
Cu 324.752†	6448.3	0.02068 mg/L	0.000189	0.1034 mg/L	0.00095	0.92%
Fe 273.955†	1281.1	1.045 mg/L	0.0033	5.225 mg/L	0.0166	0.32%
K 766.490†	5116.2	1.420 mg/L	0.0257	7.100 mg/L	0.1285	1.81%
Mg 279.077†	1227.1	1.053 mg/L	0.0091	5.265 mg/L	0.0453	0.86%
Mn 257.610†	2947.5	0.07284 mg/L	0.000391	0.3642 mg/L	0.00196	0.54%
Mo 202.031†	-9.2	-0.00051 mg/L	0.000277	-0.00253 mg/L	0.001384	54.78%
Na 589.592†	2066430.0	249.7 mg/L	0.98	1249 mg/L	4.9	0.39%
Na 330.237†	7151.2	260.5 mg/L	1.61	1303 mg/L	8.1	0.62%
Ni 231.604†	14.7	0.00643 mg/L	0.002094	0.03215 mg/L	0.010471	32.57%
Pb 220.353†	392.8	0.02979 mg/L	0.000824	0.1490 mg/L	0.00412	2.76%
Sb 206.836†	19.5	0.00519 mg/L	0.001502	0.02595 mg/L	0.007508	28.94%
Se 196.026†	-0.7	-0.00040 mg/L	0.005115	-0.00202 mg/L	0.025574	>999.9%
Si 288.158†	196.3	0.1453 mg/L	0.00516	0.7265 mg/L	0.02579	3.55%
Sn 189.927†	-3.1	-0.00005 mg/L	0.000692	-0.00027 mg/L	0.003460	>999.9%
Sr 421.552†	16193.1	0.02667 mg/L	0.000176	0.1334 mg/L	0.00088	0.66%
Ti 334.903†	195.4	0.00751 mg/L	0.000148	0.03757 mg/L	0.000738	1.96%
Tl 190.801†	18.6	0.00500 mg/L	0.000072	0.02502 mg/L	0.000360	1.44%
V 292.402†	266.4	0.00123 mg/L	0.000083	0.00616 mg/L	0.000417	6.77%
Zn 206.200†	850.9	0.3333 mg/L	0.00138	1.666 mg/L	0.0069	0.41%

Sequence No.: 10
 Sample ID: VP44 A LEN
 Analyst: EL
 Dilution: 5X

Autosampler Location: 61
 Date Collected: 11/1/2012 5:45:31 PM
 Data Type: Original

Nebulizer Parameters: VP44 A LEN

Analyte Back Pressure Flow
 All 232.0 kPa 0.55 L/min

Mean Data: VP44 A LEN

Analyte	Mean Corrected		Calib. Units	Std.Dev.	Sample		RSD
	Intensity	Conc.			Conc.	Units	
ScA 357.253	2594742.4	97.98	%	0.092			0.09%
ScR 361.383	205102.5	96.86	%	1.130			1.17%
Ag 328.068†	-30.6	-0.00011	mg/L	0.000056	-0.00054	mg/L	0.000280 51.48%
Al 308.215†	285.7	0.1900	mg/L	0.00514	0.9500	mg/L	0.02572 2.71%
As 188.979†	1.9	0.00082	mg/L	0.001128	0.00409	mg/L	0.005642 138.06%
B 249.677†	114.1	0.05231	mg/L	0.002505	0.2615	mg/L	0.01252 4.79%
Ba 233.527†	3486.9	0.3392	mg/L	0.00319	1.696	mg/L	0.0160 0.94%
Be 313.042†	-14.7	-0.00005	mg/L	0.000033	-0.00027	mg/L	0.000165 61.21%
Ca 317.933†	18528.2	1.750	mg/L	0.0135	8.752	mg/L	0.0677 0.77%
Cd 228.802†	441.9	0.00529	mg/L	0.000115	0.02643	mg/L	0.000576 2.18%
Co 228.616†	128.1	0.00139	mg/L	0.000130	0.00696	mg/L	0.000652 9.37%
Cr 267.716†	11.6	0.00251	mg/L	0.000909	0.01253	mg/L	0.004547 36.28%
Cu 324.752†	6014.7	0.01928	mg/L	0.000123	0.09641	mg/L	0.000616 0.64%
Fe 273.955†	1063.9	0.8679	mg/L	0.00987	4.339	mg/L	0.0494 1.14%
K 766.490†	4504.0	1.250	mg/L	0.0249	6.250	mg/L	0.1245 1.99%
Mg 279.077†	1131.6	0.9710	mg/L	0.01197	4.855	mg/L	0.0599 1.23%
Mn 257.610†	2800.8	0.06921	mg/L	0.000589	0.3461	mg/L	0.00295 0.85%
Mo 202.031†	-6.3	-0.00035	mg/L	0.000032	-0.00175	mg/L	0.000159 9.08%
Na 589.592†	2068766.2	250.0	mg/L	2.64	1250	mg/L	13.2 1.06%
Na 330.237†	7121.7	259.5	mg/L	1.57	1297	mg/L	7.8 0.60%
Ni 231.604†	11.7	0.00514	mg/L	0.001530	0.02571	mg/L	0.007648 29.74%
Pb 220.353†	360.6	0.02732	mg/L	0.000145	0.1366	mg/L	0.00072 0.53%
Sb 206.836†	13.1	0.00344	mg/L	0.000355	0.01718	mg/L	0.001775 10.33%
Se 196.026†	-1.7	-0.00092	mg/L	0.001209	-0.00460	mg/L	0.006045 131.36%
Si 288.158†	182.2	0.1349	mg/L	0.00136	0.6744	mg/L	0.00681 1.01%
Sn 189.927†	-3.4	-0.00012	mg/L	0.000244	-0.00060	mg/L	0.001221 201.95%
Sr 421.552†	15740.4	0.02593	mg/L	0.000410	0.1296	mg/L	0.00205 1.58%
Ti 334.903†	35.8	0.00131	mg/L	0.000284	0.00654	mg/L	0.001419 21.71%
Tl 190.801†	-0.5	-0.00024	mg/L	0.000667	-0.00119	mg/L	0.003333 279.87%
V 292.402†	41.4	0.00015	mg/L	0.000172	0.00073	mg/L	0.000861 117.99%
Zn 206.200†	857.5	0.3358	mg/L	0.00407	1.679	mg/L	0.0203 1.21%

Sequence No.: 11
Sample ID: VP44 ASPK LEN
Analyst: EL
Dilution: 5X

Autosampler Location: 62
Date Collected: 11/1/2012 5:51:51 PM
Data Type: Original

Nebulizer Parameters: VP44 ASPK LEN

Analyte Back Pressure Flow
All 232.0 kPa 0.55 L/min

Mean Data: VP44 ASPK LEN

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2563572.3	96.80	%	0.501			0.52%
ScR 361.383	201802.1	95.30	%	1.083			1.14%
Ag 328.068†	60079.5	0.2056	mg/L	0.00224	1.028 mg/L	0.0112	1.09%
Al 308.215†	1532.9	1.016	mg/L	0.0112	5.082 mg/L	0.0559	1.10%
As 188.979†	2025.0	0.8589	mg/L	0.00463	4.295 mg/L	0.0232	0.54%
B 249.677†	118.7	0.05374	mg/L	0.003251	0.2687 mg/L	0.01625	6.05%
Ba 233.527†	11775.6	1.146	mg/L	0.0123	5.728 mg/L	0.0617	1.08%
Be 313.042†	57177.2	0.2067	mg/L	0.00106	1.034 mg/L	0.0053	0.51%
Ca 317.933†	63208.3	5.971	mg/L	0.0273	29.86 mg/L	0.136	0.46%
Cd 228.802†	18074.6	0.2143	mg/L	0.00260	1.071 mg/L	0.0130	1.21%
Co 228.616†	16781.7	0.1986	mg/L	0.00201	0.9930 mg/L	0.01003	1.01%
Cr 267.716†	976.6	0.2133	mg/L	0.00355	1.066 mg/L	0.0177	1.66%
Cu 324.752†	73169.3	0.2339	mg/L	0.00223	1.170 mg/L	0.0111	0.95%
Fe 273.955†	2110.3	1.721	mg/L	0.0179	8.607 mg/L	0.0897	1.04%
K 766.490†	19752.9	5.482	mg/L	0.0533	27.41 mg/L	0.267	0.97%
Mg 279.077†	6037.0	5.182	mg/L	0.0608	25.91 mg/L	0.304	1.17%
Mn 257.610†	10825.0	0.2677	mg/L	0.00303	1.338 mg/L	0.0151	1.13%
Mo 202.031†	4.4	0.00016	mg/L	0.000056	0.00078 mg/L	0.000280	35.85%
Na 589.592†	2113740.1	255.5	mg/L	3.15	1277 mg/L	15.7	1.23%
Na 330.237†	7237.9	263.6	mg/L	1.97	1318 mg/L	9.8	0.75%
Ni 231.604†	476.8	0.2086	mg/L	0.00209	1.043 mg/L	0.0104	1.00%
Pb 220.353†	11151.3	0.8438	mg/L	0.01168	4.219 mg/L	0.0584	1.38%
Sb 206.836†	22.7	0.00290	mg/L	0.000966	0.01452 mg/L	0.004831	33.27%
Se 196.026†	1604.6	0.8493	mg/L	0.00232	4.246 mg/L	0.0116	0.27%
Si 288.158†	234.6	0.1750	mg/L	0.00324	0.8752 mg/L	0.01621	1.85%
Sn 189.927†	-6.6	0.00039	mg/L	0.000651	0.00193 mg/L	0.003253	168.36%
Sr 421.552†	143562.1	0.2365	mg/L	0.00262	1.182 mg/L	0.0131	1.11%
Ti 334.903†	48.5	0.00154	mg/L	0.000283	0.00772 mg/L	0.001415	18.33%
Tl 190.801†	2798.2	0.7685	mg/L	0.00256	3.842 mg/L	0.0128	0.33%
V 292.402†	42099.8	0.2078	mg/L	0.00245	1.039 mg/L	0.0122	1.18%
Zn 206.200†	1356.9	0.5314	mg/L	0.00521	2.657 mg/L	0.0260	0.98%

Sequence No.: 12
 Sample ID: VP40 MB1SPK SWC
 Analyst: EL
 Dilution: 2X

Autosampler Location: 63
 Date Collected: 11/1/2012 5:58:14 PM
 Data Type: Original

Nebulizer Parameters: VP40 MB1SPK SWC

Analyte	Back Pressure	Flow
All	232.0 kPa	0.55 L/min

Mean Data: VP40 MB1SPK SWC

Analyte	Mean Corrected		Calib.	Std.Dev.	Sample		RSD
	Intensity	Conc.			Units	Conc.	
ScA 357.253	2726608.3	103.0	%	0.46			0.45%
ScR 361.383	211568.0	99.91	%	0.386			0.39%
Ag 328.068†	148988.8	0.5098	mg/L	0.00775	1.020	mg/L	0.0155 1.52%
Al 308.215†	3071.9	2.036	mg/L	0.0097	4.071	mg/L	0.0194 0.48%
As 188.979†	4802.0	2.037	mg/L	0.0204	4.074	mg/L	0.0409 1.00%
B 249.677†	2.6	-0.00046	mg/L	0.002848	-0.00091	mg/L	0.005696 624.04%
Ba 233.527†	20837.9	2.027	mg/L	0.0016	4.054	mg/L	0.0032 0.08%
Be 313.042†	143849.8	0.5202	mg/L	0.00084	1.040	mg/L	0.0017 0.16%
Ca 317.933†	111366.8	10.52	mg/L	0.015	21.04	mg/L	0.030 0.14%
Cd 228.802†	42410.4	0.5027	mg/L	0.00761	1.005	mg/L	0.0152 1.51%
Co 228.616†	42019.6	0.4976	mg/L	0.00800	0.9951	mg/L	0.01599 1.61%
Cr 267.716†	2382.8	0.5204	mg/L	0.00220	1.041	mg/L	0.0044 0.42%
Cu 324.752†	160205.8	0.5120	mg/L	0.00705	1.024	mg/L	0.0141 1.38%
Fe 273.955†	2638.4	2.152	mg/L	0.0083	4.304	mg/L	0.0167 0.39%
K 766.490†	37979.7	10.54	mg/L	0.031	21.08	mg/L	0.062 0.29%
Mg 279.077†	12490.0	10.72	mg/L	0.055	21.45	mg/L	0.109 0.51%
Mn 257.610†	20612.7	0.5098	mg/L	0.00116	1.020	mg/L	0.0023 0.23%
Mo 202.031†	10.8	0.00040	mg/L	0.000138	0.00080	mg/L	0.000275 34.57%
Na 589.592†	88211.5	10.66	mg/L	0.035	21.32	mg/L	0.070 0.33%
Na 330.237†	303.6	10.83	mg/L	0.140	21.67	mg/L	0.281 1.30%
Ni 231.604†	1148.4	0.5034	mg/L	0.00473	1.007	mg/L	0.0095 0.94%
Pb 220.353†	26734.7	2.023	mg/L	0.0343	4.046	mg/L	0.0686 1.70%
Sb 206.836†	7455.0	2.031	mg/L	0.0187	4.062	mg/L	0.0375 0.92%
Se 196.026†	3820.6	2.022	mg/L	0.0189	4.044	mg/L	0.0379 0.94%
Si 288.158†	5.0	0.00719	mg/L	0.000516	0.01438	mg/L	0.001032 7.18%
Sn 189.927†	-18.7	-0.00035	mg/L	0.000574	-0.00070	mg/L	0.001148 163.72%
Sr 421.552†	310705.8	0.5118	mg/L	0.00098	1.024	mg/L	0.0020 0.19%
Ti 334.903†	65.7	0.00192	mg/L	0.000341	0.00383	mg/L	0.000683 17.81%
Tl 190.801†	7222.8	1.984	mg/L	0.0183	3.968	mg/L	0.0367 0.92%
V 292.402†	102775.5	0.5074	mg/L	0.00849	1.015	mg/L	0.0170 1.67%
Zn 206.200†	1260.0	0.4929	mg/L	0.00188	0.9859	mg/L	0.00376 0.38%

Sequence No.: 13
 Sample ID: CV
 Analyst: EL
 Dilution: 1X

Autosampler Location: 7
 Date Collected: 11/1/2012 6:04:18 PM
 Data Type: Original

Nebulizer Parameters: CV

Analyte Back Pressure Flow
 All 231.0 kPa 0.55 L/min

Mean Data: CV

Analyte	Mean Corrected Intensity	Conc. Units	Calib. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2640784.6	99.72	%	0.976			0.98%
ScR 361.383	211288.2	99.78	%	0.478			0.48%
Ag 328.068†	297223.8	1.017	mg/L	0.0022	1.017 mg/L	0.0022	0.22%
Al 308.215†	3079.3	2.006	mg/L	0.0161	2.006 mg/L	0.0161	0.80%
As 188.979†	4950.4	2.099	mg/L	0.0234	2.099 mg/L	0.0234	1.11%
B 249.677†	2131.6	0.9756	mg/L	0.00754	0.9756 mg/L	0.00754	0.77%
Ba 233.527†	10227.6	0.9947	mg/L	0.00520	0.9947 mg/L	0.00520	0.52%
Be 313.042†	271088.6	0.9801	mg/L	0.00604	0.9801 mg/L	0.00604	0.62%
Ca 317.933†	21564.3	2.037	mg/L	0.0112	2.037 mg/L	0.0112	0.55%
Cd 228.802†	85164.6	1.014	mg/L	0.0032	1.014 mg/L	0.0032	0.31%
Co 228.616†	84248.4	0.9971	mg/L	0.00092	0.9971 mg/L	0.00092	0.09%
Cr 267.716†	4579.1	0.9999	mg/L	0.00664	0.9999 mg/L	0.00664	0.66%
Cu 324.752†	334182.7	1.067	mg/L	0.0017	1.067 mg/L	0.0017	0.16%
Fe 273.955†	2602.5	2.122	mg/L	0.0144	2.122 mg/L	0.0144	0.68%
K 766.490†	74275.3	20.61	mg/L	0.112	20.61 mg/L	0.112	0.54%
Mg 279.077†	2467.7	2.122	mg/L	0.0151	2.122 mg/L	0.0151	0.71%
Mn 257.610†	40161.4	0.9929	mg/L	0.00496	0.9929 mg/L	0.00496	0.50%
Mo 202.031†	17718.4	0.9574	mg/L	0.00920	0.9574 mg/L	0.00920	0.96%
Na 589.592†	415009.9	50.16	mg/L	0.335	50.16 mg/L	0.335	0.67%
Na 330.237†	1392.0	50.54	mg/L	0.108	50.54 mg/L	0.108	0.21%
Ni 231.604†	2255.1	0.9881	mg/L	0.00672	0.9881 mg/L	0.00672	0.68%
Pb 220.353†	26976.2	2.041	mg/L	0.0201	2.041 mg/L	0.0201	0.99%
Sb 206.836†	7653.5	2.090	mg/L	0.0238	2.090 mg/L	0.0238	1.14%
Se 196.026†	3821.3	2.021	mg/L	0.0205	2.021 mg/L	0.0205	1.02%
Si 288.158†	2935.9	2.177	mg/L	0.0183	2.177 mg/L	0.0183	0.84%
Sn 189.927†	5943.9	0.9072	mg/L	0.00945	0.9072 mg/L	0.00945	1.04%
Sr 421.552†	603523.2	0.9941	mg/L	0.00153	0.9941 mg/L	0.00153	0.15%
Ti 334.903†	25549.2	0.9928	mg/L	0.00609	0.9928 mg/L	0.00609	0.61%
Tl 190.801†	7402.2	2.027	mg/L	0.0189	2.027 mg/L	0.0189	0.93%
V 292.402†	207588.3	1.029	mg/L	0.0046	1.029 mg/L	0.0046	0.45%
Zn 206.200†	2636.2	1.031	mg/L	0.0067	1.031 mg/L	0.0067	0.65%

Sequence No.: 14
 Sample ID: CB
 Analyst: EL
 Dilution: 1X

Autosampler Location: 1
 Date Collected: 11/1/2012 6:10:22 PM
 Data Type: Original

Nebulizer Parameters: CB

Analyte	Back Pressure	Flow
All	231.0 kPa	0.55 L/min

Mean Data: CB

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2761143.0	104.3	%	0.08				0.08%
ScR 361.383	208243.2	98.34	%	0.343				0.35%
Ag 328.068†	60.8	0.00021	mg/L	0.000270	0.00021	mg/L	0.000270	130.01%
Al 308.215†	-1.1	-0.00071	mg/L	0.016022	-0.00071	mg/L	0.016022	>999.9%
As 188.979†	2.9	0.00124	mg/L	0.000606	0.00124	mg/L	0.000606	49.11%
B 249.677†	7.3	0.00333	mg/L	0.001351	0.00333	mg/L	0.001351	40.53%
Ba 233.527†	-3.8	-0.00037	mg/L	0.000247	-0.00037	mg/L	0.000247	66.67%
Be 313.042†	3.6	0.00001	mg/L	0.000028	0.00001	mg/L	0.000028	208.61%
Ca 317.933†	1.3	0.00012	mg/L	0.002312	0.00012	mg/L	0.002312	>999.9%
Cd 228.802†	4.0	0.00005	mg/L	0.000079	0.00005	mg/L	0.000079	172.85%
Co 228.616†	-5.5	-0.00007	mg/L	0.000041	-0.00007	mg/L	0.000041	62.41%
Cr 267.716†	0.5	0.00011	mg/L	0.001266	0.00011	mg/L	0.001266	>999.9%
Cu 324.752†	-171.0	-0.00055	mg/L	0.000047	-0.00055	mg/L	0.000047	8.56%
Fe 273.955†	-5.5	-0.00448	mg/L	0.000316	-0.00448	mg/L	0.000316	7.05%
K 766.490†	195.0	0.05411	mg/L	0.011971	0.05411	mg/L	0.011971	22.12%
Mg 279.077†	2.9	0.00248	mg/L	0.009119	0.00248	mg/L	0.009119	367.66%
Mn 257.610†	-4.8	-0.00012	mg/L	0.000177	-0.00012	mg/L	0.000177	150.69%
Mo 202.031†	2.9	0.00016	mg/L	0.000086	0.00016	mg/L	0.000086	54.12%
Na 589.592†	1243.0	0.1502	mg/L	0.00864	0.1502	mg/L	0.00864	5.75%
Na 330.237†	8.8	0.3239	mg/L	0.14637	0.3239	mg/L	0.14637	45.19%
Ni 231.604†	4.9	0.00215	mg/L	0.001050	0.00215	mg/L	0.001050	48.88%
Pb 220.353†	-12.9	-0.00097	mg/L	0.000148	-0.00097	mg/L	0.000148	15.25%
Sb 206.836†	4.5	0.00122	mg/L	0.000476	0.00122	mg/L	0.000476	38.92%
Se 196.026†	3.4	0.00178	mg/L	0.000739	0.00178	mg/L	0.000739	41.43%
Si 288.158†	2.5	0.00189	mg/L	0.002740	0.00189	mg/L	0.002740	145.29%
Sn 189.927†	0.1	0.00001	mg/L	0.000345	0.00001	mg/L	0.000345	>999.9%
Sr 421.552†	23.2	0.00004	mg/L	0.000070	0.00004	mg/L	0.000070	182.28%
Ti 334.903†	-0.9	-0.00004	mg/L	0.000939	-0.00004	mg/L	0.000939	>999.9%
Tl 190.801†	5.8	0.00161	mg/L	0.000604	0.00161	mg/L	0.000604	37.44%
V 292.402†	-33.3	-0.00016	mg/L	0.000268	-0.00016	mg/L	0.000268	165.91%
Zn 206.200†	-18.3	-0.00718	mg/L	0.000665	-0.00718	mg/L	0.000665	9.26%

Sequence No.: 15
 Sample ID: VP51 C SWC
 Analyst: EL
 Dilution: 2X

Autosampler Location: 64
 Date Collected: 11/1/2012 6:16:20 PM
 Data Type: Original

Nebulizer Parameters: VP51 C SWC

Analyte Back Pressure Flow
 All 232.0 kPa 0.55 L/min

Mean Data: VP51 C SWC

Analyte	Mean Corrected Intensity	Conc. Units	Calib.	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2673261.8	100.9 %		0.67			0.66%
ScR 361.383	213267.9	100.7 %		0.35			0.35%
Ag 328.068†	-1196.5	0.00033 mg/L		0.000140	0.00067 mg/L	0.000280	41.82%
Al 308.215†	111730.4	74.31 mg/L		0.438	148.6 mg/L	0.88	0.59%
As 188.979†	334.1	0.1459 mg/L		0.00098	0.2917 mg/L	0.00195	0.67%
B 249.677†	85.5	0.03889 mg/L		0.001036	0.07778 mg/L	0.002071	2.66%
Ba 233.527†	3238.3	0.3082 mg/L		0.00080	0.6164 mg/L	0.00160	0.26%
Be 313.042†	544.4	0.00132 mg/L		0.000040	0.00265 mg/L	0.000079	2.99%
Ca 317.933†	268678.9	25.38 mg/L		0.163	50.76 mg/L	0.327	0.64%
Cd 228.802†	316.2	0.00349 mg/L		0.000054	0.00697 mg/L	0.000108	1.55%
Co 228.616†	6506.4	0.07181 mg/L		0.000515	0.1436 mg/L	0.00103	0.72%
Cr 267.716†	823.4	0.1795 mg/L		0.00024	0.3590 mg/L	0.00048	0.13%
Cu 324.752†	120553.4	0.3967 mg/L		0.00138	0.7934 mg/L	0.00275	0.35%
Fe 273.955†	179401.3	146.4 mg/L		0.67	292.7 mg/L	1.33	0.45%
K 766.490†	25407.6	7.052 mg/L		0.0443	14.10 mg/L	0.089	0.63%
Mg 279.077†	50696.6	43.44 mg/L		0.272	86.88 mg/L	0.544	0.63%
Mn 257.610†	52576.3	1.299 mg/L		0.0088	2.597 mg/L	0.0176	0.68%
Mo 202.031†	149.8	0.00907 mg/L		0.000263	0.01814 mg/L	0.000526	2.90%
Na 589.592†	110496.8	13.35 mg/L		0.094	26.71 mg/L	0.188	0.71%
Na 330.237†	373.7	13.61 mg/L		0.262	27.22 mg/L	0.523	1.92%
Ni 231.604†	475.6	0.2083 mg/L		0.00139	0.4166 mg/L	0.00279	0.67%
Pb 220.353†	3221.8	0.2633 mg/L		0.00189	0.5265 mg/L	0.00379	0.72%
Sb 206.836†	81.0	0.00869 mg/L		0.000850	0.01737 mg/L	0.001700	9.78%
Se 196.026†	-50.9	-0.02752 mg/L		0.002706	-0.05504 mg/L	0.005413	9.83%
Si 288.158†	2112.9	1.568 mg/L		0.0103	3.135 mg/L	0.0205	0.65%
Sn 189.927†	85.1	0.02016 mg/L		0.000294	0.04032 mg/L	0.000589	1.46%
Sr 421.552†	97139.8	0.1600 mg/L		0.00039	0.3200 mg/L	0.00078	0.25%
Ti 334.903†	51898.2	2.018 mg/L		0.0142	4.036 mg/L	0.0285	0.71%
Tl 190.801†	-14.0	-0.00897 mg/L		0.002028	-0.01794 mg/L	0.004056	22.60%
V 292.402†	48685.0	0.2245 mg/L		0.00026	0.4491 mg/L	0.00052	0.11%
Zn 206.200†	2022.4	0.7924 mg/L		0.00319	1.585 mg/L	0.0064	0.40%

Sequence No.: 16
 Sample ID: VP51 D SWC
 Analyst: EL
 Dilution: 2X

Autosampler Location: 65
 Date Collected: 11/1/2012 6:22:08 PM
 Data Type: Original

Nebulizer Parameters: VP51 D SWC

Analyte Back Pressure Flow
 All 231.0 kPa 0.55 L/min

Mean Data: VP51 D SWC

Analyte	Mean Corrected		Calib. Units	Std.Dev.	Sample		Std.Dev.	RSD
	Intensity	Conc.			Conc.	Units		
ScA 357.253	2710276.8	102.3	%	0.21				0.20%
ScR 361.383	212110.4	100.2	%	0.57				0.57%
Ag 328.068†	-1580.1	0.00037	mg/L	0.000176	0.00074	mg/L	0.000352	47.56%
Al 308.215†	121414.3	80.74	mg/L	0.184	161.5	mg/L	0.37	0.23%
As 188.979†	114.1	0.05908	mg/L	0.001732	0.1182	mg/L	0.00346	2.93%
B 249.677†	64.6	0.02942	mg/L	0.001261	0.05884	mg/L	0.002522	4.29%
Ba 233.527†	3619.8	0.3425	mg/L	0.00125	0.6849	mg/L	0.00250	0.37%
Be 313.042†	375.6	0.00043	mg/L	0.000021	0.00086	mg/L	0.000042	4.89%
Ca 317.933†	847954.0	80.10	mg/L	0.074	160.2	mg/L	0.15	0.09%
Cd 228.802†	245.3	0.00284	mg/L	0.000071	0.00568	mg/L	0.000142	2.49%
Co 228.616†	4805.6	0.04556	mg/L	0.000351	0.09111	mg/L	0.000701	0.77%
Cr 267.716†	817.4	0.1779	mg/L	0.00075	0.3558	mg/L	0.00150	0.42%
Cu 324.752†	88186.0	0.2974	mg/L	0.00084	0.5949	mg/L	0.00168	0.28%
Fe 273.955†	253447.5	206.8	mg/L	1.21	413.5	mg/L	2.42	0.59%
K 766.490†	14048.7	3.899	mg/L	0.0067	7.798	mg/L	0.0134	0.17%
Mg 279.077†	76533.0	65.59	mg/L	0.160	131.2	mg/L	0.32	0.24%
Mn 257.610†	85255.9	2.106	mg/L	0.0049	4.212	mg/L	0.0097	0.23%
Mo 202.031†	402.8	0.02261	mg/L	0.000228	0.04521	mg/L	0.000456	1.01%
Na 589.592†	21699.6	2.623	mg/L	0.0049	5.245	mg/L	0.0098	0.19%
Na 330.237†	79.4	3.047	mg/L	0.0485	6.094	mg/L	0.0970	1.59%
Ni 231.604†	340.7	0.1492	mg/L	0.00286	0.2984	mg/L	0.00572	1.92%
Pb 220.353†	7372.7	0.5779	mg/L	0.00387	1.156	mg/L	0.0077	0.67%
Sb 206.836†	63.5	0.00688	mg/L	0.000622	0.01377	mg/L	0.001244	9.04%
Se 196.026†	-64.3	-0.03443	mg/L	0.000487	-0.06886	mg/L	0.000973	1.41%
Si 288.158†	1295.8	0.9662	mg/L	0.00365	1.932	mg/L	0.0073	0.38%
Sn 189.927†	2625.8	0.4209	mg/L	0.00246	0.8418	mg/L	0.00492	0.58%
Sr 421.552†	278398.4	0.4585	mg/L	0.00268	0.9171	mg/L	0.00536	0.58%
Ti 334.903†	130877.3	5.088	mg/L	0.0109	10.18	mg/L	0.022	0.21%
Tl 190.801†	-11.2	-0.01231	mg/L	0.000158	-0.02462	mg/L	0.000316	1.28%
V 292.402†	67073.3	0.3065	mg/L	0.00072	0.6130	mg/L	0.00145	0.24%
Zn 206.200†	3358.6	1.317	mg/L	0.0052	2.634	mg/L	0.0105	0.40%

Sequence No.: 17
 Sample ID: VP51 E SWC
 Analyst: EL
 Dilution: 2X

Autosampler Location: 66
 Date Collected: 11/1/2012 6:28:00 PM
 Data Type: Original

Nebulizer Parameters: VP51 E SWC

Analyte	Back Pressure	Flow
All	231.0 kPa	0.55 L/min

Mean Data: VP51 E SWC

Analyte	Mean Corrected Intensity	Calib. Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2693088.7	101.7 %	2.05			2.01%
ScR 361.383	208827.3	98.62 %	2.462			2.50%
Ag 328.068†	-1399.2	0.00162 mg/L	0.000210	0.00324 mg/L	0.000421	12.97%
Al 308.215†	101916.7	67.77 mg/L	0.744	135.5 mg/L	1.49	1.10%
As 188.979†	116.0	0.05881 mg/L	0.003099	0.1176 mg/L	0.00620	5.27%
B 249.677†	149.2	0.06821 mg/L	0.001573	0.1364 mg/L	0.00315	2.31%
Ba 233.527†	8054.4	0.7739 mg/L	0.01951	1.548 mg/L	0.0390	2.52%
Be 313.042†	370.6	0.00067 mg/L	0.000074	0.00134 mg/L	0.000147	10.97%
Ca 317.933†	364055.3	34.39 mg/L	0.230	68.78 mg/L	0.459	0.67%
Cd 228.802†	412.4	0.00486 mg/L	0.000217	0.00972 mg/L	0.000434	4.46%
Co 228.616†	4907.3	0.04746 mg/L	0.001344	0.09493 mg/L	0.002687	2.83%
Cr 267.716†	919.3	0.2003 mg/L	0.00677	0.4006 mg/L	0.01354	3.38%
Cu 324.752†	183261.8	0.6014 mg/L	0.00470	1.203 mg/L	0.0094	0.78%
Fe 273.955†	255650.6	208.6 mg/L	2.05	417.1 mg/L	4.10	0.98%
K 766.490†	23817.9	6.611 mg/L	0.1087	13.22 mg/L	0.217	1.64%
Mg 279.077†	56855.1	48.69 mg/L	0.352	97.39 mg/L	0.703	0.72%
Mn 257.610†	64495.2	1.593 mg/L	0.0145	3.187 mg/L	0.0290	0.91%
Mo 202.031†	486.6	0.02707 mg/L	0.000849	0.05414 mg/L	0.001697	3.13%
Na 589.592†	168457.3	20.36 mg/L	0.270	40.72 mg/L	0.540	1.33%
Na 330.237†	547.1	20.18 mg/L	0.751	40.37 mg/L	1.502	3.72%
Ni 231.604†	502.4	0.2200 mg/L	0.00511	0.4400 mg/L	0.01021	2.32%
Pb 220.353†	12726.6	0.9767 mg/L	0.02234	1.953 mg/L	0.0447	2.29%
Sb 206.836†	88.4	0.00806 mg/L	0.000353	0.01612 mg/L	0.000706	4.38%
Se 196.026†	-57.5	-0.03103 mg/L	0.003561	-0.06206 mg/L	0.007122	11.48%
Si 288.158†	1023.8	0.7631 mg/L	0.02034	1.526 mg/L	0.0407	2.67%
Sn 189.927†	413.7	0.07326 mg/L	0.001057	0.1465 mg/L	0.00211	1.44%
Sr 421.552†	141494.1	0.2331 mg/L	0.00302	0.4661 mg/L	0.00603	1.29%
Tl 334.903†	118086.4	4.593 mg/L	0.0435	9.185 mg/L	0.0869	0.95%
Tl 190.801†	-20.2	-0.01327 mg/L	0.001394	-0.02654 mg/L	0.002788	10.51%
V 292.402†	47192.7	0.2094 mg/L	0.00183	0.4188 mg/L	0.00366	0.88%
Zn 206.200†	3475.4	1.362 mg/L	0.0349	2.723 mg/L	0.0697	2.56%

Sequence No.: 18
 Sample ID: VP51 F SWC
 Analyst: EL
 Dilution: 2X

Autosampler Location: 67
 Date Collected: 11/1/2012 6:33:48 PM
 Data Type: Original

Nebulizer Parameters: VP51 F SWC

Analyte Back Pressure Flow
 All 231.0 kPa 0.55 L/min

Mean Data: VP51 F SWC

Analyte	Mean Corrected Intensity	Calib. Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2732249.3	103.2 %	0.08			0.08%
ScR 361.383	210861.4	99.58 %	0.480			0.48%
Ag 328.068†	-948.0	0.00213 mg/L	0.000276	0.00425 mg/L	0.000553	13.00%
Al 308.215†	75557.0	50.25 mg/L	0.111	100.5 mg/L	0.22	0.22%
As 188.979†	92.5	0.04499 mg/L	0.001081	0.08997 mg/L	0.002161	2.40%
B 249.677†	46.0	0.02099 mg/L	0.000731	0.04198 mg/L	0.001461	3.48%
Ba 233.527†	2109.0	0.1970 mg/L	0.00075	0.3940 mg/L	0.00151	0.38%
Be 313.042†	276.1	0.00051 mg/L	0.000046	0.00103 mg/L	0.000093	9.07%
Ca 317.933†	279599.7	26.41 mg/L	0.037	52.83 mg/L	0.073	0.14%
Cd 228.802†	350.5	0.00412 mg/L	0.000148	0.00825 mg/L	0.000296	3.59%
Co 228.616†	3193.4	0.03089 mg/L	0.000093	0.06178 mg/L	0.000185	0.30%
Cr 267.716†	589.7	0.1284 mg/L	0.00091	0.2569 mg/L	0.00181	0.71%
Cu 324.752†	100715.4	0.3355 mg/L	0.00026	0.6710 mg/L	0.00053	0.08%
Fe 273.955†	214718.7	175.2 mg/L	0.58	350.3 mg/L	1.16	0.33%
K 766.490†	16285.9	4.520 mg/L	0.0281	9.040 mg/L	0.0561	0.62%
Mg 279.077†	35489.8	30.37 mg/L	0.046	60.74 mg/L	0.092	0.15%
Mn 257.610†	53040.0	1.311 mg/L	0.0024	2.622 mg/L	0.0048	0.18%
Mo 202.031†	694.4	0.03818 mg/L	0.000237	0.07635 mg/L	0.000473	0.62%
Na 589.592†	45293.3	5.474 mg/L	0.0231	10.95 mg/L	0.046	0.42%
Na 330.237†	157.4	5.622 mg/L	0.3267	11.24 mg/L	0.653	5.81%
Ni 231.604†	279.3	0.1223 mg/L	0.00141	0.2446 mg/L	0.00281	1.15%
Pb 220.353†	54628.1	4.141 mg/L	0.0240	8.281 mg/L	0.0480	0.58%
Sb 206.836†	-27.5	0.01676 mg/L	0.001195	0.03352 mg/L	0.002390	7.13%
Se 196.026†	-50.8	-0.02720 mg/L	0.004551	-0.05439 mg/L	0.009103	16.73%
Si 288.158†	1289.3	0.9572 mg/L	0.00283	1.914 mg/L	0.0057	0.30%
Sn 189.927†	21939.4	3.353 mg/L	0.0164	6.705 mg/L	0.0329	0.49%
Sr 421.552†	111923.2	0.1843 mg/L	0.00069	0.3687 mg/L	0.00137	0.37%
Ti 334.903†	71687.9	2.788 mg/L	0.0055	5.576 mg/L	0.0110	0.20%
Tl 190.801†	-14.4	-0.00919 mg/L	0.001733	-0.01838 mg/L	0.003466	18.85%
V 292.402†	34982.4	0.1538 mg/L	0.00053	0.3075 mg/L	0.00105	0.34%
Zn 206.200†	3717.5	1.457 mg/L	0.0055	2.913 mg/L	0.0109	0.38%

Sequence No.: 19
 Sample ID: VP51 ADUP SWC
 Analyst: EL
 Dilution: 2X

Autosampler Location: 68
 Date Collected: 11/1/2012 6:39:35 PM
 Data Type: Original

Nebulizer Parameters: VP51 ADUP SWC

Analyte	Back Pressure	Flow
All	231.0 kPa	0.55 L/min

Mean Data: VP51 ADUP SWC

Analyte	Mean Corrected Intensity	Conc. Units	Calib.	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2654476.2	100.2	%	0.48			0.48%
ScR 361.383	207293.3	97.90	%	1.693			1.73%
Ag 328.068†	-1173.1	-0.00095	mg/L	0.000255	-0.00190 mg/L	0.000509	26.76%
Al 308.215†	188786.5	125.5	mg/L	0.73	251.1 mg/L	1.46	0.58%
As 188.979†	230.1	0.1111	mg/L	0.00121	0.2222 mg/L	0.00242	1.09%
B 249.677†	209.2	0.09555	mg/L	0.001783	0.1911 mg/L	0.00357	1.87%
Ba 233.527†	6417.4	0.6162	mg/L	0.01069	1.232 mg/L	0.0214	1.73%
Be 313.042†	706.8	0.00149	mg/L	0.000088	0.00298 mg/L	0.000176	5.90%
Ca 317.933†	2229796.0	210.6	mg/L	2.55	421.3 mg/L	5.09	1.21%
Cd 228.802†	254.9	0.00287	mg/L	0.000111	0.00575 mg/L	0.000223	3.88%
Co 228.616†	6411.9	0.06254	mg/L	0.000726	0.1251 mg/L	0.00145	1.16%
Cr 267.716†	1581.9	0.3447	mg/L	0.00696	0.6894 mg/L	0.01393	2.02%
Cu 324.752†	81865.5	0.2739	mg/L	0.00058	0.5479 mg/L	0.00116	0.21%
Fe 273.955†	210492.2	171.7	mg/L	1.31	343.4 mg/L	2.62	0.76%
K 766.490†	42948.3	11.92	mg/L	0.108	23.84 mg/L	0.216	0.91%
Mg 279.077†	95169.2	81.61	mg/L	0.337	163.2 mg/L	0.67	0.41%
Mn 257.610†	114745.8	2.835	mg/L	0.0125	5.669 mg/L	0.0250	0.44%
Mo 202.031†	-50.2	-0.00116	mg/L	0.000058	-0.00232 mg/L	0.000117	5.05%
Na 589.592†	144433.8	17.46	mg/L	0.101	34.91 mg/L	0.201	0.58%
Na 330.237†	505.3	18.26	mg/L	0.315	36.53 mg/L	0.629	1.72%
Ni 231.604†	646.9	0.2833	mg/L	0.00683	0.5666 mg/L	0.01365	2.41%
Pb 220.353†	2875.9	0.2591	mg/L	0.00295	0.5182 mg/L	0.00590	1.14%
Sb 206.836†	113.4	0.01776	mg/L	0.002045	0.03553 mg/L	0.004090	11.51%
Se 196.026†	-70.1	-0.03787	mg/L	0.001184	-0.07574 mg/L	0.002367	3.13%
Si 288.158†	1201.6	0.8986	mg/L	0.02003	1.797 mg/L	0.0401	2.23%
Sn 189.927†	45.5	0.05611	mg/L	0.000290	0.1122 mg/L	0.00058	0.52%
Sr 421.552†	351902.2	0.5796	mg/L	0.00642	1.159 mg/L	0.0128	1.11%
Ti 334.903†	165660.7	6.435	mg/L	0.0682	12.87 mg/L	0.136	1.06%
Tl 190.801†	11.2	-0.00872	mg/L	0.001710	-0.01744 mg/L	0.003419	19.60%
V 292.402†	76508.7	0.3561	mg/L	0.00226	0.7122 mg/L	0.00452	0.64%
Zn 206.200†	3351.7	1.317	mg/L	0.0221	2.634 mg/L	0.0441	1.68%

Sequence No.: 20
 Sample ID: VP51 A SWC
 Analyst: EL
 Dilution: 2X

Autosampler Location: 69
 Date Collected: 11/1/2012 6:45:42 PM
 Data Type: Original

Nebulizer Parameters: VP51 A SWC

Analyte Back Pressure Flow
 All 230.0 kPa 0.55 L/min

Mean Data: VP51 A SWC

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2697139.7	101.8	%	0.37			0.37%
ScR 361.383	211186.3	99.73	%	0.185			0.19%
Ag 328.068†	-1248.0	-0.00081	mg/L	0.000297	-0.00161 mg/L	0.000594	36.92%
Al 308.215†	185629.1	123.4	mg/L	0.20	246.9 mg/L	0.40	0.16%
As 188.979†	200.5	0.09837	mg/L	0.003175	0.1967 mg/L	0.00635	3.23%
B 249.677†	201.1	0.09182	mg/L	0.001519	0.1836 mg/L	0.00304	1.65%
Ba 233.527†	6132.9	0.5882	mg/L	0.00293	1.176 mg/L	0.0059	0.50%
Be 313.042†	806.3	0.00170	mg/L	0.000056	0.00339 mg/L	0.000112	3.31%
Ca 317.933†	2041312.9	192.8	mg/L	0.19	385.7 mg/L	0.37	0.10%
Cd 228.802†	211.0	0.00236	mg/L	0.000009	0.00472 mg/L	0.000018	0.37%
Co 228.616†	6869.4	0.06807	mg/L	0.000414	0.1361 mg/L	0.00083	0.61%
Cr 267.716†	1356.8	0.2955	mg/L	0.00146	0.5910 mg/L	0.00292	0.49%
Cu 324.752†	85443.5	0.2859	mg/L	0.00029	0.5718 mg/L	0.00058	0.10%
Fe 273.955†	218166.4	178.0	mg/L	0.55	356.0 mg/L	1.10	0.31%
K 766.490†	38489.2	10.68	mg/L	0.027	21.37 mg/L	0.054	0.25%
Mg 279.077†	91968.5	78.86	mg/L	0.103	157.7 mg/L	0.21	0.13%
Mn 257.610†	118684.3	2.932	mg/L	0.0044	5.864 mg/L	0.0087	0.15%
Mo 202.031†	-51.5	-0.00123	mg/L	0.000392	-0.00247 mg/L	0.000784	31.75%
Na 589.592†	123569.2	14.93	mg/L	0.037	29.87 mg/L	0.074	0.25%
Na 330.237†	422.6	15.46	mg/L	0.177	30.91 mg/L	0.355	1.15%
Ni 231.604†	554.9	0.2430	mg/L	0.00541	0.4861 mg/L	0.01082	2.23%
Pb 220.353†	2316.8	0.2152	mg/L	0.00183	0.4304 mg/L	0.00367	0.85%
Sb 206.836†	99.5	0.01449	mg/L	0.002726	0.02898 mg/L	0.005452	18.81%
Se 196.026†	-65.9	-0.03551	mg/L	0.004962	-0.07103 mg/L	0.009924	13.97%
Si 288.158†	1204.6	0.9004	mg/L	0.00309	1.801 mg/L	0.0062	0.34%
Sn 189.927†	14.8	0.04754	mg/L	0.000514	0.09507 mg/L	0.001029	1.08%
Sr 421.552†	348016.8	0.5732	mg/L	0.00210	1.146 mg/L	0.0042	0.37%
Ti 334.903†	163214.4	6.341	mg/L	0.0099	12.68 mg/L	0.020	0.16%
Tl 190.801†	18.7	-0.00697	mg/L	0.002439	-0.01394 mg/L	0.004878	35.00%
V 292.402†	88669.5	0.4149	mg/L	0.00104	0.8298 mg/L	0.00207	0.25%
Zn 206.200†	2346.4	0.9228	mg/L	0.00428	1.846 mg/L	0.0086	0.46%

Sequence No.: 21
 Sample ID: VP51 ASPK SWC
 Analyst: EL
 Dilution: 2X

Autosampler Location: 70
 Date Collected: 11/1/2012 6:51:49 PM
 Data Type: Original

Nebulizer Parameters: VP51 ASPK SWC

Analyte Back Pressure Flow
 All 230.0 kPa 0.55 L/min

Mean Data: VP51 ASPK SWC

Analyte	Mean Corrected Intensity	Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2646528.1	99.94 %	0.689			0.69%
ScR 361.383	211171.2	99.73 %	0.385			0.39%
Ag 328.068†	146751.9	0.5064 mg/L	0.00225	1.013 mg/L	0.0045	0.44%
Al 308.215†	260602.3	173.3 mg/L	1.74	346.6 mg/L	3.47	1.00%
As 188.979†	4864.3	2.082 mg/L	0.0159	4.164 mg/L	0.0318	0.76%
B 249.677†	290.8	0.1313 mg/L	0.00108	0.2626 mg/L	0.00216	0.82%
Ba 233.527†	28245.2	2.737 mg/L	0.0218	5.474 mg/L	0.0435	0.80%
Be 313.042†	137355.3	0.4951 mg/L	0.00496	0.9903 mg/L	0.00991	1.00%
Ca 317.933†	2922552.7	276.1 mg/L	2.69	552.2 mg/L	5.38	0.97%
Cd 228.802†	41681.0	0.4939 mg/L	0.00380	0.9879 mg/L	0.00761	0.77%
Co 228.616†	47515.0	0.5441 mg/L	0.00347	1.088 mg/L	0.0069	0.64%
Cr 267.716†	4198.9	0.9158 mg/L	0.00687	1.832 mg/L	0.0137	0.75%
Cu 324.752†	281783.6	0.9169 mg/L	0.00220	1.834 mg/L	0.0044	0.24%
Fe 273.955†	284756.8	232.3 mg/L	2.97	464.6 mg/L	5.95	1.28%
K 766.490†	95427.6	26.49 mg/L	0.321	52.97 mg/L	0.642	1.21%
Mg 279.077†	135742.7	116.4 mg/L	1.22	232.8 mg/L	2.44	1.05%
Mn 257.610†	192232.8	4.749 mg/L	0.0481	9.499 mg/L	0.0961	1.01%
Mo 202.031†	-86.8	-0.00268 mg/L	0.000550	-0.00536 mg/L	0.001099	20.52%
Na 589.592†	257907.2	31.17 mg/L	0.300	62.34 mg/L	0.600	0.96%
Na 330.237†	871.9	31.67 mg/L	0.269	63.35 mg/L	0.539	0.85%
Ni 231.604†	1892.3	0.8283 mg/L	0.00493	1.657 mg/L	0.0099	0.60%
Pb 220.353†	27314.5	2.123 mg/L	0.0190	4.246 mg/L	0.0379	0.89%
Sb 206.836†	1605.0	0.4150 mg/L	0.00214	0.8300 mg/L	0.00427	0.51%
Se 196.026†	3512.2	1.858 mg/L	0.0101	3.716 mg/L	0.0203	0.54%
Si 288.158†	2319.4	1.731 mg/L	0.0153	3.463 mg/L	0.0306	0.88%
Sn 189.927†	6.4	0.06583 mg/L	0.000855	0.1317 mg/L	0.00171	1.30%
Sr 421.552†	770174.1	1.269 mg/L	0.0101	2.537 mg/L	0.0202	0.80%
Ti 334.903†	230233.9	8.944 mg/L	0.0789	17.89 mg/L	0.158	0.88%
Tl 190.801†	6421.4	1.747 mg/L	0.0166	3.493 mg/L	0.0333	0.95%
V 292.402†	208508.7	0.9996 mg/L	0.00722	1.999 mg/L	0.0144	0.72%
Zn 206.200†	4424.0	1.738 mg/L	0.0156	3.475 mg/L	0.0312	0.90%

Sequence No.: 22

Autosampler Location: 71

Sample ID: VP51 MB1SPK SWC

Date Collected: 11/1/2012 6:57:01 PM

Analyst: EL

Data Type: Original

Dilution: 2X

Nebulizer Parameters: VP51 MB1SPK SWC

Analyte	Back Pressure	Flow
All	230.0 kPa	0.55 L/min

Mean Data: VP51 MB1SPK SWC

Analyte	Mean Corrected Intensity	Conc. Units	Calib.	Std.Dev.	Conc. Units	Sample Std.Dev.	RSD
ScA 357.253	2813773.0	106.3	%	1.39			1.31%
ScR 361.383	211697.4	99.98	%	0.159			0.16%
Ag 328.068†	143240.2	0.4901	mg/L	0.00807	0.9803	0.01613	1.65%
Al 308.215†	3106.0	2.058	mg/L	0.0043	4.117	0.0087	0.21%
As 188.979†	4568.0	1.938	mg/L	0.0186	3.875	0.0372	0.96%
B 249.677†	-1.0	-0.00205	mg/L	0.001343	-0.00411	0.002686	65.35%
Ba 233.527†	20112.3	1.957	mg/L	0.0080	3.913	0.0160	0.41%
Be 313.042†	137629.9	0.4977	mg/L	0.00140	0.9953	0.00281	0.28%
Ca 317.933†	108207.1	10.22	mg/L	0.037	20.44	0.075	0.37%
Cd 228.802†	40455.6	0.4795	mg/L	0.00947	0.9590	0.01894	1.97%
Co 228.616†	40248.7	0.4766	mg/L	0.00924	0.9532	0.01848	1.94%
Cr 267.716†	2334.5	0.5098	mg/L	0.00242	1.020	0.0048	0.48%
Cu 324.752†	153674.7	0.4912	mg/L	0.00818	0.9824	0.01637	1.67%
Fe 273.955†	2735.7	2.231	mg/L	0.0084	4.463	0.0167	0.37%
K 766.490†	37302.2	10.35	mg/L	0.025	20.71	0.050	0.24%
Mg 279.077†	12216.7	10.49	mg/L	0.030	20.98	0.060	0.29%
Mn 257.610†	19789.3	0.4894	mg/L	0.00129	0.9789	0.00258	0.26%
Mo 202.031†	17.5	0.00077	mg/L	0.000172	0.00153	0.000344	22.47%
Na 589.592†	82696.1	9.994	mg/L	0.0280	19.99	0.056	0.28%
Na 330.237†	279.0	9.938	mg/L	0.1568	19.88	0.314	1.58%
Ni 231.604†	1119.2	0.4906	mg/L	0.00329	0.9811	0.00658	0.67%
Pb 220.353†	25690.6	1.944	mg/L	0.0362	3.888	0.0725	1.86%
Sb 206.836†	7058.7	1.923	mg/L	0.0197	3.845	0.0394	1.03%
Se 196.026†	3629.0	1.921	mg/L	0.0236	3.842	0.0472	1.23%
Si 288.158†	10.4	0.01107	mg/L	0.002990	0.02213	0.005981	27.02%
Sn 189.927†	-12.8	0.00047	mg/L	0.000269	0.00094	0.000539	57.18%
Sr 421.552†	303492.1	0.4999	mg/L	0.00136	0.9998	0.00272	0.27%
Ti 334.903†	99.8	0.00326	mg/L	0.000202	0.00652	0.000403	6.18%
Tl 190.801†	6931.7	1.904	mg/L	0.0206	3.808	0.0412	1.08%
V 292.402†	98971.1	0.4886	mg/L	0.00885	0.9773	0.01770	1.81%
Zn 206.200†	1250.9	0.4894	mg/L	0.00241	0.9788	0.00483	0.49%

Sequence No.: 23
 Sample ID: VP29 N TWC
 Analyst: EL
 Dilution: 1X

Autosampler Location: 72
 Date Collected: 11/1/2012 7:03:04 PM
 Data Type: Original

Nebulizer Parameters: VP29 N TWC

Analyte Back Pressure Flow
 All 231.0 kPa 0.55 L/min

Mean Data: VP29 N TWC

Analyte	Mean Corrected Intensity	Conc. Units	Calib.	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2599950.7	98.18 %		0.500			0.51%
ScR 361.383	209341.2	98.86 %		0.266			0.27%
Ag 328.068†	249.5	-0.00062 mg/L		0.000191	-0.00062 mg/L	0.000191	30.95%
Al 308.215†	1.4	0.00083 mg/L		0.004670	0.00083 mg/L	0.004670	560.22%
As 188.979†	7.4	0.00313 mg/L		0.001395	0.00313 mg/L	0.001395	44.56%
B 249.677†	553.4	0.2537 mg/L		0.00217	0.2537 mg/L	0.00217	0.85%
Ba 233.527†	760.6	0.07399 mg/L		0.000316	0.07399 mg/L	0.000316	0.43%
Be 313.042†	-19.0	-0.00008 mg/L		0.000027	-0.00008 mg/L	0.000027	35.78%
Ca 317.933†	1290382.0	121.9 mg/L		0.25	121.9 mg/L	0.25	0.20%
Cd 228.802†	-9.5	-0.00012 mg/L		0.000330	-0.00012 mg/L	0.000330	272.42%
Co 228.616†	-30.3	-0.00041 mg/L		0.000426	-0.00041 mg/L	0.000426	105.23%
Cr 267.716†	24.0	0.00513 mg/L		0.001155	0.00513 mg/L	0.001155	22.53%
Cu 324.752†	81.3	0.00028 mg/L		0.000125	0.00028 mg/L	0.000125	45.04%
Fe 273.955†	332.8	0.2715 mg/L		0.00209	0.2715 mg/L	0.00209	0.77%
K 766.490†	62313.5	17.29 mg/L		0.017	17.29 mg/L	0.017	0.10%
Mg 279.077†	57151.4	49.07 mg/L		0.203	49.07 mg/L	0.203	0.41%
Mn 257.610†	20081.1	0.4962 mg/L		0.00188	0.4962 mg/L	0.00188	0.38%
Mo 202.031†	33.6	0.00122 mg/L		0.000728	0.00122 mg/L	0.000728	59.89%
Na 589.592†	2402279.7	290.3 mg/L		0.53	290.3 mg/L	0.53	0.18%
Na 330.237†	8290.9	301.7 mg/L		1.26	301.7 mg/L	1.26	0.42%
Ni 231.604†	2.7	0.00120 mg/L		0.000728	0.00120 mg/L	0.000728	60.56%
Pb 220.353†	-49.3	-0.00061 mg/L		0.001995	-0.00061 mg/L	0.001995	328.70%
Sb 206.836†	-5.4	-0.00166 mg/L		0.005215	-0.00166 mg/L	0.005215	313.41%
Se 196.026†	19.6	0.01038 mg/L		0.005779	0.01038 mg/L	0.005779	55.69%
Si 288.158†	15470.3	11.44 mg/L		0.037	11.44 mg/L	0.037	0.32%
Sn 189.927†	-51.1	0.01933 mg/L		0.001390	0.01933 mg/L	0.001390	7.19%
Sr 421.552†	401417.1	0.6612 mg/L		0.00243	0.6612 mg/L	0.00243	0.37%
Ti 334.903†	275.0	0.00472 mg/L		0.000684	0.00472 mg/L	0.000684	14.50%
Tl 190.801†	-2.5	-0.00131 mg/L		0.001770	-0.00131 mg/L	0.001770	134.90%
V 292.402†	560.4	0.00283 mg/L		0.000085	0.00283 mg/L	0.000085	3.02%
Zn 206.200†	-32.4	-0.01009 mg/L		0.001399	-0.01009 mg/L	0.001399	13.87%

Sequence No.: 24
 Sample ID: VP40 APOST SWC
 Analyst: EL
 Dilution: 2X

Autosampler Location: 73
 Date Collected: 11/1/2012 7:09:30 PM
 Data Type: Original

Nebulizer Parameters: VP40 APOST SWC

Analyte Back Pressure Flow
 All 231.0 kPa 0.55 L/min

Mean Data: VP40 APOST SWC

Analyte	Mean Corrected Intensity	Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2739927.9	103.5 %	0.62			0.60%
ScR 361.383	214376.5	101.2 %	0.32			0.32%
Ag 328.068†	151312.3	0.5233 mg/L	0.00285	1.047 mg/L	0.0057	0.54%
Al 308.215†	184327.2	122.6 mg/L	0.35	245.1 mg/L	0.69	0.28%
As 188.979†	5157.4	2.201 mg/L	0.0237	4.402 mg/L	0.0475	1.08%
B 249.677†	111.2	0.04897 mg/L	0.004490	0.09793 mg/L	0.008979	9.17%
Ba 233.527†	29162.6	2.828 mg/L	0.0044	5.656 mg/L	0.0088	0.16%
Be 313.042†	151252.2	0.5457 mg/L	0.00183	1.091 mg/L	0.0037	0.34%
Ca 317.933†	782827.9	73.95 mg/L	0.270	147.9 mg/L	0.54	0.36%
Cd 228.802†	44315.7	0.5252 mg/L	0.00501	1.050 mg/L	0.0100	0.95%
Co 228.616†	48856.6	0.5648 mg/L	0.00376	1.130 mg/L	0.0075	0.67%
Cr 267.716†	3902.9	0.8516 mg/L	0.00177	1.703 mg/L	0.0035	0.21%
Cu 324.752†	273176.7	0.8873 mg/L	0.00127	1.775 mg/L	0.0025	0.14%
Fe 273.955†	241667.0	197.1 mg/L	0.09	394.3 mg/L	0.17	0.04%
K 766.490†	89074.7	24.72 mg/L	0.095	49.44 mg/L	0.191	0.39%
Mg 279.077†	104779.5	89.85 mg/L	0.300	179.7 mg/L	0.60	0.33%
Mn 257.610†	126920.5	3.136 mg/L	0.0102	6.272 mg/L	0.0204	0.33%
Mo 202.031†	48.1	0.00388 mg/L	0.000515	0.00777 mg/L	0.001030	13.26%
Na 589.592†	189420.4	22.89 mg/L	0.088	45.79 mg/L	0.175	0.38%
Na 330.237†	605.5	22.56 mg/L	0.118	45.12 mg/L	0.236	0.52%
Ni 231.604†	1945.3	0.8524 mg/L	0.00088	1.705 mg/L	0.0018	0.10%
Pb 220.353†	29489.0	2.266 mg/L	0.0181	4.532 mg/L	0.0362	0.80%
Sb 206.836†	7607.3	2.058 mg/L	0.0133	4.116 mg/L	0.0267	0.65%
Se 196.026†	3975.1	2.103 mg/L	0.0153	4.206 mg/L	0.0305	0.73%
Si 288.158†	5401.3	4.007 mg/L	0.0043	8.014 mg/L	0.0086	0.11%
Sn 189.927†	59.5	0.02934 mg/L	0.000315	0.05869 mg/L	0.000630	1.07%
Sr 421.552†	536070.2	0.8830 mg/L	0.00144	1.766 mg/L	0.0029	0.16%
Ti 334.903†	165896.9	6.451 mg/L	0.0185	12.90 mg/L	0.037	0.29%
Tl 190.801†	7383.5	2.016 mg/L	0.0074	4.033 mg/L	0.0149	0.37%
V 292.402†	195347.9	0.9399 mg/L	0.00201	1.880 mg/L	0.0040	0.21%
Zn 206.200†	3095.3	1.213 mg/L	0.0026	2.425 mg/L	0.0052	0.21%

Sequence No.: 25
 Sample ID: CV7
 Analyst: EL
 Dilution: 1X

Autosampler Location: 7
 Date Collected: 11/1/2012 7:14:42 PM
 Data Type: Original

Nebulizer Parameters: CV

Analyte	Back Pressure	Flow
All	230.0 kPa	0.55 L/min

Mean Data: CV

Analyte	Mean Corrected Intensity	Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2706570.5	102.2 %	0.73			0.71%
ScR 361.383	210587.7	99.45 %	0.850			0.85%
Ag 328.068†	289705.3	0.9913 mg/L	0.00610	0.9913 mg/L	0.00610	0.62%
Al 308.215†	3055.8	1.992 mg/L	0.0114	1.992 mg/L	0.0114	0.57%
As 188.979†	4752.6	2.015 mg/L	0.0121	2.015 mg/L	0.0121	0.60%
B 249.677†	2112.9	0.9670 mg/L	0.00616	0.9670 mg/L	0.00616	0.64%
Ba 233.527†	10169.4	0.9890 mg/L	0.00320	0.9890 mg/L	0.00320	0.32%
Be 313.042†	267430.8	0.9669 mg/L	0.00127	0.9669 mg/L	0.00127	0.13%
Ca 317.933†	21379.3	2.020 mg/L	0.0081	2.020 mg/L	0.0081	0.40%
Cd 228.802†	82599.0	0.9836 mg/L	0.00074	0.9836 mg/L	0.00074	0.07%
Co 228.616†	82333.2	0.9744 mg/L	0.00077	0.9744 mg/L	0.00077	0.08%
Cr 267.716†	4569.0	0.9977 mg/L	0.00517	0.9977 mg/L	0.00517	0.52%
Cu 324.752†	327083.3	1.045 mg/L	0.0020	1.045 mg/L	0.0020	0.19%
Fe 273.955†	2612.8	2.131 mg/L	0.0056	2.131 mg/L	0.0056	0.26%
K 766.490†	74309.0	20.62 mg/L	0.115	20.62 mg/L	0.115	0.56%
Mg 279.077†	2442.5	2.100 mg/L	0.0051	2.100 mg/L	0.0051	0.24%
Mn 257.610†	39795.3	0.9838 mg/L	0.00148	0.9838 mg/L	0.00148	0.15%
Mo 202.031†	17006.6	0.9189 mg/L	0.00635	0.9189 mg/L	0.00635	0.69%
Na 589.592†	412221.2	49.82 mg/L	0.202	49.82 mg/L	0.202	0.41%
Na 330.237†	1371.4	49.78 mg/L	0.348	49.78 mg/L	0.348	0.70%
Ni 231.604†	2240.8	0.9818 mg/L	0.00510	0.9818 mg/L	0.00510	0.52%
Pb 220.353†	26103.4	1.975 mg/L	0.0116	1.975 mg/L	0.0116	0.59%
Sb 206.836†	7330.4	2.001 mg/L	0.0111	2.001 mg/L	0.0111	0.56%
Se 196.026†	3654.3	1.933 mg/L	0.0121	1.933 mg/L	0.0121	0.62%
Si 288.158†	2947.4	2.186 mg/L	0.0164	2.186 mg/L	0.0164	0.75%
Sn 189.927†	5697.7	0.8696 mg/L	0.00512	0.8696 mg/L	0.00512	0.59%
Sr 421.552†	604546.6	0.9957 mg/L	0.00488	0.9957 mg/L	0.00488	0.49%
Ti 334.903†	25329.2	0.9843 mg/L	0.00173	0.9843 mg/L	0.00173	0.18%
Tl 190.801†	7114.0	1.948 mg/L	0.0107	1.948 mg/L	0.0107	0.55%
V 292.402†	202975.2	1.006 mg/L	0.0023	1.006 mg/L	0.0023	0.23%
Zn 206.200†	2637.8	1.032 mg/L	0.0048	1.032 mg/L	0.0048	0.47%

Sequence No.: 26
 Sample ID: CB
 Analyst: EL
 Dilution: 1X

Autosampler Location: 1
 Date Collected: 11/1/2012 7:20:45 PM
 Data Type: Original

Nebulizer Parameters: CB

Analyte Back Pressure Flow
 All 230.0 kPa 0.55 L/min

Mean Data: CB

Analyte	Mean Corrected Intensity	Conc. Units	Calib.	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2763890.4	104.4 %		0.46			0.44%
ScR 361.383	207420.2	97.96 %		0.641			0.65%
Ag 328.068†	68.3	0.00023 mg/L		0.000304	0.00023 mg/L	0.000304	129.94%
Al 308.215†	3.0	0.00202 mg/L		0.014149	0.00202 mg/L	0.014149	699.39%
As 188.979†	6.2	0.00265 mg/L		0.001626	0.00265 mg/L	0.001626	61.46%
B 249.677†	4.7	0.00215 mg/L		0.002603	0.00215 mg/L	0.002603	121.02%
Ba 233.527†	-3.9	-0.00038 mg/L		0.000513	-0.00038 mg/L	0.000513	136.06%
Be 313.042†	1.5	0.00001 mg/L		0.000036	0.00001 mg/L	0.000036	639.48%
Ca 317.933†	-5.2	-0.00049 mg/L		0.001583	-0.00049 mg/L	0.001583	323.64%
Cd 228.802†	13.9	0.00016 mg/L		0.000067	0.00016 mg/L	0.000067	41.73%
Co 228.616†	-5.7	-0.00007 mg/L		0.000126	-0.00007 mg/L	0.000126	187.32%
Cr 267.716†	2.2	0.00048 mg/L		0.000717	0.00048 mg/L	0.000717	150.44%
Cu 324.752†	-99.2	-0.00032 mg/L		0.000123	-0.00032 mg/L	0.000123	38.75%
Fe 273.955†	0.2	0.00015 mg/L		0.001357	0.00015 mg/L	0.001357	886.75%
K 766.490†	206.0	0.05718 mg/L		0.015851	0.05718 mg/L	0.015851	27.72%
Mg 279.077†	-4.6	-0.00395 mg/L		0.003705	-0.00395 mg/L	0.003705	93.76%
Mn 257.610†	6.6	0.00016 mg/L		0.000150	0.00016 mg/L	0.000150	91.36%
Mo 202.031†	3.5	0.00019 mg/L		0.000255	0.00019 mg/L	0.000255	134.89%
Na 589.592†	759.6	0.09181 mg/L		0.009034	0.09181 mg/L	0.009034	9.84%
Na 330.237†	15.0	0.5496 mg/L		0.46305	0.5496 mg/L	0.46305	84.25%
Ni 231.604†	2.1	0.00094 mg/L		0.001802	0.00094 mg/L	0.001802	191.74%
Pb 220.353†	-7.7	-0.00058 mg/L		0.000685	-0.00058 mg/L	0.000685	117.87%
Sb 206.836†	5.6	0.00153 mg/L		0.001152	0.00153 mg/L	0.001152	75.10%
Se 196.026†	6.5	0.00344 mg/L		0.000409	0.00344 mg/L	0.000409	11.90%
Si 288.158†	3.8	0.00282 mg/L		0.000930	0.00282 mg/L	0.000930	32.95%
Sn 189.927†	5.7	0.00088 mg/L		0.000324	0.00088 mg/L	0.000324	37.04%
Sr 421.552†	65.3	0.00011 mg/L		0.000027	0.00011 mg/L	0.000027	24.66%
Ti 334.903†	-1.4	-0.00005 mg/L		0.000480	-0.00005 mg/L	0.000480	873.21%
Tl 190.801†	9.9	0.00274 mg/L		0.001649	0.00274 mg/L	0.001649	60.21%
V 292.402†	-22.1	-0.00010 mg/L		0.000210	-0.00010 mg/L	0.000210	201.84%
Zn 206.200†	-18.1	-0.00709 mg/L		0.000703	-0.00709 mg/L	0.000703	9.92%

Handwritten signature:
 EL 11-2-12

Sequence No.: 27

Autosampler Location: 74

Sample ID: VP83 MB TWC

Date Collected: 11/1/2012 7:26:44 PM

Analyst: EL

Data Type: Original

Dilution: 1X

Nebulizer Parameters: VP83 MB TWC

Analyte	Back Pressure	Flow
All	230.0 kPa	0.55 L/min

Mean Data: VP83 MB TWC

Analyte	Mean Corrected Intensity	Conc. Units	Calib.	Std.Dev.	Conc. Units	Sample Std.Dev.	RSD
ScA 357.253	2806912.7	106.0 %		0.45			0.43%
ScR 361.383	211172.8	99.73 %		0.548			0.55%
Ag 328.068†	16.5	0.00005 mg/L		0.000090	0.00005 mg/L	0.000090	166.97%
Al 308.215†	164.5	0.1094 mg/L		0.00344	0.1094 mg/L	0.00344	3.14%
As 188.979†	4.2	0.00179 mg/L		0.000552	0.00179 mg/L	0.000552	30.83%
B 249.677†	27.9	0.01280 mg/L		0.000755	0.01280 mg/L	0.000755	5.89%
Ba 233.527†	-6.6	-0.00064 mg/L		0.000265	-0.00064 mg/L	0.000265	41.47%
Be 313.042†	5.6	0.00002 mg/L		0.000051	0.00002 mg/L	0.000051	254.39%
Ca 317.933†	2782.5	<u>0.2629</u> mg/L		0.00279	0.2629 mg/L	0.00279	1.06%
Cd 228.802†	8.9	0.00010 mg/L		0.000052	0.00010 mg/L	0.000052	50.39%
Co 228.616†	-15.6	-0.00018 mg/L		0.000068	-0.00018 mg/L	0.000068	36.84%
Cr 267.716†	2.9	0.00063 mg/L		0.000055	0.00063 mg/L	0.000055	8.70%
Cu 324.752†	-128.4	-0.00041 mg/L		0.000057	-0.00041 mg/L	0.000057	13.90%
Fe 273.955†	10.6	0.00864 mg/L		0.003251	0.00864 mg/L	0.003251	37.62%
K 766.490†	49.9	0.01384 mg/L		0.012019	0.01384 mg/L	0.012019	86.82%
Mg 279.077†	11.4	0.00979 mg/L		0.004795	0.00979 mg/L	0.004795	48.99%
Mn 257.610†	12.6	0.00031 mg/L		0.000048	0.00031 mg/L	0.000048	15.36%
Mo 202.031†	8.6	0.00046 mg/L		0.000211	0.00046 mg/L	0.000211	45.46%
Na 589.592†	483.2	0.05840 mg/L		0.002416	0.05840 mg/L	0.002416	4.14%
Na 330.237†	17.6	0.6428 mg/L		0.34720	0.6428 mg/L	0.34720	54.02%
Ni 231.604†	-2.2	-0.00098 mg/L		0.001681	-0.00098 mg/L	0.001681	171.40%
Pb 220.353†	-13.1	-0.00094 mg/L		0.000498	-0.00094 mg/L	0.000498	53.00%
Sb 206.836†	1.5	0.00040 mg/L		0.001786	0.00040 mg/L	0.001786	448.50%
Se 196.026†	8.5	0.00451 mg/L		0.003942	0.00451 mg/L	0.003942	87.41%
Si 288.158†	11.3	0.00839 mg/L		0.000455	0.00839 mg/L	0.000455	5.43%
Sn 189.927†	0.4	0.00012 mg/L		0.000275	0.00012 mg/L	0.000275	232.25%
Sr 421.552†	871.4	0.00144 mg/L		0.000114	0.00144 mg/L	0.000114	7.92%
Ti 334.903†	-16.8	-0.00067 mg/L		0.000859	-0.00067 mg/L	0.000859	128.77%
Tl 190.801†	-0.0	-0.00001 mg/L		0.000286	-0.00001 mg/L	0.000286	>999.9%
V 292.402†	20.2	0.00011 mg/L		0.000024	0.00011 mg/L	0.000024	22.65%
Zn 206.200†	-14.4	-0.00562 mg/L		0.001147	-0.00562 mg/L	0.001147	20.43%

Sequence No.: 28
 Sample ID: VP92 MB TWC
 Analyst: EL
 Dilution: 1X

Autosampler Location: 75
 Date Collected: 11/1/2012 7:32:45 PM
 Data Type: Original

Nebulizer Parameters: VP92 MB TWC

Analyte Back Pressure Flow
 All 231.0 kPa 0.55 L/min

Mean Data: VP92 MB TWC

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2801133.5	105.8	%	0.91				0.86%
ScR 361.383	208220.1	98.33	%	1.853				1.88%
Ag 328.068†	-39.7	-0.00014	mg/L	0.000148	-0.00014	mg/L	0.000148	108.60%
Al 308.215†	32.3	0.02147	mg/L	0.008449	0.02147	mg/L	0.008449	39.36%
As 188.979†	1.2	0.00050	mg/L	0.000629	0.00050	mg/L	0.000629	124.59%
B 249.677†	-4.7	-0.00216	mg/L	0.004315	-0.00216	mg/L	0.004315	199.73%
Ba 233.527†	-2.5	-0.00024	mg/L	0.000550	-0.00024	mg/L	0.000550	230.14%
Be 313.042†	-43.2	-0.00016	mg/L	0.000064	-0.00016	mg/L	0.000064	40.58%
Ca 317.933†	126.8	0.01197	mg/L	0.002299	0.01197	mg/L	0.002299	19.20%
Cd 228.802†	4.9	0.00006	mg/L	0.000041	0.00006	mg/L	0.000041	70.52%
Co 228.616†	-10.4	-0.00012	mg/L	0.000094	-0.00012	mg/L	0.000094	76.53%
Cr 267.716†	2.3	0.00050	mg/L	0.000623	0.00050	mg/L	0.000623	123.92%
Cu 324.752†	-280.0	-0.00089	mg/L	0.000156	-0.00089	mg/L	0.000156	17.40%
Fe 273.955†	2.8	0.00230	mg/L	0.001867	0.00230	mg/L	0.001867	81.15%
K 766.490†	110.5	0.03067	mg/L	0.020410	0.03067	mg/L	0.020410	66.54%
Mg 279.077†	6.5	0.00557	mg/L	0.001793	0.00557	mg/L	0.001793	32.17%
Mn 257.610†	3.7	0.00009	mg/L	0.000155	0.00009	mg/L	0.000155	171.41%
Mo 202.031†	8.4	0.00045	mg/L	0.000155	0.00045	mg/L	0.000155	34.23%
Na 589.592†	291.1	0.03518	mg/L	0.004984	0.03518	mg/L	0.004984	14.17%
Na 330.237†	15.8	0.5769	mg/L	0.09218	0.5769	mg/L	0.09218	15.98%
Ni 231.604†	1.6	0.00068	mg/L	0.002144	0.00068	mg/L	0.002144	313.07%
Pb 220.353†	-15.0	-0.00113	mg/L	0.000101	-0.00113	mg/L	0.000101	9.00%
Sb 206.836†	0.8	0.00021	mg/L	0.000258	0.00021	mg/L	0.000258	125.94%
Se 196.026†	5.9	0.00315	mg/L	0.002252	0.00315	mg/L	0.002252	71.57%
Si 288.158†	10.4	0.00767	mg/L	0.002900	0.00767	mg/L	0.002900	37.82%
Sn 189.927†	0.0	0.00001	mg/L	0.000348	0.00001	mg/L	0.000348	>999.9%
Sr 421.552†	45.6	0.00008	mg/L	0.000059	0.00008	mg/L	0.000059	78.00%
Ti 334.903†	-12.8	-0.00050	mg/L	0.000611	-0.00050	mg/L	0.000611	122.68%
Tl 190.801†	-2.5	-0.00069	mg/L	0.000735	-0.00069	mg/L	0.000735	106.81%
V 292.402†	0.3	0.00001	mg/L	0.000093	0.00001	mg/L	0.000093	>999.9%
Zn 206.200†	-15.7	-0.00614	mg/L	0.000527	-0.00614	mg/L	0.000527	8.59%

Sequence No.: 29
 Sample ID: VP92 B TWC
 Analyst: EL
 Dilution: 2X

Autosampler Location: 76
 Date Collected: 11/1/2012 7:38:46 PM
 Data Type: Original

Nebulizer Parameters: VP92 B TWC

Analyte Back Pressure Flow
 All 230.0 kPa 0.55 L/min

Mean Data: VP92 B TWC

Analyte	Mean Corrected Intensity	Conc. Units	Calib. Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2714711.9	102.5 %	0.56			0.55%
ScR 361.383	208273.6	98.36 %	0.449			0.46%
Ag 328.068†	-543.2	0.00055 mg/L	0.000116	0.00109 mg/L	0.000232	21.26%
Al 308.215†	1239.3	0.7955 mg/L	0.00213	1.591 mg/L	0.0043	0.27%
As 188.979†	69.0	0.02505 mg/L	0.001251	0.05010 mg/L	0.002501	4.99%
B 249.677†	63.2	0.03046 mg/L	0.003549	0.06093 mg/L	0.007098	11.65%
Ba 233.527†	380.0	0.03158 mg/L	0.000466	0.06316 mg/L	0.000931	1.47%
Be 313.042†	-24.4	-0.00014 mg/L	0.000016	-0.00027 mg/L	0.000033	11.98%
Ca 317.933†	121390.9	11.47 mg/L	0.040	22.93 mg/L	0.081	0.35%
Cd 228.802†	29.3	0.00164 mg/L	0.000101	0.00328 mg/L	0.000202	6.16%
Co 228.616†	1640.5	0.01790 mg/L	0.000078	0.03580 mg/L	0.000157	0.44%
Cr 267.716†	2727.6	0.5948 mg/L	0.00195	1.190 mg/L	0.0039	0.33%
Cu 324.752†	432943.6	1.391 mg/L	0.0008	2.782 mg/L	0.0015	0.05%
Fe 273.955†	125807.5	102.6 mg/L	0.59	205.3 mg/L	1.17	0.57%
K 766.490†	5795.8	1.609 mg/L	0.0300	3.217 mg/L	0.0600	1.86%
Mg 279.077†	2548.1	2.132 mg/L	0.0093	4.265 mg/L	0.0185	0.43%
Mn 257.610†	138868.5	3.431 mg/L	0.0051	6.863 mg/L	0.0102	0.15%
Mo 202.031†	20771.6	1.122 mg/L	0.0078	2.245 mg/L	0.0155	0.69%
Na 589.592†	253130.0	30.59 mg/L	0.028	61.19 mg/L	0.055	0.09%
Na 330.237†	843.8	30.68 mg/L	0.210	61.37 mg/L	0.420	0.69%
Ni 231.604†	11257.2	4.930 mg/L	0.0262	9.860 mg/L	0.0524	0.53%
Pb 220.353†	332.2	0.01983 mg/L	0.000669	0.03966 mg/L	0.001338	3.37%
Sb 206.836†	74.7	0.00124 mg/L	0.001152	0.00248 mg/L	0.002303	92.83%
Se 196.026†	-4.1	-0.01409 mg/L	0.002801	-0.02819 mg/L	0.005601	19.87%
Si 288.158†	3200.9	2.370 mg/L	0.0076	4.739 mg/L	0.0152	0.32%
Sn 189.927†	48.5	0.00990 mg/L	0.000607	0.01979 mg/L	0.001214	6.13%
Sr 421.552†	19315.0	0.03181 mg/L	0.000056	0.06363 mg/L	0.000113	0.18%
Ti 334.903†	853.0	0.03142 mg/L	0.000776	0.06284 mg/L	0.001552	2.47%
Tl 190.801†	-13.1	-0.00689 mg/L	0.000439	-0.01379 mg/L	0.000878	6.37%
V 292.402†	3798.7	0.01911 mg/L	0.000209	0.03823 mg/L	0.000418	1.09%
Zn 206.200†	187.8	0.07301 mg/L	0.001202	0.1460 mg/L	0.00240	1.65%

Sequence No.: 30
 Sample ID: VP83 B TWC
 Analyst: EL
 Dilution: 1X

Autosampler Location: 77
 Date Collected: 11/1/2012 7:44:49 PM
 Data Type: Original

Nebulizer Parameters: VP83 B TWC

Analyte Back Pressure Flow
 All 230.0 kPa 0.55 L/min

Mean Data: VP83 B TWC

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2183971.0	82.47	%	0.591			0.72%
ScR 361.383	187707.4	88.65	%	1.077			1.21%
Ag 328.068+	336.0	-0.00083	mg/L	0.000142	-0.00083 mg/L	0.000142	17.10%
Al 308.215+	-2.0	-0.00156	mg/L	0.008046	-0.00156 mg/L	0.008046	516.62%
As 188.979+	0.9	0.00035	mg/L	0.001458	0.00035 mg/L	0.001458	411.30%
B 249.677+	3436.8	1.576	mg/L	0.0063	1.576 mg/L	0.0063	0.40%
Ba 233.527+	1048.6	0.1019	mg/L	0.00096	0.1019 mg/L	0.00096	0.94%
Be 313.042+	33.0	0.00012	mg/L	0.000036	0.00012 mg/L	0.000036	29.02%
Ca 317.933+	1541909.1	145.7	mg/L	2.38	145.7 mg/L	2.38	1.63%
Cd 228.802+	18.4	0.00023	mg/L	0.000077	0.00023 mg/L	0.000077	33.93%
Co 228.616+	473.1	0.00552	mg/L	0.000053	0.00552 mg/L	0.000053	0.96%
Cr 267.716+	90.8	0.01933	mg/L	0.002095	0.01933 mg/L	0.002095	10.84%
Cu 324.752+	301.7	0.00125	mg/L	0.000221	0.00125 mg/L	0.000221	17.62%
Fe 273.955+	4286.8	3.497	mg/L	0.0346	3.497 mg/L	0.0346	0.99%
K 766.490+	595451.0	165.3	mg/L	2.90	165.3 mg/L	2.90	1.76%
Mg 279.077+	490579.1	421.2	mg/L	0.60	421.2 mg/L	0.60	0.14%
Mn 257.610+	92297.8	2.281	mg/L	0.0029	2.281 mg/L	0.0029	0.13%
Mo 202.031+	162.8	0.00366	mg/L	0.000357	0.00366 mg/L	0.000357	9.76%
Na 589.592+	Saturated2						
Na 330.237+	93712.5	3415	mg/L	2.3	3415 mg/L	2.3	0.07%
Ni 231.604+	57.0	0.02495	mg/L	0.004160	0.02495 mg/L	0.004160	16.67%
Pb 220.353+	-10.0	0.00285	mg/L	0.000330	0.00285 mg/L	0.000330	11.58%
Sb 206.836+	3.3	0.00006	mg/L	0.001609	0.00006 mg/L	0.001609	>999.9%
Se 196.026+	13.8	0.00724	mg/L	0.000751	0.00724 mg/L	0.000751	10.37%
Si 288.158+	8474.6	6.317	mg/L	0.0432	6.317 mg/L	0.0432	0.68%
Sn 189.927+	-77.6	0.02925	mg/L	0.000995	0.02925 mg/L	0.000995	3.40%
Sr 421.552+	1689224.3	2.782	mg/L	0.0507	2.782 mg/L	0.0507	1.82%
Ti 334.903+	236.1	0.00203	mg/L	0.000153	0.00203 mg/L	0.000153	7.54%
Tl 190.801+	-25.5	-0.00987	mg/L	0.002486	-0.00987 mg/L	0.002486	25.18%
V 292.402+	-274.6	-0.00117	mg/L	0.000359	-0.00117 mg/L	0.000359	30.74%
Zn 206.200+	-9.9	-0.00075	mg/L	0.000678	-0.00075 mg/L	0.000678	90.77%

Sequence No.: 31
Sample ID: VP83 C TWC
Analyst: EL
Dilution: 1X

Autosampler Location: 78
Date Collected: 11/1/2012 7:51:14 PM
Data Type: Original

Nebulizer Parameters: VP83 C TWC

Analyte Back Pressure Flow
All 231.0 kPa 0.55 L/min

Mean Data: VP83 C TWC

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2376865.5	89.75	%	0.276				0.31%
ScR 361.383	200743.2	94.80	%	0.864				0.91%
Ag 328.068†	240.6	-0.00046	mg/L	0.000106	-0.00046	mg/L	0.000106	23.29%
Al 308.215†	13.9	0.00917	mg/L	0.002882	0.00917	mg/L	0.002882	31.43%
As 188.979†	1.0	0.00043	mg/L	0.002673	0.00043	mg/L	0.002673	621.43%
B 249.677†	1520.8	0.6973	mg/L	0.00555	0.6973	mg/L	0.00555	0.80%
Ba 233.527†	2047.3	0.1992	mg/L	0.00068	0.1992	mg/L	0.00068	0.34%
Be 313.042†	-26.7	-0.00009	mg/L	0.000024	-0.00009	mg/L	0.000024	25.29%
Ca 317.933†	835802.6	78.96	mg/L	0.184	78.96	mg/L	0.184	0.23%
Cd 228.802†	15.7	0.00019	mg/L	0.000030	0.00019	mg/L	0.000030	15.79%
Co 228.616†	297.7	0.00345	mg/L	0.000210	0.00345	mg/L	0.000210	6.08%
Cr 267.716†	53.8	0.01132	mg/L	0.000902	0.01132	mg/L	0.000902	7.97%
Cu 324.752†	797.5	0.00255	mg/L	0.000032	0.00255	mg/L	0.000032	1.26%
Fe 273.955†	23.4	0.01904	mg/L	0.000331	0.01904	mg/L	0.000331	1.74%
K 766.490†	221736.0	61.54	mg/L	0.301	61.54	mg/L	0.301	0.49%
Mg 279.077†	197659.4	169.7	mg/L	0.38	169.7	mg/L	0.38	0.22%
Mn 257.610†	80805.9	1.997	mg/L	0.0248	1.997	mg/L	0.0248	1.24%
Mo 202.031†	60.3	0.00119	mg/L	0.000112	0.00119	mg/L	0.000112	9.43%
Na 589.592†	Saturated2							
Na 330.237†	42461.7	1547	mg/L	17.9	1547	mg/L	17.9	1.16%
Ni 231.604†	6.5	0.00284	mg/L	0.000835	0.00284	mg/L	0.000835	29.42%
Pb 220.353†	-14.7	0.00094	mg/L	0.001750	0.00094	mg/L	0.001750	186.08%
Sb 206.836†	-2.1	-0.00090	mg/L	0.002855	-0.00090	mg/L	0.002855	315.85%
Se 196.026†	10.1	0.00536	mg/L	0.003396	0.00536	mg/L	0.003396	63.40%
Si 288.158†	7218.1	5.357	mg/L	0.0858	5.357	mg/L	0.0858	1.60%
Sn 189.927†	-56.9	0.01219	mg/L	0.000285	0.01219	mg/L	0.000285	2.34%
Sr 421.552†	751869.0	1.238	mg/L	0.0095	1.238	mg/L	0.0095	0.77%
Ti 334.903†	147.6	0.00187	mg/L	0.000723	0.00187	mg/L	0.000723	38.72%
Tl 190.801†	-18.8	-0.00766	mg/L	0.000755	-0.00766	mg/L	0.000755	9.85%
V 292.402†	-168.1	-0.00044	mg/L	0.000218	-0.00044	mg/L	0.000218	49.53%
Zn 206.200†	-12.9	-0.00335	mg/L	0.000756	-0.00335	mg/L	0.000756	22.55%

Sequence No.: 32
 Sample ID: VP83 D TWC
 Analyst: EL
 Dilution: 1X

Autosampler Location: 79
 Date Collected: 11/1/2012 7:57:36 PM
 Data Type: Original

Nebulizer Parameters: VP83 D TWC

Analyte Back Pressure Flow
 All 231.0 kPa 0.55 L/min

Mean Data: VP83 D TWC

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc. Units	Sample Std.Dev.	RSD
ScA 357.253	2285866.1	86.32	%	0.916			1.06%
ScR 361.383	193480.1	91.37	%	1.526			1.67%
Ag 328.068†	283.4	-0.00061	mg/L	0.000224	-0.00061 mg/L	0.000224	36.87%
Al 308.215†	-6.4	-0.00442	mg/L	0.003015	-0.00442 mg/L	0.003015	68.27%
As 188.979†	1.0	0.00042	mg/L	0.000484	0.00042 mg/L	0.000484	114.57%
B 249.677†	2263.5	1.038	mg/L	0.0128	1.038 mg/L	0.0128	1.24%
Ba 233.527†	1230.3	0.1196	mg/L	0.00205	0.1196 mg/L	0.00205	1.71%
Be 313.042†	4.0	0.00002	mg/L	0.000032	0.00002 mg/L	0.000032	182.85%
Ca 317.933†	1203839.4	113.7	mg/L	1.63	113.7 mg/L	1.63	1.43%
Cd 228.802†	-7.5	-0.00009	mg/L	0.000216	-0.00009 mg/L	0.000216	248.35%
Co 228.616†	166.7	0.00189	mg/L	0.000944	0.00189 mg/L	0.000944	49.92%
Cr 267.716†	77.1	0.01640	mg/L	0.000575	0.01640 mg/L	0.000575	3.51%
Cu 324.752†	289.0	0.00117	mg/L	0.000159	0.00117 mg/L	0.000159	13.57%
Fe 273.955†	3636.5	2.967	mg/L	0.0414	2.967 mg/L	0.0414	1.40%
K 766.490†	386676.0	107.3	mg/L	1.82	107.3 mg/L	1.82	1.70%
Mg 279.077†	336101.3	288.6	mg/L	4.13	288.6 mg/L	4.13	1.43%
Mn 257.610†	80688.9	1.994	mg/L	0.0454	1.994 mg/L	0.0454	2.28%
Mo 202.031†	101.3	0.00196	mg/L	0.000246	0.00196 mg/L	0.000246	12.55%
Na 589.592†	Saturated2						
Na 330.237†	63961.7	2331	mg/L	46.7	2331 mg/L	46.7	2.00%
Ni 231.604†	31.9	0.01397	mg/L	0.001552	0.01397 mg/L	0.001552	11.11%
Pb 220.353†	-38.5	-0.00011	mg/L	0.002258	-0.00011 mg/L	0.002258	>999.9%
Sb 206.836†	-9.0	-0.00318	mg/L	0.003854	-0.00318 mg/L	0.003854	121.25%
Se 196.026†	22.4	0.01185	mg/L	0.001329	0.01185 mg/L	0.001329	11.21%
Si 288.158†	7260.8	5.403	mg/L	0.1277	5.403 mg/L	0.1277	2.36%
Sn 189.927†	-59.5	0.02203	mg/L	0.000405	0.02203 mg/L	0.000405	1.84%
Sr 421.552†	1239502.6	2.042	mg/L	0.0341	2.042 mg/L	0.0341	1.67%
Ti 334.903†	179.7	0.00141	mg/L	0.000638	0.00141 mg/L	0.000638	45.31%
Tl 190.801†	-15.8	-0.00681	mg/L	0.001311	-0.00681 mg/L	0.001311	19.27%
V 292.402†	-230.1	-0.00098	mg/L	0.000239	-0.00098 mg/L	0.000239	24.42%
Zn 206.200†	-17.3	-0.00434	mg/L	0.001151	-0.00434 mg/L	0.001151	26.52%

Sequence No.: 33
 Sample ID: VP92 ADUP TWC
 Analyst: EL
 Dilution: 2X

Autosampler Location: 80
 Date Collected: 11/1/2012 8:03:59 PM
 Data Type: Original

Nebulizer Parameters: VP92 ADUP TWC

Analyte Back Pressure Flow
 All 231.0 kPa 0.55 L/min

Mean Data: VP92 ADUP TWC

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc. Units	Sample Std.Dev.	RSD
ScA 357.253	2734573.3	103.3	%	0.59			0.57%
ScR 361.383	211042.1	99.67	%	1.338			1.34%
Ag 328.068†	-88.4	0.00002	mg/L	0.000096	0.00003 mg/L	0.000193	562.90%
Al 308.215†	256.4	0.1536	mg/L	0.00425	0.3072 mg/L	0.00850	2.77%
As 188.979†	32.1	0.01133	mg/L	0.002706	0.02266 mg/L	0.005412	23.88%
B 249.677†	88.6	0.04164	mg/L	0.001896	0.08329 mg/L	0.003791	4.55%
Ba 233.527†	120.5	0.01068	mg/L	0.000336	0.02136 mg/L	0.000672	3.15%
Be 313.042†	-60.1	-0.00022	mg/L	0.000026	-0.00044 mg/L	0.000052	11.67%
Ca 317.933†	86828.6	8.202	mg/L	0.1070	16.40 mg/L	0.214	1.30%
Cd 228.802†	5.4	0.00041	mg/L	0.000069	0.00083 mg/L	0.000138	16.75%
Co 228.616†	320.0	0.00354	mg/L	0.000024	0.00708 mg/L	0.000048	0.67%
Cr 267.716†	468.6	0.1021	mg/L	0.00192	0.2042 mg/L	0.00383	1.88%
Cu 324.752†	118314.3	0.3793	mg/L	0.00336	0.7586 mg/L	0.00671	0.89%
Fe 273.955†	23807.3	19.42	mg/L	0.324	38.84 mg/L	0.648	1.67%
K 766.490†	6798.2	1.887	mg/L	0.0497	3.774 mg/L	0.0994	2.63%
Mg 279.077†	1774.2	1.514	mg/L	0.0098	3.028 mg/L	0.0196	0.65%
Mn 257.610†	22868.8	0.5651	mg/L	0.00920	1.130 mg/L	0.0184	1.63%
Mo 202.031†	12339.5	0.6668	mg/L	0.00110	1.334 mg/L	0.0022	0.16%
Na 589.592†	291716.8	35.26	mg/L	0.413	70.51 mg/L	0.827	1.17%
Na 330.237†	954.5	34.75	mg/L	0.437	69.51 mg/L	0.873	1.26%
Ni 231.604†	3144.4	1.377	mg/L	0.0168	2.754 mg/L	0.0336	1.22%
Pb 220.353†	76.7	0.00474	mg/L	0.000329	0.00949 mg/L	0.000658	6.94%
Sb 206.836†	9.0	-0.00076	mg/L	0.001702	-0.00152 mg/L	0.003404	224.46%
Se 196.026†	7.1	0.00041	mg/L	0.003145	0.00081 mg/L	0.006289	773.64%
Si 288.158†	1895.4	1.403	mg/L	0.0134	2.806 mg/L	0.0268	0.95%
Sn 189.927†	11.0	0.00346	mg/L	0.000611	0.00693 mg/L	0.001221	17.63%
Sr 421.552†	13988.0	0.02304	mg/L	0.000329	0.04608 mg/L	0.000658	1.43%
Ti 334.903†	150.2	0.00479	mg/L	0.000898	0.00957 mg/L	0.001796	18.76%
Tl 190.801†	-9.1	-0.00245	mg/L	0.000765	-0.00490 mg/L	0.001530	31.23%
V 292.402†	248.5	0.00346	mg/L	0.000149	0.00693 mg/L	0.000297	4.29%
Zn 206.200†	22.8	0.00884	mg/L	0.001278	0.01767 mg/L	0.002557	14.47%

Sequence No.: 34
 Sample ID: VP92 A TWC
 Analyst: EL
 Dilution: 2X

Autosampler Location: 81
 Date Collected: 11/1/2012 8:10:02 PM
 Data Type: Original

Nebulizer Parameters: VP92 A TWC

Analyte	Back Pressure	Flow
All	231.0 kPa	0.55 L/min

Mean Data: VP92 A TWC

Analyte	Mean Corrected Intensity	Calib. Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2718210.1	102.6 %	0.57			0.56%
ScR 361.383	211444.8	99.86 %	0.933			0.93%
Ag 328.068†	-81.8	-0.00002 mg/L	0.000102	-0.00004 mg/L	0.000205	483.00%
Al 308.215†	278.4	0.1682 mg/L	0.01107	0.3365 mg/L	0.02214	6.58%
As 188.979†	28.3	0.00976 mg/L	0.001208	0.01952 mg/L	0.002416	12.37%
B 249.677†	96.0	0.04505 mg/L	0.002966	0.09010 mg/L	0.005933	6.58%
Ba 233.527†	111.6	0.00993 mg/L	0.000380	0.01987 mg/L	0.000760	3.83%
Be 313.042†	-45.2	-0.00017 mg/L	0.000038	-0.00033 mg/L	0.000075	22.61%
Ca 317.933†	87081.4	8.226 mg/L	0.0205	16.45 mg/L	0.041	0.25%
Cd 228.802†	1.7	0.00035 mg/L	0.000100	0.00070 mg/L	0.000199	28.48%
Co 228.616†	285.5	0.00317 mg/L	0.000181	0.00634 mg/L	0.000361	5.70%
Cr 267.716†	359.1	0.07821 mg/L	0.003499	0.1564 mg/L	0.00700	4.47%
Cu 324.752†	114611.1	0.3673 mg/L	0.00381	0.7345 mg/L	0.00761	1.04%
Fe 273.955†	20860.6	17.02 mg/L	0.184	34.04 mg/L	0.368	1.08%
K 766.490†	5965.5	1.656 mg/L	0.0092	3.311 mg/L	0.0185	0.56%
Mg 279.077†	1739.1	1.485 mg/L	0.0218	2.970 mg/L	0.0437	1.47%
Mn 257.610†	18904.9	0.4671 mg/L	0.00588	0.9343 mg/L	0.01176	1.26%
Mo 202.031†	12309.2	0.6652 mg/L	0.00717	1.330 mg/L	0.0143	1.08%
Na 589.592†	280257.5	33.87 mg/L	0.188	67.74 mg/L	0.376	0.56%
Na 330.237†	924.1	33.65 mg/L	0.306	67.29 mg/L	0.612	0.91%
Ni 231.604†	2957.8	1.295 mg/L	0.0150	2.591 mg/L	0.0301	1.16%
Pb 220.353†	75.4	0.00474 mg/L	0.000415	0.00948 mg/L	0.000829	8.74%
Sb 206.836†	7.1	-0.00064 mg/L	0.000834	-0.00128 mg/L	0.001667	130.17%
Se 196.026†	7.1	0.00064 mg/L	0.004539	0.00129 mg/L	0.009078	704.68%
Si 288.158†	2378.1	1.760 mg/L	0.0234	3.520 mg/L	0.0468	1.33%
Sn 189.927†	6.8	0.00282 mg/L	0.000323	0.00564 mg/L	0.000646	11.45%
Sr 421.552†	14329.9	0.02360 mg/L	0.000050	0.04721 mg/L	0.000101	0.21%
Ti 334.903†	135.8	0.00423 mg/L	0.000968	0.00846 mg/L	0.001936	22.89%
Tl 190.801†	-8.9	-0.00228 mg/L	0.000797	-0.00456 mg/L	0.001595	35.01%
V 292.402†	188.7	0.00321 mg/L	0.000010	0.00641 mg/L	0.000020	0.31%
Zn 206.200†	22.0	0.00854 mg/L	0.000479	0.01708 mg/L	0.000957	5.60%

Sequence No.: 35
 Sample ID: VP92 ASPK TWC
 Analyst: EL
 Dilution: 2X

Autosampler Location: 82
 Date Collected: 11/1/2012 8:16:20 PM
 Data Type: Original

Nebulizer Parameters: VP92 ASPK TWC

Analyte Back Pressure Flow
 All 231.0 kPa 0.55 L/min

Mean Data: VP92 ASPK TWC

Analyte	Mean Corrected Intensity	Conc. Units	Calib. Units	Std.Dev.	Conc. Units	Std.Dev.	RSD
ScA 357.253	2727909.1	103.0 %	%	0.60			0.59%
ScR 361.383	210229.5	99.28 %	%	0.535			0.54%
Ag 328.068†	72688.7	0.2490 mg/L	mg/L	0.00297	0.4980 mg/L	0.00594	1.19%
Al 308.215†	1721.4	1.124 mg/L	mg/L	0.0120	2.248 mg/L	0.0241	1.07%
As 188.979†	2351.1	0.9950 mg/L	mg/L	0.01130	1.990 mg/L	0.0226	1.14%
B 249.677†	73.4	0.03386 mg/L	mg/L	0.001833	0.06772 mg/L	0.003665	5.41%
Ba 233.527†	9964.1	0.9683 mg/L	mg/L	0.00728	1.937 mg/L	0.0146	0.75%
Be 313.042†	70259.3	0.2540 mg/L	mg/L	0.00205	0.5081 mg/L	0.00410	0.81%
Ca 317.933†	142218.1	13.43 mg/L	mg/L	0.109	26.87 mg/L	0.217	0.81%
Cd 228.802†	20752.3	0.2463 mg/L	mg/L	0.00299	0.4927 mg/L	0.00597	1.21%
Co 228.616†	20801.9	0.2461 mg/L	mg/L	0.00244	0.4922 mg/L	0.00488	0.99%
Cr 267.716†	1492.7	0.3258 mg/L	mg/L	0.00179	0.6515 mg/L	0.00357	0.55%
Cu 324.752†	199448.3	0.6385 mg/L	mg/L	0.00628	1.277 mg/L	0.0126	0.98%
Fe 273.955†	22913.0	18.69 mg/L	mg/L	0.175	37.38 mg/L	0.350	0.93%
K 766.490†	24942.7	6.923 mg/L	mg/L	0.0785	13.85 mg/L	0.157	1.13%
Mg 279.077†	7753.4	6.648 mg/L	mg/L	0.0480	13.30 mg/L	0.096	0.72%
Mn 257.610†	29197.4	0.7217 mg/L	mg/L	0.00575	1.443 mg/L	0.0115	0.80%
Mo 202.031†	12419.7	0.6710 mg/L	mg/L	0.00547	1.342 mg/L	0.0109	0.82%
Na 589.592†	316029.3	38.19 mg/L	mg/L	0.390	76.39 mg/L	0.780	1.02%
Na 330.237†	1041.4	37.80 mg/L	mg/L	0.318	75.61 mg/L	0.637	0.84%
Ni 231.604†	3595.0	1.574 mg/L	mg/L	0.0101	3.148 mg/L	0.0202	0.64%
Pb 220.353†	12926.7	0.9771 mg/L	mg/L	0.01150	1.954 mg/L	0.0230	1.18%
Sb 206.836†	22.1	-0.00025 mg/L	mg/L	0.001417	-0.00050 mg/L	0.002835	569.49%
Se 196.026†	1711.5	0.9026 mg/L	mg/L	0.00525	1.805 mg/L	0.0105	0.58%
Si 288.158†	1798.4	1.333 mg/L	mg/L	0.0185	2.666 mg/L	0.0370	1.39%
Sn 189.927†	6.7	0.00404 mg/L	mg/L	0.000078	0.00809 mg/L	0.000155	1.92%
Sr 421.552†	171908.8	0.2831 mg/L	mg/L	0.00217	0.5663 mg/L	0.00435	0.77%
Ti 334.903†	149.5	0.00444 mg/L	mg/L	0.000452	0.00889 mg/L	0.000904	10.17%
Tl 190.801†	3472.7	0.9540 mg/L	mg/L	0.00698	1.908 mg/L	0.0140	0.73%
V 292.402†	51685.3	0.2573 mg/L	mg/L	0.00335	0.5146 mg/L	0.00671	1.30%
Zn 206.200†	656.7	0.2571 mg/L	mg/L	0.00312	0.5142 mg/L	0.00625	1.21%

Sequence No.: 36
 Sample ID: VP92 MBSPK TWC
 Analyst: EL
 Dilution: 1X

Autosampler Location: 83
 Date Collected: 11/1/2012 8:22:23 PM
 Data Type: Original

Nebulizer Parameters: VP92 MBSPK TWC

Analyte Back Pressure Flow
 All 231.0 kPa 0.55 L/min

Mean Data: VP92 MBSPK TWC

Analyte	Mean Corrected Intensity	Conc. Units	Calib. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2783799.6	105.1	%	0.73			0.70%
ScR 361.383	215901.9	102.0	%	0.57			0.56%
Ag 328.068†	145994.2	0.4996	mg/L	0.00343	0.4996 mg/L	0.00343	0.69%
Al 308.215†	2996.6	1.985	mg/L	0.0063	1.985 mg/L	0.0063	0.32%
As 188.979†	4578.8	1.942	mg/L	0.0162	1.942 mg/L	0.0162	0.83%
B 249.677†	10.8	0.00334	mg/L	0.001754	0.00334 mg/L	0.001754	52.53%
Ba 233.527†	19653.8	1.912	mg/L	0.0017	1.912 mg/L	0.0017	0.09%
Be 313.042†	139871.0	0.5057	mg/L	0.00145	0.5057 mg/L	0.00145	0.29%
Ca 317.933†	109028.6	10.30	mg/L	0.023	10.30 mg/L	0.023	0.22%
Cd 228.802†	41060.0	0.4867	mg/L	0.00297	0.4867 mg/L	0.00297	0.61%
Co 228.616†	41099.4	0.4867	mg/L	0.00282	0.4867 mg/L	0.00282	0.58%
Cr 267.716†	2279.8	0.4979	mg/L	0.00216	0.4979 mg/L	0.00216	0.43%
Cu 324.752†	159055.6	0.5084	mg/L	0.00302	0.5084 mg/L	0.00302	0.59%
Fe 273.955†	2547.5	2.078	mg/L	0.0048	2.078 mg/L	0.0048	0.23%
K 766.490†	38059.6	10.56	mg/L	0.024	10.56 mg/L	0.024	0.22%
Mg 279.077†	11937.1	10.25	mg/L	0.015	10.25 mg/L	0.015	0.15%
Mn 257.610†	19477.2	0.4817	mg/L	0.00058	0.4817 mg/L	0.00058	0.12%
Mo 202.031†	24.3	0.00113	mg/L	0.000145	0.00113 mg/L	0.000145	12.75%
Na 589.592†	106565.2	12.88	mg/L	0.055	12.88 mg/L	0.055	0.43%
Na 330.237†	351.1	12.58	mg/L	0.118	12.58 mg/L	0.118	0.94%
Ni 231.604†	1076.4	0.4707	mg/L	0.00344	0.4707 mg/L	0.00344	0.73%
Pb 220.353†	25752.0	1.949	mg/L	0.0179	1.949 mg/L	0.0179	0.92%
Sb 206.836†	12.9	-0.00390	mg/L	0.000650	-0.00390 mg/L	0.000650	16.67%
Se 196.026†	3587.0	1.899	mg/L	0.0141	1.899 mg/L	0.0141	0.74%
Si 288.158†	53.7	0.04309	mg/L	0.003480	0.04309 mg/L	0.003480	8.07%
Sn 189.927†	-13.7	0.00034	mg/L	0.000661	0.00034 mg/L	0.000661	193.03%
Sr 421.552†	313731.7	0.5167	mg/L	0.00095	0.5167 mg/L	0.00095	0.18%
Ti 334.903†	0.1	-0.00062	mg/L	0.000316	-0.00062 mg/L	0.000316	50.98%
Tl 190.801†	6829.4	1.876	mg/L	0.0145	1.876 mg/L	0.0145	0.78%
V 292.402†	103099.0	0.5088	mg/L	0.00370	0.5088 mg/L	0.00370	0.73%
Zn 206.200†	1176.5	0.4607	mg/L	0.00073	0.4607 mg/L	0.00073	0.16%

Sequence No.: 37
 Sample ID: CV8
 Analyst: EL
 Dilution: 1X

Autosampler Location: 7
 Date Collected: 11/1/2012 8:28:27 PM
 Data Type: Original

Nebulizer Parameters: CV

Analyte	Back Pressure	Flow
All	230.0 kPa	0.55 L/min

Mean Data: CV

Analyte	Mean Corrected Intensity	Calib. Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2701181.8	102.0 %	0.72			0.70%
ScR 361.383	211255.1	99.77 %	0.780			0.78%
Ag 328.068†	286433.2	0.9801 mg/L	0.00051	0.9801 mg/L	0.00051	0.05%
Al 308.215†	3030.6	1.976 mg/L	0.0103	1.976 mg/L	0.0103	0.52%
As 188.979†	4626.7	1.962 mg/L	0.0250	1.962 mg/L	0.0250	1.27%
B 249.677†	2036.0	0.9318 mg/L	0.00962	0.9318 mg/L	0.00962	1.03%
Ba 233.527†	9777.0	0.9508 mg/L	0.00841	0.9508 mg/L	0.00841	0.88%
Be 313.042†	265732.3	0.9607 mg/L	0.00579	0.9607 mg/L	0.00579	0.60%
Ca 317.933†	21405.6	2.022 mg/L	0.0157	2.022 mg/L	0.0157	0.78%
Cd 228.802†	80866.8	0.9630 mg/L	0.00171	0.9630 mg/L	0.00171	0.18%
Co 228.616†	81259.9	0.9617 mg/L	0.00161	0.9617 mg/L	0.00161	0.17%
Cr 267.716†	4448.8	0.9714 mg/L	0.00827	0.9714 mg/L	0.00827	0.85%
Cu 324.752†	325895.2	1.041 mg/L	0.0012	1.041 mg/L	0.0012	0.12%
Fe 273.955†	2551.6	2.081 mg/L	0.0131	2.081 mg/L	0.0131	0.63%
K 766.490†	74589.6	20.70 mg/L	0.022	20.70 mg/L	0.022	0.11%
Mg 279.077†	2391.4	2.056 mg/L	0.0177	2.056 mg/L	0.0177	0.86%
Mn 257.610†	38270.0	0.9461 mg/L	0.00273	0.9461 mg/L	0.00273	0.29%
Mo 202.031†	16363.0	0.8841 mg/L	0.01000	0.8841 mg/L	0.01000	1.13%
Na 589.592†	428970.3	51.84 mg/L	0.323	51.84 mg/L	0.323	0.62%
Na 330.237†	1421.5	51.63 mg/L	0.276	51.63 mg/L	0.276	0.53%
Ni 231.604†	2146.0	0.9403 mg/L	0.00750	0.9403 mg/L	0.00750	0.80%
Pb 220.353†	25436.0	1.925 mg/L	0.0215	1.925 mg/L	0.0215	1.12%
Sb 206.836†	7060.1	1.927 mg/L	0.0218	1.927 mg/L	0.0218	1.13%
Se 196.026†	3547.5	1.876 mg/L	0.0226	1.876 mg/L	0.0226	1.20%
Si 288.158†	2921.7	2.167 mg/L	0.0137	2.167 mg/L	0.0137	0.63%
Sn 189.927†	5522.3	0.8429 mg/L	0.00740	0.8429 mg/L	0.00740	0.88%
Sr 421.552†	613923.0	1.011 mg/L	0.0040	1.011 mg/L	0.0040	0.40%
Ti 334.903†	25273.1	0.9822 mg/L	0.00299	0.9822 mg/L	0.00299	0.30%
Tl 190.801†	6913.6	1.893 mg/L	0.0159	1.893 mg/L	0.0159	0.84%
V 292.402†	202811.1	1.005 mg/L	0.0013	1.005 mg/L	0.0013	0.13%
Zn 206.200†	2495.8	0.9761 mg/L	0.00773	0.9761 mg/L	0.00773	0.79%

Sequence No.: 38
 Sample ID: CB₃
 Analyst: EL
 Dilution: 1X

Autosampler Location: 1
 Date Collected: 11/1/2012 8:34:30 PM
 Data Type: Original

Nebulizer Parameters: CB

Analyte Back Pressure Flow
 All 231.0 kPa 0.55 L/min

Mean Data: CB

Analyte	Mean Corrected Intensity	Conc. Units	Calib. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2768904.5	104.6	%	0.63			0.60%
ScR 361.383	211254.8	99.77	%	0.451			0.45%
Ag 328.068†	118.2	0.00040	mg/L	0.000164	0.00040 mg/L	0.000164	40.58%
Al 308.215†	-14.1	-0.00937	mg/L	0.002057	-0.00937 mg/L	0.002057	21.95%
As 188.979†	2.0	0.00085	mg/L	0.000510	0.00085 mg/L	0.000510	59.97%
B 249.677†	9.6	0.00442	mg/L	0.001162	0.00442 mg/L	0.001162	26.27%
Ba 233.527†	-7.4	-0.00072	mg/L	0.000127	-0.00072 mg/L	0.000127	17.75%
Be 313.042†	-17.6	-0.00006	mg/L	0.000029	-0.00006 mg/L	0.000029	45.82%
Ca 317.933†	18.3	0.00173	mg/L	0.001218	0.00173 mg/L	0.001218	70.35%
Cd 228.802†	10.1	0.00012	mg/L	0.000049	0.00012 mg/L	0.000049	41.02%
Co 228.616†	-10.2	-0.00012	mg/L	0.000081	-0.00012 mg/L	0.000081	67.72%
Cr 267.716†	-0.6	-0.00012	mg/L	0.000143	-0.00012 mg/L	0.000143	118.12%
Cu 324.752†	-93.4	-0.00030	mg/L	0.000136	-0.00030 mg/L	0.000136	45.55%
Fe 273.955†	-1.3	-0.00103	mg/L	0.003362	-0.00103 mg/L	0.003362	327.94%
K 766.490†	377.4	0.1047	mg/L	0.00774	0.1047 mg/L	0.00774	7.39%
Mg 279.077†	10.9	0.00932	mg/L	0.004986	0.00932 mg/L	0.004986	53.48%
Mn 257.610†	15.6	0.00039	mg/L	0.000238	0.00039 mg/L	0.000238	61.80%
Mo 202.031†	13.1	0.00071	mg/L	0.000151	0.00071 mg/L	0.000151	21.38%
Na 589.592†	17907.8	2.164	mg/L	0.0216	2.164 mg/L	0.0216	1.00%
Na 330.237†	68.5	2.499	mg/L	0.7544	2.499 mg/L	0.7544	30.19%
Ni 231.604†	1.3	0.00058	mg/L	0.000087	0.00058 mg/L	0.000087	14.94%
Pb 220.353†	-2.0	-0.00016	mg/L	0.000095	-0.00016 mg/L	0.000095	60.63%
Sb 206.836†	-1.2	-0.00034	mg/L	0.002106	-0.00034 mg/L	0.002106	627.89%
Se 196.026†	12.2	0.00648	mg/L	0.002441	0.00648 mg/L	0.002441	37.67%
Si 288.158†	11.1	0.00824	mg/L	0.001980	0.00824 mg/L	0.001980	24.04%
Sn 189.927†	2.3	0.00036	mg/L	0.000331	0.00036 mg/L	0.000331	92.95%
Sr 421.552†	83.1	0.00014	mg/L	0.000005	0.00014 mg/L	0.000005	3.72%
Ti 334.903†	-8.9	-0.00035	mg/L	0.000606	-0.00035 mg/L	0.000606	175.29%
Tl 190.801†	2.7	0.00073	mg/L	0.000753	0.00073 mg/L	0.000753	102.73%
V 292.402†	-26.8	-0.00013	mg/L	0.000170	-0.00013 mg/L	0.000170	132.93%
Zn 206.200†	-19.6	-0.00768	mg/L	0.000253	-0.00768 mg/L	0.000253	3.29%

Sequence No.: 39
 Sample ID: VP81 MB TWC
 Analyst: EL
 Dilution: 1X

Autosampler Location: 84
 Date Collected: 11/1/2012 8:40:29 PM
 Data Type: Original

Nebulizer Parameters: VP81 MB TWC

Analyte Back Pressure Flow
 All 230.0 kPa 0.55 L/min

Mean Data: VP81 MB TWC

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc. Sample Units	Std.Dev.	RSD
ScA 357.253	2793008.3	105.5	%	0.12			0.11%
ScR 361.383	211641.9	99.95	%	0.486			0.49%
Ag 328.068†	69.7	0.00024	mg/L	0.000063	0.00024 mg/L	0.000063	26.55%
Al 308.215†	11.1	0.00737	mg/L	0.012581	0.00737 mg/L	0.012581	170.69%
As 188.979†	1.1	0.00045	mg/L	0.000817	0.00045 mg/L	0.000817	180.52%
B 249.677†	7.1	0.00326	mg/L	0.001641	0.00326 mg/L	0.001641	50.38%
Ba 233.527†	-6.9	-0.00067	mg/L	0.000465	-0.00067 mg/L	0.000465	69.31%
Be 313.042†	-39.4	-0.00014	mg/L	0.000034	-0.00014 mg/L	0.000034	23.79%
Ca 317.933†	38.4	0.00363	mg/L	0.001454	0.00363 mg/L	0.001454	40.03%
Cd 228.802†	1.4	0.00002	mg/L	0.000044	0.00002 mg/L	0.000044	277.50%
Co 228.616†	-8.6	-0.00010	mg/L	0.000036	-0.00010 mg/L	0.000036	35.94%
Cr 267.716†	1.7	0.00037	mg/L	0.000508	0.00037 mg/L	0.000508	137.51%
Cu 324.752†	-222.3	-0.00071	mg/L	0.000247	-0.00071 mg/L	0.000247	34.74%
Fe 273.955†	-3.4	-0.00280	mg/L	0.001565	-0.00280 mg/L	0.001565	55.91%
K 766.490†	230.3	0.06392	mg/L	0.016938	0.06392 mg/L	0.016938	26.50%
Mg 279.077†	4.6	0.00391	mg/L	0.003208	0.00391 mg/L	0.003208	81.95%
Mn 257.610†	10.4	0.00026	mg/L	0.000090	0.00026 mg/L	0.000090	34.97%
Mo 202.031†	9.0	0.00049	mg/L	0.000151	0.00049 mg/L	0.000151	31.02%
Na 589.592†	14777.3	1.786	mg/L	0.0436	1.786 mg/L	0.0436	2.44%
Na 330.237†	49.9	1.820	mg/L	0.3403	1.820 mg/L	0.3403	18.70%
Ni 231.604†	-0.4	-0.00017	mg/L	0.000540	-0.00017 mg/L	0.000540	323.98%
Pb 220.353†	-19.9	-0.00150	mg/L	0.000801	-0.00150 mg/L	0.000801	53.36%
Sb 206.836†	-6.2	-0.00170	mg/L	0.001384	-0.00170 mg/L	0.001384	81.54%
Se 196.026†	9.8	0.00518	mg/L	0.002420	0.00518 mg/L	0.002420	46.72%
Si 288.158†	11.6	0.00859	mg/L	0.001189	0.00859 mg/L	0.001189	13.85%
Sn 189.927†	1.3	0.00020	mg/L	0.000076	0.00020 mg/L	0.000076	38.19%
Sr 421.552†	46.3	0.00008	mg/L	0.000035	0.00008 mg/L	0.000035	45.82%
Ti 334.903†	-3.7	-0.00014	mg/L	0.000950	-0.00014 mg/L	0.000950	656.51%
Tl 190.801†	-3.3	-0.00090	mg/L	0.000736	-0.00090 mg/L	0.000736	81.69%
V 292.402†	-13.5	-0.00006	mg/L	0.000094	-0.00006 mg/L	0.000094	154.52%
Zn 206.200†	-16.7	-0.00652	mg/L	0.000478	-0.00652 mg/L	0.000478	7.33%

Sequence No.: 40
 Sample ID: VP81 A TWC
 Analyst: EL
 Dilution: 1X

Autosampler Location: 85
 Date Collected: 11/1/2012 8:46:29 PM
 Data Type: Original

Nebulizer Parameters: VP81 A TWC

Analyte Back Pressure Flow
 All 230.0 kPa 0.55 L/min

Mean Data: VP81 A TWC

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
SCA 357.253	2764606.5	104.4	%	0.24				0.23%
ScR 361.383	212287.6	100.3	%	0.38				0.38%
Ag 328.068†	35.1	-0.00009	mg/L	0.000183	-0.00009	mg/L	0.000183	207.04%
Al 308.215†	10.0	0.00663	mg/L	0.008747	0.00663	mg/L	0.008747	131.84%
As 188.979†	-0.8	-0.00035	mg/L	0.000907	-0.00035	mg/L	0.000907	260.97%
B 249.677†	70.0	0.03209	mg/L	0.001392	0.03209	mg/L	0.001392	4.34%
Ba 233.527†	120.7	0.01174	mg/L	0.000311	0.01174	mg/L	0.000311	2.64%
Be 313.042†	-11.5	-0.00004	mg/L	0.000085	-0.00004	mg/L	0.000085	207.84%
Ca 317.933†	185914.7	17.56	mg/L	0.027	17.56	mg/L	0.027	0.16%
Cd 228.802†	-5.8	-0.00007	mg/L	0.000008	-0.00007	mg/L	0.000008	12.11%
Co 228.616†	-28.8	-0.00035	mg/L	0.000064	-0.00035	mg/L	0.000064	18.43%
Cr 267.716†	6.5	0.00141	mg/L	0.000894	0.00141	mg/L	0.000894	63.40%
Cu 324.752†	645.8	0.00206	mg/L	0.000071	0.00206	mg/L	0.000071	3.45%
Fe 273.955†	35.3	0.02882	mg/L	0.001193	0.02882	mg/L	0.001193	4.14%
K 766.490†	12671.5	3.517	mg/L	0.0099	3.517	mg/L	0.0099	0.28%
Mg 279.077†	8193.9	7.035	mg/L	0.0203	7.035	mg/L	0.0203	0.29%
Mn 257.610†	1934.7	0.04781	mg/L	0.000113	0.04781	mg/L	0.000113	0.24%
Mo 202.031†	35.9	0.00185	mg/L	0.000096	0.00185	mg/L	0.000096	5.20%
Na 589.592†	86906.8	10.50	mg/L	0.035	10.50	mg/L	0.035	0.33%
Na 330.237†	289.2	10.47	mg/L	0.179	10.47	mg/L	0.179	1.71%
Ni 231.604†	-0.2	-0.00009	mg/L	0.001133	-0.00009	mg/L	0.001133	>999.9%
Pb 220.353†	-32.4	-0.00200	mg/L	0.000439	-0.00200	mg/L	0.000439	21.98%
Sb 206.836†	-3.6	-0.00106	mg/L	0.001344	-0.00106	mg/L	0.001344	126.88%
Se 196.026†	12.2	0.00648	mg/L	0.002509	0.00648	mg/L	0.002509	38.74%
Si 288.158†	23881.5	17.66	mg/L	0.124	17.66	mg/L	0.124	0.70%
Sn 189.927†	-19.6	0.00092	mg/L	0.000426	0.00092	mg/L	0.000426	46.32%
Sr 421.552†	58056.7	0.09562	mg/L	0.000319	0.09562	mg/L	0.000319	0.33%
Ti 334.903†	25.3	0.00012	mg/L	0.000647	0.00012	mg/L	0.000647	539.48%
Tl 190.801†	-2.4	-0.00072	mg/L	0.000798	-0.00072	mg/L	0.000798	111.36%
V 292.402†	-45.7	-0.00020	mg/L	0.000143	-0.00020	mg/L	0.000143	71.13%
Zn 206.200†	-24.4	-0.00916	mg/L	0.000809	-0.00916	mg/L	0.000809	8.83%

Sequence No.: 41
 Sample ID: VP81 B TWC
 Analyst: EL
 Dilution: 1X

Autosampler Location: 86
 Date Collected: 11/1/2012 8:52:30 PM
 Data Type: Original

Nebulizer Parameters: VP81 B TWC

Analyte Back Pressure Flow
 All 231.0 kPa 0.55 L/min

Mean Data: VP81 B TWC

Analyte	Mean Corrected Intensity	Calib. Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2795080.2	105.5 %	0.91			0.86%
ScR 361.383	213085.4	100.6 %	0.94			0.93%
Ag 328.068†	79.8	0.00018 mg/L	0.000152	0.00018 mg/L	0.000152	85.63%
Al 308.215†	3872.7	2.575 mg/L	0.0147	2.575 mg/L	0.0147	0.57%
As 188.979†	11.7	0.00514 mg/L	0.000827	0.00514 mg/L	0.000827	16.10%
B 249.677†	93.7	0.04298 mg/L	0.002025	0.04298 mg/L	0.002025	4.71%
Ba 233.527†	887.5	0.08622 mg/L	0.000550	0.08622 mg/L	0.000550	0.64%
Be 313.042†	-34.6	-0.00014 mg/L	0.000023	-0.00014 mg/L	0.000023	16.23%
Ca 317.933†	171810.6	16.23 mg/L	0.013	16.23 mg/L	0.013	0.08%
Cd 228.802†	12.6	0.00014 mg/L	0.000058	0.00014 mg/L	0.000058	41.36%
Co 228.616†	97.8	0.00091 mg/L	0.000061	0.00091 mg/L	0.000061	6.69%
Cr 267.716†	50.9	0.01111 mg/L	0.000574	0.01111 mg/L	0.000574	5.16%
Cu 324.752†	18015.2	0.05774 mg/L	0.000501	0.05774 mg/L	0.000501	0.87%
Fe 273.955†	3497.7	2.853 mg/L	0.0118	2.853 mg/L	0.0118	0.41%
K 766.490†	7395.4	2.053 mg/L	0.0205	2.053 mg/L	0.0205	1.00%
Mg 279.077†	1924.5	1.651 mg/L	0.0053	1.651 mg/L	0.0053	0.32%
Mn 257.610†	1986.1	0.04906 mg/L	0.000237	0.04906 mg/L	0.000237	0.48%
Mo 202.031†	135.5	0.00736 mg/L	0.000270	0.00736 mg/L	0.000270	3.67%
Na 589.592†	35233.4	4.258 mg/L	0.0343	4.258 mg/L	0.0343	0.81%
Na 330.237†	125.6	4.465 mg/L	0.1095	4.465 mg/L	0.1095	2.45%
Ni 231.604†	15.6	0.00683 mg/L	0.000484	0.00683 mg/L	0.000484	7.08%
Pb 220.353†	85.6	0.00763 mg/L	0.000869	0.00763 mg/L	0.000869	11.40%
Sb 206.836†	30.4	0.00799 mg/L	0.001293	0.00799 mg/L	0.001293	16.18%
Se 196.026†	10.4	0.00548 mg/L	0.003125	0.00548 mg/L	0.003125	57.04%
Si 288.158†	9653.8	7.138 mg/L	0.0995	7.138 mg/L	0.0995	1.39%
Sn 189.927†	-0.7	0.00343 mg/L	0.000638	0.00343 mg/L	0.000638	18.60%
Sr 421.552†	54420.6	0.08964 mg/L	0.000665	0.08964 mg/L	0.000665	0.74%
Ti 334.903†	2721.4	0.1051 mg/L	0.00103	0.1051 mg/L	0.00103	0.98%
Tl 190.801†	-0.8	-0.00042 mg/L	0.000965	-0.00042 mg/L	0.000965	228.16%
V 292.402†	1374.4	0.00650 mg/L	0.000178	0.00650 mg/L	0.000178	2.73%
Zn 206.200†	425.4	0.1669 mg/L	0.00100	0.1669 mg/L	0.00100	0.60%

Sequence No.: 42
Sample ID: VP83 E TWC
Analyst: EL
Dilution: 1X

Autosampler Location: 87
Date Collected: 11/1/2012 8:58:32 PM
Data Type: Original

Nebulizer Parameters: VP83 E TWC
Analyte Back Pressure Flow
All 230.0 kPa 0.55 L/min

Mean Data: VP83 E TWC

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2813624.9	106.2	%	0.98				0.92%
ScR 361.383	214924.4	101.5	%	1.13				1.11%
Ag 328.068†	33.6	0.00011	mg/L	0.000216	0.00011	mg/L	0.000216	195.69%
Al 308.215†	168.7	0.1122	mg/L	0.00282	0.1122	mg/L	0.00282	2.52%
As 188.979†	1.3	0.00056	mg/L	0.000982	0.00056	mg/L	0.000982	175.21%
B 249.677†	32.5	0.01488	mg/L	0.002709	0.01488	mg/L	0.002709	18.20%
Ba 233.527†	-3.9	-0.00038	mg/L	0.000332	-0.00038	mg/L	0.000332	88.02%
Be 313.042†	-31.5	-0.00011	mg/L	0.000035	-0.00011	mg/L	0.000035	30.24%
Ca 317.933†	4098.8	0.3872	mg/L	0.00232	0.3872	mg/L	0.00232	0.60%
Cd 228.802†	-1.4	-0.00002	mg/L	0.000057	-0.00002	mg/L	0.000057	309.00%
Co 228.616†	23.8	0.00028	mg/L	0.000074	0.00028	mg/L	0.000074	26.25%
Cr 267.716†	1.9	0.00041	mg/L	0.001038	0.00041	mg/L	0.001038	256.16%
Cu 324.752†	-165.2	-0.00053	mg/L	0.000094	-0.00053	mg/L	0.000094	17.77%
Fe 273.955†	15.6	0.01272	mg/L	0.002513	0.01272	mg/L	0.002513	19.75%
K 766.490†	207.0	0.05746	mg/L	0.008412	0.05746	mg/L	0.008412	14.64%
Mg 279.077†	42.7	0.03664	mg/L	0.002073	0.03664	mg/L	0.002073	5.66%
Mn 257.610†	124.4	0.00307	mg/L	0.000056	0.00307	mg/L	0.000056	1.81%
Mo 202.031†	12.2	0.00066	mg/L	0.000195	0.00066	mg/L	0.000195	29.51%
Na 589.592†	8745.9	1.057	mg/L	0.0199	1.057	mg/L	0.0199	1.88%
Na 330.237†	29.7	1.082	mg/L	0.3340	1.082	mg/L	0.3340	30.88%
Ni 231.604†	2.8	0.00124	mg/L	0.000805	0.00124	mg/L	0.000805	64.99%
Pb 220.353†	-21.4	-0.00157	mg/L	0.001028	-0.00157	mg/L	0.001028	65.69%
Sb 206.836†	-5.2	-0.00143	mg/L	0.001582	-0.00143	mg/L	0.001582	110.85%
Se 196.026†	9.2	0.00485	mg/L	0.000870	0.00485	mg/L	0.000870	17.92%
Si 288.158†	111.6	0.08251	mg/L	0.016137	0.08251	mg/L	0.016137	19.56%
Sn 189.927†	-1.8	-0.00018	mg/L	0.000128	-0.00018	mg/L	0.000128	69.80%
Sr 421.552†	1272.4	0.00210	mg/L	0.000110	0.00210	mg/L	0.000110	5.26%
Ti 334.903†	-25.9	-0.00103	mg/L	0.000889	-0.00103	mg/L	0.000889	86.41%
Tl 190.801†	-3.6	-0.00099	mg/L	0.000871	-0.00099	mg/L	0.000871	88.24%
V 292.402†	-0.3	0.00000	mg/L	0.000121	0.00000	mg/L	0.000121	>999.9%
Zn 206.200†	-8.8	-0.00345	mg/L	0.000740	-0.00345	mg/L	0.000740	21.44%

Sequence No.: 43
 Sample ID: VP83 ADUP TWC
 Analyst: EL
 Dilution: 1X

Autosampler Location: 88
 Date Collected: 11/1/2012 9:04:32 PM
 Data Type: Original

Nebulizer Parameters: VP83 ADUP TWC

Analyte Back Pressure Flow
 All 230.0 kPa 0.55 L/min

Mean Data: VP83 ADUP TWC

Analyte	Mean Corrected Intensity	Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2511825.3	94.85 %	1.590			1.68%
ScR 361.383	205488.8	97.04 %	0.326			0.34%
Ag 328.068†	5.0	-0.00057 mg/L	0.000328	-0.00057 mg/L	0.000328	57.47%
Al 308.215†	14.2	0.00920 mg/L	0.005600	0.00920 mg/L	0.005600	60.85%
As 188.979†	1.1	0.00043 mg/L	0.002450	0.00043 mg/L	0.002450	564.23%
B 249.677†	987.9	0.4530 mg/L	0.00783	0.4530 mg/L	0.00783	1.73%
Ba 233.527†	437.3	0.04255 mg/L	0.000096	0.04255 mg/L	0.000096	0.22%
Be 313.042†	-24.9	-0.00010 mg/L	0.000114	-0.00010 mg/L	0.000114	113.43%
Ca 317.933†	477024.9	45.06 mg/L	0.084	45.06 mg/L	0.084	0.19%
Cd 228.802†	-4.1	-0.00005 mg/L	0.000132	-0.00005 mg/L	0.000132	279.29%
Co 228.616†	41.6	0.00047 mg/L	0.002567	0.00047 mg/L	0.002567	545.37%
Cr 267.716†	29.7	0.00639 mg/L	0.000680	0.00639 mg/L	0.000680	10.63%
Cu 324.752†	203.6	0.00065 mg/L	0.000169	0.00065 mg/L	0.000169	25.95%
Fe 273.955†	37.0	0.03019 mg/L	0.000828	0.03019 mg/L	0.000828	2.74%
K 766.490†	129804.8	36.03 mg/L	0.078	36.03 mg/L	0.078	0.22%
Mg 279.077†	97992.5	84.13 mg/L	0.319	84.13 mg/L	0.319	0.38%
Mn 257.610†	16225.2	0.4009 mg/L	0.00232	0.4009 mg/L	0.00232	0.58%
Mo 202.031†	111.6	0.00500 mg/L	0.000277	0.00500 mg/L	0.000277	5.55%
Na 589.592†	5742411.8	694.0 mg/L	9.65	694.0 mg/L	9.65	1.39%
Na 330.237†	20475.9	746.2 mg/L	2.15	746.2 mg/L	2.15	0.29%
Ni 231.604†	31.2	0.01365 mg/L	0.000803	0.01365 mg/L	0.000803	5.88%
Pb 220.353†	-68.8	-0.00404 mg/L	0.006475	-0.00404 mg/L	0.006475	160.36%
Sb 206.836†	-25.8	-0.00719 mg/L	0.010722	-0.00719 mg/L	0.010722	149.09%
Se 196.026†	32.9	0.01738 mg/L	0.013171	0.01738 mg/L	0.013171	75.80%
Si 288.158†	6293.7	4.664 mg/L	0.0312	4.664 mg/L	0.0312	0.67%
Sn 189.927†	-17.3	0.00897 mg/L	0.002292	0.00897 mg/L	0.002292	25.55%
Sr 421.552†	391271.6	0.6445 mg/L	0.00360	0.6445 mg/L	0.00360	0.56%
Ti 334.903†	112.6	0.00217 mg/L	0.000684	0.00217 mg/L	0.000684	31.61%
Tl 190.801†	-17.6	-0.00536 mg/L	0.001289	-0.00536 mg/L	0.001289	24.03%
V 292.402†	798.6	0.00404 mg/L	0.000083	0.00404 mg/L	0.000083	2.07%
Zn 206.200†	-21.3	-0.00738 mg/L	0.000201	-0.00738 mg/L	0.000201	2.72%

Sequence No.: 44
 Sample ID: VP83 A TWC
 Analyst: EL
 Dilution: 1X

Autosampler Location: 89
 Date Collected: 11/1/2012 9:11:14 PM
 Data Type: Original

Nebulizer Parameters: VP83 A TWC

Analyte Back Pressure Flow
 Ali 231.0 kPa 0.55 L/min

Mean Data: VP83 A TWC

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc. Units	Sample Std.Dev.	RSD
ScA 357.253	2531224.4	95.58	%	1.380			1.44%
ScR 361.383	206133.0	97.35	%	1.368			1.41%
Ag 328.068†	62.3	-0.00038	mg/L	0.000060	-0.00038	0.000060	15.70%
Al 308.215†	11.8	0.00764	mg/L	0.002596	0.00764	0.002596	33.99%
As 188.979†	5.3	0.00221	mg/L	0.002964	0.00221	0.002964	133.84%
B 249.677†	994.0	0.4557	mg/L	0.00493	0.4557	0.00493	1.08%
Ba 233.527†	449.3	0.04371	mg/L	0.000877	0.04371	0.000877	2.01%
Be 313.042†	-39.1	-0.00015	mg/L	0.000043	-0.00015	0.000043	28.12%
Ca 317.933†	484848.7	45.80	mg/L	0.291	45.80	0.291	0.64%
Cd 228.802†	-7.7	-0.00009	mg/L	0.000211	-0.00009	0.000211	224.99%
Co 228.616†	55.9	0.00064	mg/L	0.002477	0.00064	0.002477	387.62%
Cr 267.716†	30.5	0.00657	mg/L	0.001308	0.00657	0.001308	19.90%
Cu 324.752†	143.9	0.00046	mg/L	0.000169	0.00046	0.000169	36.73%
Fe 273.955†	36.1	0.02943	mg/L	0.003059	0.02943	0.003059	10.39%
K 766.490†	129862.3	36.04	mg/L	0.221	36.04	0.221	0.61%
Mg 279.077†	98315.5	84.41	mg/L	0.879	84.41	0.879	1.04%
Mn 257.610†	16470.2	0.4070	mg/L	0.00372	0.4070	0.00372	0.91%
Mo 202.031†	108.0	0.00481	mg/L	0.000087	0.00481	0.000087	1.80%
Na 589.592†	5720412.9	691.4	mg/L	13.72	691.4	13.72	1.98%
Na 330.237†	20730.3	755.5	mg/L	8.17	755.5	8.17	1.08%
Ni 231.604†	35.0	0.01534	mg/L	0.002111	0.01534	0.002111	13.76%
Pb 220.353†	-66.9	-0.00387	mg/L	0.006314	-0.00387	0.006314	162.97%
Sb 206.836†	-19.7	-0.00551	mg/L	0.010596	-0.00551	0.010596	192.26%
Se 196.026†	32.8	0.01736	mg/L	0.014643	0.01736	0.014643	84.36%
Si 288.158†	6160.3	4.565	mg/L	0.0294	4.565	0.0294	0.64%
Sn 189.927†	-18.3	0.00897	mg/L	0.002424	0.00897	0.002424	27.01%
Sr 421.552†	395156.1	0.6509	mg/L	0.00294	0.6509	0.00294	0.45%
Ti 334.903†	118.4	0.00235	mg/L	0.000297	0.00235	0.000297	12.60%
Tl 190.801†	-17.9	-0.00544	mg/L	0.001059	-0.00544	0.001059	19.47%
V 292.402†	778.4	0.00394	mg/L	0.000085	0.00394	0.000085	2.16%
Zn 206.200†	-25.2	-0.00889	mg/L	0.001102	-0.00889	0.001102	12.40%

Sequence No.: 45

Autosampler Location: 90

Sample ID: VP83 ASPK TWC

Date Collected: 11/1/2012 9:17:55 PM

Analyst: EL

Data Type: Original

Dilution: 1X

Nebulizer Parameters: VP83 ASPK TWC

Analyte	Back Pressure	Flow
All	231.0 kPa	0.55 L/min

Mean Data: VP83 ASPK TWC

Analyte	Mean Corrected		Calib. Units	Std.Dev.	Sample		RSD
	Intensity	Conc.			Conc.	Units	
ScA 357.253	2498122.5	94.33	%	0.248			0.26%
ScR 361.383	204633.0	96.64	%	0.209			0.22%
Ag 328.068†	150596.5	0.5147	mg/L	0.00196	0.5147	mg/L	0.38%
Al 308.215†	3042.6	2.016	mg/L	0.0096	2.016	mg/L	0.48%
As 188.979†	5010.8	2.125	mg/L	0.0047	2.125	mg/L	0.22%
B 249.677†	1006.5	0.4599	mg/L	0.00069	0.4599	mg/L	0.15%
Ba 233.527†	19631.4	1.910	mg/L	0.0083	1.910	mg/L	0.44%
Be 313.042†	136862.6	0.4948	mg/L	0.00525	0.4948	mg/L	1.06%
Ca 317.933†	588734.0	55.62	mg/L	0.656	55.62	mg/L	1.18%
Cd 228.802†	41625.6	0.4931	mg/L	0.00159	0.4931	mg/L	0.32%
Co 228.616†	39868.2	0.4721	mg/L	0.00148	0.4721	mg/L	0.31%
Cr 267.716†	2274.6	0.4966	mg/L	0.00181	0.4966	mg/L	0.36%
Cu 324.752†	168031.7	0.5370	mg/L	0.00053	0.5370	mg/L	0.10%
Fe 273.955†	2573.3	2.099	mg/L	0.0102	2.099	mg/L	0.49%
K 766.490†	169964.3	47.17	mg/L	0.359	47.17	mg/L	0.76%
Mg 279.077†	109994.2	94.44	mg/L	1.156	94.44	mg/L	1.22%
Mn 257.610†	35034.8	0.8661	mg/L	0.00284	0.8661	mg/L	0.33%
Mo 202.031†	118.1	0.00518	mg/L	0.000514	0.00518	mg/L	9.93%
Na 589.592†	5798045.7	700.7	mg/L	5.61	700.7	mg/L	0.80%
Na 330.237†	21057.2	767.2	mg/L	1.62	767.2	mg/L	0.21%
Ni 231.604†	1076.6	0.4709	mg/L	0.00290	0.4709	mg/L	0.62%
Pb 220.353†	23917.1	1.811	mg/L	0.0024	1.811	mg/L	0.13%
Sb 206.836†	19.2	-0.00210	mg/L	0.001681	-0.00210	mg/L	80.17%
Se 196.026†	3796.2	2.009	mg/L	0.0109	2.009	mg/L	0.54%
Si 288.158†	6200.5	4.598	mg/L	0.0046	4.598	mg/L	0.10%
Sn 189.927†	-36.8	0.00848	mg/L	0.000995	0.00848	mg/L	11.73%
Sr 421.552†	717994.8	1.183	mg/L	0.0122	1.183	mg/L	1.03%
Ti 334.903†	161.1	0.00342	mg/L	0.000171	0.00342	mg/L	5.01%
Tl 190.801†	6251.0	1.716	mg/L	0.0034	1.716	mg/L	0.20%
V 292.402†	106045.9	0.5233	mg/L	0.00061	0.5233	mg/L	0.12%
Zn 206.200†	1139.2	0.4471	mg/L	0.00305	0.4471	mg/L	0.68%

Sequence No.: 46

Sample ID: VP83 MBSPK TWC

Analyst: EL

Dilution: 1X

Autosampler Location: 91

Date Collected: 11/1/2012 9:24:09 PM

Data Type: Original

Nebulizer Parameters: VP83 MBSPK TWC

Analyte	Back Pressure	Flow
All	231.0 kPa	0.55 L/min

Mean Data: VP83 MBSPK TWC

Analyte	Mean Corrected Intensity	Calib. Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2744030.8	103.6 %	0.39			0.37%
ScR 361.383	213973.2	101.1 %	0.47			0.46%
Ag 328.068†	147335.2	0.5041 mg/L	0.00243	0.5041 mg/L	0.00243	0.48%
Al 308.215†	3176.9	2.105 mg/L	0.0120	2.105 mg/L	0.0120	0.57%
As 188.979†	4637.8	1.967 mg/L	0.0059	1.967 mg/L	0.0059	0.30%
B 249.677†	44.5	0.01878 mg/L	0.000337	0.01878 mg/L	0.000337	1.80%
Ba 233.527†	19766.9	1.923 mg/L	0.0095	1.923 mg/L	0.0095	0.49%
Be 313.042†	140339.3	0.5074 mg/L	0.00272	0.5074 mg/L	0.00272	0.54%
Ca 317.933†	111944.8	10.58 mg/L	0.060	10.58 mg/L	0.060	0.57%
Cd 228.802†	41051.9	0.4866 mg/L	0.00411	0.4866 mg/L	0.00411	0.84%
Co 228.616†	41119.7	0.4869 mg/L	0.00342	0.4869 mg/L	0.00342	0.70%
Cr 267.716†	2283.3	0.4986 mg/L	0.00377	0.4986 mg/L	0.00377	0.76%
Cu 324.752†	162080.5	0.5180 mg/L	0.00365	0.5180 mg/L	0.00365	0.71%
Fe 273.955†	2564.9	2.092 mg/L	0.0119	2.092 mg/L	0.0119	0.57%
K 766.490†	39133.4	10.86 mg/L	0.063	10.86 mg/L	0.063	0.58%
Mg 279.077†	11985.4	10.29 mg/L	0.080	10.29 mg/L	0.080	0.78%
Mn 257.610†	19528.3	0.4830 mg/L	0.00241	0.4830 mg/L	0.00241	0.50%
Mo 202.031†	26.7	0.00126 mg/L	0.000252	0.00126 mg/L	0.000252	19.96%
Na 589.592†	102949.2	12.44 mg/L	0.078	12.44 mg/L	0.078	0.63%
Na 330.237†	328.0	11.73 mg/L	0.129	11.73 mg/L	0.129	1.10%
Ni 231.604†	1083.0	0.4736 mg/L	0.00238	0.4736 mg/L	0.00238	0.50%
Pb 220.353†	25578.7	1.936 mg/L	0.0170	1.936 mg/L	0.0170	0.88%
Sb 206.836†	21.3	-0.00157 mg/L	0.000793	-0.00157 mg/L	0.000793	50.56%
Se 196.026†	3619.3	1.916 mg/L	0.0051	1.916 mg/L	0.0051	0.27%
Si 288.158†	48.2	0.03903 mg/L	0.001861	0.03903 mg/L	0.001861	4.77%
Sn 189.927†	-14.6	0.00028 mg/L	0.000137	0.00028 mg/L	0.000137	49.89%
Sr 421.552†	324137.1	0.5339 mg/L	0.00262	0.5339 mg/L	0.00262	0.49%
Ti 334.903†	11.4	-0.00019 mg/L	0.000228	-0.00019 mg/L	0.000228	117.03%
Tl 190.801†	6928.6	1.903 mg/L	0.0091	1.903 mg/L	0.0091	0.48%
V 292.402†	104201.2	0.5142 mg/L	0.00428	0.5142 mg/L	0.00428	0.83%
Zn 206.200†	1190.7	0.4663 mg/L	0.00495	0.4663 mg/L	0.00495	1.06%

Sequence No.: 47
 Sample ID: VP81 MBSPK TWC
 Analyst: EL
 Dilution: 1X

Autosampler Location: 92
 Date Collected: 11/1/2012 9:30:14 PM
 Data Type: Original

Nebulizer Parameters: VP81 MBSPK TWC

Analyte	Back Pressure	Flow
All	231.0 kPa	0.55 L/min

Mean Data: VP81 MBSPK TWC

Analyte	Mean Corrected Intensity	Calib. Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2785062.7	105.2 %	0.73			0.69%
ScR 361.383	219357.2	103.6 %	0.74			0.71%
Ag 328.068†	144806.7	0.4955 mg/L	0.00168	0.4955 mg/L	0.00168	0.34%
Al 308.215†	3091.8	2.049 mg/L	0.0146	2.049 mg/L	0.0146	0.71%
As 188.979†	4536.7	1.924 mg/L	0.0165	1.924 mg/L	0.0165	0.86%
B 249.677†	40.2	0.01686 mg/L	0.001561	0.01686 mg/L	0.001561	9.25%
Ba 233.527†	19457.5	1.893 mg/L	0.0063	1.893 mg/L	0.0063	0.33%
Be 313.042†	138862.0	0.5021 mg/L	0.00125	0.5021 mg/L	0.00125	0.25%
Ca 317.933†	110550.0	10.44 mg/L	0.023	10.44 mg/L	0.023	0.22%
Cd 228.802†	40263.1	0.4772 mg/L	0.00141	0.4772 mg/L	0.00141	0.29%
Co 228.616†	40408.0	0.4785 mg/L	0.00310	0.4785 mg/L	0.00310	0.65%
Cr 267.716†	2238.0	0.4887 mg/L	0.00403	0.4887 mg/L	0.00403	0.83%
Cu 324.752†	158876.2	0.5078 mg/L	0.00261	0.5078 mg/L	0.00261	0.51%
Fe 273.955†	2508.1	2.046 mg/L	0.0172	2.046 mg/L	0.0172	0.84%
K 766.490†	38197.9	10.60 mg/L	0.022	10.60 mg/L	0.022	0.21%
Mg 279.077†	11718.5	10.06 mg/L	0.077	10.06 mg/L	0.077	0.77%
Mn 257.610†	19334.0	0.4782 mg/L	0.00093	0.4782 mg/L	0.00093	0.19%
Mo 202.031†	26.9	0.00128 mg/L	0.000259	0.00128 mg/L	0.000259	20.30%
Na 589.592†	94305.3	11.40 mg/L	0.064	11.40 mg/L	0.064	0.56%
Na 330.237†	305.2	10.91 mg/L	0.116	10.91 mg/L	0.116	1.06%
Ni 231.604†	1053.1	0.4605 mg/L	0.00339	0.4605 mg/L	0.00339	0.74%
Pb 220.353†	25133.3	1.902 mg/L	0.0132	1.902 mg/L	0.0132	0.69%
Sb 206.836†	7.8	-0.00512 mg/L	0.000962	-0.00512 mg/L	0.000962	18.78%
Se 196.026†	3548.0	1.878 mg/L	0.0132	1.878 mg/L	0.0132	0.70%
Si 288.158†	29.5	0.02514 mg/L	0.002284	0.02514 mg/L	0.002284	9.08%
Sn 189.927†	-10.0	0.00094 mg/L	0.000092	0.00094 mg/L	0.000092	9.77%
Sr 421.552†	317040.9	0.5222 mg/L	0.00213	0.5222 mg/L	0.00213	0.41%
Ti 334.903†	-2.2	-0.00071 mg/L	0.000507	-0.00071 mg/L	0.000507	70.97%
Tl 190.801†	6802.2	1.868 mg/L	0.0117	1.868 mg/L	0.0117	0.63%
V 292.402†	102168.1	0.5042 mg/L	0.00271	0.5042 mg/L	0.00271	0.54%
Zn 206.200†	1159.6	0.4541 mg/L	0.00168	0.4541 mg/L	0.00168	0.37%

Sequence No.: 48

Sample ID: VP51 APOST SWC

Analyst: EL

Dilution: 2X

Autosampler Location: 93

Date Collected: 11/1/2012 9:36:17 PM

Data Type: Original

Nebulizer Parameters: VP51 APOST SWC

Analyte	Back Pressure	Flow
All	231.0 kPa	0.55 L/min

Mean Data: VP51 APOST SWC

Analyte	Mean Corrected Intensity	Calib. Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2688288.3	101.5 %	0.61			0.60%
ScR 361.383	211760.9	100.0 %	0.26			0.26%
Ag 328.068†	150822.0	0.5195 mg/L	0.00097	1.039 mg/L	0.0019	0.19%
Al 308.215†	190839.9	126.9 mg/L	0.83	253.8 mg/L	1.66	0.65%
As 188.979†	5138.0	2.193 mg/L	0.0289	4.386 mg/L	0.0577	1.32%
B 249.677†	206.2	0.09257 mg/L	0.001803	0.1851 mg/L	0.00361	1.95%
Ba 233.527†	26225.5	2.543 mg/L	0.0111	5.086 mg/L	0.0222	0.44%
Be 313.042†	147138.0	0.5308 mg/L	0.00393	1.062 mg/L	0.0079	0.74%
Ca 317.933†	2138545.9	202.0 mg/L	1.61	404.0 mg/L	3.22	0.80%
Cd 228.802†	43250.8	0.5124 mg/L	0.00430	1.025 mg/L	0.0086	0.84%
Co 228.616†	47199.6	0.5456 mg/L	0.00563	1.091 mg/L	0.0113	1.03%
Cr 267.716†	3699.7	0.8072 mg/L	0.00421	1.614 mg/L	0.0084	0.52%
Cu 324.752†	259760.0	0.8427 mg/L	0.00139	1.685 mg/L	0.0028	0.16%
Fe 273.955†	216700.5	176.8 mg/L	1.19	353.6 mg/L	2.37	0.67%
K 766.490†	82269.1	22.83 mg/L	0.116	45.67 mg/L	0.231	0.51%
Mg 279.077†	102052.1	87.52 mg/L	0.710	175.0 mg/L	1.42	0.81%
Mn 257.610†	134664.5	3.327 mg/L	0.0244	6.654 mg/L	0.0488	0.73%
Mo 202.031†	-31.9	-0.00031 mg/L	0.000473	-0.00062 mg/L	0.000946	152.73%
Na 589.592†	227089.5	27.45 mg/L	0.114	54.89 mg/L	0.228	0.42%
Na 330.237†	750.5	27.22 mg/L	0.438	54.43 mg/L	0.877	1.61%
Ni 231.604†	1613.0	0.7068 mg/L	0.00184	1.414 mg/L	0.0037	0.26%
Pb 220.353†	27647.6	2.133 mg/L	0.0243	4.265 mg/L	0.0486	1.14%
Sb 206.836†	7115.6	1.926 mg/L	0.0243	3.852 mg/L	0.0487	1.26%
Se 196.026†	3822.3	2.023 mg/L	0.0119	4.045 mg/L	0.0238	0.59%
Si 288.158†	1313.5	0.9842 mg/L	0.00559	1.968 mg/L	0.0112	0.57%
Sn 189.927†	-10.5	0.04585 mg/L	0.001131	0.09171 mg/L	0.002261	2.47%
Sr 421.552†	702350.2	1.157 mg/L	0.0096	2.314 mg/L	0.0192	0.83%
Ti 334.903†	164067.5	6.373 mg/L	0.0435	12.75 mg/L	0.087	0.68%
Tl 190.801†	7046.6	1.923 mg/L	0.0195	3.847 mg/L	0.0391	1.02%
V 292.402†	199074.5	0.9599 mg/L	0.00093	1.920 mg/L	0.0019	0.10%
Zn 206.200†	3416.2	1.341 mg/L	0.0079	2.682 mg/L	0.0158	0.59%

Sequence No.: 49
 Sample ID: CV
 Analyst: EL
 Dilution: 1X

Autosampler Location: 7
 Date Collected: 11/1/2012 9:41:30 PM
 Data Type: Original

Nebulizer Parameters: CV

Analyte Back Pressure Flow
 All 231.0 kPa 0.55 L/min

Mean Data: CV

Analyte	Mean Corrected Intensity	Calib. Conc. Units	Std.Dev.	Sample Conc. Units	Std.Dev.	RSD
ScA 357.253	2717649.6	102.6 %	0.70			0.68%
ScR 361.383	215848.6	101.9 %	1.09			1.07%
Ag 328.068†	286669.8	0.9809 mg/L	0.00049	0.9809 mg/L	0.00049	0.05%
Al 308.215†	2963.9	1.932 mg/L	0.0269	1.932 mg/L	0.0269	1.39%
As 188.979†	4520.1	1.916 mg/L	0.0126	1.916 mg/L	0.0126	0.66%
B 249.677†	1985.5	0.9086 mg/L	0.01043	0.9086 mg/L	0.01043	1.15%
Ba 233.527†	9524.7	0.9263 mg/L	0.01148	0.9263 mg/L	0.01148	1.24%
Be 313.042†	261240.6	0.9444 mg/L	0.00091	0.9444 mg/L	0.00091	0.10%
Ca 317.933†	20926.9	1.977 mg/L	0.0313	1.977 mg/L	0.0313	1.58%
Cd 228.802†	79521.4	0.9470 mg/L	0.00298	0.9470 mg/L	0.00298	0.32%
Co 228.616†	79410.7	0.9398 mg/L	0.00039	0.9398 mg/L	0.00039	0.04%
Cr 267.716†	4316.0	0.9424 mg/L	0.01261	0.9424 mg/L	0.01261	1.34%
Cu 324.752†	323865.0	1.034 mg/L	0.0015	1.034 mg/L	0.0015	0.14%
Fe 273.955†	2475.5	2.019 mg/L	0.0304	2.019 mg/L	0.0304	1.50%
K 766.490†	73599.0	20.43 mg/L	0.013	20.43 mg/L	0.013	0.06%
Mg 279.077†	2338.9	2.011 mg/L	0.0308	2.011 mg/L	0.0308	1.53%
Mn 257.610†	37567.3	0.9287 mg/L	0.00107	0.9287 mg/L	0.00107	0.11%
Mo 202.031†	16011.5	0.8651 mg/L	0.00515	0.8651 mg/L	0.00515	0.59%
Na 589.592†	415345.9	50.20 mg/L	0.114	50.20 mg/L	0.114	0.23%
Na 330.237†	1352.3	49.11 mg/L	0.525	49.11 mg/L	0.525	1.07%
Ni 231.604†	2087.6	0.9147 mg/L	0.01378	0.9147 mg/L	0.01378	1.51%
Pb 220.353†	24769.4	1.874 mg/L	0.0146	1.874 mg/L	0.0146	0.78%
Sb 206.836†	6891.8	1.882 mg/L	0.0137	1.882 mg/L	0.0137	0.73%
Se 196.026†	3455.2	1.827 mg/L	0.0111	1.827 mg/L	0.0111	0.61%
Si 288.158†	2837.2	2.104 mg/L	0.0308	2.104 mg/L	0.0308	1.46%
Sn 189.927†	5428.0	0.8285 mg/L	0.00525	0.8285 mg/L	0.00525	0.63%
Sr 421.552†	608044.1	1.002 mg/L	0.0013	1.002 mg/L	0.0013	0.13%
Ti 334.903†	24898.0	0.9676 mg/L	0.00196	0.9676 mg/L	0.00196	0.20%
Tl 190.801†	6761.4	1.851 mg/L	0.0148	1.851 mg/L	0.0148	0.80%
V 292.402†	201135.5	0.9961 mg/L	0.00117	0.9961 mg/L	0.00117	0.12%
Zn 206.200†	2451.5	0.9588 mg/L	0.01259	0.9588 mg/L	0.01259	1.31%

Sequence No.: 50
 Sample ID: CB
 Analyst: EL
 Dilution: 1X

Autosampler Location: 1
 Date Collected: 11/1/2012 9:47:32 PM
 Data Type: Original

Nebulizer Parameters: CB

Analyte Back Pressure Flow
 All 230.0 kPa 0.55 L/min

Mean Data: CB

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc. Units	Sample Std.Dev.	RSD
ScA 357.253	2728417.8	103.0	%	0.42			0.41%
ScR 361.383	203487.2	96.10	%	0.945			0.98%
Ag 328.068†	170.9	0.00058	mg/L	0.000192	0.00058 mg/L	0.000192	32.80%
Al 308.215†	4.7	0.00313	mg/L	0.006476	0.00313 mg/L	0.006476	206.97%
As 188.979†	4.5	0.00189	mg/L	0.000819	0.00189 mg/L	0.000819	43.26%
B 249.677†	12.0	0.00553	mg/L	0.000148	0.00553 mg/L	0.000148	2.68%
Ba 233.527†	-5.1	-0.00050	mg/L	0.000407	-0.00050 mg/L	0.000407	81.83%
Be 313.042†	-23.6	-0.00009	mg/L	0.000037	-0.00009 mg/L	0.000037	43.08%
Ca 317.933†	-4.8	-0.00046	mg/L	0.002324	-0.00046 mg/L	0.002324	508.81%
Cd 228.802†	2.5	0.00003	mg/L	0.000022	0.00003 mg/L	0.000022	87.72%
Co 228.616†	-4.8	-0.00005	mg/L	0.000132	-0.00005 mg/L	0.000132	240.40%
Cr 267.716†	-3.8	-0.00082	mg/L	0.000445	-0.00082 mg/L	0.000445	54.04%
Cu 324.752†	-19.7	-0.00006	mg/L	0.000130	-0.00006 mg/L	0.000130	206.41%
Fe 273.955†	-2.6	-0.00208	mg/L	0.000852	-0.00208 mg/L	0.000852	40.93%
K 766.490†	399.6	0.1109	mg/L	0.01609	0.1109 mg/L	0.01609	14.51%
Mg 279.077†	2.8	0.00244	mg/L	0.001679	0.00244 mg/L	0.001679	68.76%
Mn 257.610†	13.0	0.00032	mg/L	0.000052	0.00032 mg/L	0.000052	16.08%
Mo 202.031†	14.6	0.00079	mg/L	0.000121	0.00079 mg/L	0.000121	15.29%
Na 589.592†	5642.7	0.6820	mg/L	0.00579	0.6820 mg/L	0.00579	0.85%
Na 330.237†	19.2	0.7032	mg/L	0.51828	0.7032 mg/L	0.51828	73.70%
Ni 231.604†	2.3	0.00102	mg/L	0.003328	0.00102 mg/L	0.003328	325.12%
Pb 220.353†	-14.5	-0.00110	mg/L	0.000586	-0.00110 mg/L	0.000586	53.23%
Sb 206.836†	-3.1	-0.00083	mg/L	0.000540	-0.00083 mg/L	0.000540	65.39%
Se 196.026†	11.6	0.00617	mg/L	0.003203	0.00617 mg/L	0.003203	51.94%
Si 288.158†	12.3	0.00912	mg/L	0.005090	0.00912 mg/L	0.005090	55.84%
Sn 189.927†	4.8	0.00074	mg/L	0.000120	0.00074 mg/L	0.000120	16.35%
Sr 421.552†	115.8	0.00019	mg/L	0.000073	0.00019 mg/L	0.000073	38.39%
Ti 334.903†	-27.5	-0.00107	mg/L	0.000703	-0.00107 mg/L	0.000703	65.77%
Tl 190.801†	7.5	0.00206	mg/L	0.000636	0.00206 mg/L	0.000636	30.84%
V 292.402†	19.2	0.00009	mg/L	0.000193	0.00009 mg/L	0.000193	207.33%
Zn 206.200†	-18.2	-0.00712	mg/L	0.000322	-0.00712 mg/L	0.000322	4.52%

End pke

Mercury Analysis Log

Analyst: NB

Date: 11-02-12

Instrument: CETAC

Page: 1 of 4

ARI Sample ID	Prep Code	Dilution	QC Data (ppb)	Comments
STD	0.0	SMM	IX	
"	0.1			
"	0.5			
"	1.0			
"	2.0			
"	5.0			
"	10.0			
ICV			7.95	Begin CLP. %R=99 ✓
ICB			-0.02	✓
CCV1			4.06	%R=102 ✓
CCB1			-0.01	✓
CRA			0.10	✓
VP51	MBI		0.00	✓
"	MBISPK		2.02	%R=101 ✓
"	A		0.15	
"	ADUP		0.17	✓
"	ASPK		1.23	%R=103 ✓
"	B			
"	C			
"	D			
"	E			
CCV2			4.03	%R=101 ✓
CCB2			-0.01	✓
VP51	F			
VP54	MBI		-0.00	✓
"	MBISPK		1.88	%R=94 ✓
"	A		0.30	
"	ADUP		0.28	✓
"	ASPK		1.34	%R=104 ✓
"	D	↓	↓	

Chemical/Reagent ID:
10% SnCl₂: MP2384

14% NH₂OH/NaCl: MP2360

Standard ID:
Standard: 2388-F

ICV/CCV: 56-18

Mercury Analysis Log

Analyst: NB
 Instrument: CETAC

Date: 11-02-12
 Page: 2 of 4

ARI Sample ID	Prep Code	Dilution	QC Data (ppb)	Comments
VP54 G	SMM	1X		
" H				
" I				
CCV3			4.01	%R=100 ✓
CCB3			-0.00	✓
VP54 L				
" N				
CCV4			4.03	%R=101 ✓
CCB4			-0.01	End CLP ✓
VP90 MBI			0.00	✓
" MBISPK			1.94	%R=97 ✓
" A				
VO93 MB			-0.01	PE sample ✓
" H			22.57	↓ Sat'd X
CCV			4.02	%R=101 ✓
CCB		↓	-0.01	✓
VO93 H		5X	20.70	PE sample High X
CCV		1X	3.49	%R=100 ✓
CCB		1X	-0.01	✓
VO93 H		20X	5.27	PE sample
CCV		1X	3.98	%R=100 ✓
CCB		↓	-0.01	✓
STD 0.0	SWM			
" 0.1				
" 0.5				
" 1.0				
" 2.0				
" 5.0				
" 10.0				
ICV	↓	↓	7.86	%R=98 ✓

[Signature]
11/02/12

Chemical/Reagent ID:
 10% SnCl₂: MP2360
 Standard ID:
 Standard: 2988-7

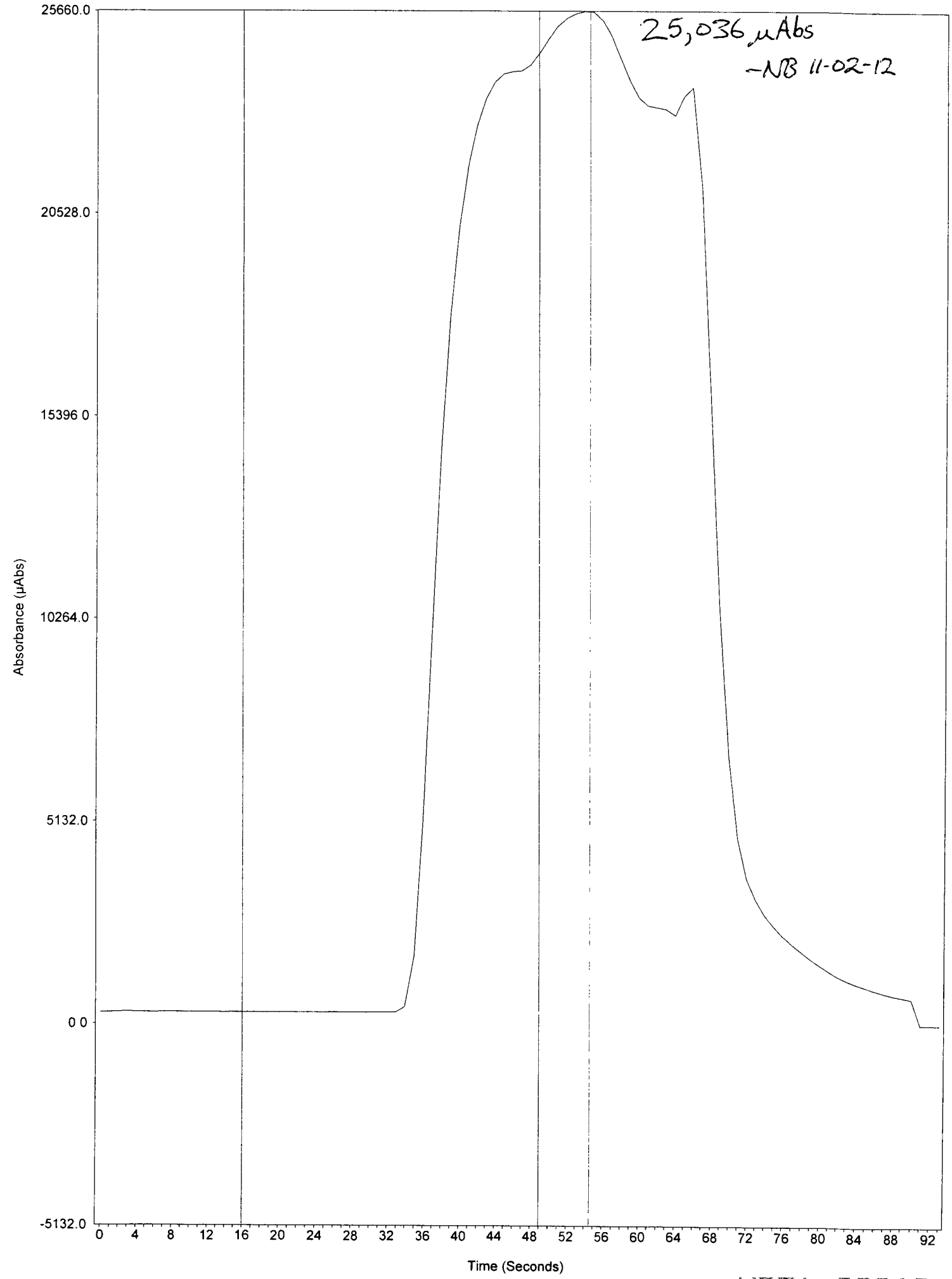
MP2360
 14% NH₂OH/NaCl: MP2360 ^{NB} 11-02-12
 ICV/CCV: 56-13

Metals Data Review Checklist

Method: ICP ICP-MS GFA CVA

Analysis Date: 11-02-12

	Analyst	Peer	Comment
	NB 11-02-12	AA 11-5	
Logbook			
Analyst, Date, Method info	✓	✓	
Sample ID's	✓	✓	
Standard/QC solution ID's recorded	✓	✓	
Prep codes	✓	✓	
Dilution factors	✓	✓	
Crossouts/Corrections/Deletions	✓	/	
Calibration			
Blank & Standard intensities	✓	/	
Standard deviations	✓	/	
Curve fit	✓	/	
Calibration Verification			
ICV/CCV	✓	✓	
ICB/CCB	✓	✓	
Samples			
RSD's & SD's	✓	✓	
Internal Standards	—	—	
Carry-over	—	✓	
Method QC			
CRI/CRA	✓	✓	
ICSA/ICSAB	—	—	
Post Spikes/Serial Dilutions	—	—	
Analytic Spikes	—	/	
Matrix QC			
SRM/LCS	✓	✓	
Matrix Spikes	✓	/	
Matrix Duplicates	✓	/	
Method Blanks	✓	/	
Data Distribution			
Requested elements/isotope identified	✓	✓	
Correct samples identified for distribution	✓	/	
Raw data match distributed data	✓	✓	
Data filename correct	✓	✓	
Necessary Analysis Notes and CAF's	—	—	



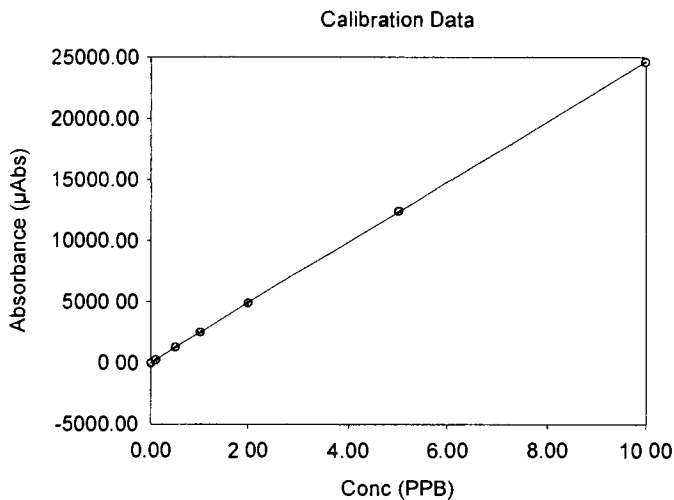
11-5-12
A

Analyst
Date Started Friday, November 02, 2012, 11:07:16
Worksheet ARI 10ppb CALIB
Comment

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. μ Abs	Dilution	Flags
Std Tube 6	02-Nov-2012, 11:07	10.00	1.43	25000.00	1.00	

Information about this calibration could not be retrieved from the Master File.

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. μ Abs	Dilution	Flags
Calibration Zero	02-Nov-2012, 11:09	0.00	22.70	-15.50	1.00	
Standard #1	02-Nov-2012, 11:11	0.10	0.62	247.00	1.00	
Standard #2	02-Nov-2012, 11:12	0.50	0.48	1260.00	1.00	
Standard #3	02-Nov-2012, 11:14	1.00	0.32	2490.00	1.00	
Standard #4	02-Nov-2012, 11:16	2.00	0.66	4870.00	1.00	
Standard #5	02-Nov-2012, 11:17	5.00	0.59	12400.00	1.00	
Standard #6	02-Nov-2012, 11.19	10.00	0.44	24600.00	1.00	



Int 0.000
Slope 2468.092
Correlation 0.99999

SMM

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. μ Abs	Dilution	Flags
ICV	02-Nov-2012, 11:28	7.95	0.50	19600.00	1.00	<i>Begin CLP</i>
ICB	02-Nov-2012, 11:29	-0.02	2.01	-59.30	1.00	

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. μ Abs	Dilution	Flags
QC Standard	02-Nov-2012, 11:31	4.06	0.43	10000.00	1.00	

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. μ Abs	Dilution	Flags
QC Blank	02-Nov-2012, 11:32	-0.01	8.21	-29.90	1.00	

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. μ Abs	Dilution	Flags
CRA	02-Nov-2012, 11:34	0.10	0.55	257.00	1.00	
VP51 MB1 SMM	02-Nov-2012, 11:36	0.00	22.10	10.70	1.00	
VP51 MB1SPK SMM	02-Nov-2012, 11:37	2.02	0.48	4970.00	1.00	
VP51 A SMM	02-Nov-2012, 11:39	0.15	0.98	370.00	1.00	
VP51 ADUP SMM	02-Nov-2012, 11:40	0.17	0.44	424.00	1.00	
VP51 ASPK SMM	02-Nov-2012, 11:42	1.23	0.61	3030.00	1.00	
VP51 B SMM	02-Nov-2012, 11:44	0.76	0.42	1880.00	1.00	
VP51 C SMM	02-Nov-2012, 11:45	0.40	0.23	993.00	1.00	
VP51 D SMM	02-Nov-2012, 11:47	0.35	0.28	865.00	1.00	
VP51 E SMM	02-Nov-2012, 11:49	1.26	0.51	3120.00	1.00	

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. μ Abs	Dilution	Flags
QC Standard	02-Nov-2012, 11:50	4.03	0.39	9940.00	1.00	

Analyst
 Date Started Friday, November 02, 2012, 11:52:20
 Worksheet ARI 10ppb CALIB
 Comment

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. µAbs	Dilution	Flags
QC Blank	02-Nov-2012, 11:52	-0.01	13.30	-31.80	1.00	

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. µAbs	Dilution	Flags
VP51 F SMM	02-Nov-2012, 11:53	1.44	0.66	3550.00	1.00	
VP54 MB1 SMM	02-Nov-2012, 11:55	-0.00	30.00	-5.28	1.00	
VP54 MB1SPK SMM	02-Nov-2012, 11:57	1.88	0.72	4630.00	1.00	
VP54 A SMM	02-Nov-2012, 11:58	0.30	0.64	730.00	1.00	
VP54 ADUP SMM	02-Nov-2012, 12:00	0.28	0.70	691.00	1.00	
VP54 ASPK SMM	02-Nov-2012, 12:01	1.34	0.74	3310.00	1.00	
VP54 D SMM	02-Nov-2012, 12:03	0.15	1.02	365.00	1.00	
VP54 G SMM	02-Nov-2012, 12:05	0.30	0.30	730.00	1.00	
VP54 H SMM	02-Nov-2012, 12:06	0.26	0.67	648.00	1.00	
VP54 I SMM	02-Nov-2012, 12:08	0.34	0.63	832.00	1.00	

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. µAbs	Dilution	Flags
QC Standard	02-Nov-2012, 12:10	4.01	0.49	9900.00	1.00	

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. µAbs	Dilution	Flags
QC Blank	02-Nov-2012, 12:11	-0.00	7.62	-12.20	1.00	

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. µAbs	Dilution	Flags
VP54 L SMM	02-Nov-2012, 12:13	0.29	0.36	703.00	1.00	
VP54 N SMM	02-Nov-2012, 12:15	0.28	0.33	688.00	1.00	

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. µAbs	Dilution	Flags
QC Standard	02-Nov-2012, 12:16	4.03	0.54	9940.00	1.00	

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. µAbs	Dilution	Flags
QC Blank	02-Nov-2012, 12:18	-0.01	16.50	-13.60	1.00	End CLP.

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. µAbs	Dilution	Flags
VP90 MB1 SMM	02-Nov-2012, 12:22	0.00	277.00	0.99	1.00	
VP90 MB1SPK SMM	02-Nov-2012, 12:23	1.94	0.89	4790.00	1.00	
VP90 A SMM	02-Nov-2012, 12:25	0.16	1.41	400.00	1.00	
VO93 MB SMM	02-Nov-2012, 12:27	-0.01	52.90	-12.60	1.00	
VO93 H SMM	02-Nov-2012, 12:28	Sat'd.	0.00	55700.00	1.00	SO Sat'd

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. µAbs	Dilution	Flags
QC Standard	02-Nov-2012, 12:32	4.02	0.54	9920.00	1.00	

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. µAbs	Dilution	Flags
QC Blank	02-Nov-2012, 12:34	-0.01	16.60	-21.70	1.00	

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. µAbs	Dilution	Flags
VO93 H SMM	02-Nov-2012, 12:40	20.70	0.61	51100.00	5.00	O High

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. µAbs	Dilution	Flags
QC Standard	02-Nov-2012, 12:42	3.99	0.77	9850.00	1.00	

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. µAbs	Dilution	Flags
QC Blank	02-Nov-2012, 12:44	-0.01	12.30	-20.10	1.00	

[Handwritten signature]
 11/02/12

Analyst
Date Created: Thursday, July 13, 2000
Worksheet: ARI 10ppb CALIB
Comment

Sip Duration (Sec.): 30
Rinse Duration (Sec.): 60
Read Delay: 49
Integration Time/Replicate: 1.40
of Replicates: 4
of Repeats: 1
Baseline Correction Enabled: True
Baseline Point 1 Start Time: 10
Baseline Point 1 End Time: 16
2-Point Baseline Corr. Enabled: False
Baseline Point 2 Start Time:
Baseline Point 2 End Time:

Gas Flow (ml/min): 180

Calibration Algorithm: Linear, Zero Intercept
Recalibration Frequency: 0
Reslope Frequency: 0
Reslope Standard: 5
Calibration Standard #1 Conc.: 0.10 PPB
Calibration Standard #2 Conc.: 0.50 PPB
Calibration Standard #3 Conc.: 1.00 PPB
Calibration Standard #4 Conc.: 2.00 PPB
Calibration Standard #5 Conc.: 5.00 PPB
Calibration Standard #6 Conc.: 10.00 PPB

QC Enabled: True
QC-RSD Enabled: True
Limit Condition & Error Action: If %RSD > 5.0%, if μ Abs > 1500, Flag and Continue

QC-Std Enabled: True
Limit Condition & Error Action: If outside 80% .. 120%, Stop

QC-Blank Enabled: True
Limit Condition & Error Action: If outside -100 .. 100, Stop



Mercury Standard Prep Log

Prep Code: SWM

Instrument: CE74C

Analyst: CB

Date: 10-31-12

Bath Temp: 90°C

Start Time: 1150

End Time: 1220

Standard ID	Stock ID	Volume Added (mL)	Final Volume (mL)	Standard Conc. (µg/L)	Number Made
STD0	-	0.00	50.0	0.0	3
STD1	2088-7	0.01		0.1	2
STD2		0.05		0.5	2
STD3		0.10		1.0	2
STD4		0.20		2.0	2
STD5		0.50		5.0	2
STD6		1.00		10.0	2
CRA	↓	0.01		0.1	1
ICB/CCB	-	0.00		0.0	3
ICV/LCS	86-10	0.05		0.5	2
CCV	↓	0.01	50.0	1.0	3

Chemical/Reagent ID:

HNO₃: 17628

H₂SO₄: 17677

HCl: -

5% K₂S₂O₈: mp212

5% KMnO₄: mp237b

Prep Code: SWM

Instrument: CE74C

Analyst: CB

Date: 10-31-12

Bath Temp: 90°C

Start Time: 1150

End Time: 1220

Standard ID	Stock ID	Volume Added (mL)	Final Volume (mL)	Standard Conc. (µg/L)	Number Made
STD0	-	0.00	50.0	0.0	2
STD1	2088-7	0.01		0.1	2
STD2		0.05		0.5	2
STD3		0.10		1.0	2
STD4		0.20		2.0	2
STD5		0.50		5.0	2
STD6		1.00		10.0	2
CRA	↓	0.01		0.1	1
ICB/CCB	-	0.00		0.0	2
ICV/LCS	86-10	0.05		0.5	2
CCV	↓	0.01	50.0	1.0	2

Chemical/Reagent ID:

HNO₃: 17628

H₂SO₄: -

HCl: 17677

5% K₂S₂O₈: -

5% KMnO₄: mp237b



Analytical Resources, Incorporated
Analytical Chemists and Consultants

January 3, 2013

Cindy Fields
Anchor QEA
720 Olive Way, Suite 1900
Seattle, WA 98101

RE: Client Project: Central Waterfront RI, 080007-01.02
ARI Job No.: VX92

Dear Cindy:

Please find enclosed the Chain of Custody records (COCs), sample receipt documentation, and the results for samples from the project referenced above. On December 27, 2012 ten soil samples were removed from archive. Per email instructions, ten gram aliquots were taken from each sample to form one composite sample. The composite sample was analyzed for TCLP lead, as requested.

There were no anomalies associated with the analysis of this sample.

An electronic copy of this report and all supporting raw data will remain on file with ARI. Should you have any questions or problems, please feel free to contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Cheronne Oreiro
Project Manager
(206) 695-6214
cheronneo@arilabs.com
www.arilabs.com

cc: eFile VX92

Enclosures

Subject: RE: TCLP Lead analysi request on VB51 held samples
From: Nik Bacher <nbacher@anchorqea.com>
Date: 12/27/2012 7:34 AM
To: Cheronne Oreiro <cheronneo@arilabs.com>
CC: Cindy Fields <cfields@anchorqea.com>, Halah Voges <hvoges@anchorqea.com>

Hi Cheronne

Take the same amount of material out of each jar to ensure you have enough volume in the final composite to be able to run TCLP.

Niklas Bacher, L.G.

ANCHOR QEA, LLC
nbacher@anchorqea.com

From: Cheronne Oreiro [mailto:cheronneo@arilabs.com]
Sent: Wednesday, December 26, 2012 2:33 PM
To: Nik Bacher
Cc: Cindy Fields; Halah Voges
Subject: Re: TCLP Lead analysi request on VB51 held samples

Hi Nik,

Do you have any special compositing instructions? For example do you want us to take 10g from each jar, 20g, etc?

Thanks,
-Cheronne

NOTE: ARI is closed December 25th and January 1st.

I will be out of the office Dec. 24th-25th and Dec. 28-Jan. 1st.

Cheronne Oreiro
Project Manager
Analytical Resources, Inc.
4611 S. 134th Place, Suite 100
Tukwila, WA 98168-3240
cheronneo@arilabs.com
(206)-695-6214

This correspondence contains confidential information from Analytical Resources, Inc. (ARI) The information contained herein is intended solely for the use of the individual(s) named above. If you are not the intended recipient, any copying, distribution, disclosure, or use of the text and/or attached document(s) is strictly prohibited.

If you have received this correspondence in error, please notify sender immediately. Thank you.

On 12/26/2012 11:26 AM, Nik Bacher wrote:

Hi Cheronne

We would like to run TCLP lead on samples currently on hold for SDG VB51. See attached PDF and highlighted samples. I think those are the ones that are still in hold based on information you

gave Cindy a few weeks back. Please advise if that is not the case.

Please pull the highlighted samples from hold and prepare one composite sample which should be analyzed for TCLP lead only. If possible, retain and hold all remaining individual sample material not used for the composite.

Please let me or Cindy know if you have any questions.

Thanks
Nik

Niklas Bacher, L.G.
Senior Geologist

ANCHOR QEA, LLC
nbacher@anchorqea.com
720 Olive Way, Suite 1900
Seattle, WA 98101
T 206.287.9130
D 206.903.3376
C 206.351.0951

ANCHOR QEA,LLC
www.anchorqea.com

Please consider the environment before printing this email.

This electronic message transmission contains information that may be confidential and/or privileged work product prepared in anticipation of litigation. The information is intended for the use of the individual or entity named above. If you are not the intended recipient, please be aware that any disclosure, copying distribution or use of the contents of this information is prohibited. If you have received this electronic transmission in error, please notify us by telephone at (206) 287-9130.

SAMPLES RECEIVED SUMMARY 07/09/12

Page 1 of 1



ARI Job No: VB51

Logged by: TS
Cooler Temp. (Deg.C): 0.3-2.9

Project Manager: Cheronne 206-695-6214
VTSR: 07/07/12
Data Due: 07/23/12
Project No: 080007-01.02
Proj ID: Central Waterfront RI
SDG No:
Analytical Protocol: In-house
Deliverables:

14 Sample(s)

ARI ID	Client ID	Matrix Condition	Sampling Date/Time	* ON * *HOLD*	NW TPH-G +Other	NWTPHD SWS260acid/silicBOTTLES	VOA NTPHD ON HOLD
12-12906-VB51A	CW-TP-06-5.5-6.5	Soil	07/02/12 09:35	X			X
[REDACTED]	CW-TP-06-5.5-6.5	Soil	07/02/12 09:40				X
[REDACTED]	CW-TP-06-5.5-6.5	Soil	07/02/12 09:40				X
[REDACTED]	CW-TP-07-6.5-7.5	Soil	07/02/12 10:35	X			6
[REDACTED]	CW-TP-07-6.5-7.5	Soil	07/02/12 10:40	X			1
12-12911-VB51F	CW-TP-07-9-10	Soil	07/02/12 10:50	X			X
[REDACTED]	CW-TP-07-9-10	Soil	07/02/12 10:55				X
[REDACTED]	CW-TP-07-9-10	Soil	07/02/12 10:55				X
12-12914-VB51I	CW-TP-09-6.3-7.3	Soil	07/02/12 12:35	X			X
[REDACTED]	CW-TP-09-6.3-7.3	Soil	07/02/12 12:40				X
[REDACTED]	CW-TP-09-6.3-7.3	Soil	07/02/12 12:40				X
12-12917-VB51L	CW-TP-09-10-11	Soil	07/02/12 12:55	X			X
[REDACTED]	CW-TP-09-10-11	Soil	07/02/12 13:00				X

the information shown here. If there are questions of discrepancies, contact your ARI^X Project Manager designated above.

Unless other arrangements for storage/archiving samples are made for this project, volatile samples not consumed will be disposed of 08/06/12. All other sample aliquots will be disposed no earlier than 10/19/12.

080007 : 000000

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: _____ Turn-around Requested: _____

ARI Client Company: **Anchor OEA, LLC** Phone: **(206) 903 3394**

Client Contact: **Gandy Fields** **Julia Labadie**

Client Project Name: **labdata@anchorage.com**

Client Project #: **080007-01-02** Samplers: **JL**

Page: **1** of **5**

Date: **7/2/12** Ice Present?

No. of Coolers: _____ Cooler Temps: _____

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)



Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested				Notes/Comments
					MWTPH-GX	MWTPH-DX	BTEX	MWTPH-DX (TS)	
CW-TP-06-5.5-6.5	7/2/12	9:35	SO	6	X		X		Perform all MWTPH-DX with & without silica gel cleanup
CW-TP-06-5.5-6.5	7/2/12	9:40	SO	1	X				With and w/o Silica gel cleanup
CW-TP-07-6.5-7.5	7/2/12	10:35	SO	6	X		X		
CW-TP-07-6.5-7.5	7/2/12	10:40	SO	1	X		X		
CW-TP-07-9-10	7/2/12	10:50	SO	6	X		X		
CW-TP-07-9-10	7/2/12	10:55	SO	1	X		X		
CW-TP-09-6.3-7.3	7/2/12	12:35	SO	6	X		X		
CW-TP-09-6.3-7.3	7/2/12	12:40	SO	1	X		X		
CW-TP-09-10-11	7/2/12	12:55	SO	6	X		X		
CW-TP-09-10-11	7/2/12	1:00	SO	1	X		X		

Received by: _____ (Signature)
Printed Name: _____
Company: _____
Date & Time: _____

Relinquished by: _____ (Signature)
Printed Name: _____
Company: _____
Date & Time: _____

Received by: _____ (Signature)
Printed Name: _____
Company: _____
Date & Time: _____

Relinquished by: _____ (Signature)
Printed Name: _____
Company: _____
Date & Time: _____

Comments/Special Instructions

Limits of Liability: ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.



Cooler Receipt Form

ARI Client: Anchor
COC No(s): _____
Assigned ARI Job No: 1051

Project Name: Central Waterfront Site R1
Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____
Tracking No: _____

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler? YES NO
Were custody papers included with the cooler? YES NO
Were custody papers properly filled out (ink, signed, etc.) YES NO
Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry) 2.0 2.9 0.3 1.9
If cooler temperature is out of compliance fill out form 00070F
Cooler Accepted by: JM Date: 7/8/12 Temp Gun ID#: 90941619
Time: 1030

Complete custody forms and attach all shipping documents

Log-in Phase:

Was a temperature blank included in the cooler? YES NO
What kind of packing material was used? Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: _____
Was sufficient ice used (if appropriate)? NA YES NO
Were all bottles sealed in individual plastic bags? YES NO
Did all bottles arrive in good condition (unbroken)? YES NO
Were all bottle labels complete and legible? YES NO
Did the number of containers listed on COC match with the number of containers received? YES NO
Did all bottle labels and tags agree with custody papers? YES NO
Were all bottles used correct for the requested analyses? YES NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)... NA YES NO
Were all VOC vials free of air bubbles? NA YES NO
Was sufficient amount of sample sent in each bottle? YES NO
Date VOC Trip Blank was made at ARI: _____
Was Sample Split by ARI: YES NO Date/Time: _____ Equipment: _____ Split by: _____
Samples Logged by: JB Date: 7-9-12 Time: 851

**** Notify Project Manager of discrepancies or concerns ****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: _____ Date: _____

			Small → "sm"
			Peabubbles → "pb"
			Large → "lg"
			Headspace → "hs"

Sample ID Cross Reference Report



ARI Job No: VX92
Client: Anchor QEA, LLC
Project Event: 080007-01.02
Project Name: Central Waterfront RI

Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1. 12-12907,08,09,10,12,13,VX92A,18,12-25561			Soil	07/02/12 09:40	07/07/12 10:30

INORGANICS ANALYSIS DATA SHEET

TCLP METALS

Page 1 of 1

**Sample ID: 12-12907,08,09,10,12,13,15,16,1
SAMPLE**

Lab Sample ID: VX92A

QC Report No: VX92-Anchor QEA, LLC

LIMS ID: 12-25561

Project: Central Waterfront RI

Matrix: Soil

080007-01.02

Data Release Authorized: *mi*

Date Sampled: 07/02/12

Reported: 01/15/13

Date Received: 07/07/12

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/L	Q
1311	12/28/12	6010C	01/02/13	7440-43-9	Cadmium	0.01	0.01	U
1311	12/28/12	6010C	01/02/13	7440-47-3	Chromium	0.02	0.02	U
1311	12/28/12	6010C	01/02/13	7439-92-1	Lead	0.1	0.1	U

U-Analyte undetected at given RL

RL-Reporting Limit

01/15/13

VX92: 00008-rev

INORGANICS ANALYSIS DATA SHEET

TCLP METALS

Page 1 of 1

Sample ID: 12-12907,08,09,10,12,13,15,16,1
MATRIX SPIKE

Lab Sample ID: VX92A

QC Report No: VX92-Anchor QEA, LLC

LIMS ID: 12-25561

Project: Central Waterfront RI

Matrix: Soil

080007-01.02

Data Release Authorized: *[Signature]*

Date Sampled: 07/02/12

Reported: 01/15/13

Date Received: 07/07/12

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Cadmium	6010C	0.01 U	1.09	1.00	109%	
Chromium	6010C	0.02 U	1.02	1.00	102%	
Lead	6010C	0.1 U	4.2	4.0	105%	

Reported in mg/L

N-Control Limit Not Met

H-% Recovery Not Applicable, Sample Concentration Too High

NA-Not Applicable, Analyte Not Spiked or diluted near or below detection limit

Percent Recovery Limits: 75-125%

01/15/13

VX92: 00009_rev

INORGANICS ANALYSIS DATA SHEET

TCLP METALS

Page 1 of 1

**Sample ID: 12-12907,08,09,10,12,13,15,16,1
DUPLICATE**

Lab Sample ID: VX92A

QC Report No: VX92-Anchor QEA, LLC

LIMS ID: 12-25561

Project: Central Waterfront RI

Matrix: Soil

080007-01.02

Data Release Authorized: *AK*

Date Sampled: 07/02/12

Reported: 01/15/13

Date Received: 07/07/12

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Cadmium	6010C	0.01 U	0.01 U	0.0%	+/- 0.01	L
Chromium	6010C	0.02 U	0.02 U	0.0%	+/- 0.02	L
Lead	6010C	0.1 U	0.1 U	0.0%	+/- 0.1	L

Reported in mg/L

*-Control Limit Not Met

L-RPD Invalid, Limit = Detection Limit

01/15/13
VX92:00010_rev

INORGANICS ANALYSIS DATA SHEET

TCLP METALS

Sample ID: METHOD BLANK

Page 1 of 1

Lab Sample ID: VX92MB

QC Report No: VX92-Anchor QEA, LLC

LIMS ID: 12-25561

Project: Central Waterfront RI

Matrix: Soil

080007-01.02

Data Release Authorized: 

Date Sampled: NA

Reported: 01/15/13

Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/L	Q
1311	12/28/12	6010C	01/02/13	7440-43-9	Cadmium	0.01	0.01	U
1311	12/28/12	6010C	01/02/13	7440-47-3	Chromium	0.02	0.02	U
1311	12/28/12	6010C	01/02/13	7439-92-1	Lead	0.1	0.1	U

U-Analyte undetected at given RL

RL-Reporting Limit



Analytical Resources, Incorporated
Analytical Chemists and Consultants

January 3, 2013

Cindy Fields
Anchor QEA
720 Olive Way, Suite 1900
Seattle, WA 98101

RE: Client Project: Central Waterfront RI, 080007-01.02
ARI Job No.: VX92

Dear Cindy:

Please find enclosed the Chain of Custody records (COCs), sample receipt documentation, and the results for samples from the project referenced above. On December 27, 2012 ten soil samples were removed from archive. Per email instructions, ten gram aliquots were taken from each sample to form one composite sample. The composite sample was analyzed for TCLP lead, as requested.

There were no anomalies associated with the analysis of this sample.

An electronic copy of this report and all supporting raw data will remain on file with ARI. Should you have any questions or problems, please feel free to contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Cheronne Oreiro
Project Manager
(206) 695-6214
cheronneo@arilabs.com
www.arilabs.com

cc: eFile VX92

Enclosures

Subject: RE: TCLP Lead analysi request on VB51 held samples
From: Nik Bacher <nbacher@anchorqea.com>
Date: 12/27/2012 7:34 AM
To: Cheronne Oreiro <cheronneo@arilabs.com>
CC: Cindy Fields <cfields@anchorqea.com>, Halah Voges <hvoges@anchorqea.com>

Hi Cheronne

Take the same amount of material out of each jar to ensure you have enough volume in the final composite to be able to run TCLP.

Niklas Bacher, L.G.

ANCHOR QEA, LLC
nbacher@anchorqea.com

From: Cheronne Oreiro [mailto:cheronneo@arilabs.com]
Sent: Wednesday, December 26, 2012 2:33 PM
To: Nik Bacher
Cc: Cindy Fields; Halah Voges
Subject: Re: TCLP Lead analysi request on VB51 held samples

Hi Nik,

Do you have any special compositing instructions? For example do you want us to take 10g from each jar, 20g, etc?

Thanks,
-Cheronne

NOTE: ARI is closed December 25th and January 1st.

I will be out of the office Dec. 24th-25th and Dec. 28-Jan. 1st.

Cheronne Oreiro
Project Manager
Analytical Resources, Inc.
4611 S. 134th Place, Suite 100
Tukwila, WA 98168-3240
cheronneo@arilabs.com
(206)-695-6214

This correspondence contains confidential information from Analytical Resources, Inc. (ARI) The information contained herein is intended solely for the use of the individual(s) named above. If you are not the intended recipient, any copying, distribution, disclosure, or use of the text and/or attached document(s) is strictly prohibited.

If you have received this correspondence in error, please notify sender immediately. Thank you.

On 12/26/2012 11:26 AM, Nik Bacher wrote:

Hi Cheronne

We would like to run TCLP lead on samples currently on hold for SDG VB51. See attached PDF and highlighted samples. I think those are the ones that are still in hold based on information you

gave Cindy a few weeks back. Please advise if that is not the case.

Please pull the highlighted samples from hold and prepare one composite sample which should be analyzed for TCLP lead only. If possible, retain and hold all remaining individual sample material not used for the composite.

Please let me or Cindy know if you have any questions.

Thanks
Nik

Niklas Bacher, L.G.
Senior Geologist

ANCHOR QEA, LLC
nbacher@anchorqea.com
720 Olive Way, Suite 1900
Seattle, WA 98101
T 206.287.9130
D 206.903.3376
C 206.351.0951

ANCHOR QEA,LLC
www.anchorqea.com

Please consider the environment before printing this email.

This electronic message transmission contains information that may be confidential and/or privileged work product prepared in anticipation of litigation. The information is intended for the use of the individual or entity named above. If you are not the intended recipient, please be aware that any disclosure, copying distribution or use of the contents of this information is prohibited. If you have received this electronic transmission in error, please notify us by telephone at (206) 287-9130.

SAMPLES RECEIVED SUMMARY 07/09/12

Page 1 of 1



ARI Job No: VB51

Logged by: TS
Cooler Temp. (Deg.C): 0.3-2.9

Project Manager: Cheronne 206-695-6214
VTSR: 07/07/12
Data Due: 07/23/12
Project No: 080007-01.02
Proj ID: Central Waterfront RI
SDG No:
Analytical Protocol: In-house
Deliverables:

14 Sample(s)

ARI ID	Client ID	Matrix Condition	Sampling Date/Time	* ON * *HOLD*	NW TPH-G +Other	NWTPHD VOA	SWS260acid/ silicBOTTLES	ON HOLD
12-12906-VB51A	CW-TP-06-5.5-6.5	Soil	07/02/12 09:35	X				X
[REDACTED]	CW-TP-06-5.5-6.5	Soil	07/02/12 09:40					X
[REDACTED]	CW-TP-06-5.5-6.5	Soil	07/02/12 09:40					X
[REDACTED]	CW-TP-07-6.5-7.5	Soil	07/02/12 10:35	X				6
[REDACTED]	CW-TP-07-6.5-7.5	Soil	07/02/12 10:40	X				1
12-12911-VB51F	CW-TP-07-9-10	Soil	07/02/12 10:50	X				X
[REDACTED]	CW-TP-07-9-10	Soil	07/02/12 10:55					X
[REDACTED]	CW-TP-07-9-10	Soil	07/02/12 10:55					X
12-12914-VB51I	CW-TP-09-6.3-7.3	Soil	07/02/12 12:35	X				X
[REDACTED]	CW-TP-09-6.3-7.3	Soil	07/02/12 12:40					X
[REDACTED]	CW-TP-09-6.3-7.3	Soil	07/02/12 12:40					X
12-12917-VB51L	CW-TP-09-10-11	Soil	07/02/12 12:55	X				X
[REDACTED]	CW-TP-09-10-11	Soil	07/02/12 13:00					X

the information shown here. If there are questions of discrepancies, contact your ARI^X Project Manager designated above.

Unless other arrangements for storage/archiving samples are made for this project, volatile samples not consumed will be disposed of 08/06/12. All other sample aliquots will be disposed no earlier than 10/19/12.

080007 : 000000

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: _____ Turn-around Requested: _____ Page: 1 of 5

ARI Client Company: Anchor OEA, LLC Phone: (206) 903 3394

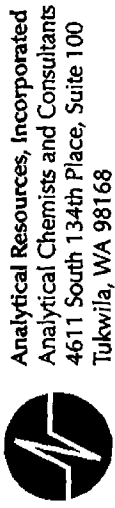
Client Contact: Gandy Fields Julia Labadie

Client Project Name: Central Waterfront PI

Client Project #: 080007-01-02 Samplers: JL

No. of Coolers: _____ Cooler Temps: _____

Date: 7/2/12 Ice Present? _____



Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested				Notes/Comments	
					MWTPH-GX	MWTPH-DX	BTEX	MWTPH-DX (TS)		HOLD
CW-TP-06-5.5-6.5	7/2/12	9:35	SO	6	X		X			Perform all MWTPH-DX with & without silica gel cleanup
CW-TP-06-5.5-6.5	7/2/12	9:40	SO	1	X					With and w/o Silica gel cleanup
CW-TP-07-6.5-7.5	7/2/12	10:35	SO	6	X		X			
CW-TP-07-6.5-7.5	7/2/12	10:40	SO	1	X		X			
CW-TP-07-9-10	7/2/12	10:50	SO	6	X		X			
CW-TP-07-9-10	7/2/12	10:55	SO	1	X		X			
CW-TP-09-6.3-7.3	7/2/12	12:35	SO	6	X		X			
CW-TP-09-6.3-7.3	7/2/12	12:40	SO	1	X		X			
CW-TP-09-10-11	7/2/12	12:55	SO	6	X		X			
CW-TP-09-10-11	7/2/12	1:00	SO	1	X		X			

Received by: _____ Relinquished by: _____
(Signature) (Signature)

Printed Name: _____ Printed Name: _____
Company: _____ Company: _____

Date & Time: _____ Date & Time: _____

Limits of Liability: ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.



Cooler Receipt Form

ARI Client: Anchor
COC No(s): _____
Assigned ARI Job No: 1051

Project Name: Central Waterfront Site R1
Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____
Tracking No: _____

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler? YES NO

Were custody papers included with the cooler? YES NO

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

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)..... 2.0 2.9 0.3 1.9

If cooler temperature is out of compliance fill out form 00070F

Cooler Accepted by: JM Date: 7/8/12 Temp Gun ID#: 90941619
Time: 1030

Complete custody forms and attach all shipping documents

Log-in Phase:

Was a temperature blank included in the cooler? YES NO

What kind of packing material was used? ... Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: _____

Was sufficient ice used (if appropriate)? NA YES NO

Were all bottles sealed in individual plastic bags? YES NO

Did all bottles arrive in good condition (unbroken)? YES NO

Were all bottle labels complete and legible? YES NO

Did the number of containers listed on COC match with the number of containers received? YES NO

Did all bottle labels and tags agree with custody papers? YES NO

Were all bottles used correct for the requested analyses? YES NO

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)... NA YES NO

Were all VOC vials free of air bubbles? NA YES NO

Was sufficient amount of sample sent in each bottle? YES NO

Date VOC Trip Blank was made at ARI: NA

Was Sample Split by ARI: YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: JB Date: 7-9-12 Time: 851

**** Notify Project Manager of discrepancies or concerns ****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: _____ Date: _____

			Small → "sm"
			Peabubbles → "pb"
			Large → "lg"
			Headspace → "hs"

Sample ID Cross Reference Report



ARI Job No: VX92
Client: Anchor QEA, LLC
Project Event: 080007-01.02
Project Name: Central Waterfront RI

Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1. 12-12907,08,09,10,12,13,VX92A,18,12-25561			Soil	07/02/12 09:40	07/07/12 10:30

INORGANICS ANALYSIS DATA SHEET

TCLP METALS

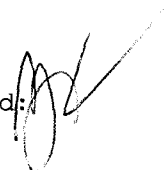
Page 1 of 1

Sample ID: 12-12907,08,09,10,12,13,15,16,17
SAMPLE

Lab Sample ID: VX92A

LIMS ID: 12-25561

Matrix: Soil

Data Release Authorized: 

Reported: 01/03/13

QC Report No: VX92-Anchor QEA, LLC

Project: Central Waterfront RI

080007-01.02

Date Sampled: 07/02/12


Date Received: 07/07/12

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/L	Q
1311	12/28/12	6010C	01/02/13	7439-92-1	Lead	0.1	0.1	U

U-Analyte undetected at given RL
RL-Reporting Limit

INORGANICS ANALYSIS DATA SHEET
TCLP METALS
 Page 1 of 1

Sample ID: 12-12907,08,09,10,12,13,15,16,17
MATRIX SPIKE

Lab Sample ID: VX92A
 LIMS ID: 12-25561
 Matrix: Soil
 Data Release Authorized: 
 Reported: 01/03/13

QC Report No: VX92-Anchor QEA, LLC
 Project: Central Waterfront RI
 080007-01.02
 Date Sampled: 07/02/12
 Date Received: 07/07/12

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Lead	6010C	0.1 U	4.2	4.0	105%	

Reported in mg/L

N-Control Limit Not Met
 H-% Recovery Not Applicable, Sample Concentration Too High
 NA-Not Applicable, Analyte Not Spiked or diluted near or below detection limit

Percent Recovery Limits: 75-125%

INORGANICS ANALYSIS DATA SHEET

TCLP METALS


Page 1 of 1

Sample ID: 12-12907,08,09,10,12,13,15,16,17
DUPLICATE

Lab Sample ID: VX92A

LIMS ID: 12-25561

Matrix: Soil

Data Release Authorized: 

Reported: 01/03/13

QC Report No: VX92-Anchor QEA, LLC

Project: Central Waterfront RI

080007-01.02

Date Sampled: 07/02/12

Date Received: 07/07/12

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Lead	6010C	0.1 U	0.1 U	0.0%	+/- 0.1	L

Reported in mg/L

*-Control Limit Not Met

L-RPD Invalid, Limit = Detection Limit

INORGANICS ANALYSIS DATA SHEET

TCLP METALS


Page 1 of 1

Sample ID: METHOD BLANK

Lab Sample ID: VX92MB

LIMS ID: 12-25561

Matrix: Soil

Data Release Authorized: 

Reported: 01/03/13

QC Report No: VX92-Anchor QEA, LLC

Project: Central Waterfront RI

080007-01.02

Date Sampled: NA

Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/L	Q
1311	12/28/12	6010C	01/02/13	7439-92-1	Lead	0.1	0.1	U

U-Analyte undetected at given RL

RL-Reporting Limit

DATA VALIDATION REPORT



Laboratory Data Consultants, Inc.

7750 El Camino Real, Ste. 2L Carlsbad, CA 92009

Phone 760.634.0437

Web www.lab-data.com

Fax 760.634.0439

Anchor Environmental, LLC
720 Olive Way, Suite 1900
Seattle, WA 98101
ATTN: Ms. Cindy Fields

November 28, 2012

SUBJECT: Central Waterfront, Data Validation

Dear Ms. Fields,

Enclosed is the final validation report for the fractions listed below. This SDG was received on November 12, 2012. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project # 28742:

<u>SDG #</u>	<u>Fraction</u>
VP40/VP41	Volatiles, Metals, Gasoline Range Organics, Total Petroleum Hydrocarbons as Extractables

The data validation was performed under Stage 2B guidelines. The analyses were validated using the following documents, as applicable to each method:

- USEPA, Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA, Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

Ming-Hwa Hwang
Project Manager/Senior Chemist

Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name: Central Waterfront
Collection Date: October 25, 2012
LDC Report Date: November 28, 2012
Matrix: Soil/Water
Parameters: Volatiles
Validation Level: Stage 2B
Laboratory: Analytical Resources, Inc.
Sample Delivery Group (SDG): VP40/VP41

Sample Identification

CWS1-04-2-4
CWS1-04-6-8
CWS1-04-13.5-15
CWS1-TB-01 (1)
CWS1-02-1-3
CWS1-02-7-8
CWS1-02-12-13
CWS1-01-3-5
CWS1-01-11-13
CWS1-03-2-4
CWS1-03-7-9
CWS1-TB-01 (2)

Introduction

This data review covers 10 soil samples and 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260C for Volatiles which are Benzene, Toluene, Ethylbenzene and Xylenes (BTEX).

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of the presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

Average relative response factors (RRF) for all compounds were within method and validation criteria.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the method criteria of less than or equal to 20.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within method and validation criteria.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

XII. Compound Quantitation and RLs

Raw data were not reviewed for this SDG.

XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

XIV. System Performance

Raw data were not reviewed for this SDG.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the Stage 2B data validation all results are considered valid and usable for all purposes.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

XVII. Field Blanks

Samples CWS1-TB-01 (1) and CWS1-TB-01 (2) were identified as trip blanks. No volatiles were found.

**Central Waterfront
Volatiles - Data Qualification Summary - SDG VP40/VP41**

No Sample Data Qualified in this SDG

**Central Waterfront
Volatiles - Laboratory Blank Data Qualification Summary - SDG VP40/VP41**

No Sample Data Qualified in this SDG

LDC #: 28742A1[✓] **VALIDATION COMPLETENESS WORKSHEET**

SDG #: VP40/VP41

Stage 2B

Laboratory: Analytical Resources, Inc.

Date: 11/16/12

Page: 1 of 1

Reviewer: *[Signature]*

2nd Reviewer: *[Signature]*

METHOD: GC/MS Volatiles (BTEX) (EPA SW 846 Method 8260C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 10/25/12
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	2 RSD ≤ 20%
IV.	Continuing calibration LEV	A	CW ≤ 20% 16V ≤ 20%
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	AS
VIII.	Laboratory control samples	A	LCS 1/2
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	ND	TB = 4, 12

Note: A = Acceptable ND = No compounds detected D = Duplicate
 N = Not provided/applicable R = Rinsate TB = Trip blank
 SW = See worksheet FB = Field blank EB = Equipment blank

Validated Samples: Soil

1	CWS1-04-2-4	S	11	CWS1-03-7-9	S	21	MB-103012-A	31
2	CWS1-04-6-8		12	CWS1-TB-01 (2)	W	22		32
3	CWS1-04-13.5-15	↓	13			23		33
4	CWS1-TB-01 (1)	W	14			24		34
5	CWS1-02-1-3	S	15			25		35
6	CWS1-02-7-8		16			26		36
7	CWS1-02-12-13		17			27		37
8	CWS1-01-3-5		18			28		38
9	CWS1-01-11-13		19			29		39
10	CWS1-03-2-4	↓	20			30		40

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: Central Waterfront
Collection Date: October 25, 2012
LDC Report Date: November 19, 2012
Matrix: Soil
Parameters: Metals
Validation Level: Stage 2B
Laboratory: Analytical Resources, Inc.
Sample Delivery Group (SDG): VP40/VP41

Sample Identification

CWS1-04-2-4
CWS1-04-6-8
CWS1-04-13.5-15
CWS1-02-1-3
CWS1-02-7-8
CWS1-02-12-13
CWS1-01-3-5
CWS1-01-11-13
CWS1-04-2-4MS
CWS1-04-2-4DUP

Introduction

This data review covers 10 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6010C and 7471A for Metals. The metals analyzed were Antimony, Arsenic, Beryllium, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Selenium, Silver, Thallium, and Zinc.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of the presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. ICPMS Tune

ICP-MS was not utilized in this SDG.

III. Calibration

The initial and continuing calibrations were performed at the required frequency.

The calibration standards criteria were met.

IV. Blanks

Method blanks were reviewed for each matrix as applicable. No metal contaminants were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Copper	0.4 mg/Kg	All samples in SDG VP40/VP41

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks.

V. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

VI. Matrix Spike Analysis

Matrix spike (MS) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	%R (Limits)	Flag	A or P
CWS1-04-2-4MS (All samples in SDG VP40/VP41)	Antimony	22.4 (75-125)	J (all detects) UJ (all non-detects)	A

VII. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

IX. Internal Standards (ICP-MS)

ICP-MS was not utilized in this SDG.

X. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

XI. ICP Serial Dilution

ICP serial dilution was not performed for this SDG.

XII. Sample Result Verification

Raw data were not reviewed for this SDG.

XIII. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to MS %R problems, data were qualified as estimated in eight samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the Stage 2B data validation all other results are considered valid and usable for all purposes.

Data flags are summarized at the end of this report if data has been qualified.

XIV. Field Duplicates

No field duplicates were identified in this SDG.

XV. Field Blanks

No field blanks were identified in this SDG.

**Central Waterfront
Metals - Data Qualification Summary - SDG VP40/VP41**

SDG	Sample	Analyte	Flag	A or P	Reason
VP40/VP41	CWS1-04-2-4 CWS1-04-6-8 CWS1-04-13.5-15 CWS1-02-1-3 CWS1-02-7-8 CWS1-02-12-13 CWS1-01-3-5 CWS1-01-11-13	Antimony	J (all detects) UJ (all non-detects)	A	Matrix spike analysis (%R)

**Central Waterfront
Metals - Laboratory Blank Data Qualification Summary - SDG VP40/VP41**

No Sample Data Qualified in this SDG

LDC #: 28742A4

VALIDATION COMPLETENESS WORKSHEET

Date: 11/14/12

SDG #: VP40/VP41

Stage 2B

Page: 1 of 1

Laboratory: Analytical Resources, Inc.

Reviewer: CL

2nd Reviewer: [Signature]

METHOD: Metals (EPA SW 846 Method 6010C/7000) ^{7471A}

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 10/25/12
II.	ICP/MS Tune	N	Not utilized
III.	Calibration	A	
IV.	Blanks	SW	
V.	ICP Interference Check Sample (ICS) Analysis	A	
VI.	Matrix Spike Analysis	SW	MS
VII.	Duplicate Sample Analysis	A	DUP
VIII.	Laboratory Control Samples (LCS)	A	LCS
IX.	Internal Standard (ICP-MS)	N	Not utilized
X.	Furnace Atomic Absorption QC	N	↓
XI.	ICP Serial Dilution	N	Not performed
XII.	Sample Result Verification	N	
XIII.	Overall Assessment of Data	A	
XIV.	Field Duplicates	N	
XV.	Field Blanks	N	

Note: A = Acceptable
N = Not provided/applicable
SW = See worksheet

ND = No compounds detected
R = Rinsate
FB = Field blank

D = Duplicate
TB = Trip blank
EB = Equipment blank

Validated Samples:

soil

1	CWS1-04-2-4	11	CWS1-04-2-4MS	21	31
2	CWS1-04-6-8	12	CWS1-04-2-4DUP	22	32
3	CWS1-04-13.5-15	13		23	33
4	CWS1-02-1-3	14		24	34
5	CWS1-02-7-8	15		25	35
6	CWS1-02-12-13	16		26	36
7	CWS1-01-3-5	17		27	37
8	CWS1-01-11-13	18		28	38
9	CWS1-03-2-4	19		29	39
10	CWS1-03-7-9	20		30	40

Notes: _____

VALIDATION FINDINGS WORKSHEET
Sample Specific Element Reference

All circled elements are applicable to each sample.

Sample ID	Matrix	Target Analyte List (TAL)
1-8		Al, (Sb, As), Ba, (Be, Cd), Ca, (Cr, Co), (Cu), Fe, (Pb), Mg, Mn, (Hg, Ni), K, (Se, Ag), Na, (Ti), V, (Zn), Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Sn, Ti,
QC: 11, 12		Al, (Sb, As), Ba, (Be, Cd), Ca, (Cr, Co), (Cu), Fe, (Pb), Mg, Mn, (Hg, Ni), K, (Se, Ag), Na, (Ti), V, (Zn), Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Sn, Ti,
Analysis Method		
ICP		Al, (Sb, As), Ba, (Be, Cd, Ca, Cr, Co, Cu), Fe, (Pb), Mg, Mn, Hg, (Ni), K, (Se, Ag), Na, (Ti), V, (Zn), Mo, B, Sn, Ti,
ICP-MS		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Sn, Ti,
GFAA		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Sn, Ti,

Comments: Mercury by CVAA if performed

METHOD: Trace metals (EPA SW 864 Method 6010B/6020/7000)

Soil preparation factor applied: NA

Sample Concentration units, unless otherwise noted: mg/Kg

Associated Samples: All

Analyte	Maximum PB ^a (mg/Kg)	Maximum PB ^a (ug/L)	Maximum ICB/CCB ^a (ug/L)	Action Level	No Qualifiers					
Cu	0.4			2						

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".

Note: a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name: Central Waterfront
Collection Date: October 25, 2012
LDC Report Date: November 26, 2012
Matrix: Soil/Water
Parameters: Gasoline Range Organics
Validation Level: Stage 2B
Laboratory: Analytical Resources, Inc.
Sample Delivery Group (SDG): VP40/VP41

Sample Identification

CWS1-04-2-4
CWS1-04-6-8
CWS1-04-13.5-15
CWS1-TB-01 (1)
CWS1-02-1-3
CWS1-02-7-8
CWS1-02-12-13
CWS1-01-3-5
CWS1-01-11-13
CWS1-03-2-4
CWS1-03-7-9
CWS1-TB-01 (2)

Introduction

This data review covers 10 soil samples and 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per NWTPH-Gx for Gasoline Range Organics.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of the presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for compounds were less than or equal to 20.0%.

III. Calibration Verification

Calibration verification was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 20.0% QC limits.

The percent differences (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds.

IV. Blanks

Method blanks were reviewed for each matrix as applicable. No gasoline range organic contaminants were found in the method blanks.

V. Surrogate Recovery

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VI. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Target Compound Identification

Raw data were not reviewed for this SDG.

IX. Compound Quantitation and RLs

Raw data were not reviewed for this SDG.

X. System Performance

Raw data were not reviewed for this SDG.

XI. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the Stage 2B data validation all results are considered valid and usable for all purposes.

XII. Field Duplicates

No field duplicates were identified in this SDG.

XIII. Field Blanks

Samples CWS1-TB-01 (1) and CWS1-TB-01 (2) were identified as trip blanks. No gasoline range organics were found.

**Central Waterfront
Gasoline Range Organics - Data Qualification Summary - SDG VP40/VP41**

No Sample Data Qualified in this SDG

**Central Waterfront
Gasoline Range Organics - Laboratory Blank Data Qualification Summary - SDG
VP40/VP41**

No Sample Data Qualified in this SDG

LDC #: 28742A7 **VALIDATION COMPLETENESS WORKSHEET**
 SDG #: VP40/MP41
 Laboratory: Analytical Resources, Inc.

Stage 2B

Date: 11/16/12
 Page: 1 of 1
 Reviewer: [Signature]
 2nd Reviewer: [Signature]

METHOD: Gasoline Range Organics (NWTPH-Gx)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 10/25/12
II.	Initial calibration	A	2 RSD $\leq 20\%$
III.	Calibration verification/ICV	A	CW/1CW $\leq 20\%$
IV.	Blanks	A	
V.	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	N	CS
VII.	Laboratory control samples	A	ICS 1B
VIII.	Target compound identification	N	
IX.	Compound quantitation/RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	N	
XIII.	Field blanks	ND	TB = 4, 12

Note: A = Acceptable ND = No compounds detected D = Duplicate
 N = Not provided/applicable R = Rinstate TB = Trip blank
 SW = See worksheet FB = Field blank EB = Equipment blank

Validated Samples:

Soil/Water

1	CWS1-04-2-4	11	CWS1-03-7-9	21	MB-103012	31	
2	CWS1-04-6-8	12	CWS1-TB-01 (2)	22		32	
3	CWS1-04-13.5-15	13		23		33	
4	CWS1-TB-01 (1)	14		24		34	
5	CWS1-02-1-3	15		25		35	
6	CWS1-02-7-8	16		26		36	
7	CWS1-02-12-13	17		27		37	
8	CWS1-01-3-5	18		28		38	
9	CWS1-01-11-13	19		29		39	
10	CWS1-03-2-4	20		30		40	

Notes: _____

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: Central Waterfront
Collection Date: October 25, 2012
LDC Report Date: November 20, 2012
Matrix: Soil
Parameters: Total Petroleum Hydrocarbons as Extractables
Validation Level: Stage 2B
Laboratory: Analytical Resources, Inc.
Sample Delivery Group (SDG): VP40/VP41

Sample Identification

CWS1-04-2-4
CWS1-04-6-8
CWS1-04-13.5-15
CWS1-02-1-3
CWS1-02-7-8
CWS1-02-12-13
CWS1-01-3-5
CWS1-01-11-13
CWS1-03-2-4
CWS1-03-7-9
CWS1-02-1-3MS
CWS1-02-1-3MSD

Introduction

This data review covers 12 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per NWTPH-Dx for Total Petroleum Hydrocarbons as Extractables.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of the presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for compounds were less than or equal to 20.0%.

III. Calibration Verification

Calibration verification was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 20.0% QC limits.

The percent differences (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds.

IV. Blanks

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as extractables were found in the method blanks.

V. Surrogate Recovery

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Target Compound Identification

Raw data were not reviewed for this SDG.

IX. Compound Quantitation and RLs

Raw data were not reviewed for this SDG.

X. System Performance

Raw data were not reviewed for this SDG.

XI. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the Stage 2B data validation all results are considered valid and usable for all purposes.

XII. Field Duplicates

No field duplicates were identified in this SDG.

XIII. Field Blanks

No field blanks were identified in this SDG.

**Central Waterfront
Total Petroleum Hydrocarbons as Extractables - Data Qualification Summary - SDG
VP40/VP41**

No Sample Data Qualified in this SDG

**Central Waterfront
Total Petroleum Hydrocarbons as Extractables - Laboratory Blank Data Qualification
Summary - SDG VP40/VP41**

No Sample Data Qualified in this SDG

LDC #: 28742A8

VALIDATION COMPLETENESS WORKSHEET

Date: 1/16/12

SDG #: VP40/VP41

Stage 2B

Page: 1 of 1

Laboratory: Analytical Resources, Inc.

Reviewer: DJG

2nd Reviewer: DJG

METHOD: TPH as Extractables (NWTPH-Dx)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 10/25/12
II.	Initial calibration	A	70 RSD \leq 20%
III.	Calibration verification/ICV	A	CV/ICV \leq 20%
IV.	Blanks	A	
V.	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	X	
VII.	Laboratory control samples	A	LCS 1b
VIII.	Target compound identification	N	
IX.	Compound quantitation/RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	N	
XIII.	Field blanks	N	

Note: A = Acceptable
N = Not provided/applicable
SW = See worksheet

ND = No compounds detected
R = Rinsate
FB = Field blank

D = Duplicate
TB = Trip blank
EB = Equipment blank

Validated Samples:

1 ⁺	CWS1-04-2-4	11	CWS1-02-1-3MS	21	MB-103012	31	
2 ⁺	CWS1-04-6-8	12	CWS1-02-1-3MSD	22		32	
3 ⁺	CWS1-04-13.5-15	13		23		33	
4 ⁻	CWS1-02-1-3	14		24		34	
5 ⁺	CWS1-02-7-8	15		25		35	
6 ⁺	CWS1-02-12-13	16		26		36	
7 ⁺	CWS1-01-3-5	17		27		37	
8 ⁺	CWS1-01-11-13	18		28		38	
9 ⁺	CWS1-03-2-4	19		29		39	
10 ⁺	CWS1-03-7-9	20		30		40	

Notes: _____

Central Waterfront - LDC 28742/28782

SDG: VP40

NWTPHDX												
Analytical Method	Lab Sample ID	Chemical Name	Anal Date	Result	Mod Res Report	Detect	Lab Qual	Val Qual	Reason	RL	MDL	Units
CWS1-04-13.5-15	12-21291-VP40C	Diesel Range Hydrocarbons	11/1/2012	200	Yes	Y				5.8	1.5	mg/kg
CWS1-04-13.5-15	12-21291-VP40C	Motor Oil Range	11/1/2012	260	Yes	Y				12	1.8	mg/kg
CWS1-04-24	12-21289-VP40A	Motor Oil Range	10/31/2012	97	Yes	Y				12	1.9	mg/kg
CWS1-04-24	12-21289-VP40A	Diesel Range Hydrocarbons	10/31/2012	67	Yes	Y				6.0	1.5	mg/kg
CWS1-04-6-8	12-21290-VP40B	Motor Oil Range	10/31/2012	37	Yes	Y				12	2.0	mg/kg
CWS1-04-6-8	12-21290-VP40B	Diesel Range Hydrocarbons	10/31/2012	24	Yes	Y				6.2	1.6	mg/kg

NWTPHG												
Analytical Method	Lab Sample ID	Chemical Name	Anal Date	Result	Mod Res Report	Detect	Lab Qual	Val Qual	Reason	RL	MDL	Units
CWS1-04-13.5-15	12-21291-VP40C	Gasoline Range Hydrocarbons	10/30/2012	19	Yes	Y				6.6	2.2	mg/kg
CWS1-04-24	12-21289-VP40A	Gasoline Range Hydrocarbons	10/30/2012	6.4	Yes	N	U			6.4	2.1	mg/kg
CWS1-04-6-8	12-21290-VP40B	Gasoline Range Hydrocarbons	10/30/2012	7.8	Yes	N	U			7.8	2.6	mg/kg
CWS1-TB-01-20121025-1	12-21293-VP40E	Gasoline Range Hydrocarbons	10/30/2012	0.25	Yes	N	U			0.25	0.057	mg/L

SW6010C												
Analytical Method	Lab Sample ID	Chemical Name	Anal Date	Result	Mod Res Report	Detect	Lab Qual	Val Qual	Reason	RL	MDL	Units
CWS1-04-13.5-15	12-21291-VP40C	Beryllium	11/2/2012	0.3	Yes	N	U			0.3	0.029	mg/kg
CWS1-04-13.5-15	12-21291-VP40C	Cadmium	11/2/2012	11.7	Yes	Y				0.6	0.32	mg/kg
CWS1-04-13.5-15	12-21291-VP40C	Chromium	11/2/2012	22	Yes	Y				1	0.78	mg/kg
CWS1-04-13.5-15	12-21291-VP40C	Copper	11/2/2012	30.3	Yes	Y				0.6	0.15	mg/kg
CWS1-04-13.5-15	12-21291-VP40C	Antimony	11/2/2012	10	Yes	N	U	UJ	8	10	0.93	mg/kg
CWS1-04-13.5-15	12-21291-VP40C	Thallium	11/2/2012	10	Yes	N	U			10	1.5	mg/kg
CWS1-04-13.5-15	12-21291-VP40C	Silver	11/2/2012	0.9	Yes	N	U			0.9	0.087	mg/kg
CWS1-04-13.5-15	12-21291-VP40C	Nickel	11/2/2012	17	Yes	Y				3	0.87	mg/kg
CWS1-04-13.5-15	12-21291-VP40C	Lead	11/2/2012	452	Yes	Y				6	0.38	mg/kg
CWS1-04-13.5-15	12-21291-VP40C	Zinc	11/2/2012	5050	Yes	Y				3	0.35	mg/kg

SDG: VP40

Analytical Method SW6010C

Sample ID	Lab Sample ID	Chemical Name	Anal Date	Result	Mod Res	Report	Detect	Lab Qual	Val Qual	Reason	RL	MDL	Units
CWS1-04-13.5-15	12-21291-VP40C	Selenium	11/2/2012	10	Yes	N	U	U			10	1.9	mg/kg
CWS1-04-13.5-15	12-21291-VP40C	Arsenic	11/2/2012	10	Yes	N	U	U			10	1.3	mg/kg
CWS1-04-2.4	12-21289-VP40A	Copper	11/1/2012	40.9	Yes	Y					0.2	0.058	mg/kg
CWS1-04-2.4	12-21289-VP40A	Antimony	11/1/2012	6	Yes	N	U	U	UJ	8	6	0.37	mg/kg
CWS1-04-2.4	12-21289-VP40A	Lead	11/1/2012	30	Yes	Y					2	0.15	mg/kg
CWS1-04-2.4	12-21289-VP40A	Nickel	11/1/2012	40	Yes	Y					1	0.35	mg/kg
CWS1-04-2.4	12-21289-VP40A	Selenium	11/1/2012	6	Yes	N	U	U			6	0.75	mg/kg
CWS1-04-2.4	12-21289-VP40A	Thallium	11/1/2012	6	Yes	N	U	U			6	0.62	mg/kg
CWS1-04-2.4	12-21289-VP40A	Arsenic	11/1/2012	6	Yes	N	U	U			6	0.53	mg/kg
CWS1-04-2.4	12-21289-VP40A	Beryllium	11/1/2012	0.2	Yes	Y					0.1	0.012	mg/kg
CWS1-04-2.4	12-21289-VP40A	Cadmium	11/1/2012	0.7	Yes	Y					0.2	0.13	mg/kg
CWS1-04-2.4	12-21289-VP40A	Chromium	11/1/2012	35.9	Yes	Y					0.6	0.31	mg/kg
CWS1-04-2.4	12-21289-VP40A	Zinc	11/1/2012	84	Yes	Y					1	0.14	mg/kg
CWS1-04-2.4	12-21289-VP40A	Silver	11/1/2012	0.3	Yes	N	U	U			0.3	0.035	mg/kg
CWS1-04-6.8	12-21290-VP40B	Silver	11/2/2012	0.4	Yes	N	U	U			0.4	0.039	mg/kg
CWS1-04-6.8	12-21290-VP40B	Selenium	11/2/2012	6	Yes	N	U	U			6	0.84	mg/kg
CWS1-04-6.8	12-21290-VP40B	Nickel	11/2/2012	23	Yes	Y					1	0.39	mg/kg
CWS1-04-6.8	12-21290-VP40B	Lead	11/2/2012	22	Yes	Y					3	0.17	mg/kg
CWS1-04-6.8	12-21290-VP40B	Chromium	11/2/2012	37.8	Yes	Y					0.6	0.35	mg/kg
CWS1-04-6.8	12-21290-VP40B	Thallium	11/2/2012	6	Yes	N	U	U			6	0.68	mg/kg
CWS1-04-6.8	12-21290-VP40B	Antimony	11/2/2012	6	Yes	N	U	U	UJ	8	6	0.41	mg/kg
CWS1-04-6.8	12-21290-VP40B	Arsenic	11/2/2012	6	Yes	N	U	U			6	0.59	mg/kg
CWS1-04-6.8	12-21290-VP40B	Cadmium	11/2/2012	0.3	Yes	N	U	U			0.3	0.14	mg/kg
CWS1-04-6.8	12-21290-VP40B	Copper	11/2/2012	34.5	Yes	Y					0.3	0.064	mg/kg
CWS1-04-6.8	12-21290-VP40B	Zinc	11/2/2012	48	Yes	Y					1	0.15	mg/kg

SDG: VP40

Analytical Method	SW6010C	Chemical Name	Anal Date	Result	Mod Res Report	Detect	Lab Qual	Val Qual	Reason	RL	MDL	Units
Sample ID	Lab Sample ID											
CWS1-04-6-8	12-21290-VP40B	Beryllium	11/2/2012	0.1	Yes	Y				0.1	0.013	mg/kg

Analytical Method	SW7471A	Chemical Name	Anal Date	Result	Mod Res Report	Detect	Lab Qual	Val Qual	Reason	RL	MDL	Units
Sample ID	Lab Sample ID											
CWS1-04-13.5-15	12-21291-VP40C	Mercury	10/30/2012	0.2	Yes	Y				0.03	0.0014	mg/kg
CWS1-04-2-4	12-21289-VP40A	Mercury	10/30/2012	0.16	Yes	Y				0.02	0.0013	mg/kg
CWS1-04-6-8	12-21290-VP40B	Mercury	10/30/2012	0.08	Yes	Y				0.02	0.0013	mg/kg

Analytical Method	SW8260C	Chemical Name	Anal Date	Result	Mod Res Report	Detect	Lab Qual	Val Qual	Reason	RL	MDL	Units
Sample ID	Lab Sample ID											
CWS1-04-13.5-15	12-21291-VP40C	Toluene	10/30/2012	1.1	Yes	Y	J			1.2	0.19	ug/kg
CWS1-04-13.5-15	12-21291-VP40C	o-Xylene	10/30/2012	1.2	Yes	N	U			1.2	0.28	ug/kg
CWS1-04-13.5-15	12-21291-VP40C	m,p-Xylene	10/30/2012	1.2	Yes	N	U			1.2	0.49	ug/kg
CWS1-04-13.5-15	12-21291-VP40C	Ethylbenzene	10/30/2012	1.2	Yes	N	U			1.2	0.25	ug/kg
CWS1-04-13.5-15	12-21291-VP40C	Benzene	10/30/2012	17	Yes	Y				1.2	0.37	ug/kg
CWS1-04-2-4	12-21289-VP40A	o-Xylene	10/30/2012	1.1	Yes	N	U			1.1	0.25	ug/kg
CWS1-04-2-4	12-21289-VP40A	Benzene	10/30/2012	1.1	Yes	N	U			1.1	0.33	ug/kg
CWS1-04-2-4	12-21289-VP40A	Ethylbenzene	10/30/2012	1.1	Yes	N	U			1.1	0.22	ug/kg
CWS1-04-2-4	12-21289-VP40A	Toluene	10/30/2012	1.1	Yes	N	U			1.1	0.17	ug/kg
CWS1-04-2-4	12-21289-VP40A	m,p-Xylene	10/30/2012	1.1	Yes	N	U			1.1	0.43	ug/kg
CWS1-04-6-8	12-21290-VP40B	Toluene	10/30/2012	0.6	Yes	Y	J			1.2	0.18	ug/kg
CWS1-04-6-8	12-21290-VP40B	Ethylbenzene	10/30/2012	1.2	Yes	N	U			1.2	0.24	ug/kg
CWS1-04-6-8	12-21290-VP40B	m,p-Xylene	10/30/2012	1.2	Yes	N	U			1.2	0.46	ug/kg
CWS1-04-6-8	12-21290-VP40B	o-Xylene	10/30/2012	1.2	Yes	N	U			1.2	0.26	ug/kg
CWS1-04-6-8	12-21290-VP40B	Benzene	10/30/2012	1.2	Yes	N	U			1.2	0.35	ug/kg
CWS1-TB-01-20121025-1	12-21293-VP40E	Benzene	10/30/2012	1	Yes	N	U			1.0	0.25	ug/L
CWS1-TB-01-20121025-1	12-21293-VP40E	m,p-Xylene	10/30/2012	2	Yes	N	U			2.0	0.36	ug/L

SDG: VP40

Analytical Method SW8260C

Sample ID	Lab Sample ID	Chemical Name	Anal Date	Result	Mod Res Report	Detect	Lab Qual	Val Qual	Reason	RL	MDL	Units
CWS1-TB-01-20121025-1	12-21293-VP40E	Toluene	10/30/2012	1	Yes	N	U			1.0	0.18	ug/L
CWS1-TB-01-20121025-1	12-21293-VP40E	Ethylbenzene	10/30/2012	1	Yes	N	U			1.0	0.18	ug/L
CWS1-TB-01-20121025-1	12-21293-VP40E	o-Xylene	10/30/2012	1	Yes	N	U			1.0	0.22	ug/L

SDG: VP41

Analytical Method		NWTPHDX										
Sample ID	Lab Sample ID	Chemical Name	Anal Date	Result	Mod Res Report	Detect	Lab Qual	Val Qual	Reason	RL	MDL	Units
CWS1-01-11-13	12-21283-VP41E	Diesel Range Hydrocarbons	11/1/2012	95	Yes	Y				5.8	1.5	mg/kg
CWS1-01-11-13	12-21283-VP41E	Motor Oil Range	11/1/2012	120	Yes	Y				12	1.8	mg/kg
CWS1-01-3-5	12-21282-VP41D	Motor Oil Range	11/1/2012	140	Yes	Y				11	1.8	mg/kg
CWS1-01-3-5	12-21282-VP41D	Diesel Range Hydrocarbons	11/1/2012	41	Yes	Y				5.7	1.5	mg/kg
CWS1-02-12-13	12-21281-VP41C	Diesel Range Hydrocarbons	11/1/2012	39	Yes	Y				5.7	1.5	mg/kg
CWS1-02-12-13	12-21281-VP41C	Motor Oil Range	11/1/2012	98	Yes	Y				11	1.8	mg/kg
CWS1-02-1-3	12-21279-VP41A	Diesel Range Hydrocarbons	10/31/2012	5.2	Yes	N	U			5.2	1.3	mg/kg
CWS1-02-1-3	12-21279-VP41A	Motor Oil Range	10/31/2012	10	Yes	N	U			10	1.6	mg/kg
CWS1-02-7-8	12-21280-VP41B	Diesel Range Hydrocarbons	11/1/2012	150	Yes	Y				5.7	1.5	mg/kg
CWS1-02-7-8	12-21280-VP41B	Motor Oil Range	11/1/2012	280	Yes	Y				11	1.8	mg/kg
CWS1-03-2-4	12-21285-VP41G	Diesel Range Hydrocarbons	11/1/2012	100	Yes	Y				5.6	1.4	mg/kg
CWS1-03-2-4	12-21285-VP41G	Motor Oil Range	11/1/2012	84	Yes	Y				11	1.8	mg/kg
CWS1-03-7-9	12-21286-VP41H	Motor Oil Range	11/1/2012	410	Yes	Y				13	2.1	mg/kg
CWS1-03-7-9	12-21286-VP41H	Diesel Range Hydrocarbons	11/1/2012	300	Yes	Y				6.7	1.7	mg/kg

Analytical Method		NWTPHG										
Sample ID	Lab Sample ID	Chemical Name	Anal Date	Result	Mod Res Report	Detect	Lab Qual	Val Qual	Reason	RL	MDL	Units
CWS1-01-11-13	12-21283-VP41E	Gasoline Range Hydrocarbons	10/30/2012	6.4	Yes	N	U			6.4	2.1	mg/kg
CWS1-01-3-5	12-21282-VP41D	Gasoline Range Hydrocarbons	10/30/2012	10	Yes	N	U			10	3.4	mg/kg
CWS1-02-12-13	12-21281-VP41C	Gasoline Range Hydrocarbons	10/30/2012	7	Yes	N	U			7.0	2.3	mg/kg
CWS1-02-1-3	12-21279-VP41A	Gasoline Range Hydrocarbons	10/30/2012	6.5	Yes	N	U			6.5	2.2	mg/kg
CWS1-02-7-8	12-21280-VP41B	Gasoline Range Hydrocarbons	10/30/2012	7.6	Yes	Y				6.1	2.0	mg/kg
CWS1-03-2-4	12-21285-VP41G	Gasoline Range Hydrocarbons	10/30/2012	9.5	Yes	N	U			9.5	3.1	mg/kg
CWS1-03-7-9	12-21286-VP41H	Gasoline Range Hydrocarbons	10/30/2012	8.8	Yes	N	U			8.8	2.9	mg/kg
CWS1-TB-01-20121025-2	12-21288-VP41J	Gasoline Range Hydrocarbons	10/30/2012	0.25	Yes	N	U			0.25	0.057	mg/L

SDG: VP41

Analytical Method SW6010C

Sample ID	Lab Sample ID	Chemical Name	Anal Date	Result	Mod Res Report	Detect	Lab Qual	Val Qual	Reason	RL	MDL	Units
CWS1-01-11-13	12-21283-VP41E	Nickel	11/2/2012	109	Yes	Y				6	1.9	mg/kg
CWS1-01-11-13	12-21283-VP41E	Selenium	11/2/2012	30	Yes	N	U			30	4.1	mg/kg
CWS1-01-11-13	12-21283-VP41E	Copper	11/2/2012	359	Yes	Y				1	0.31	mg/kg
CWS1-01-11-13	12-21283-VP41E	Cadmium	11/2/2012	1	Yes	N	U			1	0.69	mg/kg
CWS1-01-11-13	12-21283-VP41E	Beryllium	11/2/2012	0.6	Yes	N	U			0.6	0.063	mg/kg
CWS1-01-11-13	12-21283-VP41E	Arsenic	11/2/2012	30	Yes	N	U			30	2.9	mg/kg
CWS1-01-11-13	12-21283-VP41E	Antimony	11/2/2012	30	Yes	N	U	UU	8	30	2.0	mg/kg
CWS1-01-11-13	12-21283-VP41E	Silver	11/2/2012	2	Yes	N	U			2	0.19	mg/kg
CWS1-01-11-13	12-21283-VP41E	Zinc	11/2/2012	273	Yes	Y				6	0.75	mg/kg
CWS1-01-11-13	12-21283-VP41E	Lead	11/2/2012	110	Yes	Y				10	0.82	mg/kg
CWS1-01-11-13	12-21283-VP41E	Thallium	11/2/2012	30	Yes	N	U			30	3.3	mg/kg
CWS1-01-11-13	12-21283-VP41E	Chromium	11/2/2012	57	Yes	Y				3	1.7	mg/kg
CWS1-01-3-5	12-21282-VP41D	Copper	11/2/2012	148	Yes	Y				0.6	0.16	mg/kg
CWS1-01-3-5	12-21282-VP41D	Chromium	11/2/2012	38	Yes	Y				2	0.84	mg/kg
CWS1-01-3-5	12-21282-VP41D	Cadmium	11/2/2012	1.4	Yes	Y				0.6	0.34	mg/kg
CWS1-01-3-5	12-21282-VP41D	Beryllium	11/2/2012	0.3	Yes	N	U			0.3	0.031	mg/kg
CWS1-01-3-5	12-21282-VP41D	Arsenic	11/2/2012	20	Yes	N	U			20	1.4	mg/kg
CWS1-01-3-5	12-21282-VP41D	Antimony	11/2/2012	20	Yes	N	U	UU	8	20	1.0	mg/kg
CWS1-01-3-5	12-21282-VP41D	Thallium	11/2/2012	20	Yes	N	U			20	1.6	mg/kg
CWS1-01-3-5	12-21282-VP41D	Silver	11/2/2012	0.9	Yes	N	U			0.9	0.093	mg/kg
CWS1-01-3-5	12-21282-VP41D	Nickel	11/2/2012	39	Yes	Y				3	0.93	mg/kg
CWS1-01-3-5	12-21282-VP41D	Lead	11/2/2012	166	Yes	Y				6	0.40	mg/kg
CWS1-01-3-5	12-21282-VP41D	Zinc	11/2/2012	347	Yes	Y				3	0.37	mg/kg
CWS1-01-3-5	12-21282-VP41D	Selenium	11/2/2012	20	Yes	N	U			20	2.0	mg/kg
CWS1-02-12-13	12-21281-VP41C	Beryllium	11/2/2012	0.6	Yes	N	U			0.6	0.060	mg/kg

SDG: VP41

Analytical Method SW6010C

Sample ID	Lab Sample ID	Chemical Name	Anal Date	Result	Mod Res Report	Detect	Lab Qual	Val Qual	Reason	RL	MDL	Units
CWS1-02-12-13	12-21281-VP41C	Selenium	11/2/2012	30	Yes	N	U			30	3.9	mg/kg
CWS1-02-12-13	12-21281-VP41C	Zinc	11/2/2012	162	Yes	Y				6	0.72	mg/kg
CWS1-02-12-13	12-21281-VP41C	Copper	11/2/2012	209	Yes	Y				1	0.30	mg/kg
CWS1-02-12-13	12-21281-VP41C	Cadmium	11/2/2012	1	Yes	Y				1	0.66	mg/kg
CWS1-02-12-13	12-21281-VP41C	Arsenic	11/2/2012	30	Yes	N	U			30	2.7	mg/kg
CWS1-02-12-13	12-21281-VP41C	Antimony	11/2/2012	30	Yes	N	U	UU	8	30	1.9	mg/kg
CWS1-02-12-13	12-21281-VP41C	Thallium	11/2/2012	30	Yes	N	U			30	3.2	mg/kg
CWS1-02-12-13	12-21281-VP41C	Silver	11/2/2012	2	Yes	N	U			2	0.18	mg/kg
CWS1-02-12-13	12-21281-VP41C	Nickel	11/2/2012	39	Yes	Y				6	1.8	mg/kg
CWS1-02-12-13	12-21281-VP41C	Chromium	11/2/2012	30	Yes	Y				3	1.6	mg/kg
CWS1-02-12-13	12-21281-VP41C	Lead	11/2/2012	40	Yes	Y				10	0.78	mg/kg
CWS1-02-1-3	12-21279-VP41A	Antimony	11/2/2012	5	Yes	Y		J	8	5	0.34	mg/kg
CWS1-02-1-3	12-21279-VP41A	Chromium	11/2/2012	14.2	Yes	Y				0.5	0.29	mg/kg
CWS1-02-1-3	12-21279-VP41A	Beryllium	11/2/2012	0.1	Yes	Y				0.1	0.011	mg/kg
CWS1-02-1-3	12-21279-VP41A	Selenium	11/2/2012	5	Yes	N	U			5	0.69	mg/kg
CWS1-02-1-3	12-21279-VP41A	Cadmium	11/2/2012	0.2	Yes	N	U			0.2	0.12	mg/kg
CWS1-02-1-3	12-21279-VP41A	Copper	11/2/2012	41.4	Yes	Y				0.2	0.053	mg/kg
CWS1-02-1-3	12-21279-VP41A	Thallium	11/2/2012	5	Yes	N	U			5	0.56	mg/kg
CWS1-02-1-3	12-21279-VP41A	Silver	11/2/2012	0.3	Yes	N	U			0.3	0.032	mg/kg
CWS1-02-1-3	12-21279-VP41A	Nickel	11/2/2012	19	Yes	Y				1	0.32	mg/kg
CWS1-02-1-3	12-21279-VP41A	Lead	11/2/2012	16	Yes	Y				2	0.14	mg/kg
CWS1-02-1-3	12-21279-VP41A	Zinc	11/2/2012	52	Yes	Y				1	0.13	mg/kg
CWS1-02-1-3	12-21279-VP41A	Arsenic	11/2/2012	25	Yes	Y				5	0.49	mg/kg
CWS1-02-7-8	12-21280-VP41B	Arsenic	11/2/2012	60	Yes	N	U			60	5.4	mg/kg
CWS1-02-7-8	12-21280-VP41B	Nickel	11/2/2012	160	Yes	Y				10	3.5	mg/kg

SDG: VP41

Analytical Method SW6010C

Sample ID	Lab Sample ID	Chemical Name	Anal Date	Result	Mod Res Report	Detect	Lab Qual	Val Qual	Reason	RL	MDL	Units
CWS1-02-7-8	12-21280-VP41B	Silver	11/2/2012	4	Yes	N	U			4	0.35	mg/kg
CWS1-02-7-8	12-21280-VP41B	Beryllium	11/2/2012	1	Yes	N	U			1	0.12	mg/kg
CWS1-02-7-8	12-21280-VP41B	Cadmium	11/2/2012	2	Yes	N	U			2	1.3	mg/kg
CWS1-02-7-8	12-21280-VP41B	Chromium	11/2/2012	128	Yes	Y				6	3.2	mg/kg
CWS1-02-7-8	12-21280-VP41B	Copper	11/2/2012	403	Yes	Y				2	0.59	mg/kg
CWS1-02-7-8	12-21280-VP41B	Zinc	11/2/2012	250	Yes	Y				10	1.4	mg/kg
CWS1-02-7-8	12-21280-VP41B	Selenium	11/2/2012	60	Yes	N	U			60	7.6	mg/kg
CWS1-02-7-8	12-21280-VP41B	Thallium	11/2/2012	60	Yes	N	U			60	6.2	mg/kg
CWS1-02-7-8	12-21280-VP41B	Antimony	11/2/2012	60	Yes	N	U	UJ	8	60	3.7	mg/kg
CWS1-02-7-8	12-21280-VP41B	Lead	11/2/2012	1260	Yes	Y				20	1.5	mg/kg

Analytical Method SW7471A

Sample ID	Lab Sample ID	Chemical Name	Anal Date	Result	Mod Res Report	Detect	Lab Qual	Val Qual	Reason	RL	MDL	Units
CWS1-01-11-13	12-21283-VP41E	Mercury	10/30/2012	0.22	Yes	Y				0.02	0.0011	mg/kg
CWS1-01-3-5	12-21282-VP41D	Mercury	10/30/2012	0.06	Yes	Y				0.02	0.0012	mg/kg
CWS1-02-12-13	12-21281-VP41C	Mercury	10/30/2012	0.02	Yes	N	U			0.02	0.0012	mg/kg
CWS1-02-1-3	12-21279-VP41A	Mercury	10/30/2012	0.03	Yes	N	U			0.03	0.0014	mg/kg
CWS1-02-7-8	12-21280-VP41B	Mercury	10/30/2012	0.05	Yes	Y				0.03	0.0013	mg/kg

Analytical Method SW8260C

Sample ID	Lab Sample ID	Chemical Name	Anal Date	Result	Mod Res Report	Detect	Lab Qual	Val Qual	Reason	RL	MDL	Units
CWS1-01-11-13	12-21283-VP41E	m,p-Xylene	10/30/2012	1	Yes	N	U			1.0	0.39	ug/kg
CWS1-01-11-13	12-21283-VP41E	Toluene	10/30/2012	1	Yes	N	U			1.0	0.15	ug/kg
CWS1-01-11-13	12-21283-VP41E	Benzene	10/30/2012	1	Yes	N	U			1.0	0.30	ug/kg
CWS1-01-11-13	12-21283-VP41E	o-Xylene	10/30/2012	1	Yes	N	U			1.0	0.22	ug/kg
CWS1-01-11-13	12-21283-VP41E	Ethylbenzene	10/30/2012	1	Yes	N	U			1.0	0.20	ug/kg
CWS1-01-3-5	12-21282-VP41D	Ethylbenzene	10/30/2012	1.3	Yes	N	U			1.3	0.26	ug/kg

SDG: VP41

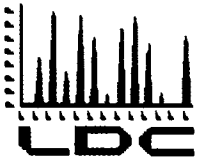
Analytical Method SW8260C

Sample ID	Lab Sample ID	Chemical Name	Anal Date	Result	Mod Res Report	Detected	Lab Qual	Val Qual	Reason	RL	MDL	Units
CWS1-01-3-5	12-21282-VP41D	Toluene	10/30/2012	0.7	Yes	Y	J			1.3	0.19	ug/kg
CWS1-01-3-5	12-21282-VP41D	o-Xylene	10/30/2012	1.3	Yes	N	U			1.3	0.29	ug/kg
CWS1-01-3-5	12-21282-VP41D	Benzene	10/30/2012	1.2	Yes	Y	J			1.3	0.38	ug/kg
CWS1-01-3-5	12-21282-VP41D	m,p-Xylene	10/30/2012	1.3	Yes	N	U			1.3	0.50	ug/kg
CWS1-02-12-13	12-21281-VP41C	o-Xylene	10/30/2012	1	Yes	N	U			1.0	0.22	ug/kg
CWS1-02-12-13	12-21281-VP41C	Benzene	10/30/2012	0.8	Yes	Y	J			1.0	0.30	ug/kg
CWS1-02-12-13	12-21281-VP41C	m,p-Xylene	10/30/2012	1	Yes	N	U			1.0	0.39	ug/kg
CWS1-02-12-13	12-21281-VP41C	Toluene	10/30/2012	0.6	Yes	Y	J			1.0	0.15	ug/kg
CWS1-02-12-13	12-21281-VP41C	Ethylbenzene	10/30/2012	0.6	Yes	Y	J			1.0	0.20	ug/kg
CWS1-02-1-3	12-21279-VP41A	m,p-Xylene	10/30/2012	1.2	Yes	N	U			1.2	0.45	ug/kg
CWS1-02-1-3	12-21279-VP41A	o-Xylene	10/30/2012	1.2	Yes	N	U			1.2	0.26	ug/kg
CWS1-02-1-3	12-21279-VP41A	Benzene	10/30/2012	1.1	Yes	Y	J			1.2	0.34	ug/kg
CWS1-02-1-3	12-21279-VP41A	Toluene	10/30/2012	1	Yes	Y	J			1.2	0.17	ug/kg
CWS1-02-1-3	12-21279-VP41A	Ethylbenzene	10/30/2012	1.2	Yes	N	U			1.2	0.23	ug/kg
CWS1-02-7-8	12-21280-VP41B	Benzene	10/30/2012	0.9	Yes	Y	J			1.2	0.35	ug/kg
CWS1-02-7-8	12-21280-VP41B	o-Xylene	10/30/2012	1.2	Yes	N	U			1.2	0.27	ug/kg
CWS1-02-7-8	12-21280-VP41B	m,p-Xylene	10/30/2012	1.2	Yes	N	U			1.2	0.47	ug/kg
CWS1-02-7-8	12-21280-VP41B	Toluene	10/30/2012	1.2	Yes	N	U			1.2	0.18	ug/kg
CWS1-02-7-8	12-21280-VP41B	Ethylbenzene	10/30/2012	1.2	Yes	N	U			1.2	0.24	ug/kg
CWS1-03-2-4	12-21285-VP41G	Ethylbenzene	10/30/2012	1.4	Yes	N	U			1.4	0.28	ug/kg
CWS1-03-2-4	12-21285-VP41G	Toluene	10/30/2012	1.6	Yes	Y				1.4	0.21	ug/kg
CWS1-03-2-4	12-21285-VP41G	m,p-Xylene	10/30/2012	1.4	Yes	N	U			1.4	0.54	ug/kg
CWS1-03-2-4	12-21285-VP41G	Benzene	10/30/2012	1.4	Yes	N	U			1.4	0.40	ug/kg
CWS1-03-2-4	12-21285-VP41G	o-Xylene	10/30/2012	1.4	Yes	N	U			1.4	0.31	ug/kg
CWS1-03-7-9	12-21286-VP41H	m,p-Xylene	10/30/2012	1.6	Yes	Y				1.2	0.45	ug/kg

SDG: VP41

Analytical Method SW8260C

Sample ID	Lab Sample ID	Chemical Name	Anal Date	Result	Mod Res Report	Detect	Lab Qual	Val Qual	Reason	RL	MDL	Units
CWS1-03-7-9	12-21286-VP41H	Toluene	10/30/2012	2.7	Yes	Y				1.2	0.17	ug/kg
CWS1-03-7-9	12-21286-VP41H	o-Xylene	10/30/2012	0.8	Yes	Y	J			1.2	0.26	ug/kg
CWS1-03-7-9	12-21286-VP41H	Ethylbenzene	10/30/2012	0.6	Yes	Y	J			1.2	0.23	ug/kg
CWS1-03-7-9	12-21286-VP41H	Benzene	10/30/2012	2.3	Yes	Y				1.2	0.34	ug/kg
CWS1-TB-01-20121025-2	12-21288-VP41J	Ethylbenzene	10/30/2012	1	Yes	N	U			1.0	0.18	ug/L
CWS1-TB-01-20121025-2	12-21288-VP41J	o-Xylene	10/30/2012	1	Yes	N	U			1.0	0.22	ug/L
CWS1-TB-01-20121025-2	12-21288-VP41J	Benzene	10/30/2012	1	Yes	N	U			1.0	0.25	ug/L
CWS1-TB-01-20121025-2	12-21288-VP41J	m,p-Xylene	10/30/2012	2	Yes	N	U			2.0	0.36	ug/L
CWS1-TB-01-20121025-2	12-21288-VP41J	Toluene	10/30/2012	1	Yes	N	U			1.0	0.18	ug/L



Laboratory Data Consultants, Inc.

7750 El Camino Real, Ste. 2L Carlsbad, CA 92009

Phone 760.634.0437

Web www.lab-data.com

Fax 760.634.0439

Anchor Environmental, LLC
720 Olive Way, Suite 1900
Seattle, WA 98101
ATTN: Ms. Cindy Fields

November 28, 2012

SUBJECT: Central Waterfront, Data Validation

Dear Ms. Fields,

Enclosed is the final validation report for the fractions listed below. This SDG was received on November 12, 2012. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project # 28782:

<u>SDG #</u>	<u>Fraction</u>
VP51	Volatiles, Metals, Gasoline Range Organics, Total Petroleum Hydrocarbons as Extractables

The data validation was performed under Stage 2B guidelines. The analyses were validated using the following documents, as applicable to each method:

- USEPA, Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA, Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

Ming-Hwa Hwang
Project Manager/Senior Chemist

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: Central Waterfront
Collection Date: October 26, 2012
LDC Report Date: November 28, 2012
Matrix: Soil/Water
Parameters: Volatiles
Validation Level: Stage 2B
Laboratory: Analytical Resources, Inc.
Sample Delivery Group (SDG): VP51

Sample Identification

CWSI-07-2-4
CWSI-05-2-4
CWSI-05-7-9
CWSI-05-12-14
CWSI-06-8-10
CWSI-06-8-10RE
CWSI-06-12-14
CWSI-TB-02

Introduction

This data review covers 7 soil samples and one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260C for Volatiles which are Benzene, Toluene, Ethylbenzene and Xylenes (BTEX).

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of the presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

Average relative response factors (RRF) for all compounds were within method and validation criteria.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the method criteria of less than or equal to 20.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within method and validation criteria.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
CWSI-06-8-10	Bromofluorobenzene 1,2-Dichloroethane-d4	150 (80-120) 149 (80-120)	All TCL compounds	J (all detects)	A

VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

XII. Compound Quantitation and RLs

Raw data were not reviewed for this SDG.

XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

XIV. System Performance

Raw data were not reviewed for this SDG.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method.

In the case where more than one result was reported for an individual sample, the least technically acceptable results were rejected as follows:

Sample	Compound	Flag	A or P
CWSI-06-8-10RE	All TCL compounds	R	A

No data were qualified due to high surrogate %R, the associated results were non-detected.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be rejected (R) are unusable for all purposes. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the Stage 2B data validation all other results are considered valid and usable for all purposes.

Data flags are summarized at the end of this report if data has been qualified.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

XVII. Field Blanks

Sample CWSI-TB-02 was identified as a trip blank. No volatiles were found.

**Central Waterfront
Volatiles - Data Qualification Summary - SDG VP51**

SDG	Sample	Compound	Flag	A or P	Reason
VP51	CWSI-06-8-10	All TCL compounds	J (all detects)	A	Surrogate spikes (%R)
VP51	CWSI-06-8-10RE	All TCL compounds	R	A	Overall assessment of data

**Central Waterfront
Volatiles - Laboratory Blank Data Qualification Summary - SDG VP51**

No Sample Data Qualified in this SDG

METHOD: GC/MS Volatiles (BTEX) (EPA SW 846 Method 8260C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>10/26/12</u>
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	<u>RSD ≤ 20%</u>
IV.	Continuing calibration/ QA	A	<u>CV ≤ 20%</u>
V.	Blanks	A	
VI.	Surrogate spikes	SW	
VII.	Matrix spike/Matrix spike duplicates	N	<u>Client spec.</u>
VIII.	Laboratory control samples	A	<u>LCS/D</u>
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A SW	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	SW A	
XVI.	Field duplicates	N	
XVII.	Field blanks	ND	<u>TB = 8</u>

Note: A = Acceptable
 N = Not provided/applicable
 SW = See worksheet
 ND = No compounds detected
 R = Rinsate
 FB = Field blank
 D = Duplicate
 TB = Trip blank
 EB = Equipment blank

Validated Samples: Soil + Water

<u>1</u> ₂	CWSI-07-2-4	<u>S</u>	11		21		<u>31</u> ₁	<u>MB-110212A-W</u>
<u>2</u> ₂	CWSI-05-2-4		12		22		<u>32</u> ₂	<u>MB-110212A-S</u>
<u>3</u> ₂	CWSI-05-7-9		13		23		<u>33</u> ₃	<u>MB-110512A-S</u>
<u>4</u> ₂	CWSI-05-12-14		14		24		34	
<u>5</u> ₂	CWSI-06-8-10		15		25		35	
<u>6</u> ₃	CWSI-06-8-10RE		16		26		36	
<u>7</u> ₂	CWSI-06-12-14		17		27		37	
<u>8</u> ₁	CWSI-TB-02	<u>W</u>	18		28		38	
9			19		29		39	
10			20		30		40	

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: Central Waterfront
Collection Date: October 26, 2012
LDC Report Date: November 28, 2012
Matrix: Soil
Parameters: Metals
Validation Level: Stage 2B
Laboratory: Analytical Resources, Inc.
Sample Delivery Group (SDG): VP51

Sample Identification

CWSI-07-2-4
CWSI-05-2-4
CWSI-05-7-9
CWSI-05-12-14
CWSI-06-8-10
CWSI-06-12-14
CWSI-07-2-4MS
CWSI-07-2-4DUP

Introduction

This data review covers 8 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6010C and 7471A for Metals. The metals analyzed were Antimony, Arsenic, Beryllium, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Selenium, Silver, Thallium, and Zinc.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of the presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. ICPMS Tune

ICP-MS was not utilized in this SDG.

III. Calibration

The initial and continuing calibrations were performed at the required frequency.

The calibration standards criteria were met.

IV. Blanks

Method blanks were reviewed for each matrix as applicable. No metal contaminants were found in the initial, continuing and preparation blanks.

V. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

VI. Matrix Spike Analysis

Matrix spike (MS) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	%R (Limits)	Flag	A or P
CWSI-07-2-4MS (All samples in SDG VP51)	Antimony	20.7 (75-125)	J (all detects) UJ (all non-detects)	A
CWSI-07-2-4MS (All samples in SDG VP51)	Copper Zinc	126 (75-125) 164 (75-125)	J (all detects) J (all detects)	A

VII. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits with the following exceptions:

DUP ID (Associated Samples)	Analyte	RPD (Limits)	Difference (Limits)	Flag	A or P
CWSI-07-2-4DUP (All samples in SDG VP51)	Zinc	35.7 (≤20)	-	J (all detects) UJ (all non-detects)	A

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

IX. Internal Standards (ICP-MS)

ICP-MS was not utilized in this SDG.

X. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

XI. ICP Serial Dilution

ICP serial dilution was not performed for this SDG.

XII. Sample Result Verification

Raw data were not reviewed for this SDG.

XIII. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to MS %R and duplicate RPD problems, data were qualified as estimated in six samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the Stage 2B data validation all other results are considered valid and usable for all purposes.

Data flags are summarized at the end of this report if data has been qualified.

XIV. Field Duplicates

No field duplicates were identified in this SDG.

XV. Field Blanks

No field blanks were identified in this SDG.

**Central Waterfront
Metals - Data Qualification Summary - SDG VP51**

SDG	Sample	Analyte	Flag	A or P	Reason
VP51	CWSI-07-2-4 CWSI-05-2-4 CWSI-05-7-9 CWSI-05-12-14 CWSI-06-8-10 CWSI-06-12-14	Antimony	J (all detects) UJ (all non-detects)	A	Matrix spike analysis (%R)
VP51	CWSI-07-2-4 CWSI-05-2-4 CWSI-05-7-9 CWSI-05-12-14 CWSI-06-8-10 CWSI-06-12-14	Copper Zinc	J (all detects) J (all detects)	A	Matrix spike analysis (%R)
VP51	CWSI-07-2-4 CWSI-05-2-4 CWSI-05-7-9 CWSI-05-12-14 CWSI-06-8-10 CWSI-06-12-14	Zinc	J (all detects) UJ (all non-detects)	A	Duplicate sample analysis (RPD)

**Central Waterfront
Metals - Laboratory Blank Data Qualification Summary - SDG VP51**

No Sample Data Qualified in this SDG

LDC #: 28782A4

VALIDATION COMPLETENESS WORKSHEET

Date: 11/19/12

SDG #: VP51

Stage 2B

Page: 1 of 1

Laboratory: Analytical Resources, Inc.

Reviewer: [Signature]

2nd Reviewer: [Signature]

METHOD: Metals (EPA SW 846 Method 6010C/7000) ^{7471A}

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 10/26/12
II.	ICP/MS Tune	N	Not utilized
III.	Calibration	A	
IV.	Blanks	A	
V.	ICP Interference Check Sample (ICS) Analysis	A	
VI.	Matrix Spike Analysis	SW	MS
VII.	Duplicate Sample Analysis	SW	DUP
VIII.	Laboratory Control Samples (LCS)	A	LCS
IX.	Internal Standard (ICP-MS)	N	Not utilized
X.	Furnace Atomic Absorption QC	N	↓
XI.	ICP Serial Dilution	N	Not performed
XII.	Sample Result Verification	N	
XIII.	Overall Assessment of Data	A	
XIV.	Field Duplicates	N	
XV.	Field Blanks	N	

Note: A = Acceptable
N = Not provided/applicable
SW = See worksheet

ND = No compounds detected
R = Rinsate
FB = Field blank

D = Duplicate
TB = Trip blank
EB = Equipment blank

Validated Samples:

sediment 50.1

1	CWSI-07-2-4	11		21		31	
2	CWSI-05-2-4	12		22		32	
3	CWSI-05-7-9	13		23		33	
4	CWSI-05-12-14	14		24		34	
5	CWSI-06-8-10	15		25		35	
6	CWSI-06-12-14	16		26		36	
7	CWSI-07-2-4MS	17		27		37	
8	^{DUP} CWSI-07-2-4MSD	18		28		38	
9		19		29		39	
10		20		30		40	

Notes: _____

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: Central Waterfront
Collection Date: October 26, 2012
LDC Report Date: November 27, 2012
Matrix: Soil/Water
Parameters: Gasoline Range Organics
Validation Level: Stage 2B
Laboratory: Analytical Resources, Inc.
Sample Delivery Group (SDG): VP51

Sample Identification

CWSI-07-2-4
CWSI-05-2-4
CWSI-05-7-9
CWSI-05-12-14
CWSI-06-8-10
CWSI-06-12-14
CWSI-TB-02

Introduction

This data review covers 6 soil samples and one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per NWTPH-Gx for Gasoline Range Organics.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of the presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for compounds were less than or equal to 20.0%.

III. Calibration Verification

Calibration verification was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 20.0% QC limits.

The percent differences (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds.

IV. Blanks

Method blanks were reviewed for each matrix as applicable. No gasoline range organic contaminants were found in the method blanks.

V. Surrogate Recovery

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VI. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Target Compound Identification

Raw data were not reviewed for this SDG.

IX. Compound Quantitation and RLs

Raw data were not reviewed for this SDG.

X. System Performance

Raw data were not reviewed for this SDG.

XI. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the Stage 2B data validation all results are considered valid and usable for all purposes.

XII. Field Duplicates

No field duplicates were identified in this SDG.

XIII. Field Blanks

Samples CWS1-TB-02 was identified as a trip blank. No gasoline range organics were found.

**Central Waterfront
Gasoline Range Organics - Data Qualification Summary - SDG VP51**

No Sample Data Qualified in this SDG

**Central Waterfront
Gasoline Range Organics - Laboratory Blank Data Qualification Summary - SDG
VP51**

No Sample Data Qualified in this SDG

LDC #: 28782A7

VALIDATION COMPLETENESS WORKSHEET

Date: 11/28/12

SDG #: VP51

Stage 2B

Page: 1 of 1

Laboratory: Analytical Resources, Inc.

Reviewer: BR

2nd Reviewer: [Signature]

METHOD: Gasoline Range Organics (NWTPH-Gx)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 10/26/12
II.	Initial calibration	A	RSD ≤ 20%
III.	Calibration verification ICV	A	ICV ICV CCV ≤ 20%
IV.	Blanks	A	
V.	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	N	Client spec
VII.	Laboratory control samples	A	LCS/D
VIII.	Target compound identification	N	
IX.	Compound quantitation (R)/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	N	
XIII.	Field blanks	ND	TB = 8

Note: A = Acceptable
N = Not provided/applicable
SW = See worksheet

ND = No compounds detected
R = Rinsate
FB = Field blank

D = Duplicate
TB = Trip blank
EB = Equipment blank

Validated Samples: Soil + Water

1	CWSI-07-2-4	S	11		21		31	MB-103112
2	CWSI-05-2-4		12		22		32	
3	CWSI-05-7-9		13		23		33	
4	CWSI-05-12-14		14		24		34	
5	CWSI-06-8-10		15		25		35	
6	CWSI-06-8-10RE		16		26		36	
7	CWSI-06-12-14		17		27		37	
8	CWSI-TB-02		18		28		38	
9			19		29		39	
10			20		30		40	

Notes: _____

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: Central Waterfront
Collection Date: October 26, 2012
LDC Report Date: November 27, 2012
Matrix: Soil
Parameters: Total Petroleum Hydrocarbons as Extractables
Validation Level: Stage 2B
Laboratory: Analytical Resources, Inc.
Sample Delivery Group (SDG): VP51

Sample Identification

CWSI-07-2-4
CWSI-05-2-4
CWSI-05-7-9
CWSI-05-12-14
CWSI-06-8-10
CWSI-06-12-14
CWSI-05-2-4MS
CWSI-05-2-4MSD

Introduction

This data review covers 8 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per NWTPH-Dx for Total Petroleum Hydrocarbons as Extractables.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of the presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for compounds were less than or equal to 20.0%.

III. Calibration Verification

Calibration verification was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 20.0% QC limits.

The percent differences (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds.

IV. Blanks

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as extractables were found in the method blanks.

V. Surrogate Recovery

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

VIII. Target Compound Identification

Raw data were not reviewed for this SDG.

IX. Compound Quantitation and RLs

Raw data were not reviewed for this SDG.

X. System Performance

Raw data were not reviewed for this SDG.

XI. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the Stage 2B data validation all results are considered valid and usable for all purposes.

XII. Field Duplicates

No field duplicates were identified in this SDG.

XIII. Field Blanks

No field blanks were identified in this SDG.

**Central Waterfront
Total Petroleum Hydrocarbons as Extractables - Data Qualification Summary - SDG
VP51**

No Sample Data Qualified in this SDG

**Central Waterfront
Total Petroleum Hydrocarbons as Extractables - Laboratory Blank Data Qualification
Summary - SDG VP51**

No Sample Data Qualified in this SDG

LDC #: 28782A8

VALIDATION COMPLETENESS WORKSHEET

Date: 11/26/12

SDG #: VP51

Stage 2B

Page: 1 of 1

Laboratory: Analytical Resources, Inc.

Reviewer: BR2nd Reviewer: [Signature]

METHOD: TPH as Extractables (NWTPH-Dx)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 10/26/12
II.	Initial calibration	A	RSD ≤ 20?
III.	Calibration verification ICV ICV	A	ICV ICV CCV ≤ 20?
IV.	Blanks	A	
V.	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	A	
VII.	Laboratory control samples	A	LCS
VIII.	Target compound identification	N	
IX.	Compound quantitation/RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	N	
XIII.	Field blanks	N	

Note: A = Acceptable
N = Not provided/applicable
SW = See worksheet

ND = No compounds detected
R = Rinsate
FB = Field blank

D = Duplicate
TB = Trip blank
EB = Equipment blank

Validated Samples: Soil

1	CWSI-07-2-4	11		21		31	MB-110212
2	CWSI-05-2-4	12		22		32	
3	CWSI-05-7-9	13		23		33	
4	CWSI-05-12-14	14		24		34	
5	CWSI-06-8-10	15		25		35	
6	CWSI-06-12-14	16		26		36	
7	# 2 MS	17		27		37	
8	# 2 MSD	18		28		38	
9		19		29		39	
10		20		30		40	

Notes: with silica gel cleanup

SDG: VP51

Analytical Method NWTPHDX

Sample ID	Lab Sample ID	Chemical Name	Anal Date	Result	Mod Res Report	Detect	Lab Qual	Val Qual	Reason	RL	MDL	Units
CWSI-05-12-14	12-21317-VP51D	Motor Oil Range	11/6/2012	590	Yes	Y				58	9.1	mg/kg
CWSI-05-12-14	12-21317-VP51D	Diesel Range Hydrocarbons	11/6/2012	420	Yes	Y				29	7.4	mg/kg
CWSI-05-2-4	12-21315-VP51B	Motor Oil Range	11/5/2012	130	Yes	Y				11	1.8	mg/kg
CWSI-05-2-4	12-21315-VP51B	Diesel Range Hydrocarbons	11/5/2012	69	Yes	Y				5.7	1.5	mg/kg
CWSI-05-7-9	12-21316-VP51C	Diesel Range Hydrocarbons	11/5/2012	200	Yes	Y				5.9	1.5	mg/kg
CWSI-05-7-9	12-21316-VP51C	Motor Oil Range	11/5/2012	250	Yes	Y				12	1.9	mg/kg
CWSI-06-12-14	12-21319-VP51F	Motor Oil Range	11/5/2012	330	Yes	Y				11	1.7	mg/kg
CWSI-06-12-14	12-21319-VP51F	Diesel Range Hydrocarbons	11/5/2012	240	Yes	Y				5.5	1.4	mg/kg
CWSI-06-8-10	12-21318-VP51E	Motor Oil Range	11/6/2012	640	Yes	Y				150	24	mg/kg
CWSI-06-8-10	12-21318-VP51E	Diesel Range Hydrocarbons	11/6/2012	1300	Yes	Y				76	19	mg/kg
CWSI-07-2-4	12-21314-VP51A	Diesel Range Hydrocarbons	11/5/2012	230	Yes	Y				6.0	1.5	mg/kg
CWSI-07-2-4	12-21314-VP51A	Motor Oil Range	11/5/2012	220	Yes	Y				12	1.9	mg/kg

Analytical Method NWTPHG

Sample ID	Lab Sample ID	Chemical Name	Anal Date	Result	Mod Res Report	Detect	Lab Qual	Val Qual	Reason	RL	MDL	Units
CWSI-05-12-14	12-21317-VP51D	Gasoline Range Hydrocarbons	10/31/2012	160	Yes	Y				6.9	2.3	mg/kg
CWSI-05-2-4	12-21315-VP51B	Gasoline Range Hydrocarbons	10/31/2012	24	Yes	Y				8.2	2.7	mg/kg
CWSI-05-7-9	12-21316-VP51C	Gasoline Range Hydrocarbons	10/31/2012	7.6	Yes	N	U			7.6	2.5	mg/kg
CWSI-06-12-14	12-21319-VP51F	Gasoline Range Hydrocarbons	10/31/2012	62	Yes	Y				6.5	2.2	mg/kg
CWSI-06-8-10	12-21318-VP51E	Gasoline Range Hydrocarbons	10/31/2012	1300	Yes	Y				20	6.7	mg/kg
CWSI-07-2-4	12-21314-VP51A	Gasoline Range Hydrocarbons	10/31/2012	7.3	Yes	N	U			7.3	2.4	mg/kg
CWSI-TB-02-20121026-1	12-21324-VP51K	Gasoline Range Hydrocarbons	10/31/2012	0.25	Yes	N	U			0.25	0.057	mg/L

Analytical Method SW6010C

Sample ID	Lab Sample ID	Chemical Name	Anal Date	Result	Mod Res Report	Detect	Lab Qual	Val Qual	Reason	RL	MDL	Units
CWSI-05-12-14	12-21317-VP51D	Lead	11/1/2012	69	Yes	Y				2	0.15	mg/kg
CWSI-05-12-14	12-21317-VP51D	Thallium	11/1/2012	6	Yes	N	U			6	0.63	mg/kg

SDG: VP51

Analytical Method SW6010C

Sample ID	Lab Sample ID	Chemical Name	Anal Date	Result	Mod Res	Report Detect	Lab Qual	Val Qual	Reason	RL	MDL	Units
CWSI-05-12-14	12-21317-VP51D	Arsenic	11/1/2012	7	Yes	Y				6	0.55	mg/kg
CWSI-05-12-14	12-21317-VP51D	Chromium	11/1/2012	21.1	Yes	Y				0.6	0.32	mg/kg
CWSI-05-12-14	12-21317-VP51D	Silver	11/1/2012	0.4	Yes	N	U			0.4	0.036	mg/kg
CWSI-05-12-14	12-21317-VP51D	Selenium	11/1/2012	6	Yes	N	U			6	0.77	mg/kg
CWSI-05-12-14	12-21317-VP51D	Zinc	11/1/2012	156	Yes	Y		J	8,9	1	0.14	mg/kg
CWSI-05-12-14	12-21317-VP51D	Copper	11/1/2012	35.3	Yes	Y		J	8	0.2	0.059	mg/kg
CWSI-05-12-14	12-21317-VP51D	Beryllium	11/1/2012	0.1	Yes	N	U			0.1	0.012	mg/kg
CWSI-05-12-14	12-21317-VP51D	Cadmium	11/1/2012	0.3	Yes	Y				0.2	0.13	mg/kg
CWSI-05-12-14	12-21317-VP51D	Antimony	11/1/2012	6	Yes	N	U	UU	8	6	0.38	mg/kg
CWSI-05-12-14	12-21317-VP51D	Nickel	11/1/2012	18	Yes	Y				1	0.36	mg/kg
CWSI-05-2-4	12-21315-VP51B	Zinc	11/1/2012	73	Yes	Y		J	8,9	1	0.14	mg/kg
CWSI-05-2-4	12-21315-VP51B	Arsenic	11/1/2012	6	Yes	N	U			6	0.52	mg/kg
CWSI-05-2-4	12-21315-VP51B	Beryllium	11/1/2012	0.1	Yes	Y				0.1	0.011	mg/kg
CWSI-05-2-4	12-21315-VP51B	Copper	11/1/2012	27.2	Yes	Y		J	8	0.2	0.056	mg/kg
CWSI-05-2-4	12-21315-VP51B	Lead	11/1/2012	23	Yes	Y				2	0.15	mg/kg
CWSI-05-2-4	12-21315-VP51B	Nickel	11/1/2012	30	Yes	Y				1	0.34	mg/kg
CWSI-05-2-4	12-21315-VP51B	Silver	11/1/2012	0.3	Yes	N	U			0.3	0.034	mg/kg
CWSI-05-2-4	12-21315-VP51B	Selenium	11/1/2012	6	Yes	N	U			6	0.73	mg/kg
CWSI-05-2-4	12-21315-VP51B	Thallium	11/1/2012	6	Yes	N	U			6	0.60	mg/kg
CWSI-05-2-4	12-21315-VP51B	Chromium	11/1/2012	27.4	Yes	Y				0.6	0.30	mg/kg
CWSI-05-2-4	12-21315-VP51B	Cadmium	11/1/2012	0.3	Yes	Y				0.2	0.12	mg/kg
CWSI-05-2-4	12-21315-VP51B	Antimony	11/1/2012	6	Yes	N	U	UU	8	6	0.36	mg/kg
CWSI-05-7-9	12-21316-VP51C	Beryllium	11/1/2012	0.2	Yes	Y				0.1	0.013	mg/kg
CWSI-05-7-9	12-21316-VP51C	Silver	11/1/2012	0.4	Yes	N	U			0.4	0.038	mg/kg
CWSI-05-7-9	12-21316-VP51C	Antimony	11/1/2012	6	Yes	N	U	UU	8	6	0.40	mg/kg

SDG: VP51

Analytical Method SW6010C

Sample ID	Lab Sample ID	Chemical Name	Anal Date	Result	Mod Res Report	Detect	Lab Qual	Val Qual	Reason	RL	MDL	Units
CWSI-05-7-9	12-21316-VP51C	Chromium	11/1/2012	22.7	Yes	Y				0.6	0.34	mg/kg
CWSI-05-7-9	12-21316-VP51C	Nickel	11/1/2012	26	Yes	Y				1	0.38	mg/kg
CWSI-05-7-9	12-21316-VP51C	Cadmium	11/1/2012	0.4	Yes	Y				0.3	0.14	mg/kg
CWSI-05-7-9	12-21316-VP51C	Selenium	11/1/2012	6	Yes	N	U			6	0.82	mg/kg
CWSI-05-7-9	12-21316-VP51C	Arsenic	11/1/2012	18	Yes	Y				6	0.58	mg/kg
CWSI-05-7-9	12-21316-VP51C	Lead	11/1/2012	33	Yes	Y				3	0.16	mg/kg
CWSI-05-7-9	12-21316-VP51C	Zinc	11/1/2012	100	Yes	Y	J	8,9		1	0.15	mg/kg
CWSI-05-7-9	12-21316-VP51C	Copper	11/1/2012	50.1	Yes	Y	J	8		0.3	0.063	mg/kg
CWSI-05-7-9	12-21316-VP51C	Thallium	11/1/2012	6	Yes	N	U			6	0.67	mg/kg
CWSI-06-12-14	12-21319-VP51F	Thallium	11/1/2012	6	Yes	N	U			6	0.65	mg/kg
CWSI-06-12-14	12-21319-VP51F	Nickel	11/1/2012	15	Yes	Y				1	0.37	mg/kg
CWSI-06-12-14	12-21319-VP51F	Silver	11/1/2012	0.4	Yes	N	U			0.4	0.037	mg/kg
CWSI-06-12-14	12-21319-VP51F	Antimony	11/1/2012	6	Yes	N	U	UJ	8	6	0.39	mg/kg
CWSI-06-12-14	12-21319-VP51F	Arsenic	11/1/2012	6	Yes	N	U			6	0.57	mg/kg
CWSI-06-12-14	12-21319-VP51F	Cadmium	11/1/2012	0.5	Yes	Y				0.2	0.14	mg/kg
CWSI-06-12-14	12-21319-VP51F	Lead	11/1/2012	511	Yes	Y				2	0.16	mg/kg
CWSI-06-12-14	12-21319-VP51F	Chromium	11/1/2012	15.8	Yes	Y				0.6	0.33	mg/kg
CWSI-06-12-14	12-21319-VP51F	Copper	11/1/2012	41.4	Yes	Y	J	8		0.2	0.062	mg/kg
CWSI-06-12-14	12-21319-VP51F	Zinc	11/1/2012	180	Yes	Y	J	8,9		1	0.15	mg/kg
CWSI-06-12-14	12-21319-VP51F	Selenium	11/1/2012	6	Yes	N	U			6	0.80	mg/kg
CWSI-06-12-14	12-21319-VP51F	Beryllium	11/1/2012	0.1	Yes	N	U			0.1	0.012	mg/kg
CWSI-06-8-10	12-21318-VP51E	Copper	11/1/2012	89.4	Yes	Y	J	8		0.3	0.074	mg/kg
CWSI-06-8-10	12-21318-VP51E	Chromium	11/1/2012	29.8	Yes	Y				0.7	0.40	mg/kg
CWSI-06-8-10	12-21318-VP51E	Antimony	11/1/2012	7	Yes	N	U	UJ	8	7	0.48	mg/kg
CWSI-06-8-10	12-21318-VP51E	Thallium	11/1/2012	7	Yes	N	U			7	0.79	mg/kg

SDG: VP51

SW6010C

Analytical Method	Lab Sample ID	Chemical Name	Anal Date	Result	Mod Res Report	Detect	Lab Qual	Val Qual	Reason	RL	MDL	Units
CWSI-06-8-10	12-21318-VP51E	Silver	11/1/2012	0.4	Yes	N	U			0.4	0.045	mg/kg
CWSI-06-8-10	12-21318-VP51E	Selenium	11/1/2012	7	Yes	N	U			7	0.97	mg/kg
CWSI-06-8-10	12-21318-VP51E	Nickel	11/1/2012	33	Yes	Y				1	0.45	mg/kg
CWSI-06-8-10	12-21318-VP51E	Lead	11/1/2012	145	Yes	Y				3	0.19	mg/kg
CWSI-06-8-10	12-21318-VP51E	Arsenic	11/1/2012	9	Yes	Y				7	0.68	mg/kg
CWSI-06-8-10	12-21318-VP51E	Beryllium	11/1/2012	0.1	Yes	N	U			0.1	0.015	mg/kg
CWSI-06-8-10	12-21318-VP51E	Cadmium	11/1/2012	0.7	Yes	Y				0.3	0.16	mg/kg
CWSI-06-8-10	12-21318-VP51E	Zinc	11/1/2012	202	Yes	Y	J	8,9		1	0.18	mg/kg
CWSI-07-2-4	12-21314-VP51A	Cadmium	11/1/2012	0.3	Yes	Y				0.2	0.13	mg/kg
CWSI-07-2-4	12-21314-VP51A	Lead	11/1/2012	25	Yes	Y				2	0.15	mg/kg
CWSI-07-2-4	12-21314-VP51A	Silver	11/1/2012	0.3	Yes	N	U			0.3	0.035	mg/kg
CWSI-07-2-4	12-21314-VP51A	Thallium	11/1/2012	6	Yes	N	U			6	0.61	mg/kg
CWSI-07-2-4	12-21314-VP51A	Antimony	11/1/2012	6	Yes	N	U	UJ	8	6	0.37	mg/kg
CWSI-07-2-4	12-21314-VP51A	Arsenic	11/1/2012	11	Yes	Y				6	0.53	mg/kg
CWSI-07-2-4	12-21314-VP51A	Nickel	11/1/2012	28	Yes	Y				1	0.35	mg/kg
CWSI-07-2-4	12-21314-VP51A	Chromium	11/1/2012	34.1	Yes	Y				0.6	0.31	mg/kg
CWSI-07-2-4	12-21314-VP51A	Selenium	11/1/2012	6	Yes	N	U			6	0.75	mg/kg
CWSI-07-2-4	12-21314-VP51A	Beryllium	11/1/2012	0.2	Yes	Y				0.1	0.012	mg/kg
CWSI-07-2-4	12-21314-VP51A	Copper	11/1/2012	33	Yes	Y	J	8		0.2	0.058	mg/kg
CWSI-07-2-4	12-21314-VP51A	Zinc	11/1/2012	106	Yes	Y	J	8,9		1	0.14	mg/kg

SW7471A

Analytical Method	Lab Sample ID	Chemical Name	Anal Date	Result	Mod Res Report	Detect	Lab Qual	Val Qual	Reason	RL	MDL	Units
CWSI-05-12-14	12-21317-VP51D	Mercury	11/2/2012	0.09	Yes	Y				0.03	0.0014	mg/kg
CWSI-05-2-4	12-21315-VP51B	Mercury	11/2/2012	0.17	Yes	Y				0.02	0.0011	mg/kg
CWSI-05-7-9	12-21316-VP51C	Mercury	11/2/2012	0.12	Yes	Y				0.03	0.0015	mg/kg

SDG: VP51

Analytical Method SW7471A

Sample ID	Lab Sample ID	Chemical Name	Anal Date	Result	Mod Res Report	Detect	Lab Qual	Val Qual	Reason	RI	MDL	Units
CWSI-06-12-14	12-21319-VP51F	Mercury	11/2/2012	0.33	Yes	Y				0.02	0.0012	mg/kg
CWSI-06-8-10	12-21318-VP51E	Mercury	11/2/2012	0.38	Yes	Y				0.03	0.0016	mg/kg
CWSI-07-2-4	12-21314-VP51A	Mercury	11/2/2012	0.04	Yes	Y				0.03	0.0015	mg/kg

Analytical Method SW8260C

Sample ID	Lab Sample ID	Chemical Name	Anal Date	Result	Mod Res Report	Detect	Lab Qual	Val Qual	Reason	RI	MDL	Units
CWSI-05-12-14	12-21317-VP51D	Ethylbenzene	11/2/2012	7.5	Yes	Y				1.2	0.25	ug/kg
CWSI-05-12-14	12-21317-VP51D	Toluene	11/2/2012	11	Yes	Y				1.2	0.18	ug/kg
CWSI-05-12-14	12-21317-VP51D	m,p-Xylene	11/2/2012	29	Yes	Y				1.2	0.48	ug/kg
CWSI-05-12-14	12-21317-VP51D	o-Xylene	11/2/2012	5.4	Yes	Y				1.2	0.27	ug/kg
CWSI-05-12-14	12-21317-VP51D	Benzene	11/2/2012	63	Yes	Y				1.2	0.36	ug/kg
CWSI-05-2-4	12-21315-VP51B	Toluene	11/2/2012	1.3	Yes	Y	J			1.3	0.20	ug/kg
CWSI-05-2-4	12-21315-VP51B	m,p-Xylene	11/2/2012	1.3	Yes	N	U			1.3	0.51	ug/kg
CWSI-05-2-4	12-21315-VP51B	Ethylbenzene	11/2/2012	1.3	Yes	N	U			1.3	0.26	ug/kg
CWSI-05-2-4	12-21315-VP51B	o-Xylene	11/2/2012	1.3	Yes	N	U			1.3	0.29	ug/kg
CWSI-05-2-4	12-21315-VP51B	Benzene	11/2/2012	1.6	Yes	Y				1.3	0.39	ug/kg
CWSI-05-7-9	12-21316-VP51C	Ethylbenzene	11/2/2012	1.5	Yes	N	U			1.5	0.31	ug/kg
CWSI-05-7-9	12-21316-VP51C	Toluene	11/2/2012	1.5	Yes	N	U			1.5	0.23	ug/kg
CWSI-05-7-9	12-21316-VP51C	m,p-Xylene	11/2/2012	1.5	Yes	N	U			1.5	0.59	ug/kg
CWSI-05-7-9	12-21316-VP51C	o-Xylene	11/2/2012	1.5	Yes	N	U			1.5	0.34	ug/kg
CWSI-05-7-9	12-21316-VP51C	Benzene	11/2/2012	1.5	Yes	N	U			1.5	0.45	ug/kg
CWSI-06-12-14	12-21319-VP51F	o-Xylene	11/2/2012	0.5	Yes	Y	J			1.1	0.25	ug/kg
CWSI-06-12-14	12-21319-VP51F	Benzene	11/2/2012	3	Yes	Y				1.1	0.33	ug/kg
CWSI-06-12-14	12-21319-VP51F	m,p-Xylene	11/2/2012	3	Yes	Y				1.1	0.44	ug/kg
CWSI-06-12-14	12-21319-VP51F	Toluene	11/2/2012	1.3	Yes	Y	M			1.1	0.17	ug/kg
CWSI-06-12-14	12-21319-VP51F	Ethylbenzene	11/2/2012	1.8	Yes	Y				1.1	0.23	ug/kg

SDG: VP51

Analytical Method SW8260C

Sample ID	Lab Sample ID	Chemical Name	Anal Date	Result	Mod Res Report	Detect	Lab Qual	Val Qual	Reason	RI	MDL	Units
CWSI-06-8-10	12-21318-VP51E	o-Xylene	11/2/2012	2.4	Yes	N	U			2.4	0.55	ug/kg
CWSI-06-8-10	12-21318-VP51E	Benzene	11/2/2012	2.4	Yes	N	U			2.4	0.73	ug/kg
CWSI-06-8-10	12-21318-VP51E	m,p-Xylene	11/2/2012	2.4	Yes	N	U			2.4	0.96	ug/kg
CWSI-06-8-10	12-21318-VP51E	Ethylbenzene	11/2/2012	2.4	Yes	N	U			2.4	0.50	ug/kg
CWSI-06-8-10	12-21318-VP51E	Toluene	11/2/2012	3.5	Yes	N	Y			3.5	0.37	ug/kg
CWSI-06-8-10	12-21318-VP51E	Toluene	11/5/2012	140	No	N	U	R	22	140	120	ug/kg
CWSI-06-8-10	12-21318-VP51E	o-Xylene	11/5/2012	140	No	N	U	R	22	140	76	ug/kg
CWSI-06-8-10	12-21318-VP51E	m,p-Xylene	11/5/2012	140	No	N	U	R	22	140	140	ug/kg
CWSI-06-8-10	12-21318-VP51E	Ethylbenzene	11/5/2012	140	No	N	U	R	22	140	62	ug/kg
CWSI-06-8-10	12-21318-VP51E	Benzene	11/5/2012	140	No	N	U	R	22	140	48	ug/kg
CWSI-07-2-4	12-21314-VP51A	m,p-Xylene	11/2/2012	1.1	Yes	Y	J			1.2	0.46	ug/kg
CWSI-07-2-4	12-21314-VP51A	Benzene	11/2/2012	2.7	Yes	Y				1.2	0.34	ug/kg
CWSI-07-2-4	12-21314-VP51A	o-Xylene	11/2/2012	1.2	Yes	N	U			1.2	0.26	ug/kg
CWSI-07-2-4	12-21314-VP51A	Toluene	11/2/2012	2.8	Yes	Y				1.2	0.18	ug/kg
CWSI-07-2-4	12-21314-VP51A	Ethylbenzene	11/2/2012	1.2	Yes	N	U			1.2	0.23	ug/kg
CWSI-TB-02-20121026-1	12-21324-VP51K	o-Xylene	11/2/2012	1	Yes	N	U			1.0	0.22	ug/L
CWSI-TB-02-20121026-1	12-21324-VP51K	Benzene	11/2/2012	1	Yes	N	U			1.0	0.25	ug/L
CWSI-TB-02-20121026-1	12-21324-VP51K	m,p-Xylene	11/2/2012	2	Yes	N	U			2.0	0.36	ug/L
CWSI-TB-02-20121026-1	12-21324-VP51K	Toluene	11/2/2012	1	Yes	N	U			1.0	0.18	ug/L
CWSI-TB-02-20121026-1	12-21324-VP51K	Ethylbenzene	11/2/2012	1	Yes	N	U			1.0	0.18	ug/L

ATTACHMENT C
GEOTECHNICAL LABORATORY REPORT



November 1, 2012

HWA Project No. 2012-113-23, Task 200

Anchor QEA, LLC

720 Olive Way, Suite 1900

Seattle, Washington 98101

Attention: Mr. Zachary L. Koehn, EIT

Subject: **Materials Laboratory Report
Index, Strength and Consolidation Testing
Whatcom Waterway Project**

Dear Mr. Koehn;

As requested, HWA GeoSciences Inc. (HWA) performed laboratory testing for the subject project. Herein we present the results of our laboratory analyses, which are summarized on the attached Figures. The laboratory testing program was performed in general accordance with your instructions and appropriate ASTM Standards as outlined below.

SAMPLE INFORMATION: The subject samples were delivered to our laboratory on October 29, 2012 by Anchor QEA personnel. The samples were designated with boring, sample and depth information. The samples were delivered in Shelby tubes and plastic bags. Based on manual-visual methods, the descriptions of the samples are as shown on Figure 1.

MOISTURE CONTENT OF SOIL: The moisture content of selected soil samples (percent by dry mass) was determined in general accordance with ASTM D2216. The results are shown on the attached Figure 1.

PARTICLE SIZE ANALYSIS OF SOILS: Selected samples were tested to determine the particle size distribution in general accordance with ASTM D422, using sieve analysis. The results are summarized on the attached Particle Size Analysis reports, Figures 2-4, which also provide information regarding the classification of the sample and the moisture content at the time of testing.

LIQUID LIMIT, PLASTIC LIMIT, AND PLASTICITY INDEX OF SOILS (ATTERBERG LIMITS): Selected samples were tested using method ASTM D4318, multi-point method. The results are reported on the attached Liquid Limit, Plastic Limit, and Plasticity Index report, Figure 5.

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION OF SOILS: The selected samples were tested in general accordance with method ASTM D2850 to determine the strength characteristics

21312 30th Drive SE
Suite 110
Bothell, WA 98021.7010

Tel: 425.774.0106

Fax: 425.774.2714

www.hwageo.com

of the soil. The confining stresses used are indicated on the test plots. The results are summarized and plotted graphically on the attached Unconsolidated Undrained Triaxial Compression Test for Cohesive Soils reports, Figures 6-8.

ONE DIMENSIONAL CONSOLIDATION PROPERTIES OF SOIL: The consolidation properties of three specified soil samples were measured in general accordance with ASTM D2435. Saturation was maintained by inundation of the sample throughout the test. The samples were subjected to increasing increments of total stress, the duration of which was selected to exceed the time required for completion of primary consolidation as defined in the Standard, Method B. Unloading of the sample was carried out incrementally. The test results are presented in both Void Ratio (e) versus $\text{Log}_{10}(P)$ and Percent Strain versus $\text{Log}_{10}(P)$ formats as shown on Figures 9-14.



CLOSURE: Experience has shown that laboratory test values for soils and other natural materials vary with each representative sample. As such, HWA has no knowledge as to the extent and quantity of material the tested sample may represent. HWA also makes no warranty as to how representative either the sample tested or the test results obtained are to actual field conditions. It is a well established fact that sampling methods present varying degrees of disturbance or variance that affect sample representativeness.

No copy should be made of this report except in its entirety.

We appreciate the opportunity to provide laboratory testing services on this project. Should you have any questions or comments, or if we may be of further service, please call.

Sincerely,

HWA GEOSCIENCES INC.

for

Harold Benny
Materials Laboratory Manager

Steven E. Greene, L.G., L.E.G.
Vice President

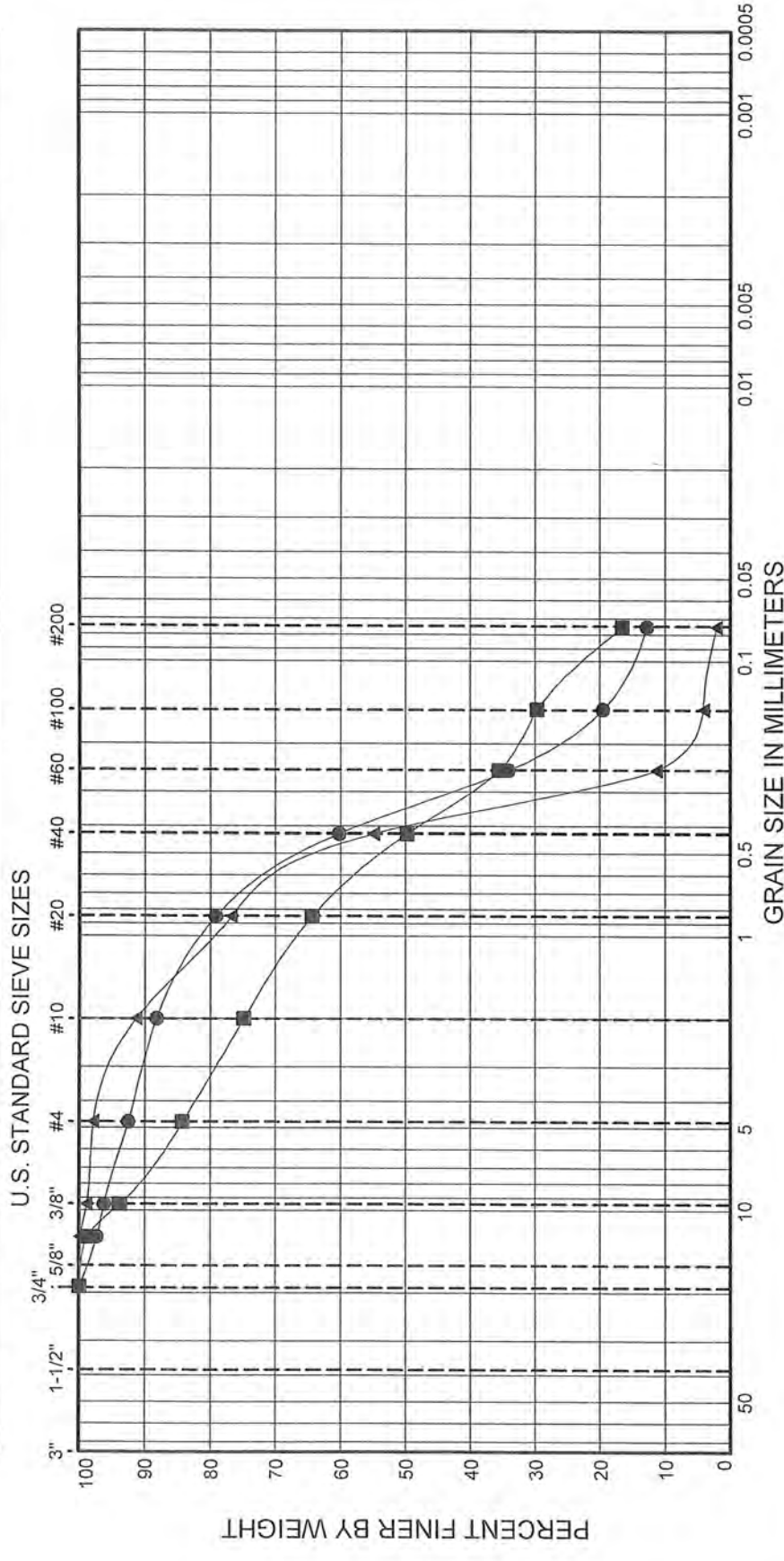
Attachments:

- | | |
|--------------|--|
| Figure 1 | Material Summaries |
| Figures 2-4 | Particle Size Analysis of Soils |
| Figure 5 | Liquid Limit, Plastic Limit and Plasticity Index of Soils Report |
| Figures 6-8 | Unconsolidated, Undrained Triaxial Strength of Soils |
| Figures 9-14 | One Dimensional Consolidation of Soils |

EXPLORATION DESIGNATION	SAMPLE NUMBER	TOP DEPTH (feet)	BOTTOM DEPTH (feet)	fracture face RESISTANCE (blows/6")	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS (%)			% GRAVEL	% SAND	% FINES	PROCTOR MAXIMUM DRY DENSITY (pcf)	OPTIMUM WATER CONTENT (%)	ASTM SOIL CLASSIFICATION	SAMPLE DESCRIPTION
							LL	PL	PI							
B-1	SPT-1	5.0	6.5			16								SP-SM	Dark brown, poorly graded SAND with silt and gravel	
B-1	SPT-2	10.0	11.5			20			28.5	61.7	9.8			SP-SM	Black, poorly graded SAND with silt and gravel	
B-1	SPT-3	15.0	16.5			17			28.4	64.0	7.6			SP-SM	Dark olive gray, poorly graded SAND with silt and gravel	
B-1	SPT-4	20.0	21.5			21				81.3	18.7			SM	Gray, silty SAND	
B-1	SPT-5	25.0	25.5			34								CL	Dark gray, lean CLAY	
B-1	SPT-6	25.5	26.3			26								CL	Dark gray, lean CLAY	
B-1	SPT-7	30.0	31.5			36								CL	Dark gray, lean CLAY	
B-1	SPT-9	40.0	41.5			16								CL	Dark gray, lean CLAY	
B-2	SPT-1	5.0	6.5			15								SP-SM	Brown, poorly graded SAND with silt	
B-2	SPT-2	10.0	11.5			30			7.4	79.8	12.8			SM	Very dark gray, silty SAND	
B-2	SPT-3	15.0	16.5			21			15.8	67.7	16.6			SM	Very dark olive gray, silty SAND with gravel	
B-2	SPT-4	20.0	21.0			22			2.1	95.8	2.1			SP	Dark gray, poorly graded SAND	
B-2	SPT-4	21.0	21.5			27				72.4	27.6			SM	Dark gray, silty SAND	
B-2	SPT-5	25.0	26.5			22				80.8	19.2			SM	Dark gray, silty SAND	
B-2	SPT-7	35.0	36.5			31								CL	Dark gray, lean CLAY	
B-2	SPT-9	45.0	46.5			20								CL	Dark gray, lean CLAY	
ST-6	B-1	27.5	29.5			28	48	22	26					CL	Dark gray, lean CLAY	
ST-6	B-2	30.0	32.0			29	44	22	22					CL	Dark gray, lean CLAY	
ST-8	B-1	35.0	37.0			29	45	20	25					CL	Dark gray, lean CLAY	

Notes: 1. This table summarizes information presented elsewhere in the report and should be used in conjunction with the report text, other graphs and tables, and the exploration logs.
2. "Penetration Resistance" may represent the results of standard (SPT) or non-standard penetration tests. See exploration logs.

GRAVEL		SAND			SILT		CLAY
Coarse	Fine	Coarse	Medium	Fine			



SYMBOL	SAMPLE	DEPTH (ft)	CLASSIFICATION OF SOIL- ASTM D2487 Group Symbol and Name	% MC	LL	PL	PI	Gravel %	Sand %	Fines %
●	SPT-2	10.0 - 11.5	(SM) Very dark gray, silty SAND	30				7.4	79.8	12.8
■	SPT-3	15.0 - 16.5	(SM) Very dark olive gray, silty SAND with gravel	21				15.8	67.7	16.6
▲	SPT-4	20.0 - 21.0	(SP) Dark gray, poorly graded SAND	22				2.1	95.8	2.1

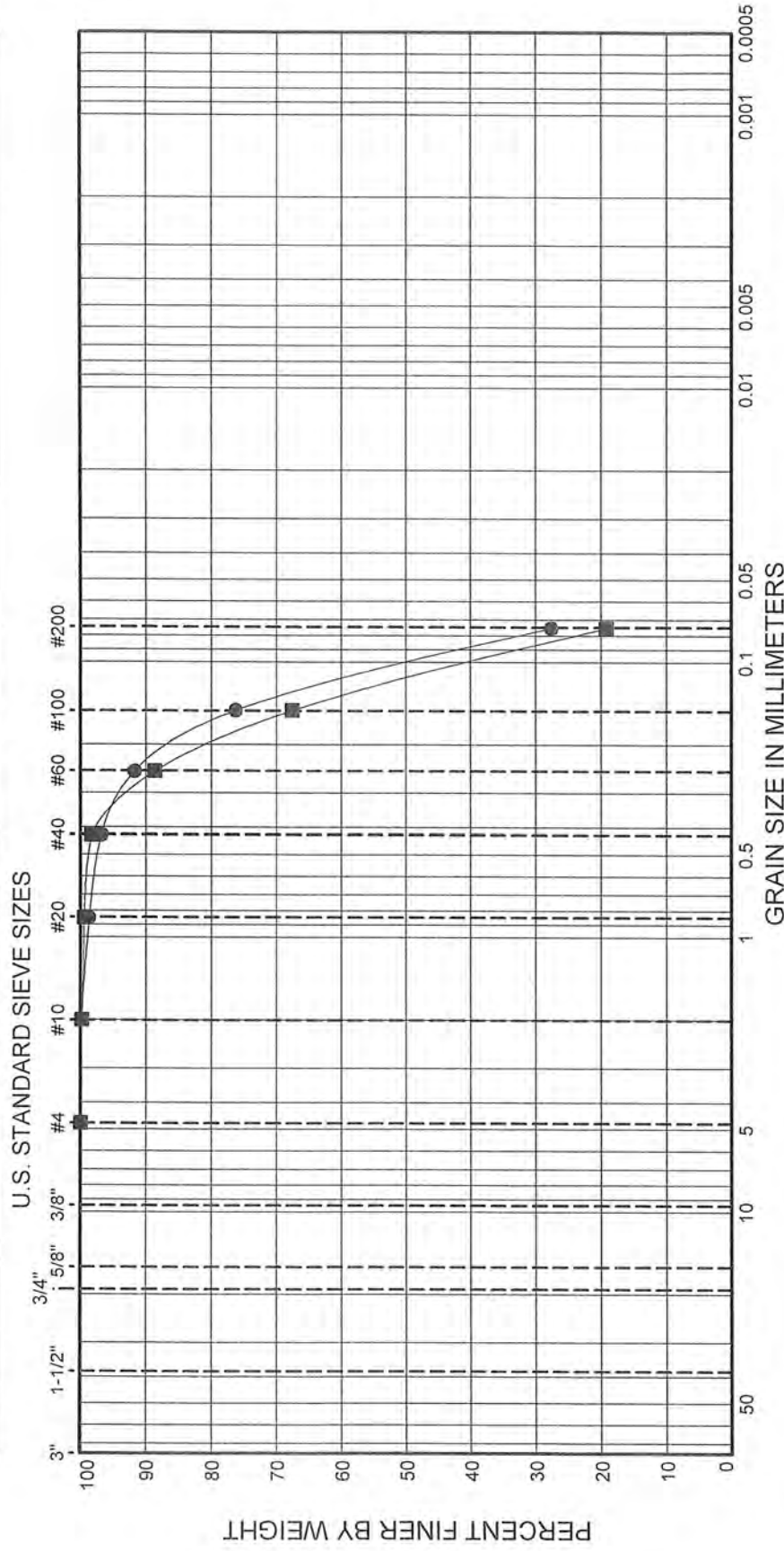


HWAGEOSCIENCES INC.

**PARTICLE-SIZE ANALYSIS
OF SOILS
METHOD ASTM D422**

Materials Laboratory Testing for Anchor QEA
Whatcom Waterway

GRAVEL		SAND			SILT		CLAY
Coarse	Fine	Coarse	Medium	Fine			

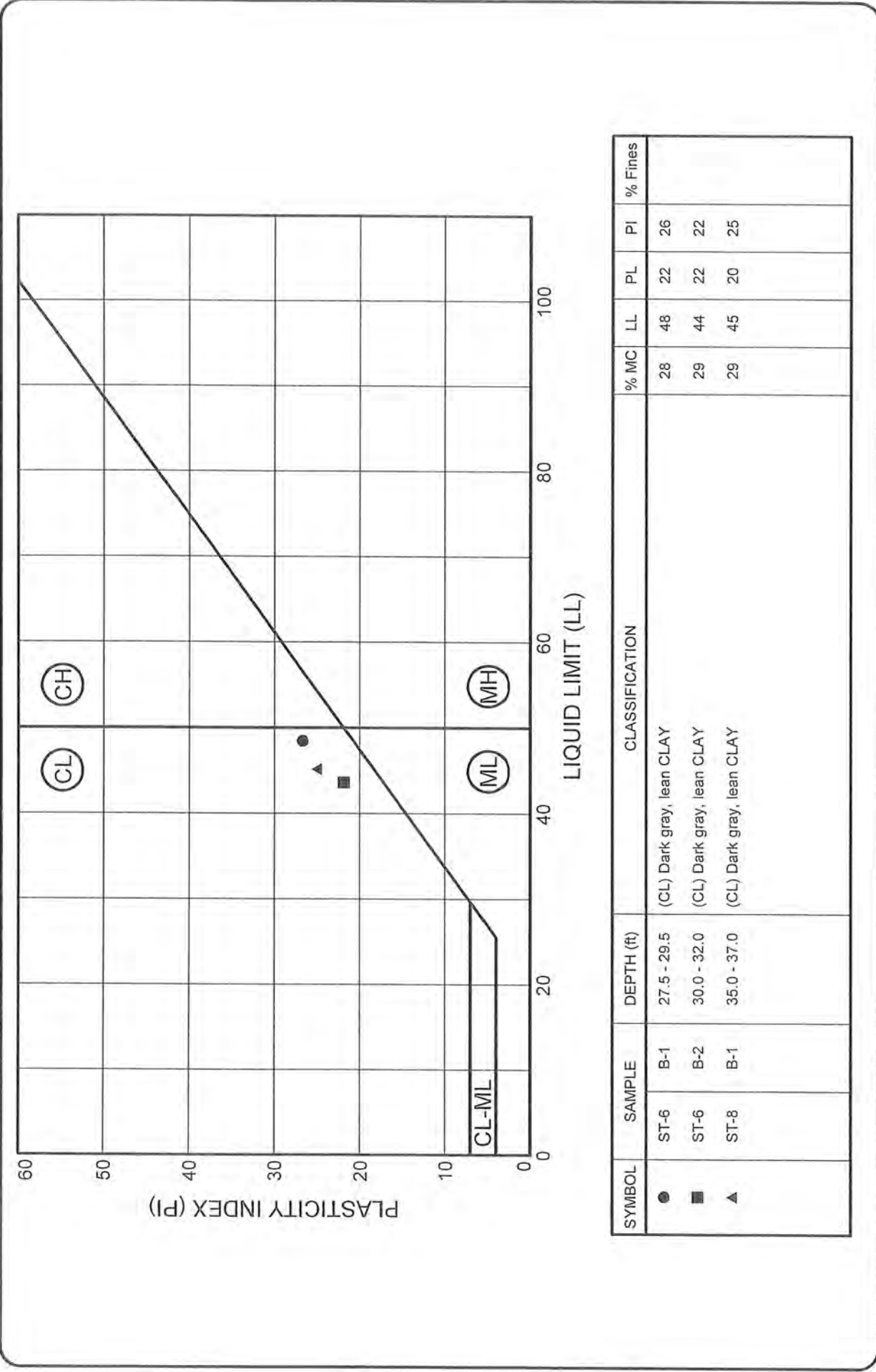


SYMBOL	SAMPLE	DEPTH (ft)	CLASSIFICATION OF SOIL- ASTM D2487 Group Symbol and Name	% MC	LL	PL	PI	Gravel %	Sand %	Fines %
●	B-2 SPT-4	21.0 - 21.5	(SM) Dark gray, silty SAND	27				0.0	72.4	27.6
■	B-2 SPT-5	25.0 - 26.5	(SM) Dark gray, silty SAND	22				0.0	80.8	19.2

**PARTICLE-SIZE ANALYSIS
OF SOILS
METHOD ASTM D422**

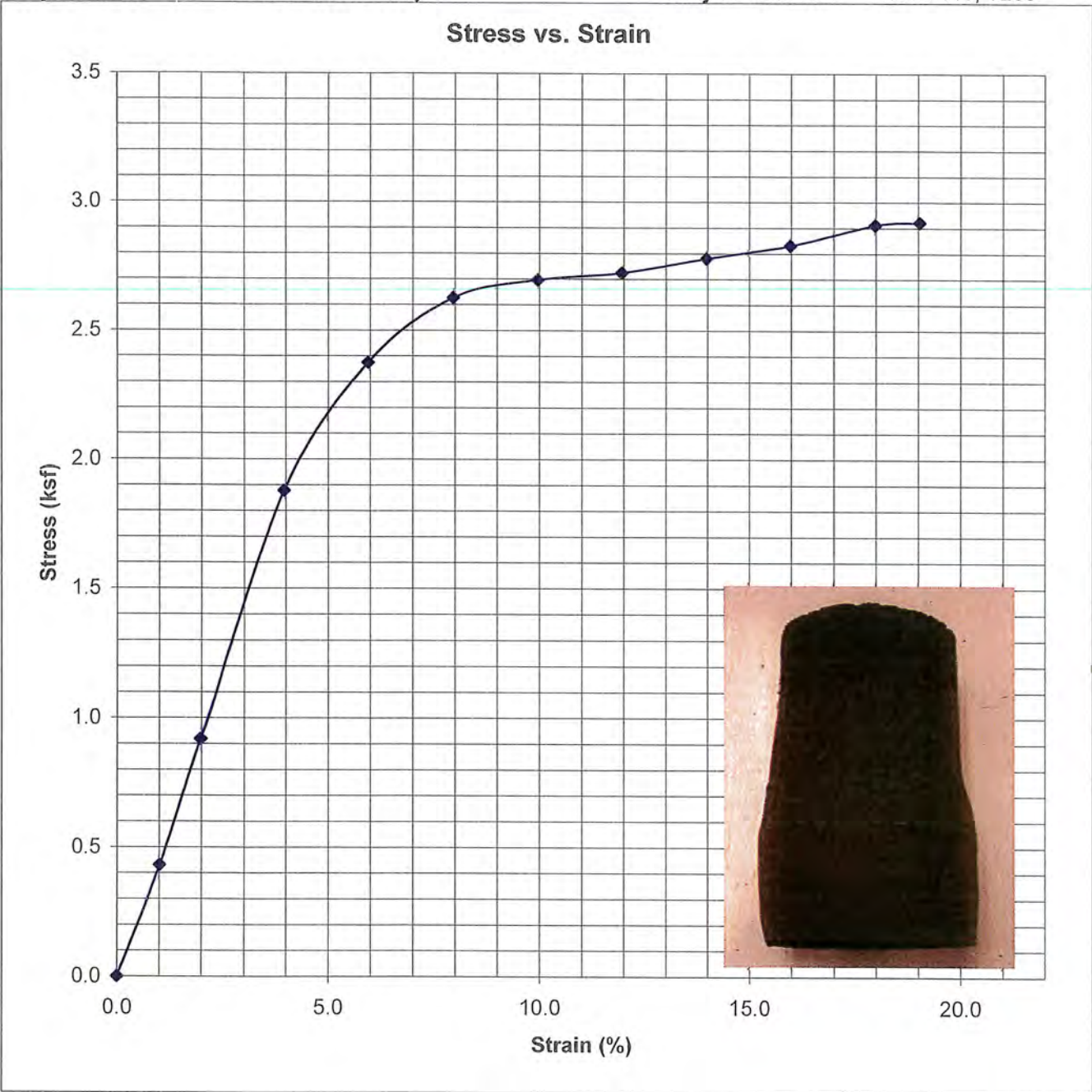
Materials Laboratory Testing for Anchor QEA
Whatcom Waterway





SYMBOL	SAMPLE	DEPTH (ft)	CLASSIFICATION	% MC	LL	PL	PI	% Fines
●	B-1	27.5 - 29.5	(CL) Dark gray, lean CLAY	28	48	22	26	
■	B-2	30.0 - 32.0	(CL) Dark gray, lean CLAY	29	44	22	22	
▲	B-1	35.0 - 37.0	(CL) Dark gray, lean CLAY	29	45	20	25	

Materials Laboratory Testing for Anchor QEA
Whatcom Waterway



Sample Point:	B-1	Wet Unit Weight (pcf):	122.8
Sample Number:	ST-6	Dry Unit Weight (pcf):	96.0
Sample Depth:	27.5-29.5	Total Peak Stress (ksf):	2.922
Soil Classification:	Dark gray, CLAY		
Confining Stress (ksf):	3.37		
Strain Rate (%\min):	1.00		
Initial Moisture Content (%):	27.9		

Figure 6

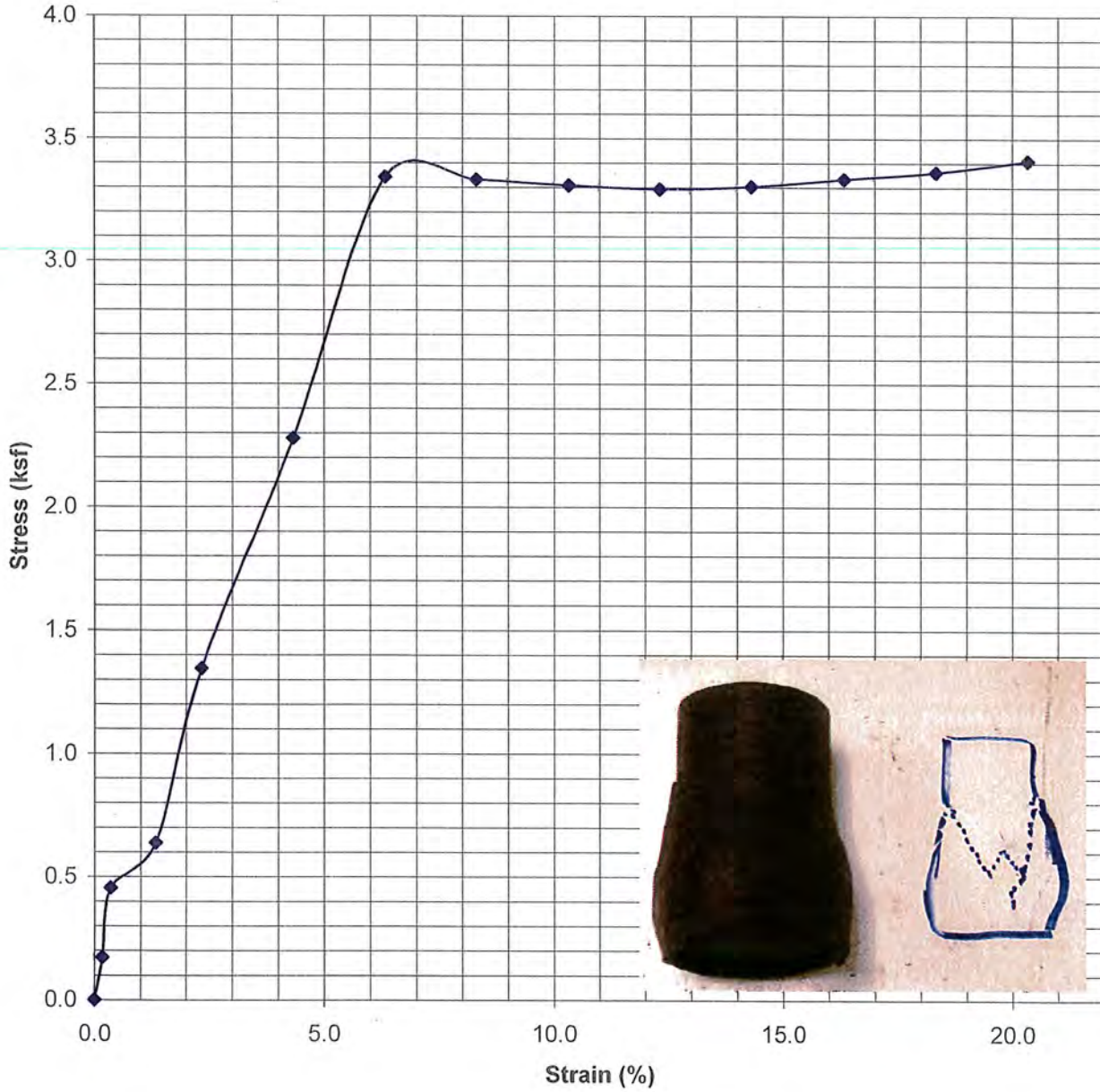
HWA GEOSCIENCES INC. Materials Testing Laboratory

Unconsolidated-Undrained Triaxial Compression Test for Cohesive Soils (ASTM D2850)

Project Name: Whatcom Waterway

Project Number: 2012-113, T200

Stress vs. Strain

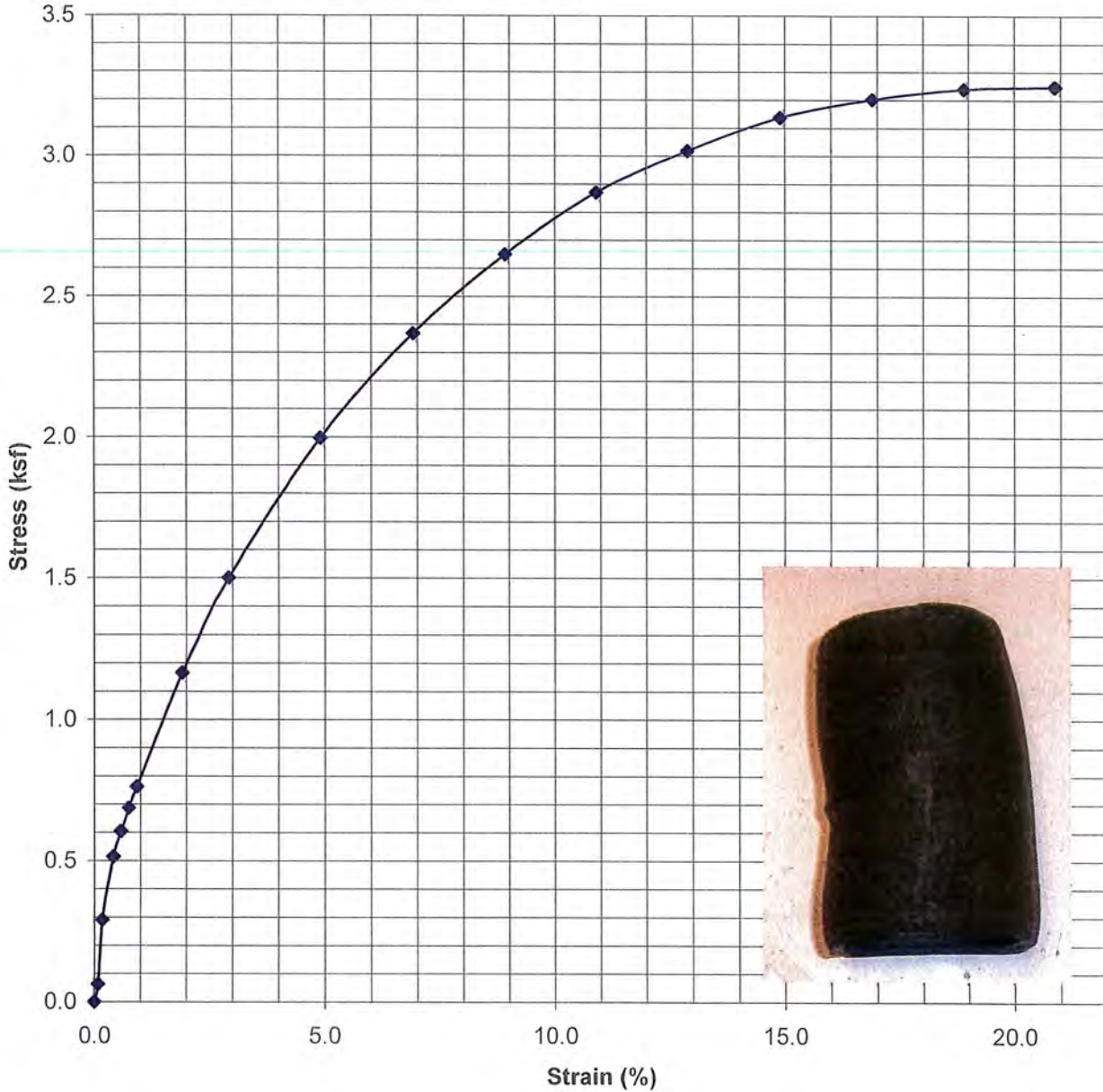


Sample Point: B-1
Sample Number: ST-8
Sample Depth: 35-37
Soil Classification: 0
Confining Stress (ksf): 4.33
Strain Rate (%\min): 1.00
Initial Moisture Content (%): 29.1

Wet Unit Weight (pcf): 123.9
Dry Unit Weight (pcf): 96.0
Total Peak Stress (ksf): 3.410

Figure 7

Stress vs. Strain



Sample Point: B-2
Sample Number: ST-6
Sample Depth: 30-32
Soil Classification: Dark gray, CLAY
Confining Stress (ksf): 3.71
Strain Rate (%\min): 1.00
Initial Moisture Content (%): 29.1

Wet Unit Weight (pcf): 123.6
Dry Unit Weight (pcf): 95.7
Total Peak Stress (ksf): 3.247

Figure 8

Project Name: Whatcom Waterway
 Project Number: 2012-113 T200
 Borehole Number: B-1
 Sample Number: ST-6
 Sample Depth: 27.5-29.5
 Soil Description: Dark gray, CLAY

	Moisture Content	Start	Finish
Saturation	99.6	39.6	31.5
Dry Density	82.0	99.6	103.6
			93.5
			pcf

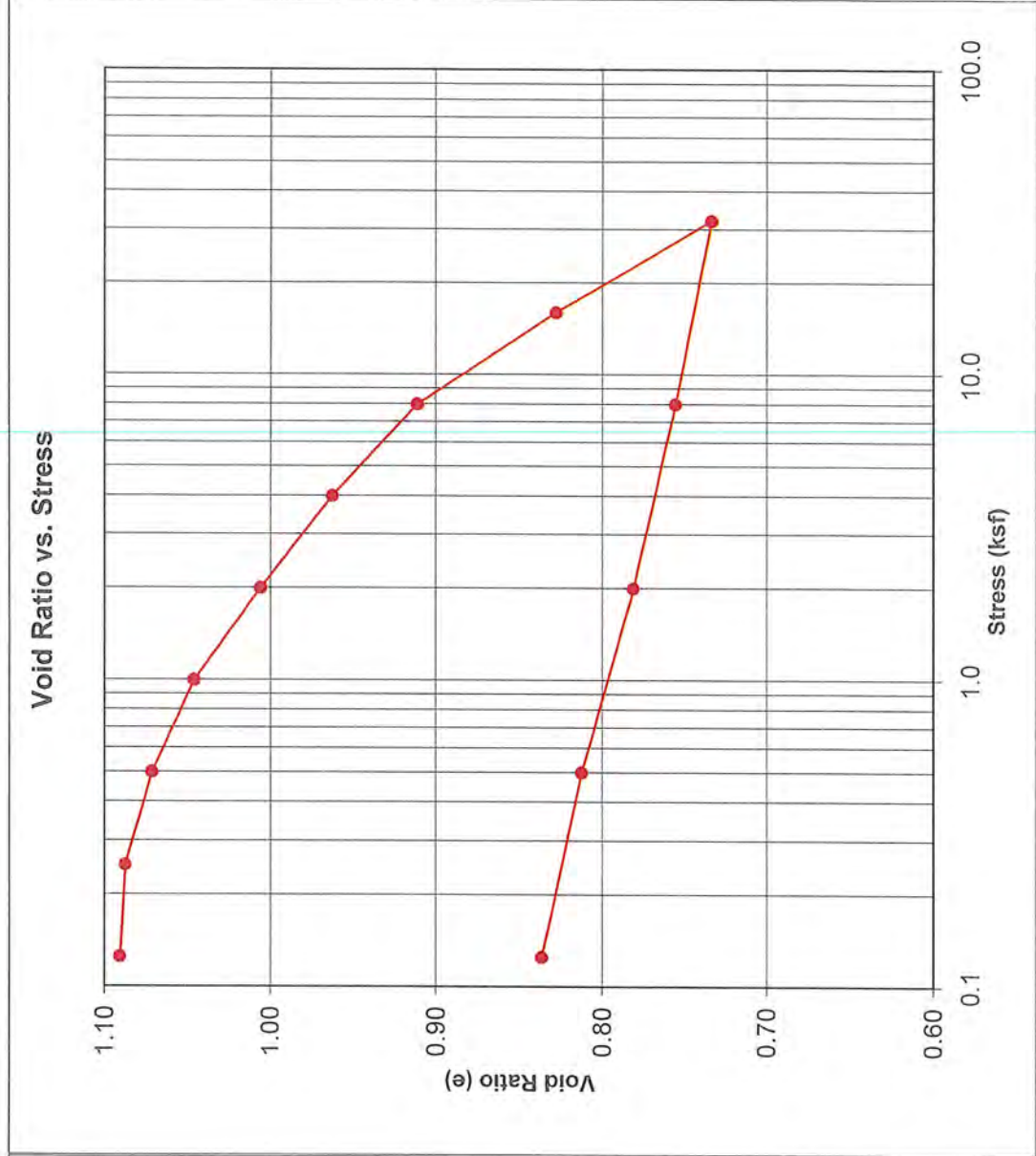
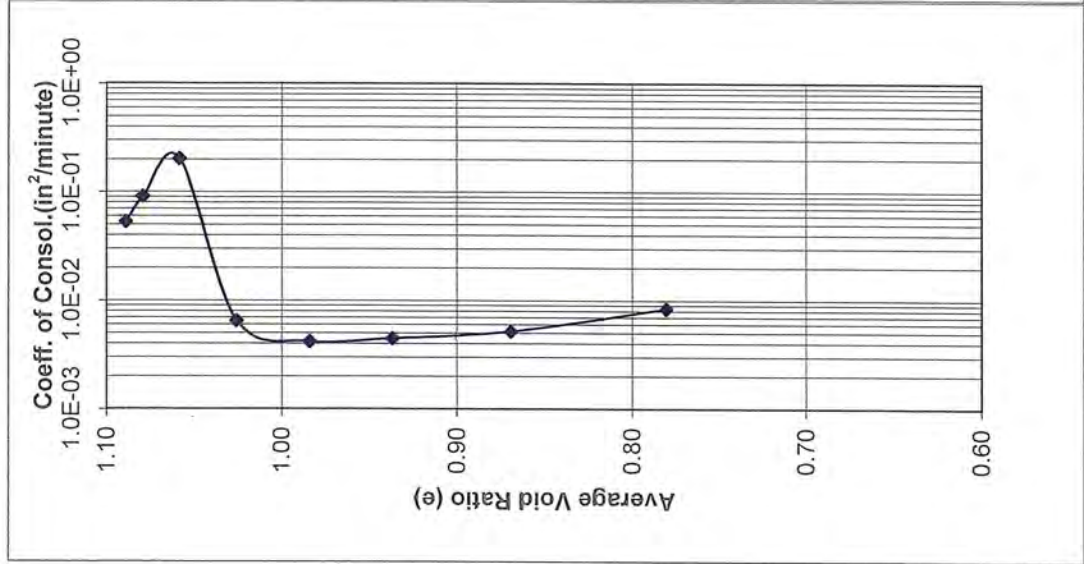


FIGURE 9

HWA ONE DIMENSIONAL
HWA GEOSCIENCES INC. CONSOLIDATION
 Project Name: Whatcom Waterway
 Project Number: 2012-113 T200
 Borehole Number: B-1
 Sample Number: ST-6
 Sample Depth: 27.5-29.5
 Soil Description: Dark gray, CLAY

Moisture Content	Start	Finish
Saturation	39.6	31.5 %
Dry Density	99.6	103.6 %
	82.0	93.5 pcf

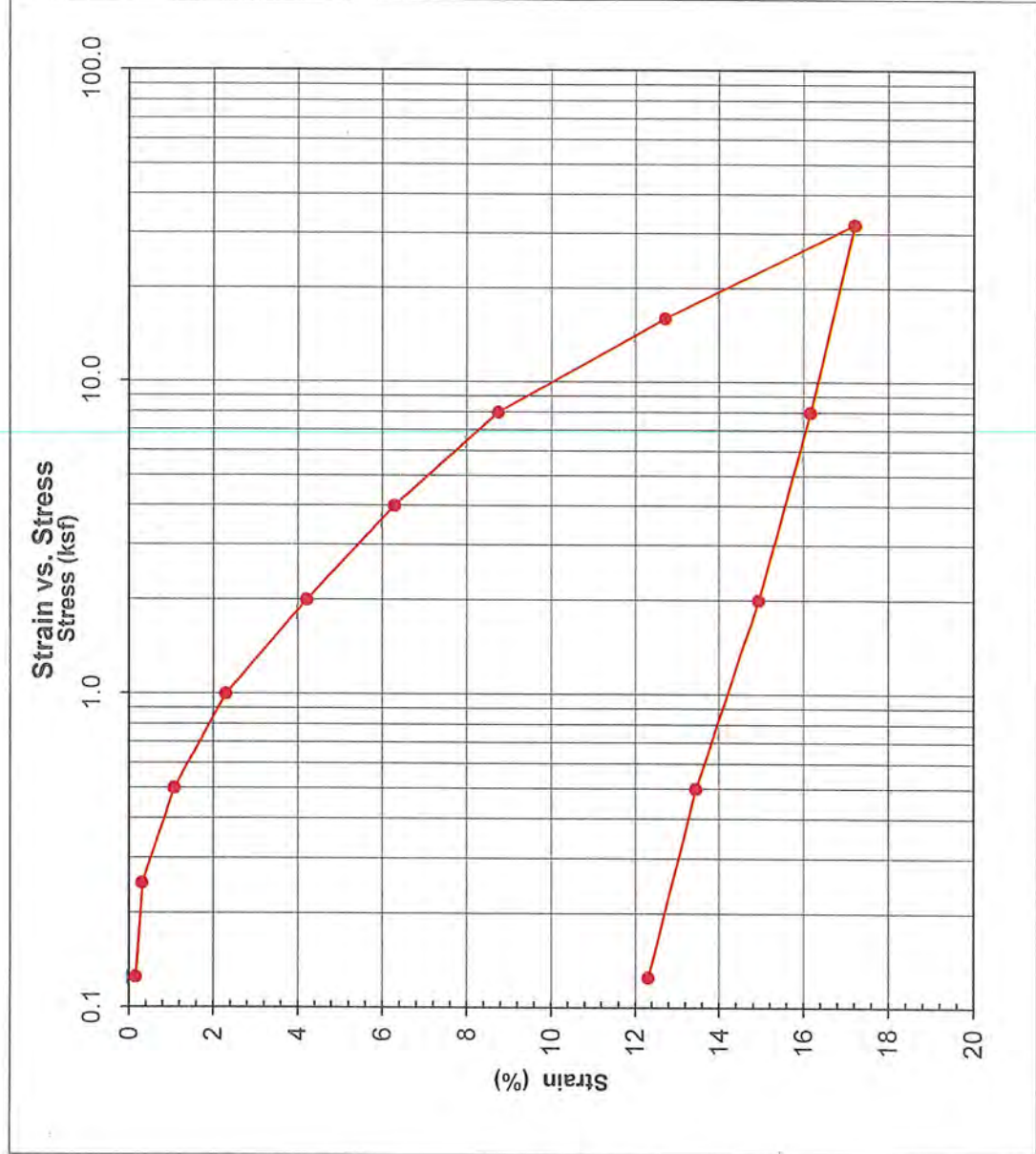
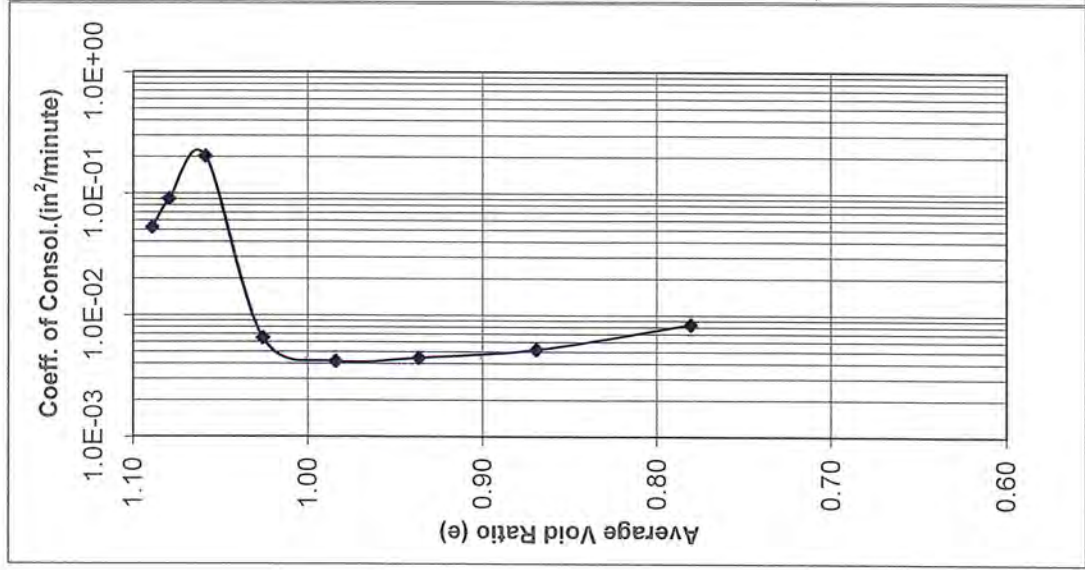


FIGURE 10



HWA GEOSCIENCES INC.
ONE DIMENSIONAL CONSOLIDATION
ASTM D 2435

Project Name: Whatcom Waterway
 Project Number: 2012-113 T200
 Borehole Number: B-1
 Sample Number: ST-8
 Sample Depth: 35-37
 Soil Description: Dark gray CLAY

	Start	Finish
Moisture Content	29.9	22.3
Saturation	96.3	103.0
Dry Density	92.6	107.6
		%
		%
		pcf

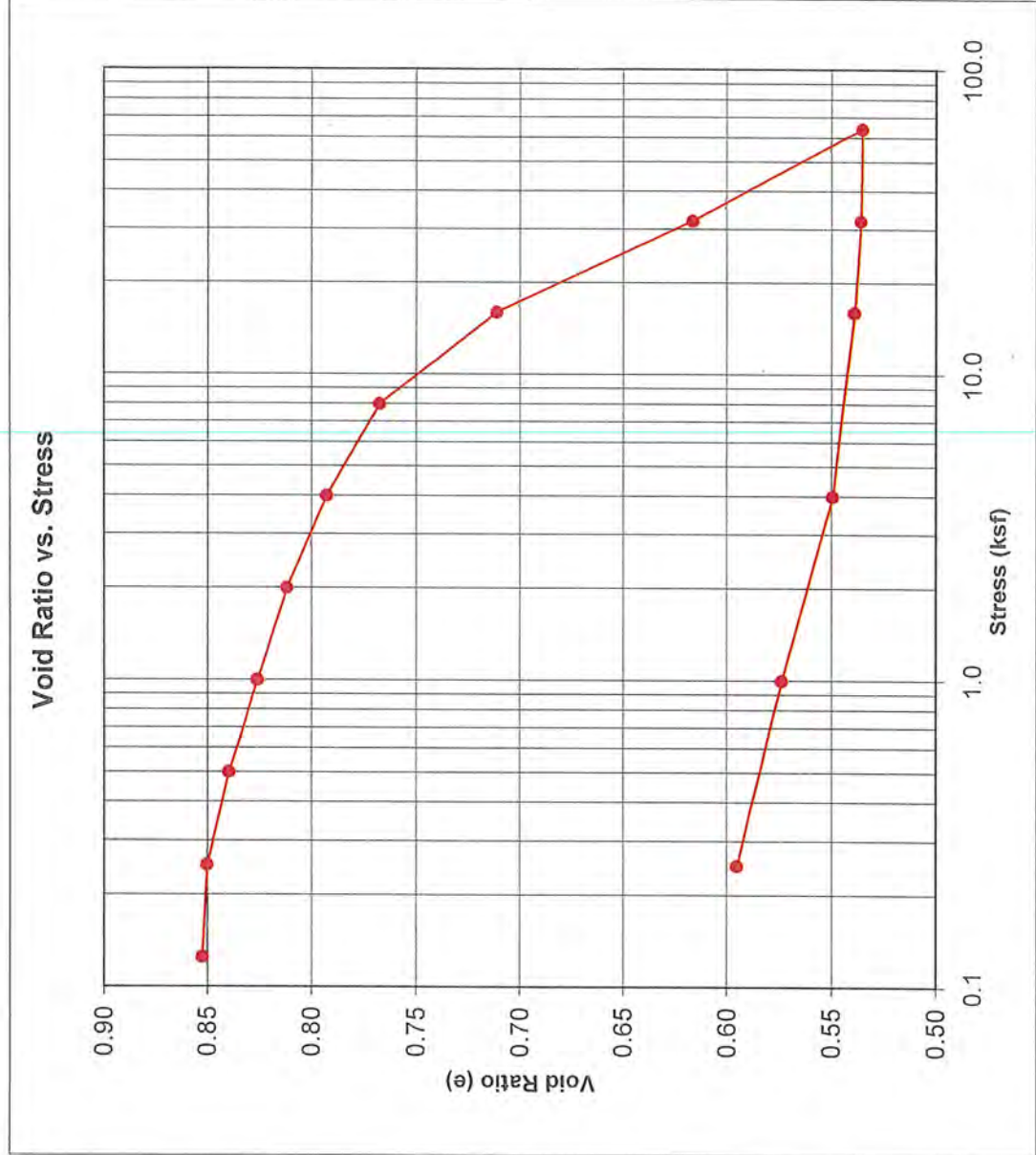
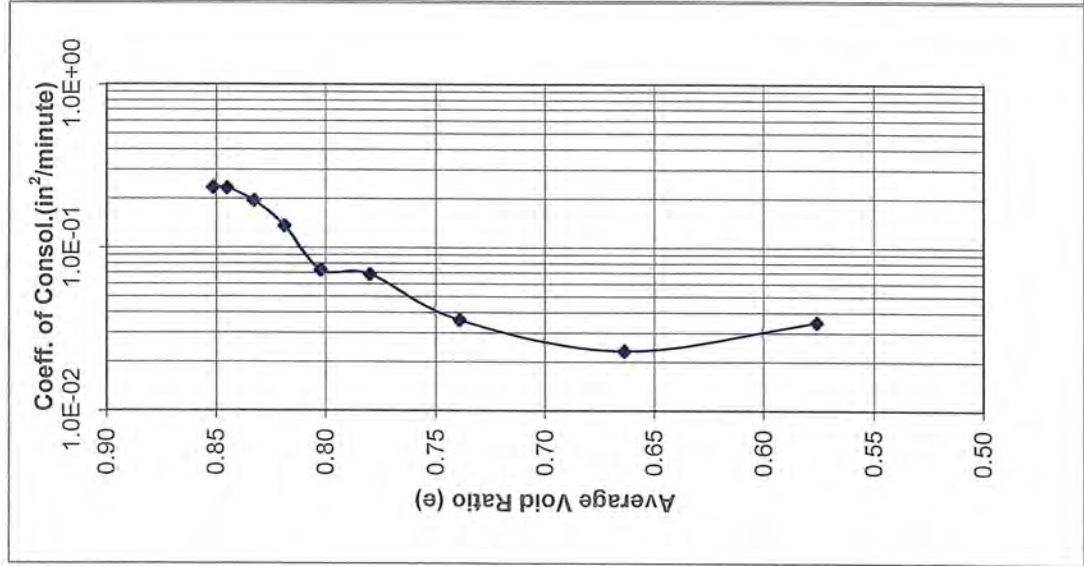
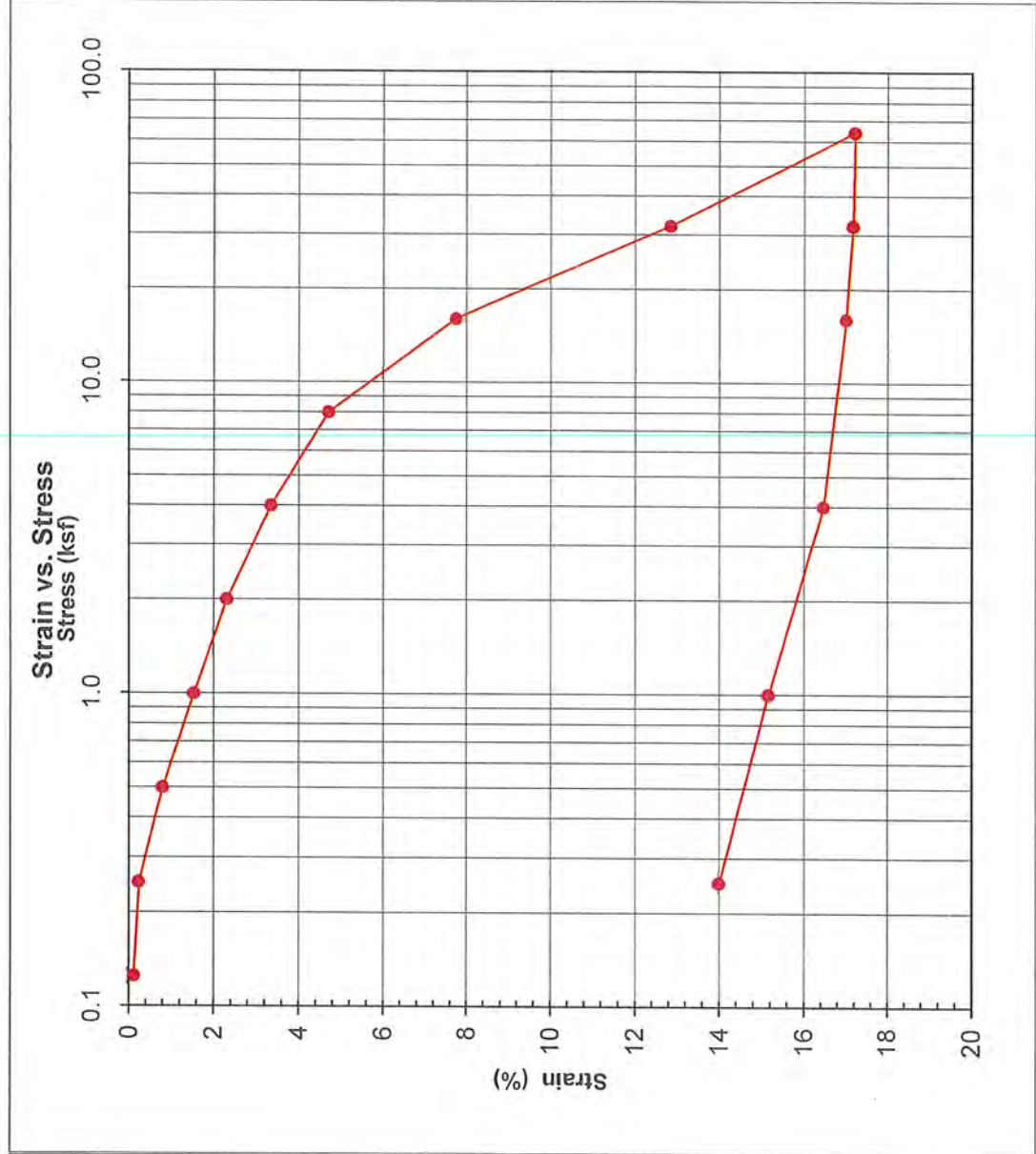
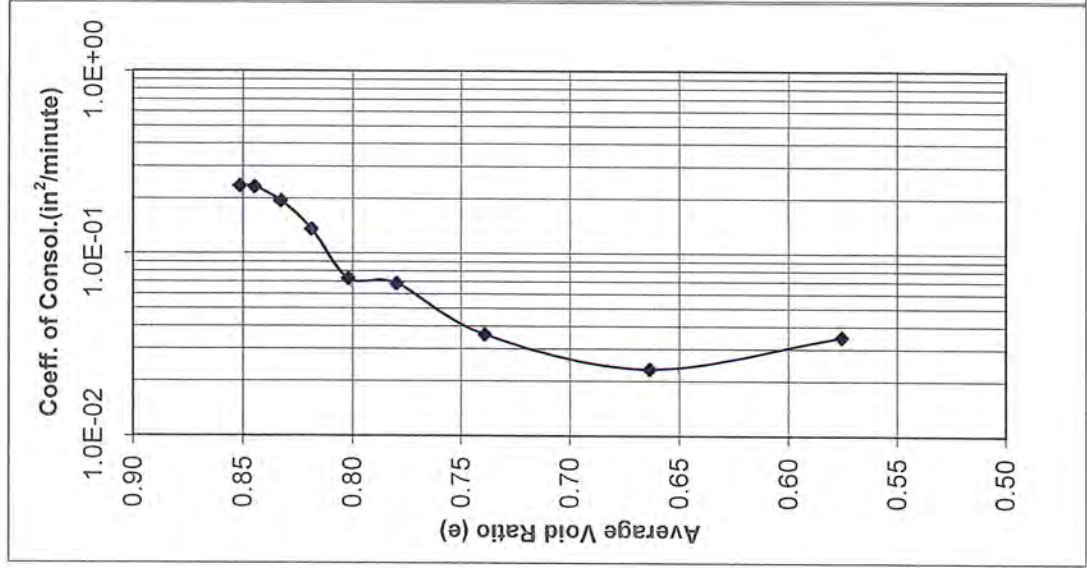


FIGURE 11

Project Name: Whatcom Waterway
 Project Number: 2012-113 T200
 Borehole Number: B-1
 Sample Number: ST-8
 Sample Depth: 35-37
 Soil Description: Dark gray CLAY

Start Finish
 29.9 22.3 %
 96.3 103.0 %
 92.6 107.6 pcf

Moisture Content
 Saturation
 Dry Density





HWA GEOSCIENCES INC. ONE DIMENSIONAL
CONSOLIDATION
ASTM D 2435

Project Name: Whatcom Waterway
 Project Number: 2012-113 T200
 Borehole Number: B-2
 Sample Number: ST-6
 Sample Depth: 30-32
 Soil Description: Dark gray CLAY

Moisture Content
 Saturation
 Dry Density

Start	Finish
26.3	20.8
100.1	105.2
99.7	111.2

%
%
pcf

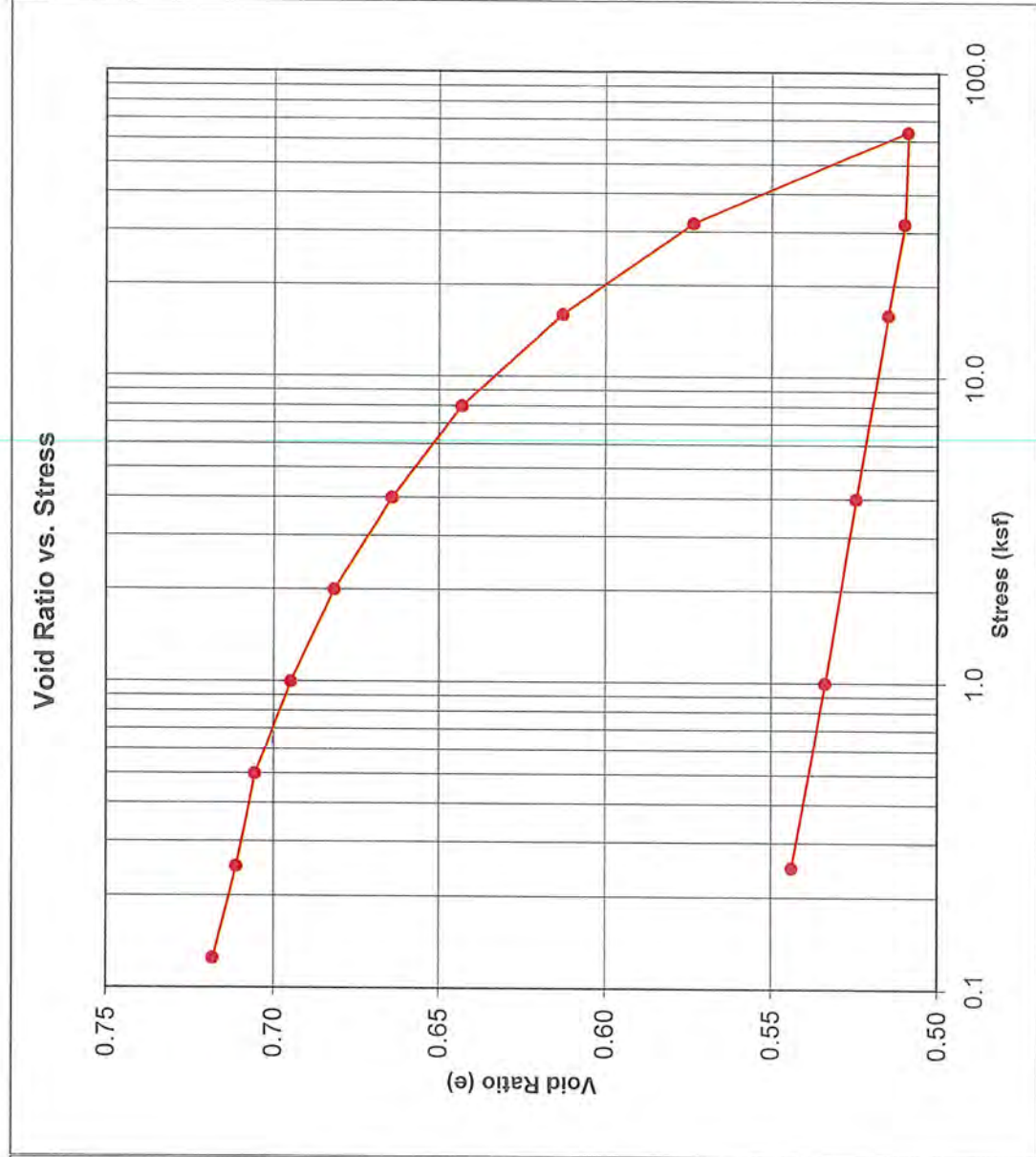
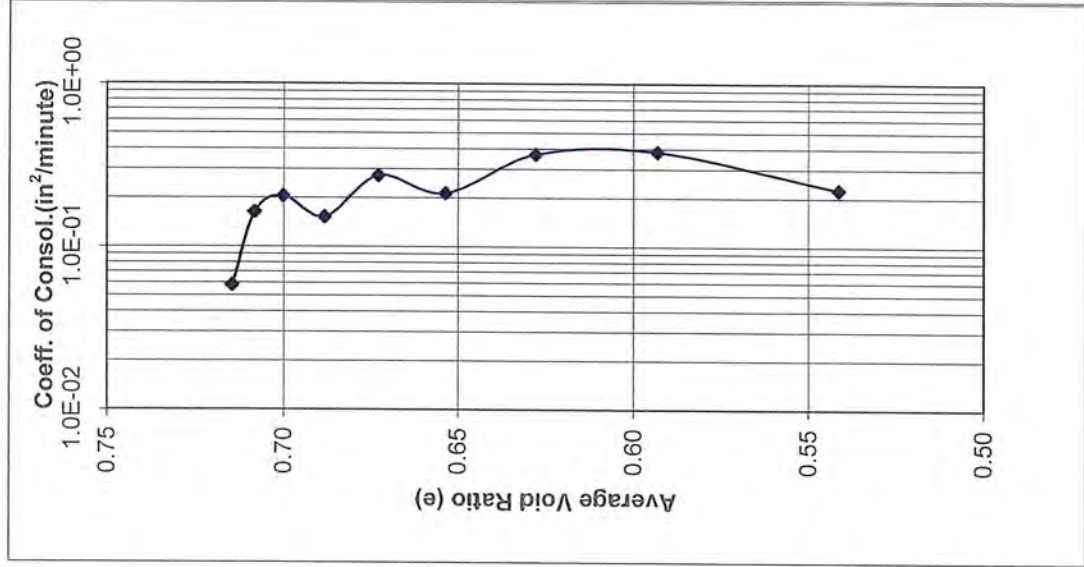


FIGURE 13

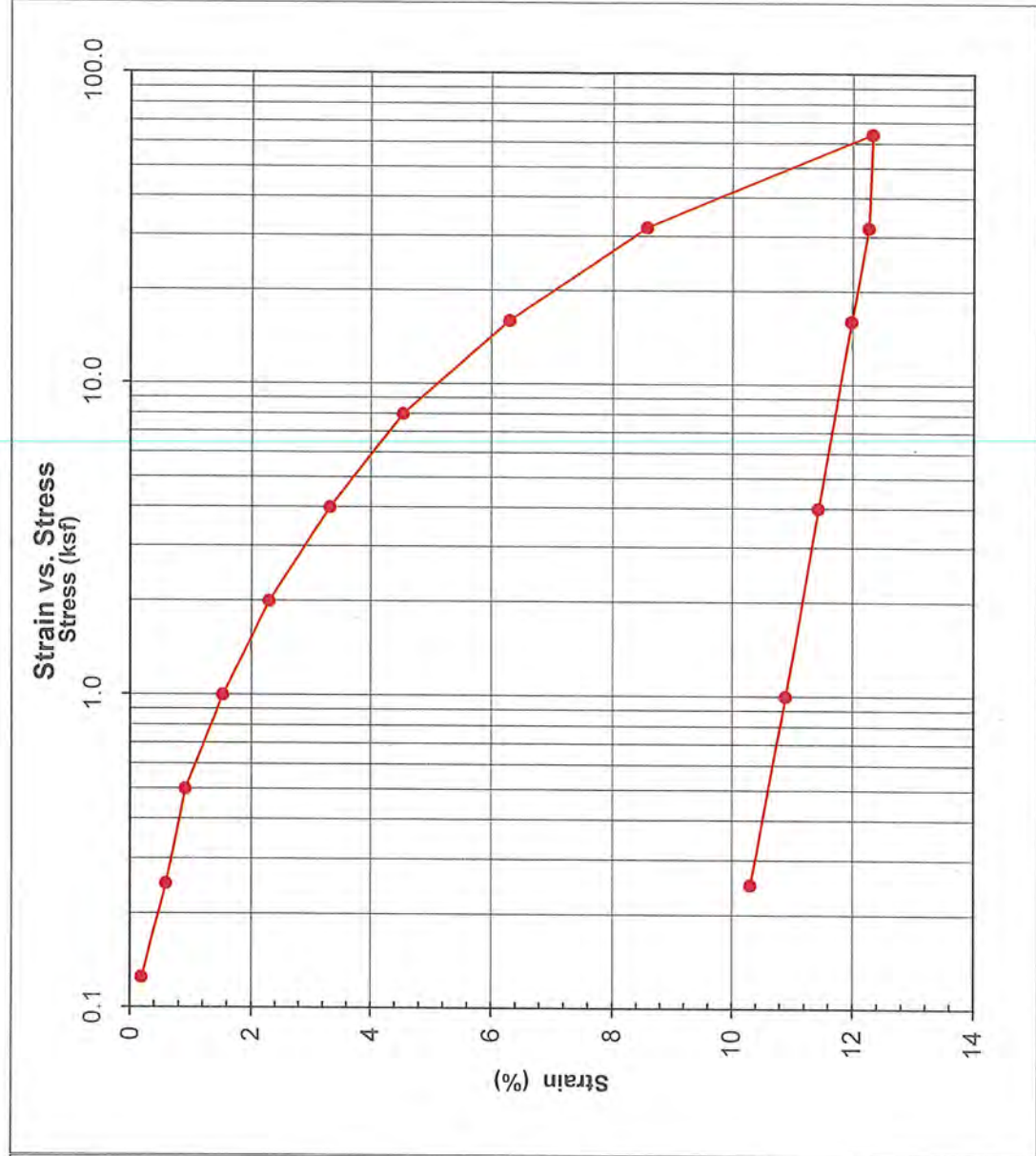
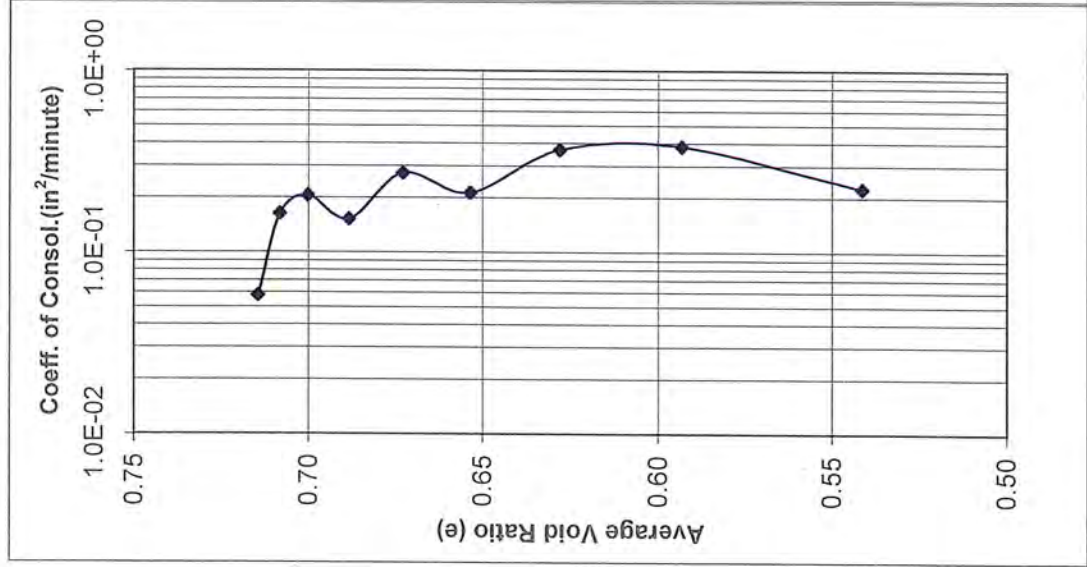


HWA GEOSCIENCES INC. **ONE DIMENSIONAL CONSOLIDATION**
ASTM D 2435

Project Name: Whatcom Waterway
 Project Number: 2012-113 T200
 Borehole Number: B-2
 Sample Number: ST-6
 Sample Depth: 30-32
 Soil Description: Dark gray CLAY

Moisture Content
 Saturation
 Dry Density

Start	Finish
26.3	20.8 %
100.1	105.2 %
99.7	111.2 pcf





November 15, 2012

HWA Project No. 2012-113-23, Task 200

Anchor QEA, LLC

720 Olive Way, Suite 1900

Seattle, Washington 98101

Attention: Mr. Zachary L. Koehn, EIT

Subject: **Materials Laboratory Report
Index, Strength and Consolidation Testing
Whatcom Waterway Project**

Dear Mr. Koehn;

As requested, HWA GeoSciences Inc. (HWA) performed laboratory testing for the subject project. Herein we present the results of our laboratory analyses, which are summarized on the attached Figures. The laboratory testing program was performed in general accordance with your instructions and appropriate ASTM Standards as outlined below.

SAMPLE INFORMATION: The subject samples were delivered to our laboratory on October 29, 2012 by Anchor QEA personnel. The samples were designated with boring, sample and depth information. The samples were delivered in Shelby tubes and plastic bags.

MOISTURE CONTENT OF SOIL: The moisture content of selected soil samples (percent by dry mass) was determined in general accordance with ASTM D2216. The results are shown on the attached Figure 1.

LIQUID LIMIT, PLASTIC LIMIT, AND PLASTICITY INDEX OF SOILS (ATTERBERG LIMITS): Selected samples were tested using method ASTM D4318, multi-point method. The results are reported on the attached Liquid Limit, Plastic Limit, and Plasticity Index report, Figure 1.

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION OF SOILS: Selected samples were tested in general accordance with method ASTM D2850 to determine the strength characteristics of the soil. The confining stresses used are indicated on the test plots. The results are summarized and plotted graphically on the attached Unconsolidated Undrained Triaxial Compression Test for Cohesive Soils reports, Figures 2-4.

ONE DIMENSIONAL CONSOLIDATION PROPERTIES OF SOIL: The consolidation properties of three specified soil samples were measured in general accordance with ASTM D2435.

Saturation was maintained by inundation of the sample throughout the test. When inundated with water, all three samples initially consolidated, then began to swell,

21312 30th Drive SE
Suite 110
Bothell, WA 98021.7010

Tel: 425.774.0106

Fax: 425.774.2714

www.hwageo.com

so we proceeded to the next load. The samples were subjected to increasing increments of total stress, the duration of which was selected to exceed the time required for completion of primary consolidation as defined in the Standard, Method B. Unloading of the sample was carried out incrementally. The test results are presented in both Void Ratio (e) versus $\text{Log}_{10}(P)$ and Percent Strain versus $\text{Log}_{10}(P)$ formats as shown on Figures 5-10.



CLOSURE: Experience has shown that laboratory test values for soils and other natural materials vary with each representative sample. As such, HWA has no knowledge as to the extent and quantity of material the tested sample may represent. HWA also makes no warranty as to how representative either the sample tested or the test results obtained are to actual field conditions. It is a well established fact that sampling methods present varying degrees of disturbance or variance that affect sample representativeness.

No copy should be made of this report except in its entirety.

We appreciate the opportunity to provide laboratory testing services on this project. Should you have any questions or comments, or if we may be of further service, please call.

Sincerely,

HWA GEOSCIENCES INC.

Handwritten signature of Harold Benny in black ink.

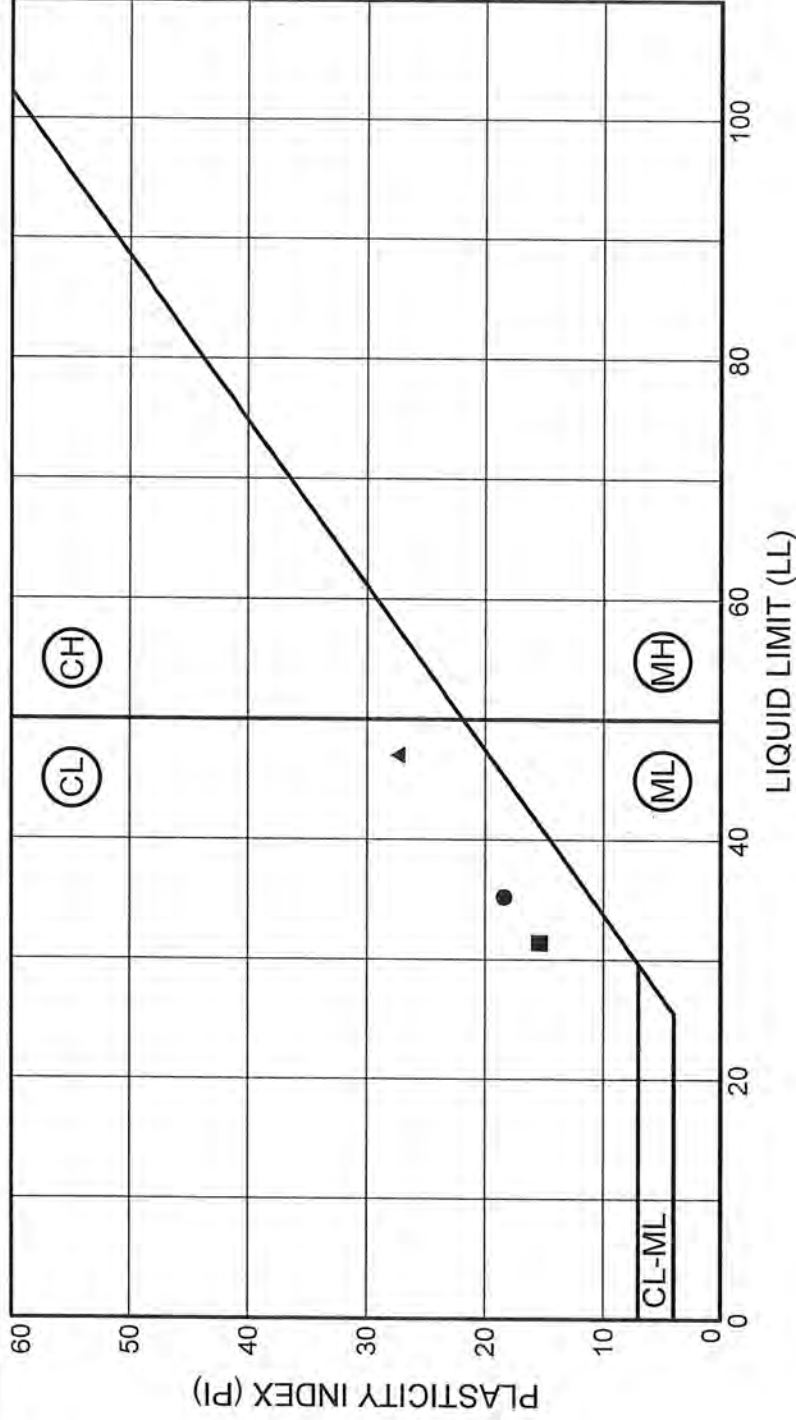
Harold Benny
Materials Laboratory Manager

Handwritten signature of George Minassian in black ink.

George Minassian, Ph.D., P.E.
Geotechnical Engineer

Attachments:

Figure 1	Liquid Limit, Plastic Limit and Plasticity Index of Soils Report
Figures 2-4	Unconsolidated, Undrained Triaxial Strength of Soils
Figures 5-10	One Dimensional Consolidation of Soils



SYMBOL	SAMPLE	DEPTH (ft)	CLASSIFICATION	% MC	LL	PL	PI	% Fines
●	ST-10 B-1	45.0 - 47.0	(CL) Dark gray, lean CLAY		35	17	18	
■	ST-10 B-2	50.0 - 52.0	(CL) Dark gray, lean CLAY with gravel		31	16	15	
▲	ST-8 B-2	40.0 - 42.0	(CL) Dark gray, lean CLAY with gravel		47	20	27	



HWA GEOSCIENCES INC.

Materials Laboratory Testing for Anchor QEA
Whatcom Waterway

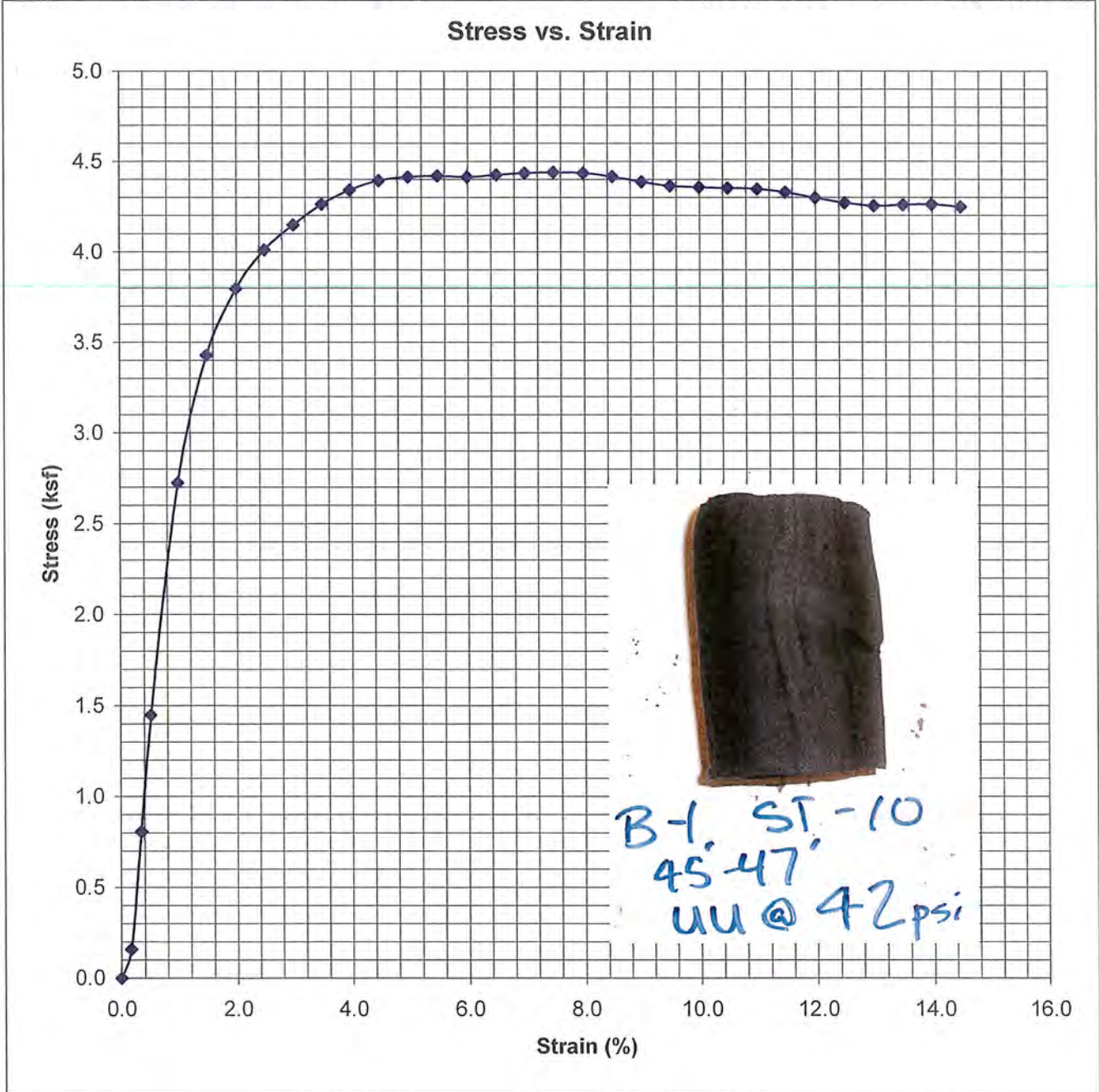
LIQUID LIMIT, PLASTIC LIMIT AND
PLASTICITY INDEX OF SOILS
METHOD ASTM D4318

HWA GEOSCIENCES INC. Materials Testing Laboratory

Unconsolidated-Undrained Triaxial Compression Test for Cohesive Soils (ASTM D2850)

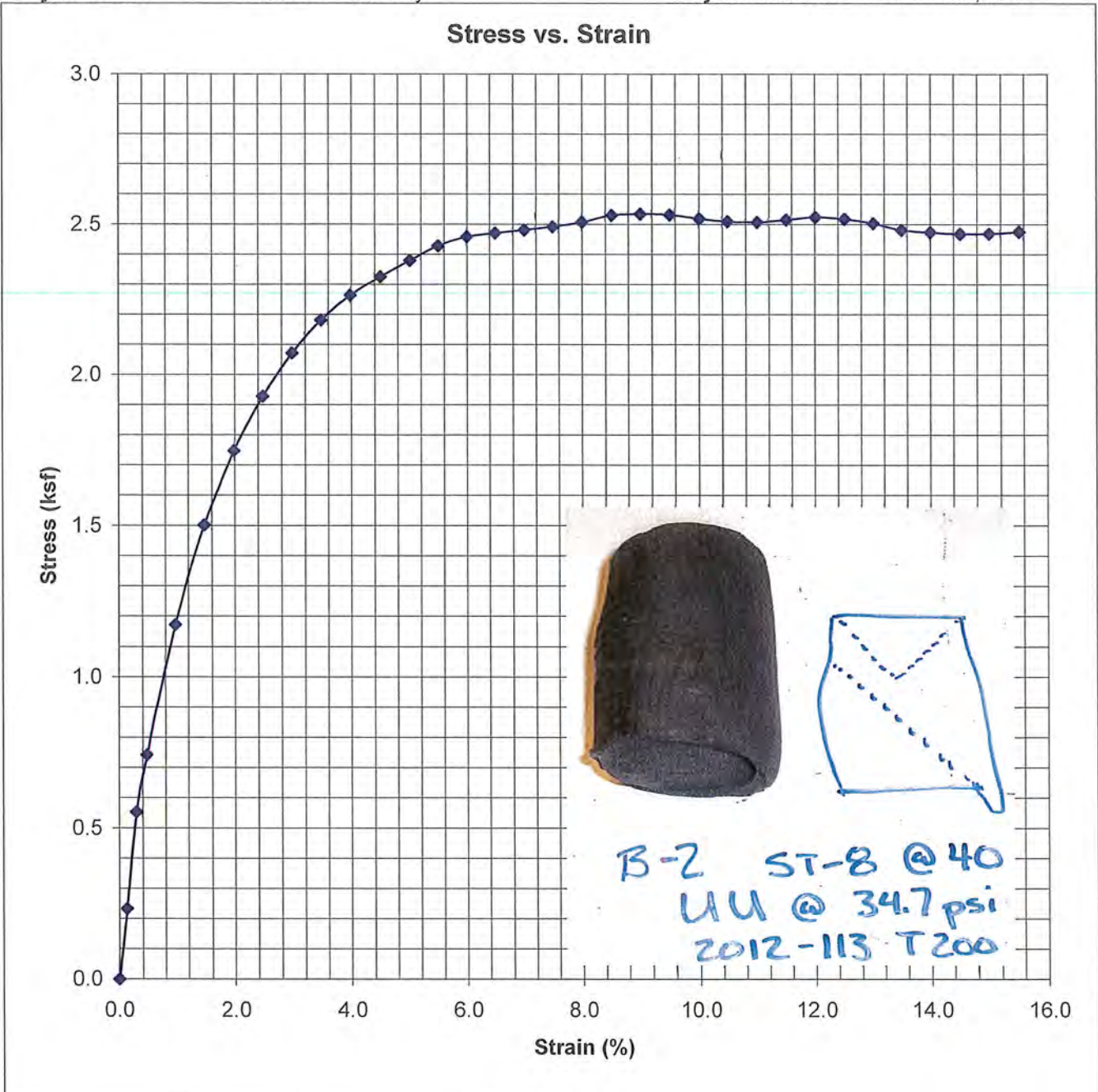
Project Name: Whatcom Waterway

Project Number: 2012-113, T200



Sample Point:	B-1	Wet Unit Weight (pcf):	134.5
Sample Number:	ST-10	Dry Unit Weight (pcf):	113.1
Sample Depth:	45-47	Total Peak Stress (ksf):	4.44
Soil Classification:	Dark gray, CLAY		
Confining Stress (ksf):	6.05		
Strain Rate (%\min):	1.00		
Initial Moisture Content (%):	18.9		

Figure 2



Sample Point: B-2
 Sample Number: ST-8
 Sample Depth: 40-42
 Soil Classification: Dark gray, CLAY
 Confining Stress (ksf): 5.00
 Strain Rate (%\min): 1.00
 Initial Moisture Content (%): 29.6

Wet Unit Weight (pcf): 125.0
 Dry Unit Weight (pcf): 96.5
 Total Peak Stress (ksf): 2.53

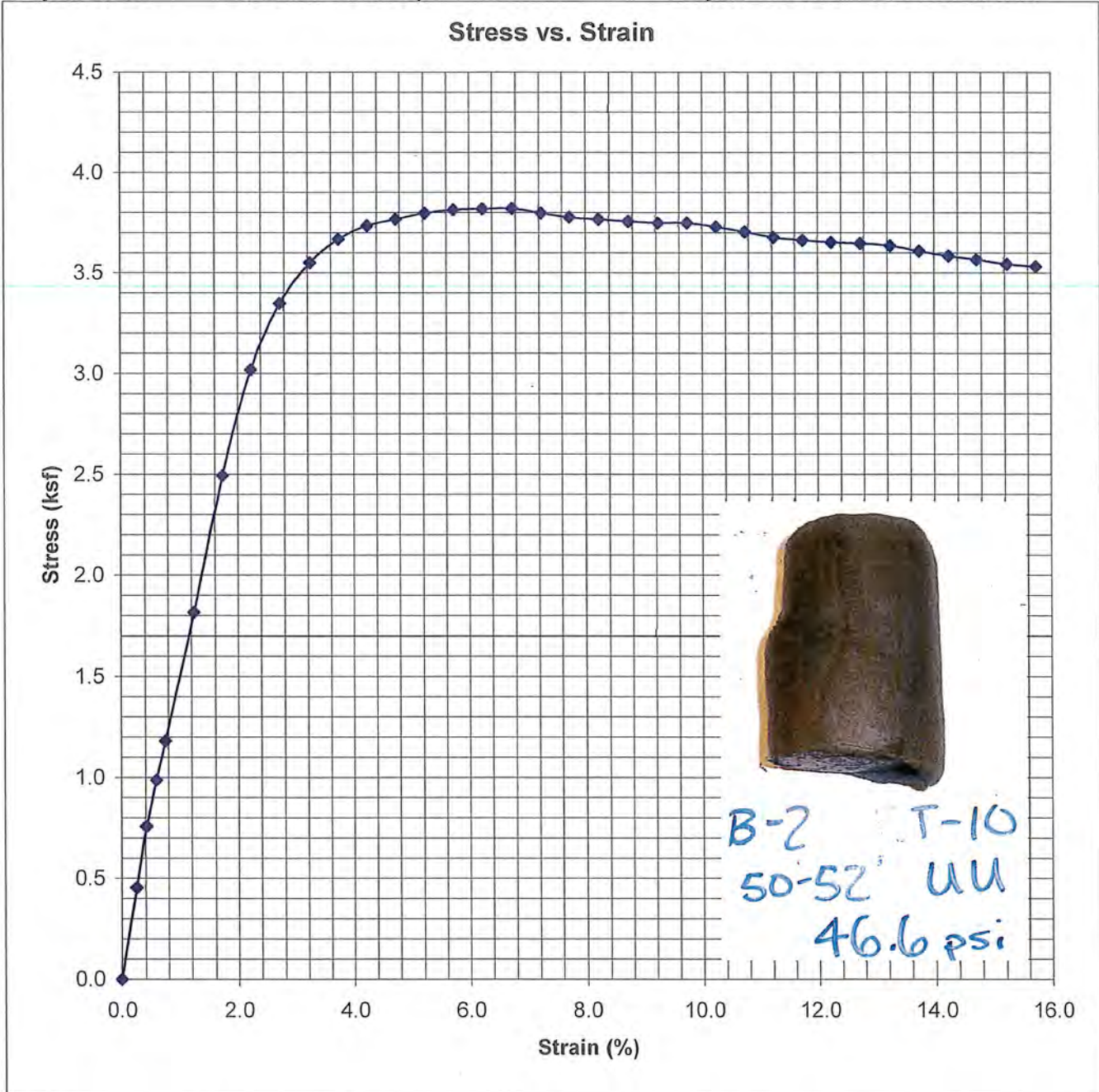
Figure 3

HWA GEOSCIENCES INC. Materials Testing Laboratory

Unconsolidated-Undrained Triaxial Compression Test for Cohesive Soils (ASTM D2850)

Project Name: Whatcom Waterway

Project Number: 2012-113, T200



Sample Point:	B-2	Wet Unit Weight (pcf):	134.4
Sample Number:	ST-10	Dry Unit Weight (pcf):	113.7
Sample Depth:	50-52	Total Peak Stress (ksf):	3.82
Soil Classification:	Dark gray, CLAY with gravel		
Confining Stress (ksf):	6.71		
Strain Rate (%\min):	1.00		
Initial Moisture Content (%):	18.2		

Figure 4



HWA GEOSCIENCES INC. **ASTM D 2435**
ONE DIMENSIONAL CONSOLIDATION

Project Name: Whatcom Waterway
Project Number: 2012-113 T200
Borehole Number: B-1
Sample Number: ST-10
Sample Depth: 45-47
Soil Description: Dark gray CLAY with gravel (swelling clay)

Moisture Content
Saturation
Dry Density

Start
18.9%
98.8
109.6

Finish
16.0%
108.8
121.8

%
pcf

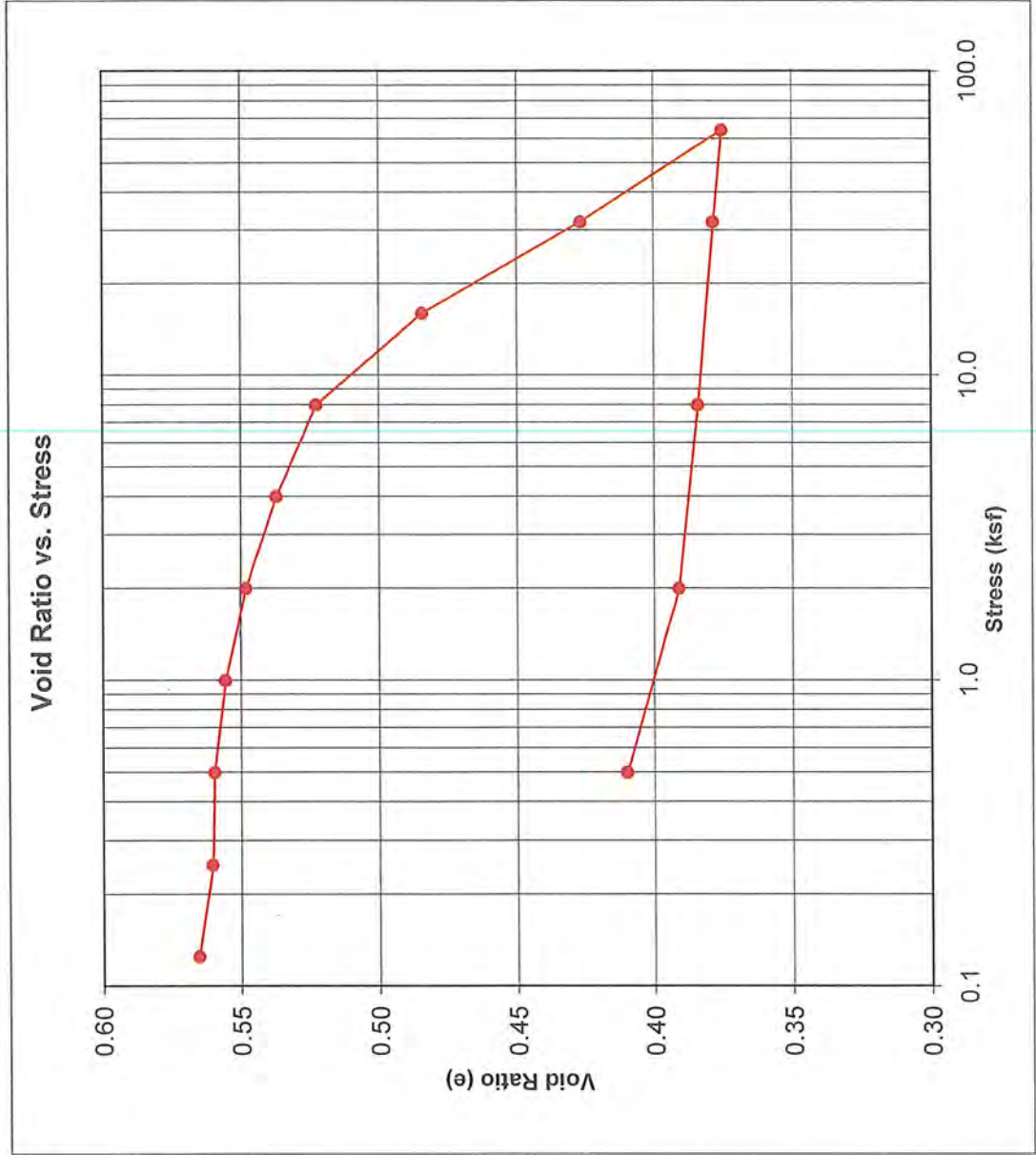
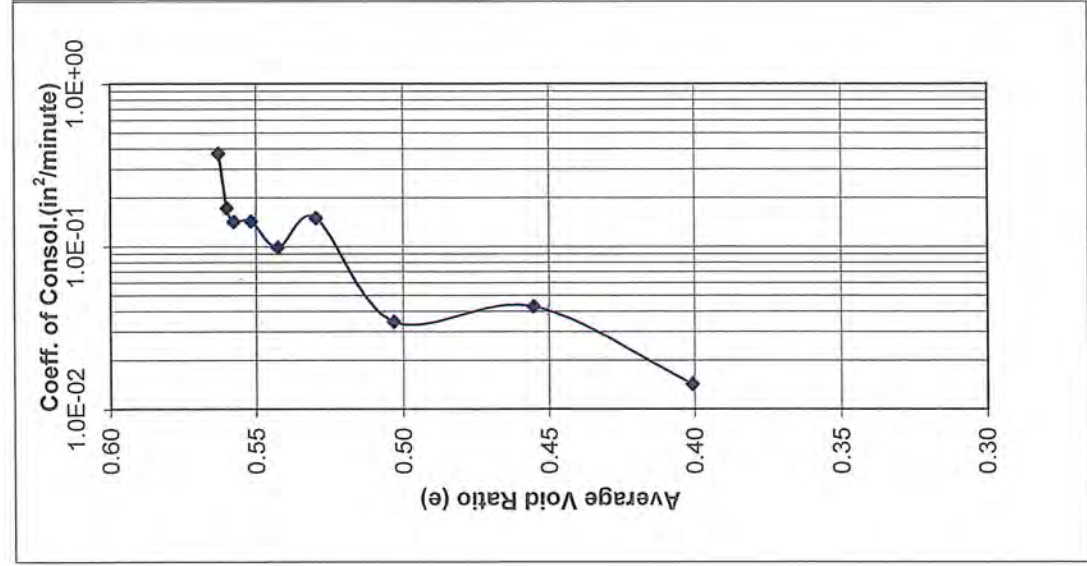


FIGURE 5



HWA GEOSCIENCES INC. ONE DIMENSIONAL
CONSOLIDATION
ASTM D 2435

Project Name: Whatcom Waterway
 Project Number: 2012-113 T200
 Borehole Number: B-1
 Sample Number: ST-10
 Sample Depth: 45-47
 Soil Description: Dark gray CLAY with gravel (swelling clay)

Moisture Content	Start	Finish
Saturation	18.9%	16.0%
Dry Density	98.8	108.8 %
	109.6	121.8 pcf

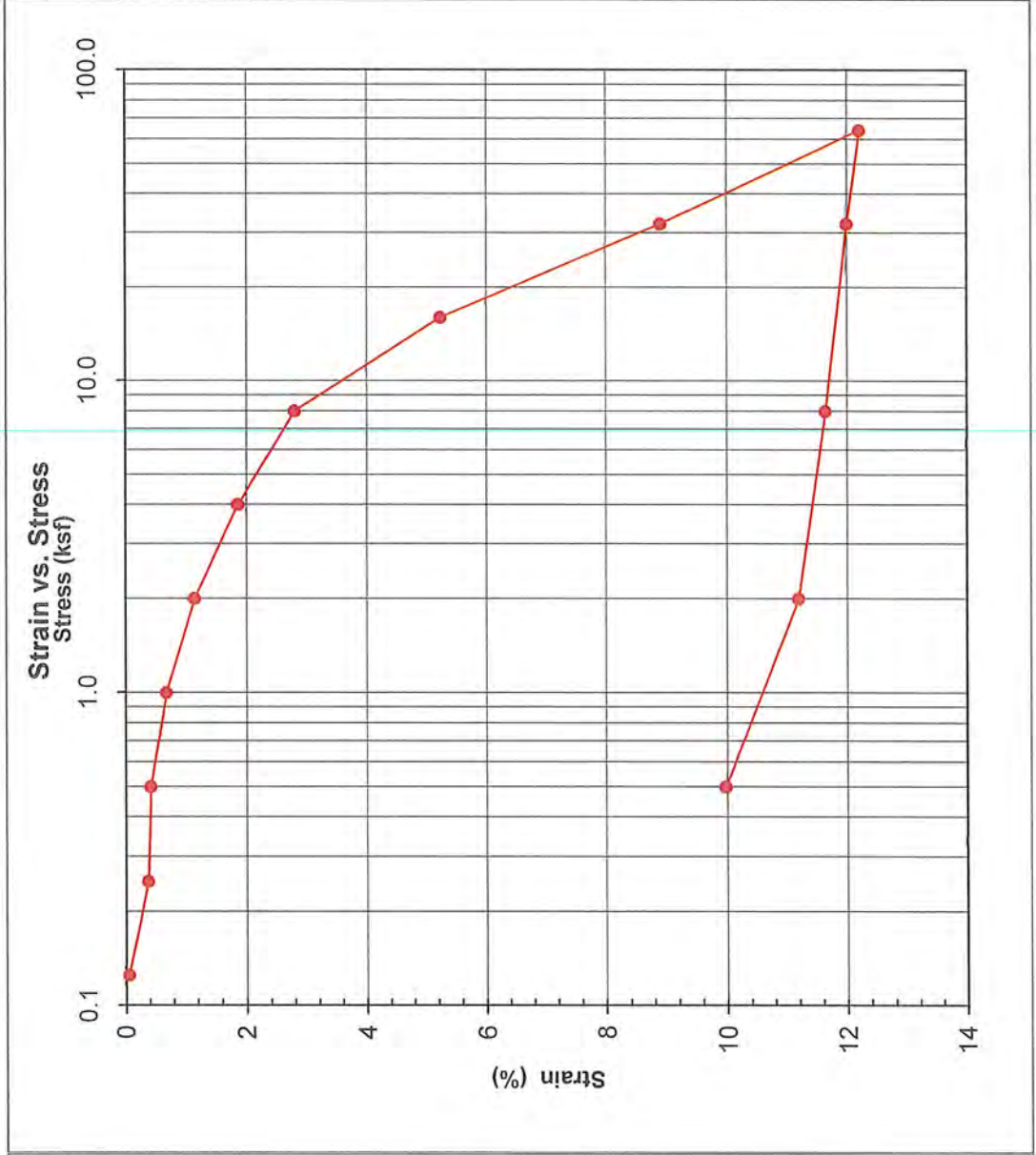
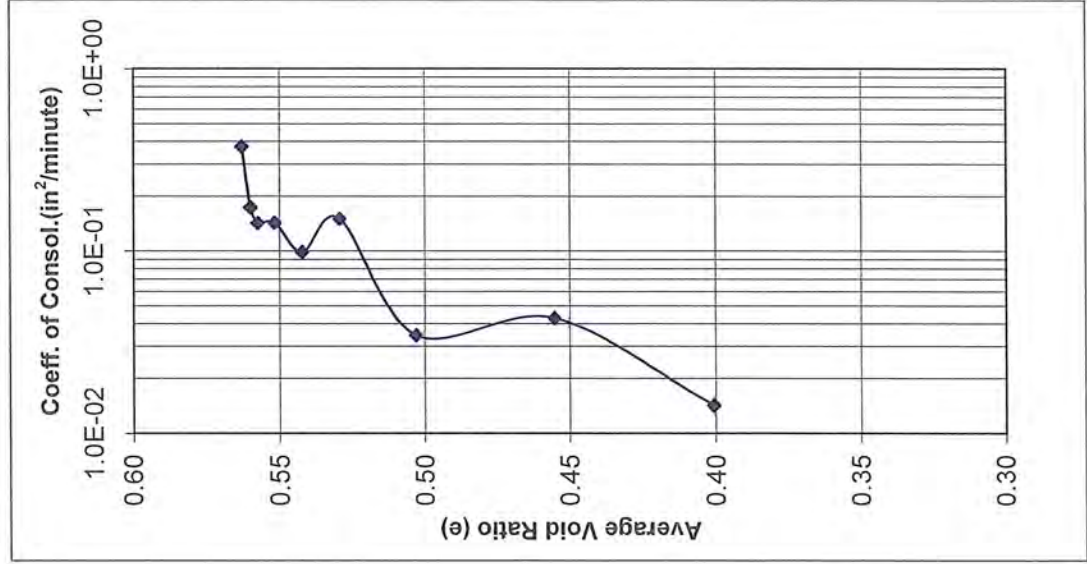


FIGURE 6



HWA GEOSCIENCES INC. ONE DIMENSIONAL
CONSOLIDATION
ASTM D 2435

Project Name: Whatcom Waterway
 Project Number: 2012-113 T200
 Borehole Number: B-2
 Sample Number: ST-8
 Sample Depth: 40-42
 Soil Description: Dark gray CLAY (swelling clay)

Moisture Content
 Saturation 99.4 %
 Dry Density 128.3 pcf

Start 29.6%
 Finish 24.0%

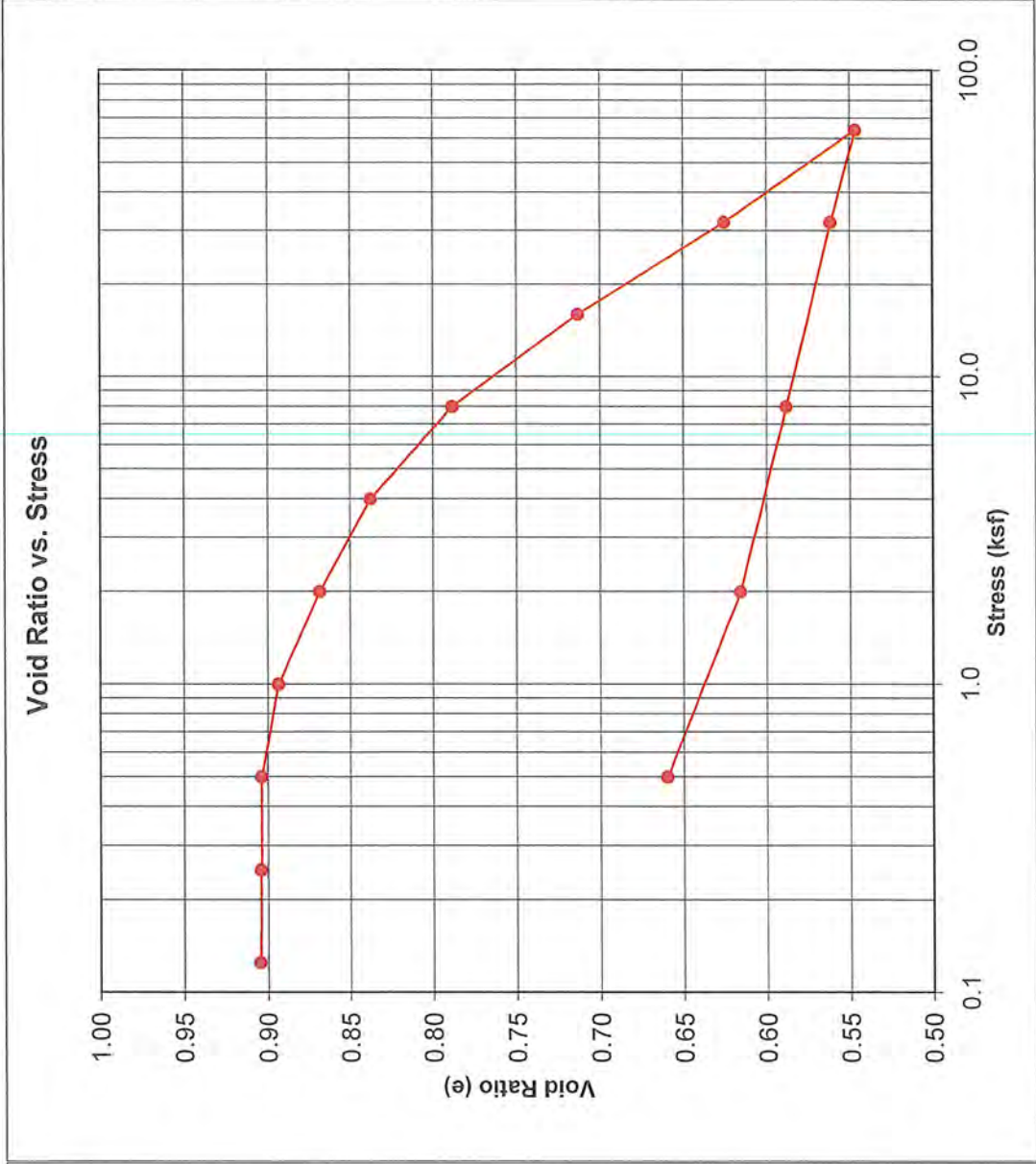
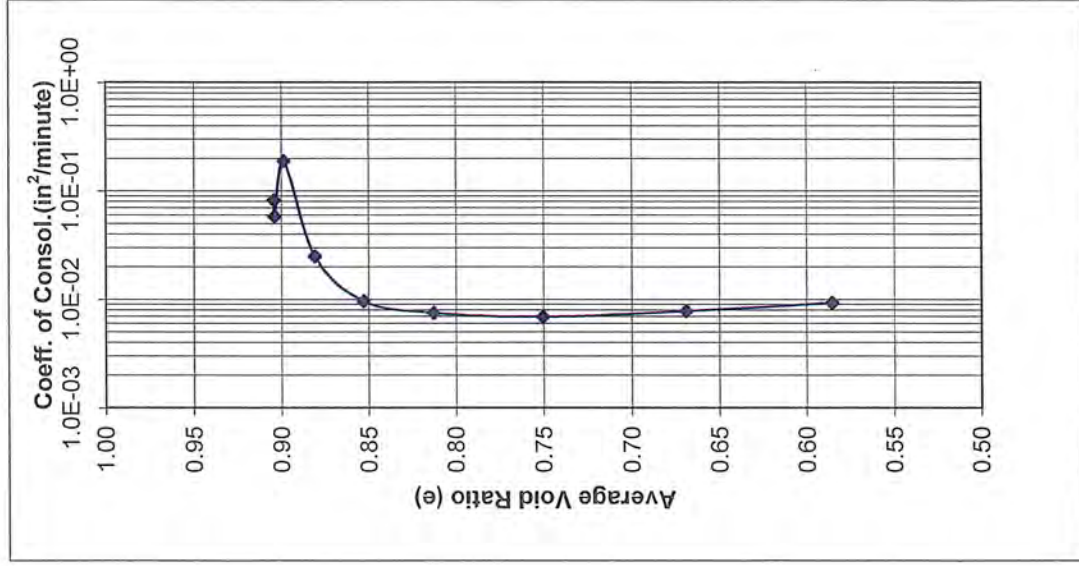


FIGURE 7

Project Name: Whatcom Waterway
 Project Number: 2012-113 T200
 Borehole Number: B-2
 Sample Number: ST-8
 Sample Depth: 40-42
 Soil Description: Dark gray CLAY (swelling clay)

Moisture Content
 Saturation 99.4
 Dry Density 90.0

Start 29.6%
 Finish 24.0%

Moisture Content 101.3 %
 Saturation 99.4
 Dry Density 128.3 pcf

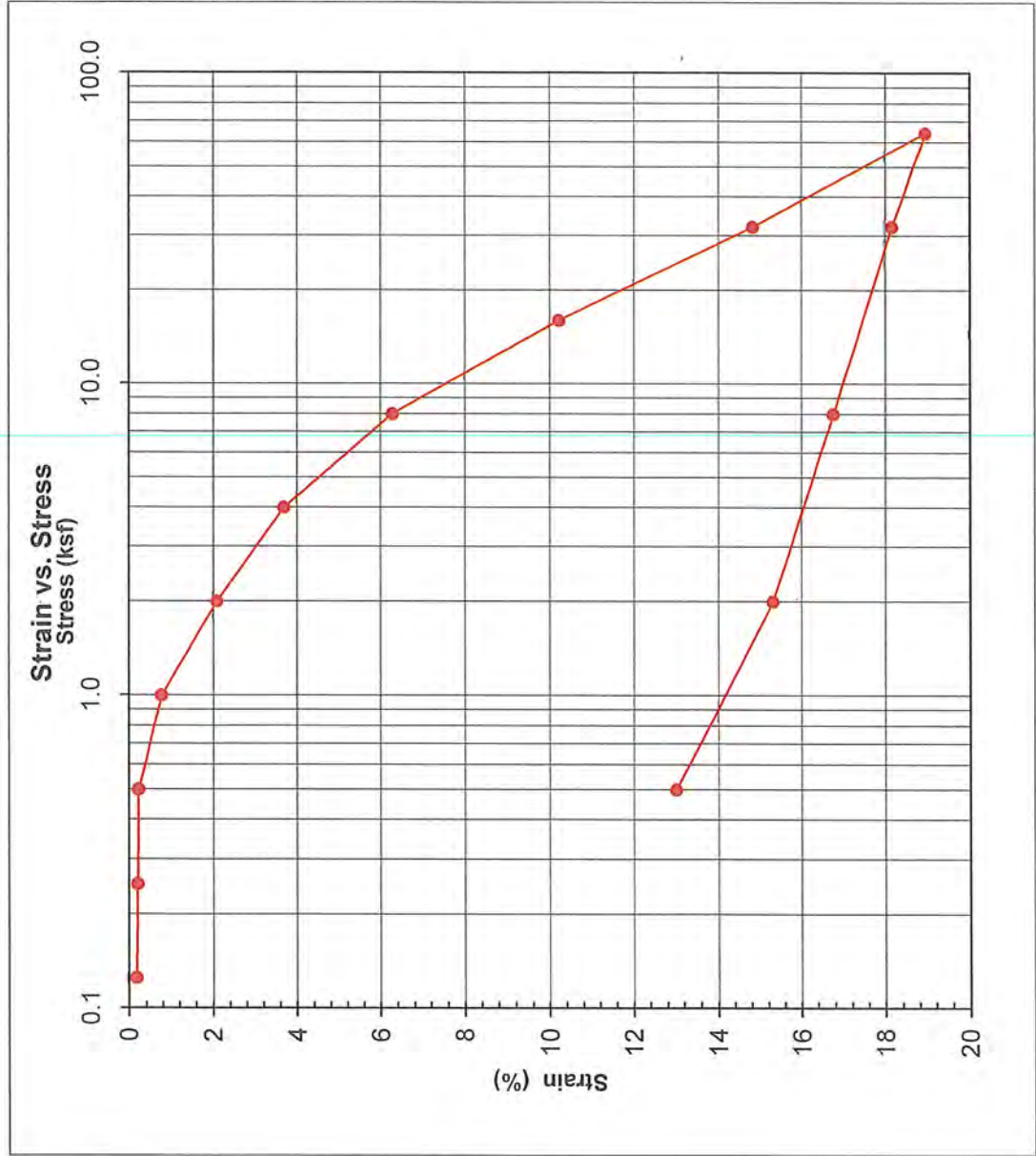
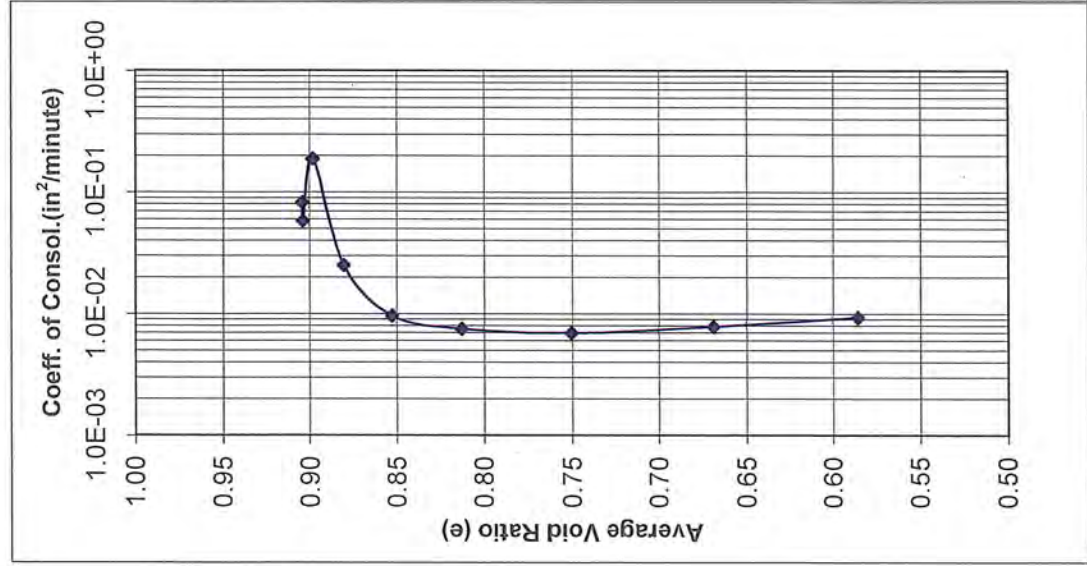


FIGURE 8



HWA GEOSCIENCES INC.

**ONE DIMENSIONAL
CONSOLIDATION**

Project Name: Whatcom Waterway
Project Number: 2012-113 T200
Borehole Number: B-2
Sample Number: ST-10
Sample Depth: 50-52
Soil Description: Dark gray CLAY with gravel (swelling clay)

Moisture Content Saturation Dry Density
Start 18.2% 94.4 109.1
Finish 15.4% 106.6 141.3

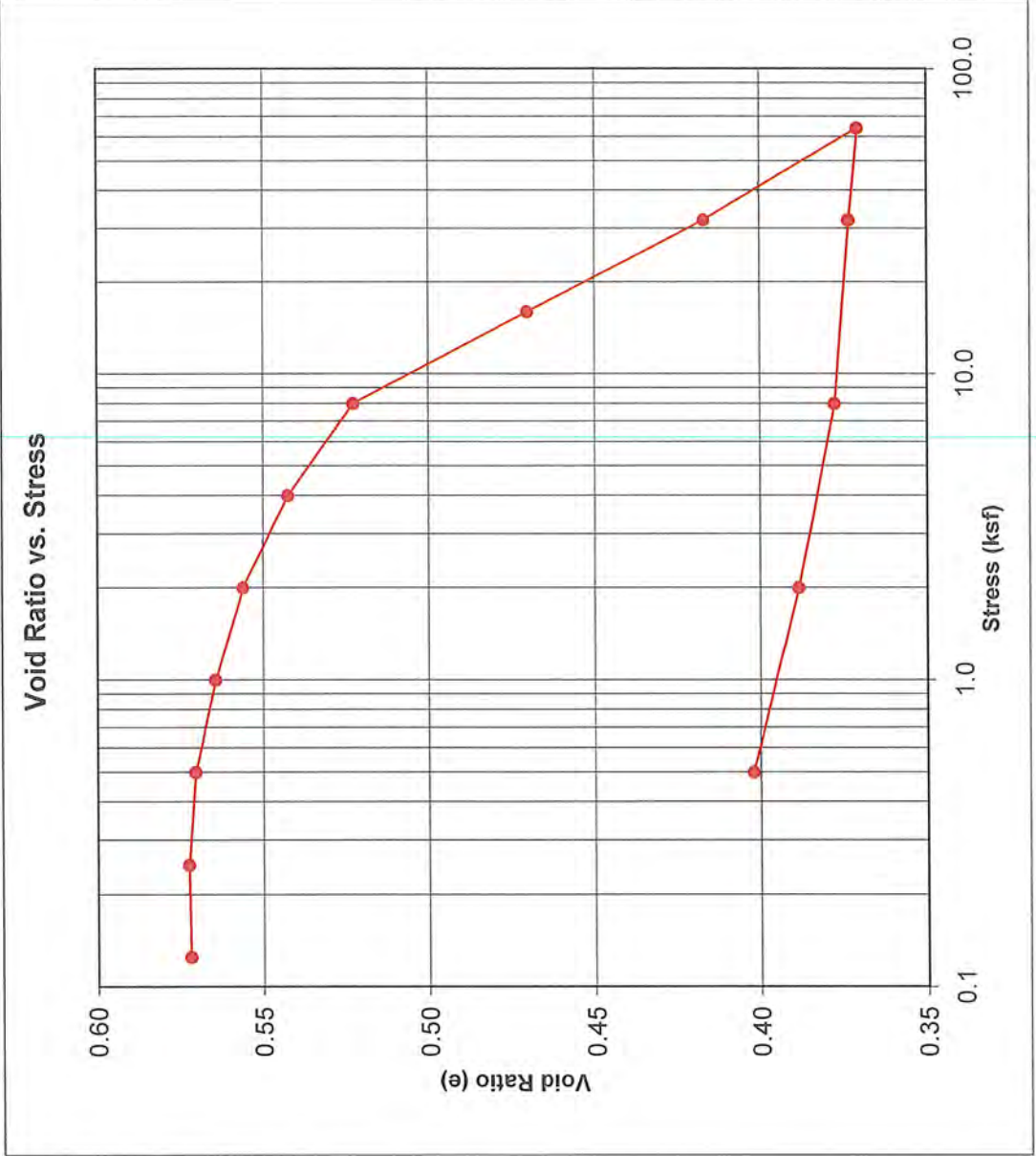
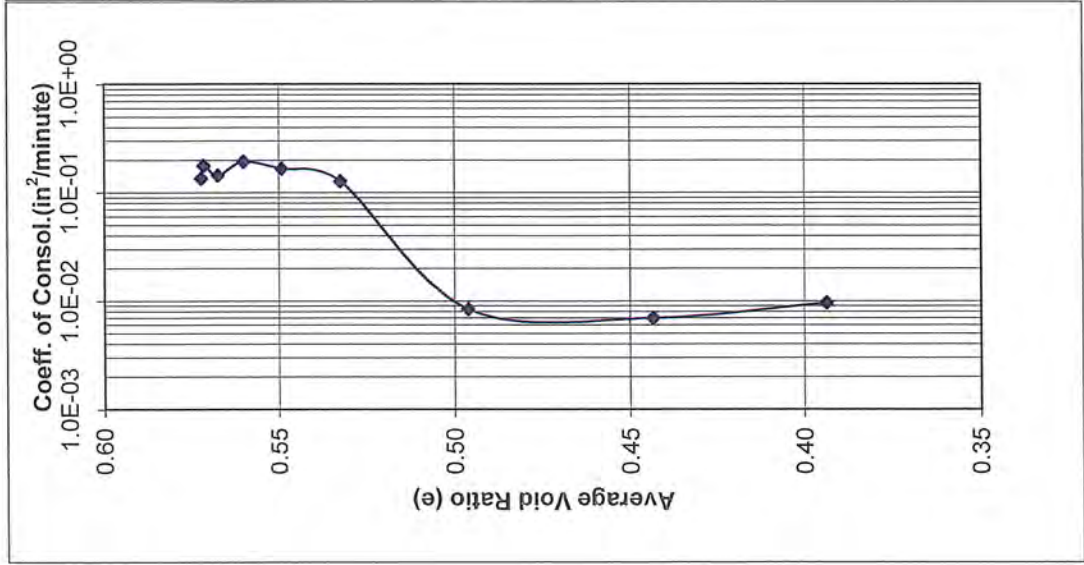


FIGURE 9



ONE DIMENSIONAL
CONSOLIDATION

HWA GEOSCIENCES INC. ASTM D 2435

Project Name: Whatcom Waterway

Project Number: 2012-113 T200

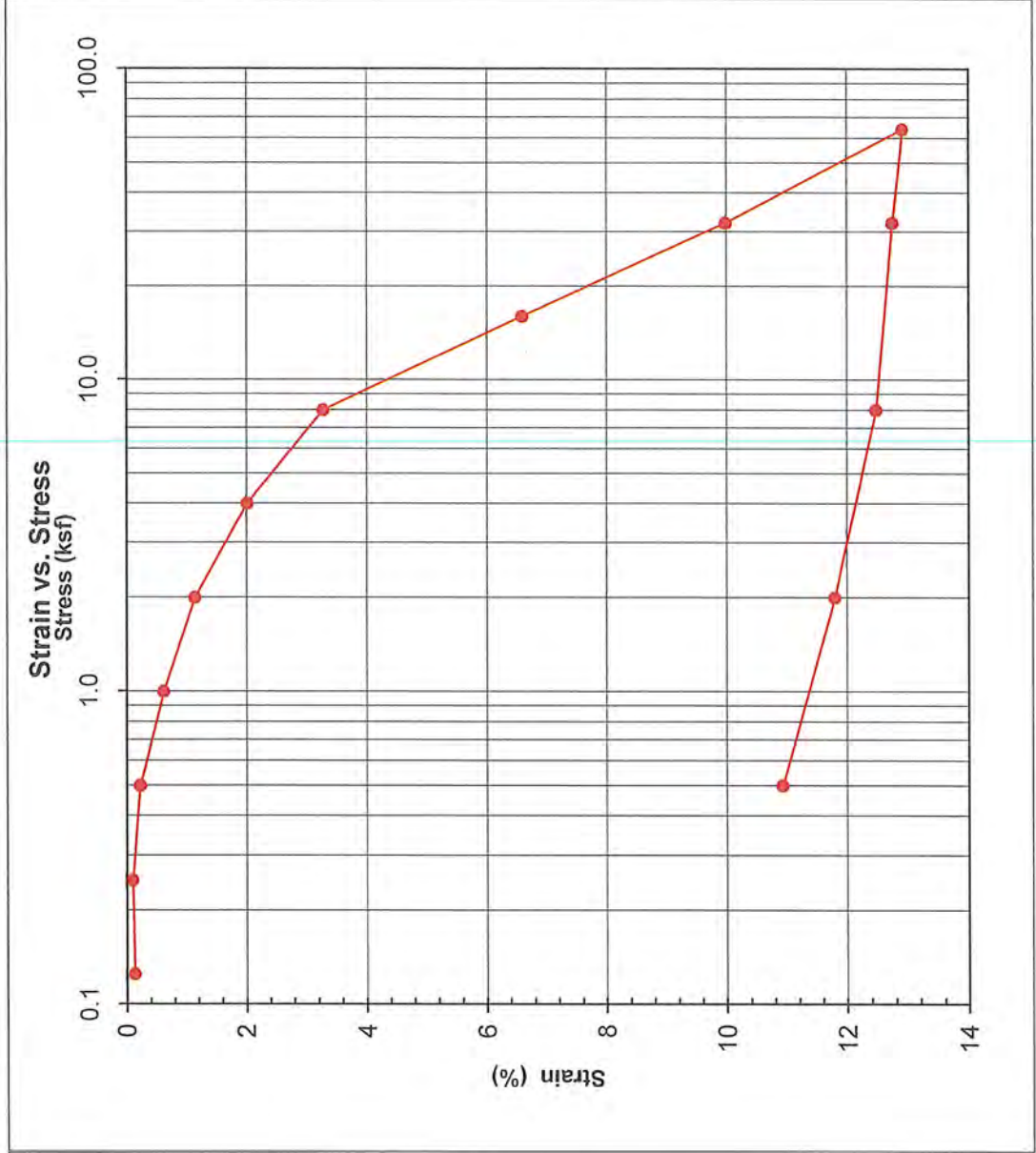
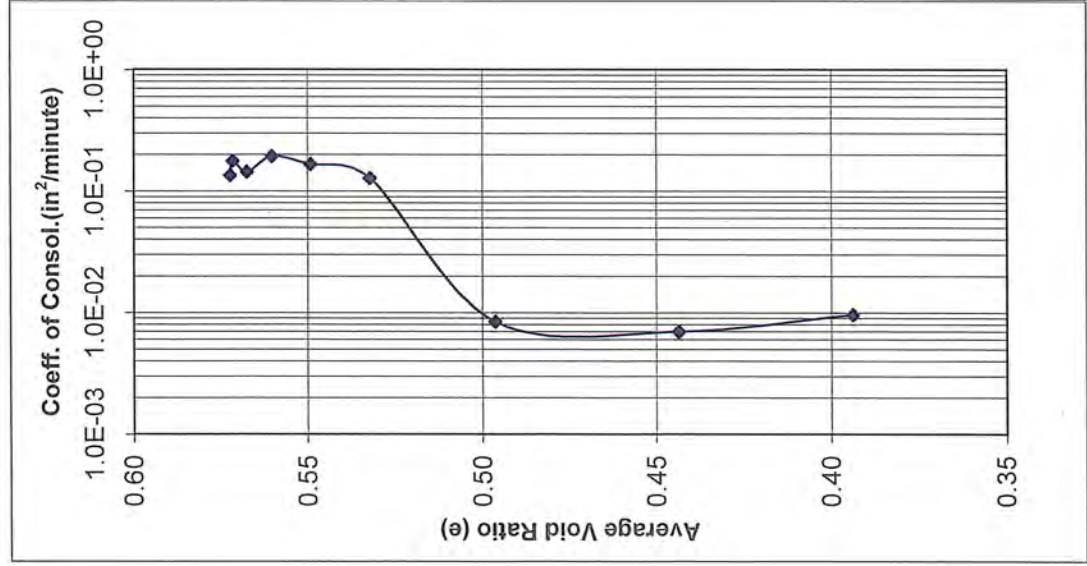
Borehole Number: B-2

Sample Number: ST-10

Sample Depth: 50-52

Soil Description: Dark gray CLAY with gravel (swelling clay)

	Start	Finish
Moisture Content	18.2%	15.4%
Saturation	94.4	106.6 %
Dry Density	109.1	141.3 pcf



APPENDIX N
PERMIT EXEMPTIONS AND
SUBSTANTIVE REQUIREMENTS

The Whatcom Waterway Cleanup in Phase 1 Site Areas project (Project) is being implemented consistent with a Model Toxics Control Act (MTCA) Consent Decree between the Washington State Department of Ecology (Ecology) and the Port of Bellingham (Port), the City of Bellingham (City), Meridian Pacific Hwy LLC, and the Washington Department of Natural Resources (WDNR). Federal permitting for the Project includes an approval from the U.S. Army Corps of Engineers (USACE) under a Nationwide 38 permit (NW 38) for the cleanup of hazardous and toxic waste. Because the project has been permitted under a NW 38 permit, Ecology determined that an individual 401 Water Quality Certification and a Coastal Zone Management Act Consistency Determination were not required for the project. Additionally and consistent with MTCA requirements for remedial actions conducted under a Consent Decree (WAC 173-340-710(9)(b)), the Project is exempt from the procedural requirements of certain local and state laws, permits, and approvals.

This appendix documents coordination completed with the Washington Department of Fish and Wildlife (WDFW) and the City with respect to their review of the Project, including measures that have been incorporated into the Project engineering design. These measures ensure compliance of the work with the substantive requirements of the WDFW laws and regulations relating to hydraulic project approvals, and to City requirements including shorelines and critical areas review and other local codes, ordinances and permits. This coordination and review is in addition to the review of procedural exemptions and substantive requirements conducted previously as part of the Consent Decree (Ecology 2007) and the First Amendment to the Consent Decree (Ecology 2011). This coordination is also in addition to that conducted as part of the federal permitting for the Project. Outreach conducted as part of federal permitting for the Project has included the following:

- Multiple pre-application meetings between May and October of 2012 with the USACE and WDFW to provide an overview of the Project design, including BMPs and mitigating measures incorporated into the Project to minimize potential impacts and optimize net environmental benefits
- Completion of a multi-agency pre-application meeting, including a Project overview and site tour during August 2012, with participation from the USACE, WDFW, WDNR, Ecology, U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), the City, and the Nooksack Tribe Development

-
- Submittal of a Joint Aquatic Resource Permit Application (JARPA) and supporting materials for the Project
 - Completion of follow-up meetings with Ecology, USACE, WDFW, USFWS, NMFS, the City, and WDNR regarding the proposed Project

Coordination with WDFW regarding the agency's review of the Project has included review of construction methods, work windows, best management practices (BMPs), and the shoreline and nearshore habitat changes proposed as part of the Project. These reviews have provided WDFW an opportunity to review the proposed Project and to ensure consistency of the Project with the substantive requirements of the state regulations relating to Hydraulic Project Approvals. WDFW provided a December 17, 2012 comment letter (WDFW 2012) identifying substantive requirements to be incorporated into the Project. Specific WDFW coordination measures include the following:

- Participation in multiple pre-application meetings and a site tour
- Review of the JARPA and supporting materials for the Project
- Participation in follow-up meetings and teleconferences regarding the Site existing conditions, proposed conditions, work windows, and BMPs
- Development by WDFW of a comment letter dated December 17, 2012 (WDFW 2012) providing comments regarding substantive provisions to be incorporated into the Project consistent with Revised Code of Washington (RCW) Chapter 77.55.021 and WAC Chapter 220-110 of the Washington State Hydraulic Code.

In general, WDFW's comments included compliance with Ecology requirements as specified in the engineering design report (EDR) and employment of appropriate BMPs during Project construction. BMPs identified by WDFW included measures related to the following:

- Timing limitations (i.e., allowable in-water work windows)
- Notification requirements
- Eelgrass habitat
- Dredging
 - Temporary upland storage
 - Long-term upland disposal
 - Sediment caps

-
- Pile removal
 - Pile cutting
 - In-water pile debris capture
 - Pile removal barge operations, work surface, and containment
 - Piling, sediment, water, and sawdust disposal
 - Shoreline modifications
 - Temporary upland storage areas
 - Long-term disposal methods
 - Sediment caps
 - Requirements for relocation or replacement of infrastructure impacted by the cleanup action
 - Steel piling, dolphins, and fender piles
 - Steel sheet pile bulkheads
 - Mooring floats
 - The Maple Street barge ramp

WDFW's conditions have been incorporated into Appendix K of the EDR.

Coordination with the City's planning department regarding its review of the Project has included review of construction methods, work windows, BMPs, and the shoreline and other habitat changes proposed as part of the Project. The City also reviewed Project impacts and mitigation measures, consistency with the substantive provisions of the City's Shoreline Management Act (SMA), and consistency of the Project with the City's Critical Areas Ordinance (CAO) and stormwater management and building codes. Specific coordination measures include the following:

- Participation by City staff in multiple pre-application meetings and a site tour
- Review of the JARPA, the draft EDR, and supporting materials for the Project
- Review of additional materials relating to Critical Areas and stormwater management
- Participation in follow-up meetings and teleconferences regarding the proposed work

On February 12, 2013, the City provided a letter documenting that the Project complies with the substantive requirements of the City's SMP and CAO and other City approvals for which the Project is exempt from the procedural requirements under MTCA (City of Bellingham 2013).

REFERENCES

City of Bellingham, 2013. Letter Regarding Whatcom Waterway Clean Up – Phase 1 Substantive Compliance. Submitted by Steven Sundin of the City of Bellingham Planning and Community Development Department to John Hergesheimer, P.E. of the Port of Bellingham. February 12, 2013.

Washington Department of Fish and Wildlife, 2012. Letter Regarding Model Toxic Control Act Substantive Comments – Whatcom Waterway Phase 1 Areas – Whatcom Waterway, Tributary to Bellingham Bay, WRIA 01.9000. Submitted by Brian Williams of WDFW to John Hergesheimer, P.E. of the Port of Bellingham. December 17, 2012.